



SAVITRIBAI PHULE PUNE UNIVERSITY (Formerly University of Pune)

Board of College and University Development



2012



2013



2014



2015

Avishkar 2012-15 Abstract Book



— विद्यापीठ गीत —

ज्ञान बनो कर्मशील, कर्म शानवान

पुण्यमयी दे आम्हा अक्षर वरदान
ज्ञान बनो कर्मशील, कर्म शानवान

जातिभेद, धर्मभेद, वंशभेद दूर
लाख लाख कंठांनुनि हाच एक सूत्र
करुणेच्या चरणांशी नत हो विशान

माणुसकी धर्माचा अर्थ जाणतो
श्रमनिष्ठा हें पवित्र तीर्थ मानतो
हृदयांनुनि समतेचा निर्भय अभिमान

सेवेतच मुक्ती ही मंगल दीक्षा
न्यायास्तव जागृति ही सर्वपरीक्षा
हें विश्वचि पर अमुचे मंत्र हा महान

मंगेश पांडुरंग

SAVITRIBAI PHULE PUNE UNIVERSITY
(Formerly University of Pune)

**Board of College and University
Development**

Abstract Book

Avishkar
2012-2015

State Level Avishkar 2012
University of Pune, Pune
Held at Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli
Team

Category: - Humanities, Languages & Fine Arts

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5	Miss. Anita Dattatraya Joshi	PPG	Sanskrit hastalikhitanche Avalokan Ani jatan	23
6	Miss. Ashlesha Kulkarni	PPG	Gender Equality: Struggle for Recognition	24
7	Miss. Kavita Murugkar	TH	Exploring universal design in heritage environment in India	25
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11	Miss. Gauri Suresh Nikumbhe	PG	Digitize parking with energy harvesting	27
12	Mr. Pankaj Mansaram Pawar	PG	Resolving quality issues by problem solving tools	28
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14	Miss. Anjali Shantanu Sengupta	PPG	A study of corporate citizenship initiatives towards sustainable maturity	29
15	Mr. Vijay Chavan	TH	Standard Form of Contracts: A Boon or Band	29
16	Mr. Pachorkar Sachin Raghunath	TH	Self employment generation through vending machine	30

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43	Mr. Zarrar Ashfaque Shaikh	PG	A pioneering investigation on microbial degradation of natural and synthetic rubber	31
44	Mr. Manas Dilip Gajare	PG	Solve maths problem using android phone	31
45	Miss. Gauri Katre	PPG	Production of biodiesel from agricultural and industrial wastes using Mangrove isolate <i>Aspergillus sp.IBBG4</i> as biocatalyst.	32
46	Mr. Ankush A. Shingade	PPG	Odor Movie Camera	33
47	Miss. Shubhangi Jadhav	TH	Dental biometrics using radiographs	34
48	Mr. Yogesh Angal	TH	Speech recognition techniques: Study of some aspects for development of systems for physically disabled persons	34

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18	Miss. Baraskar Pradnya Sunil	UG	Nanostructured SnO ₂ thin films by spray pyrolysis Technique for gas sensing application	35
19	Miss. Dhavala Suri	PG	Study of response of Al ₂ O ₃ & tri-layered metamaterials over the electro-magnetic spectrum.	36
20	Miss. Varsha Ashoklal Mutha	PG	Spatio Temporal Locality of Images	36
21	Mr. Kirankumar Shankargir Gosavi	PPG	HOMO-LUMO and photophysical properties of 3-alkoxy 4-aryl maleic anhydride	37
22	Miss. Surabhi N. shintre	PPG	Synthesis of novel magnetically separable TiO ₂ coated magnetic Activated Carbon Composite for the Photocatalytic Degradation of Pollutants present in waste water	38
23	Miss. Sangeeta Ahiwale	TH	Bacteriophage: An ideal biological weapon for safe drinking water	39
24	Mr. Ajit Dhartrak	TH	Electro organic reduction of conjugak double bond	39

Category: - Agriculture And Animal Hasbandry

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28	Mr. Swapnil Kad	PG	Dairy Firm Management application	42
29	Mr. Yogesh A Dushing	PPG	Bioprospecting of Micronutrient chetals asan organic fertilizer	43
30	Mr. Pranitha Natesan	PPG	Experimenting on drought tolerance efficiency of indigenou mycorrhizal Chilli plant	43
31	Mr. Niraj N. Sanghai	TH	Isolation & characlerization of Novel dual property excepiet	44
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36	Mr. Amar Gangadhar Zalte	PG	Microwave generated bionanocomposites for solubility and dissolution enhancement of poorty water soluble	46
37	Mr. Ravindra Vijay Badhe	PPG	Bilayer Artificial skin for burn theapeutics	46
38	Miss. Sunita P. Pingale	PPG	Novel formulation for Burn care	47
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State Level Avishkar 2013
University of Pune, Pune
Held at North Maharashtra University, Jalgaon

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State Level Avishkar 2014**Savitribai Phule Pune University, Pune****Held at Maharashtra Animal and Fishery Science University, Nagpur**

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39	Ranpise Hemantkumar Arvind	TH	Novel Nanoparticle Enriched gel for treatment of fungal Infections	96
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State Level Avishkar 2015**Savitribai Phule Pune University, Pune****Held at Savitribai Phule Pune University, Pune**

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28	Akshay Sunil Gosavi	PG	PestSure: Pesticide resistance prediction server for lepidopteran pest insects	120
29	Smita B. Jagdale	PPG	Bacteriophage: A Magic Biomachinery to Save Pomegranate	121
30	Ashwini N. Rane	PPG	Biosurfafctant form Agro-waste	121
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Category: - Medicine & Pharmacy

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38	Desai Ujwala Shivaji	PPG	Novel Formulation and Evaluation of Niosomal <i>in-situ</i> gel for ocular drug delivery.	126
39	Mrs Nilima Abhijeet Thombre	TH	Novel Herbal Polysaccharide Microspheres In Treatment Of Peptic Ulcer	127
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Winner of State Level 'Avishkar 2012'

Sr. No.	Name of the Student/s	Title of Project	Rank
Category: - Humanities, Languages & Fine Arts			
Post Graduation			
1	Miss. Apoorva Sahasrabudhe	Anthropogenic and cultural dimensions of sacred natural sites	II
Post PG (M.Phil/Ph.D)			
2	Miss. Anita Dattatraya Joshi	Sanskrit hastalikhitanche Avalokan Ani jatan	I
3	Miss. Ashlesha Kulkarni	Gender Equality: Struggle for Recognition	II
Teacher			
4	Miss. Kavita Murugkar	Exploring universal design in heritage environment in India	I
Category: - Commerce Management and Law			
Post Graduate			
5	Mr. Pankaj Mansaram Pawar	Resolving quality issues by problem solving tools	I
Post PG (M.Phil/Ph.D)			
6	Miss. Anjali Shantanu Sengupta	A study of corporate citizenship initiatives towards sustainable maturity	I
Teacher			
7	Mr. Pachorkar Sachin R.	Self employment generation through vending machine	I
Category: - Pure Science			
Under Graduate			
8	Mr. Animish Raje	Cell analysis and detection for abnormalities.	I
Post Graduation			
9	Miss. Dhavala Suri	Study of response of Al ₂ O ₃ & tri-layered metamaterials over the electro-magnetic spectrum.	I
Teacher			
10	Miss. Sangeeta Ahiwale	Bacteriophage: An ideal biological weapon for safe drinking water	II
Category: - Agriculture and Animal Husbandry			
Under Graduate			
11	Miss. Urvi Khandelwal	Technology to Harvest evapotranspired water its utilisation	II
Post PG (M.Phil/Ph.D)			
12	Mr. Yogesh A Dushing	Bioprospecting of Micronutrient chetals asan organic fertilizer	II
Teacher			
13	Mr. Niraj N. Sanghai	Isolation & characlerization of Novel dual property excepient	I

Avishkar -2013 Winner

AVISHKAR: 8th MAHARASHTRA STATE INTER-UNIVERSITY RESEARCH CONVENTION

Held at North Maharashtra University, Jalgaon

Sr. No.	Name of the Student	Title of Project
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Discipline - Humanities, Languages, Fine Arts

Level: - Post Graduate

1	Nikunja Vidyasagar Gujar	Relationship Between Motivating Job characteristic, Psychological capital and Job Performance
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Discipline - Commerce, Management & Law

Level: - Under Graduate

2	Abishek Wakhle	Surogacy - A consperacy
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Discipline - Pure Sicence

Level: - Post Graduate

3	Yogesh Neelkanth Gatlawar	Water Level Indication and Controlling on Wi-Fi using Raspberry-Pi
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Discipline - Engineering & Technology

Level: - Post P.G. (M.Phil/ Ph.D.)

4	Mali Hemantkumar Bapu	Vision Based System for Driver Drowsiness Detection with Security Issues
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Avishkar -2014 Winner

AVISHKAR: 9th MAHARASHTRA STATE INTER-UNIVERSITY RESEARCH CONVENTION

Held at Maharashtra Animal and Fishery Science University, Nagpur

Sr. No.	Participant Name	Project Title	Level	Prize
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CATEGORY : Humanities, Languages, Fine Arts, etc.

1	Shamika Shriganesh Khatawkar	Role of organizational climate and organizational physical environment in work engagement	Post-Graduate students(PG)	Second
2	Arote Sandeep Annasaheb	Identification Of Landslide Susceptible Villages (Lsv) Around The Kalsubai Region Of Maharashtra, India	Teachers(TH)	First

CATEGORY : Commerce, Management & Law

3	Rati Chandra	Banking the Unbanked : Through the collaboration of banks and post offices	Post-PG students(PPG)	First
4	Anand Mukund Kolharkar	Business Intelligence in Banking Industry	Post-PG students(PPG)	Second

CATEGORY : Pure Sciences

5	Wajage Mandar Pramod	Hand For Handless (Robotic Hand)	Under-Graduate students(UG)	First
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CATEGORY : Agriculture And Animal Hasbundry

6	Swarupa Sachindra Chowdhury	Fruit Baits: An effective control for fruit sucking moths	Teachers(TH)	First
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CATEGORY : Engineering & Technology

7	Tushar K. Damle	Design & Experimental investigation of online soot cleaning methods in Bailer Economizer	Post-Graduate students(PG)	Second
8	Kulkarni Yogesh Haribhau	Gain in Computation by reducing Dimension	Post-PG students(PPG)	Second
9	Modak Girish Sudhir	Staircase Climbing Platform	Teachers(TH)	Second
10	Moreshwar Ramkrishna Khodke	Strain Sensing by Carbon Nanotube Film	Teachers(TH)	First

CATEGORY : Medicine and Pharmacy

11	Rucha Milind Vitonde	Diabopatch: A new approach to treat diabetes	Under-Graduate students(UG)	Second
12	Ms. Swati Saxena	In situ Gel: A new vision for Glaucoma Treatment	Post-Graduate students(PG)	First
13	Hidadugi Shraddha Dundappa	Zolmitriptan Buccal Patch: A Novel Migraine Treatment	Post-Graduate students(PG)	Second
14	Vandana T. Gawande	Gnidia glauca: Source for novel potential anticancer lead	Teachers(TH)	First

Avishkar -2015 Winner

AVISHKAR: 10th MAHARASHTRA STATE INTER-UNIVERSITY RESEARCH CONVENTION

Sr. No.	Participant Name	Project Title	Level	Prize
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CATEGORY : Humanities, Languages, Fine Arts, etc.

1	Sayani Biswas	Impact of e shopping on consumer behavior	Under-Graduate students(UG)	Second
2	Rohan C. Kamble	Koogai: Toward a new paradigm in dalit literature	Post-Graduate students(PG)	First
3	Priyanka Sudarshan Shitole	Translating Fiction: A Framework for Resolving Cultural Untranslatability	Post-PG students(PPG)	Second

CATEGORY : Commerce, Management & Law

4	Jadhav Gaurav Kashinath	Merciful Nexus of capital Punishment with Pardoning powers	Post-PG students(PPG)	First
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CATEGORY : Pure Sciences

5	Kishore Ubale	Surfaceouch	Under-Graduate students(UG)	Second
6	Abhijit Panditrao Chavan	Green Synthesi of Potential drug candidate against tuberculosis	Teachers(TH)	First
7	Risil R. Chhatrala	Identity Recognition without Consent	Teachers(TH)	Second

CATEGORY : Agriculture And Animal Hasbundry

8	Smita B. Jagdale	Bacteriophage: A Magic Biomachinery to Save Pomegranate	Post-PG students(PPG)	First
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CATEGORY : Engineering & Technology

9	Nagare Prashant Narayan	Development of Grease as lubricant for cane mills of sugar Industry	Post-PG students(PPG)	Second
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CATEGORY : Medicine and Pharmacy

10	Aksa Fazal Parkar	Novel herbal treatment:using Dodonaea viscosa: A boon to COPD	Post-Graduate students(PG)	Second
11	Rukhsana A Rub	Novel Anticancer Potential of Celosia argentea: Proof-of-Concept	Teachers(TH)	First

Avishkar

2012

Crossing the Boundaries: Analyzing The Narrative Patterns In The Fictions Of Indian Women Writing In English.

**Miss. Gulfisha Mustak Shaikh
Ahmednagar College, Ahmednagar**

Abstract:-The research analysis of the struggle of women in the narrative pattern where she challenges her restricted peripheries.

In this research we have focused on the question whether the struggle of women for her social relevance have been represented in the narrative by Indian women writers in English and for our study we have selected 3 novels

1: Inside the Haveli - Rama Metha

2: Temporary Answers – Jai Nimbkar

3: Nampally Road –Meena Alexander

Joseph Campbell an anthropologist and psychiatrist in his book “The hero with a thousand faces” have identified 17 stages of monomyths out of which we have selected 5 main stages and have applied the basic quest pattern to the quest of the female hero of the selected novels.

Transformation of A Teacher To A Creative Teacher

**Miss. Poornima Ravindran
Tilak College of Education Pune**

Abstract:-Creativity is the process by which something novel is produced. Though universal in nature, we do not use it regularly in our daily life, resulting in diminishing of creativity. Torrance has defined creative thinking as the ability to sense problems, make guesses, generate new ideas, and communicate results. According to him, creative potential exists among all people and can be improved through learning.

Concise efforts are needed to develop the creative potentialities among the individuals. Schools should give emphasis in the promotion of creativity. Creative thinking is one among the key life skills that school students need to develop through formal education. Thus, education should have a promotional effect on creative thinking as it can be enhanced through training and practice. The present curriculum, methods of teaching and procedures of evaluation, however, are very rigid and anti-creative.

Pre-service teachers are the future teachers. If the pre-service teachers are aware of creative thinking at their training stage and if they have a positive attitude towards creative thinking, then they can take care of the development of creative thinking among their students. As the researchers are pre-service teachers, they have tried to develop creative thinking among their peers through Teacher Transformation Model for Creative Thinking (TTMCT) and see the effectiveness of this model. Objectives were to test the creative thinking knowledge and attitude of pre service teachers. On the basis of data obtained, its analysis and interpretation, the results of the study are; Creative thinking knowledge of pre-service teachers was good. A attitude of pre-service teachers towards creative thinking was positive. Teacher Transformation Model for Creative Thinking is ready and effective.

A comparative study of Occupational Stress and Coping Styles among Information Technology engineer and Civil engineers.

Pratima Wagh.
H.P.T. Arts and R.Y.K. Science college, Nashik

Abstract:- Many people spend most of their time at workplace. Employee, organizations as well as industries are responsible for making change in each other and in the society.

Occupational Stress is a stress related to work and workplace with respect to individual. Various elements, such as role overload, role conflict, poor peer relation, unproductively, can become the origin of Occupational Stress. The job related stress can put strain on psychological as well as physiological homeostasis of an individual.

To handle this stress, all of us unknowingly use different Coping Strategies. involved in. Coping strategies refer to the specific efforts, both behavioral and psychological that people use to master, tolerate, reduce or minimize stressful event. Hence Occupational Stress and Coping Strategies have become important topic for being researched.

Information Technology engineer's and Civil engineer's jobs are highly creative, competitive, demanding jobs which may produce Occupational Stress.

In the light of above assertion, Occupational Stress and Coping Styles of Information Technology engineers and Civil engineers is compared in this study. Descriptive statistics is used to find mean, media, standard deviation of 12 components of occupational stress and 14 coping styles. It is found that there is significant difference in I.T. and Civil engineers on Role Overload, Role Ambiguity, Role Conflict, Poor Peer Relations and Strenuous Working Conditions. In addition both types of engineers have high level of Occupational Stress.

Civil Engineers use more positive coping styles than I.T. engineers. There is significant difference found in I.T. and Civil engineers on Active Coping, Planning, Suppression, Restraining Coping, Instrumental Social Support, Emotional Social Support, Positive Growth, Acceptance, Religion, Venting, Denial, Behavioral Disengagement and Substance Use. No difference is found on negative coping styles among Civil and I.T. engineers.

On the basis of above results macro and micro level application models are designed and suggested. A model of coping styles, for organizations, to control the Occupational Stress, is developed. Also for the individual level, coping styles and external variables for coping are enlisted.

Anthropogenic and Cultural Dimensions of Sacred Natural Sites

Apoorva Sahasrabudhe & Archana Patil
Abasaheb Garware college, Pune -04

Abstract:- Different forms of nature worship are found in many tropical countries like Africa, Ghana, Ethiopia. In India a number of indigenous communities practice various forms of nature worship. One such significant tradition of nature worship is that of providing protection to patches of forests, streams dedicated to local deities and ancestral spirits. It is believed that one can invite wrath of spirits if rules of protection to these sacred natural sites are being violated. Sacred groves (community protected forest patches), temple ponds, river stretches are few examples of such sites. We studied socio-cultural aspects and belief systems of local communities such as *Dhangars*, *Marathas*, *Harijans* & *Guravs* from selected sites from Velheluk, Pune District. *Mariaai*, *Jugaidevi* & *Varadanidevi* are the goddesses associated with cultural activities attached to these sites. Folklore is that *Varadanidevi* is more ferocious. People visit these areas on festive occasions like *Ghatasthapana* & *Dasara*. Religious ceremonies like folk dance are conducted. Once in a year animal offerings are made to the goddesses and shared with the entire village community. These patches also offer spiritual relief to the local people. The place also acts as conflict resolution site ensuring social harmony. Threats and opportunities to such systems of nature worship are also documented.

विषय-#संस्कृत#हस्तलिखितांचे#अवलोकन#आणि#अतन
उपविषय# #मासिक#मधील#हस्तलिखितांची#मरंपरा

Miss. Anita Dattatraya Joshi
Sangamner Nagarpalika Arts,
D.J. Malpani Commerce & B.N.Sarda Science
College, Sangamner

प्रस्तावना# #भारतातील#प्राचीन#ज्ञाननिधी#लाखो#हस्तलिखितांमध्ये#साठवलागेली#आहे

Recognition Index – The Reflector of Gender Inequality in the Society

Ms. Ashlesha Kulkarni
K.T.H.M. College, Nashik

Abstract:- Gender Equality plays a vital role in the process of development. Quality of population decides future of the nation. The concept of Economic Development is different than the concept of Economic Growth. Economic Growth only considers rise in the level of National Income, but Economic Development along with improved National Income level takes into consideration better standard of living and the opportunities of development. Gender Equality is said to be the significant factor of Development. Considering its importance, with Human Development Index (HDI) UNDP also put forward Gender Related Development Index (GDI) at the beginning and Gender Inequality Index (GII) in the later stage.

In India though we are talking about improved digits of Growth Rate the picture about Gender Equality is very tragic. Compared to India, Gender Development Index of Less Developed Economies like Bangladesh is high. Gender Equality is a dream for Indian women, because still the struggle for Recognition is going on. Therefore, on experimental basis researcher wish to put Recognition Index which will indicate the gap of inequality and will add some new dimensions to Gender Policy.

Need- Existing indices do not capture recognition of women, economic freedom and ownership of economic resources which are critical in Gender Equality.

Aim - Construction of Recognition Index of Women and empirically testing its validity in society

Objectives -

1. To develop the concept of R.I. (Recognition Index).
2. To know the relationship between R.I. and economic development.
3. To search the factors affecting value of R.I. and suggest measures to improve it.
4. Validating and applying R.I. in Nasik District.

Hypothesis- Recognition of women is independent of income level and family background.

$$R.I. = \frac{I_1 + I_2}{W_1 + W_2}$$

Where R.I. = Recognition Index

I_1 = Ownership Score

I_2 = Decision making Score

W = Weightage

Methodology-

The survey of 958 women living in Nasik District was conducted.

On the basis of ownership of property and decision making power the Recognition Index was constructed.

Responses of 958 women irrespective of their marital status, age, occupation and number of family members indicated following findings-

1. **Aggregate Income of a family and the status of a woman are inversely related.**
2. **Recognition Index is independent of education and occupation of husband in case of married women.**
3. *Increase in number of female children reduces the recognition of women.*

Conclusion-

1. Recognition Index is the indicator of the social status of women.
2. Recognition Index brings the factors retarding development of women under the searchlight.
3. Recognition Index is beneficial for policy makers.
4. Recognition Index remains constant in spite of changes in weightage given to factors considered.

Keywords – Recognition Index, Social status of women, Gender Equality, Economic Development

**Enhancing Universal Accessibility for People with Disabilities in Heritage Environments
in India: A Model**
Exploring universal design in heritage environment in India

Prof. Kavita Murugkar
Dr. B N College of Architecture, Pune

Abstract: This study is a part of the research project for understanding accessibility issues in heritage sites in India. Previous research by scholars has pointed out that a comprehensive approach is required to address the issue of accessibility in a heritage site by not limiting it to physical barriers and piecemeal solutions. It aims to build on the concept of Universal Design by applying its principles for designing the whole site experience and offering multisensory choices for Intellectual and physical access, to ensure a holistic engagement for any visitor in the heritage environment. Such an environment can change the otherwise “incomplete” perception of the visitor and create an emotional and affective relationship with the heritage site and its spaces. The research also applies the notion of Accessibility as a historical layer in response to contemporary developments in the society, for formulating generic guidelines and solutions to address the issue.

Objectives:

The purpose of the study was to explore application of Universal Design principles to address accessibility in heritage sites without compromising with its cultural and architectural significance by

1. Understanding the nature and issues related to accessibility in heritage sites
2. Exploring methods and tools to evaluate accessibility for different types of disabled visitors
3. Formulating guidelines and solutions based on Universal design principles to maximise access.

Method:

The context of the study is the World Heritage site of Ellora Caves in Maharashtra state of India, which is almost in the geographical centre of the country, and the most visited heritage site popular amongst national and international travelers. It also represents a unique typology of built environment i.e rock cut architecture, intervention wherein is a challenging issue. The methodology used included

1. An access audit and physical mapping of barriers, visitor movement paths, vantage points to identify general access related issues.
2. Study of specific access issues related to disability by conducting a walkthrough audit at the site, followed by an interview with disabled visitors to understand their interaction and perception of the built heritage.
3. Distinguishing spaces within the heritage site based on the level and ease of access
4. Formulating accessibility guidelines and solutions as per the nature of the distinguished spaces.

Result:

The study revealed that apart from providing for physical access it is equally important to facilitate a multisensory experience for the visitor right from the entry to the exit, keeping in mind various sensory and social needs. The use of different methods and tools helped to understand the limitations and opportunities offered by each in identifying the issues and problems. Based on the findings, site specific solutions and general guidelines were formulated to maximise universal access in heritage sites.

Conclusions:

The research discussed in the paper represents a multidimensional approach to learning, understanding and addressing accessibility issues in the context of the heritage sites. It quite successfully demonstrates application of Universal design principles in enhancing universal access through the formulated guidelines and solutions. The research methodology and strategies adopted can be used at other heritage sites to gain more insight on accessibility issues and role of multisensory environment in addressing the same.

Urban Dynamic Model for Sustainable Urban Planning Of Pune City

**Mr. Nitin Nathuram Mundhe,
S. P. College, Pune- 411030.**

Abstract: Urban sprawl refers to the extent of urbanisation, which is a global phenomenon mainly determined by population growth and large scale migration. In developing countries like India, where the population is over one billion. Urban planners require information related to the rate of growth, pattern and extent of sprawl to provide basic amenities such as water, sanitation, electricity, etc. In the absence of such information, most of the sprawl areas lack basic infrastructure facilities. The growth patterns of urban built-up land have been studied initially by dividing the area into four zones. The observations have been made with respect to each zone. The study area is divided into concentric circles of 1 km buffer and the growth patterns have been studied on built-up density with respect to each circular buffer in all four zones. The present urban dynamic model has proved the potential of RS and GIS techniques in conjunction with Shannon entropy approach for sustainable urban planning of Pune city.

GIS; Remote Sensing; Urban sprawl; Urbanisation

An Analytical Study Of Disputed Statutory Dues Of Select Companies

**Shilpa Raju
Modern College Shivajinagar, Pune**

Abstract: Disputed Statutory Dues are the amounts of Taxes, Duties And Cess under various laws, the levy of which has been challenged by the aggrieved party. These are reported in Annexure to the Auditor's Report vide provisions of Companies (Auditor's Report) Order, 2003 (CARO) An analytical study of such dues was conducted to compare the outstanding amounts for two consecutive years. The other objectives were to classify the dues law-wise, forum-wise and period-wise. For testing the hypothesis viz. 'Many companies have disputed statutory liabilities which are outstanding for a long period of time and are repeatedly reported in the annual reports', Secondary Data was collected from Annual Reports of BSE Sensex 30 Companies (except three Banks) and was analysed.

The study revealed that Two PSUs have **no disputed dues** under any law. There are maximum dues (**44%**) under the Income tax Act, 1961 and some of the dues disputed relate to the year 1963. The aggregate liabilities of the 25 companies under all laws as on 31st March, 2012 were ₹ **21,54,190 Lacs** while on 31st March, 2011 were ₹ **14,90,465 Lacs (Increase of 45%)** Under Income Tax Act, the dues have increased by 172% over the year. In view of the above findings, a one-time settlement scheme viz. Tax Disputes Settlement Scheme has been suggested. Also certain suggestions have been given about implementation of future laws regarding redressal of disputes and better tax administration.

Women entrepreneurship – The best way of women empowerment

Miss. Pratiksha Radhesham Rathi
Sangamner College, Sangamner

Introduction:

Today there is big question in front of all society is that of unemployment & it is very prominent for women as she faces lots of problems due family, society etc. Although there are very less jobs opportunities for girls & women. This project aim at creating confidence & motivating women to stand on their own toes by providing knowledge of Women Entrepreneurship for their empowerment.

Objectives:

To know the concept of entrepreneurship.

To get acquainted with the Swayam Rojgar, entrepreneurship, self- help groups, different schemes run by government for women's business & Gruh- udyog & motivating girls & women for doing their self business.

To get acquainted with the views of college girls & women about entrepreneurship.

To get acquainted with the India's top women entrepreneurs & some local women entrepreneurs.

Data Collection

Primary Source: Questionnaire –200 girls from four colleges & 50 women in & around Sangamner area.

Observation & interview.

Secondary Sources – Books, journals, magazines, news papers, web sites.

Limitations – Time span- one month , Limited sample & area restricted to Sangamner only.

Findings :1. Lack of motivation from family & society to women. 2 Lack of entrepreneurship education in schools & colleges. 3. There is not a single college which runs the entrepreneurship cells. 4 Women don't have awareness about Govt. Schemes for women empowerment.

Suggestions: 1. Schools& Colleges should arrange for Entrepreneurial Development 2. Programs for girls. 3. There must be an entrepreneurship cell in every college.

Digitize parking with energy harvesting

Miss. Gauri Suresh Nikumbhe
Navjeevan Institute of Management, Nashik

Resolving quality issues by problem solving tools

Mr. Pankaj Mansaram Pawar
Management Science, University of Pune

Abstract: Quality is the ongoing process of building and sustaining relationships by assessing, anticipating, and fulfilling stated and implied needs. Quality problems can arise on any product. Many of the problems are minor irritants that restrict implementing the most optimal solution, but nevertheless can be tolerated. Such problems can be resolved using problem solving techniques.

My project was focusing on the resolving the quality issue by problem solving tools. The one of the chronic problem the Tata Motors was facing – the sealant crack on Indica and Indigo doors from past 3-4 months. This issue was continuously highlighted in process audit. Sealant applied at door is easily visible to customer so such cracks can cause customer unhappiness. So this issue is selected for the project. The objective of the project was to reduce the number of sealant cracks on the doors of Indica & Indigo cars, thereby reducing the rework time.

To study and solve this problem a standard, systematic and structured approach is used – QC Story. QC story is a seven step approach. It is based on Deming's PDCA cycle. In its approach it makes the use of basic quality control tools like Pareto chart, fishbone diagram etc.

To solve this problem a systematic plan is prepared. Plan was based on the basic seven steps to be followed. So as per the plan the problem is studied and door is divided in nine different zones to identify the most affected zone, data is collected and analyzed. Possible causes are identified and finally by why-why analysis the actual causes are identified. Based on the causes the recommendations were provided to company.

Finally after the action again the process is observed and data is collected Results are found satisfactory so same actions are planned to be horizontally implemented for the other doors.

A Study of Developing Financial Literacy among Women

Nutan Anandrao Phalke
Dept. Commerce, University of Pune

Abstract: The role of financial literacy is growing due to factors including the development of new financial products, the complexity of financial markets and the changes in political, demographic, and economic factors. Earlier financial literacy was thought to be the domain of men. However with more and more women entering the workforce, women have also started interest in understanding finance and their money. Financial literacy is not just telling about what one is expected to do about money but it is guiding as to effective and productive utilization of funds, right understanding about economic responsibility, rights and duties among citizens. Thus financial literacy covers wide spectrum of activities. Unless and until due care is taken to raise awareness among common people of their financial rights and duties about economic happenings and its implications, the objectives of empowerment cannot be truly achieved. Every effort to empower people is related with financial and economic literacy. Women tend to have different attitude about money and decision making. Therefore it is necessary to create awareness among women about financial and economic literacy by different means.

From this point of view the researcher has decided to select a topic regarding financial rights, duties and literacy levels.

Key words: Financial Literacy, Women empowerment, Financial Awareness.

Corporate Citizenship Initiatives in India- Towards Sustainable Maturity

**Sengupta Anjali Shantanu,
Dept. Commerce, University of Pune**

The prime motive of every business organization has always been to earn profits. But in today's competitive era, the business entities strive to achieve the title of 'a good corporate citizen.' This means that they want the global society to think that they are aware of their economic, legal, ethical and discretionary obligations/responsibilities and are carrying them out efficiently. The businesses are working towards building up their reputation in the world market. Every firm acquires the necessary resources from the society and environment to carry out its various functions and activities. In this context, it is indebted to the society for its many favours and benefits. Hence it is obligated to repay back the society by sharing some of its earnings/profits and by discharging its duties towards its stakeholders, society in general and the society expects it to discharge its responsibilities in an appropriate, just and fair manner. Moreover, it is expected to undertake certain philanthropic activities for the upliftment of the society in which it sustains and thrives. This is the essence of the concept of 'corporate social responsibility' and 'corporate citizenship.' The present research basically aims to understand the meaning of Corporate Citizenship and Corporate Social Responsibility as a concept, their need in the present global competitive scenario, ways in which the business entities carry out social obligations and the relevance of corporate citizenship in 21st century India.

Key words: Good corporate citizen, corporate citizenship (CC), Corporate Social Responsibility (CSR), stakeholders, business.

Standard Form of Contracts: A Boon or Bane!

**Mr. Vijay Chavan
BMCC, Pune**

Abstract:- Standard Form of Contracts is a common phenomenon of day to day life. Despite strong recommendation from Law Commission of India and while many developed & developing nations have such laws, Indian legislature not taking any step/s to enact general law covering all cases of unfairness in contracts. It is not possible to prepare an exhaustive list where SFCs is practiced. In India there is a plethora of Statutes but lack of general provision(s) covering all fields. People seem to be less aware. Unfair terms and practices are common. The objects of this research were mainly to find out instances of unfair terms and practices, to assess the need of new enactment and awareness in urban area, lastly to suggest remedial measures on the basis of research observations. The scholars selected Pune Municipal Corporation area as population size, which further divided into five strata i.e. East, West, South, North and Central. From each strata 30 people selected randomly (random stratified basis). A common questionnaire used as a tool for collection of primary data. In secondary data statutes, judicial decisions, research articles have referred. The major findings are people from urban area here city of Pune, which is considered as Knowledge city (*Vidyeche Maherghar*) are also unaware about their rights. Many unfair practices and terms have been identified. The party who is in position to dictate terms using unfair means/ procedure for entering into contracts. The reasons for not-reading also tried to be jotted down. Finally few suggestions have been given, namely setting up Contract Review Committee, new outline/framework for proposed statute is necessary and programmes should be conducted to make people legally more aware.

Self Employment Generation through Vending Machine (Juice Express- Kool Kartz)

Sachin Pachorkar
IMRT, Nasik -422002

As Indian Street market has continuously growing ,many people prefer to eat or drink from street , as they considered it is affordable to them ,but major concern is hygiene and cleanliness factor on street food and beverages.

Objectives: To provide healthy, hygienic and refreshing beverages to people who fleets on s treet, Jogging track, bus, railway stand and hospitals.

Self employment is one of the solutions to reduce unemployment, and to work on the mission of reducing unemployment inspires to work on this idea.

Features of kool Kartz : It's the first of kind where mineral water gets chilled without electricity which differentiates this to stand this vending machine anywhere.

The in itial in vestment and working capital is low, th is g ives a n o pportunity to le ss in vestment capacity individuals. The business can be scaled to any level.

Process: Chiller tank attached with this Mineral Water jar , water gets chilled through food blade SS equipment specially designed to fill 250 ml paper glass in 20 seconds and concentrate syrup in sachets like Lemon ,Jamun, beetroot , Kokum and Amala according to the requirement of customer. .Also customer gets hygienic and chilled juices without mixing ice in water because ice only acts as coolant for coil and water which passes from the coil gets chilling effect.

PowerPoint Assist using mobile phone

Chandni Sahay
Cummins College of Engineering for Women, Pune

Android is a Linux-based operating system for mobile devices such as smart phones and tablet computers. It has seen a number of updates since its original release, each fixing bugs and adding new features. Android has a large community of developers writing applications ("apps") that extend the functionality of the devices. The present work is an android application that can be used as a PowerPoint assist i.e. while giving a PowerPoint presentation an android phone can be used to change slides.

Power point presentation is the most widely used tool. Also, a mobile phone is the most commonly used device. Clubbing the two together seemed fascinating and very convenient too. The basic outline of this project is-

- i) Establishing a wireless mode of communication between the laptop and the mobile phone.
- ii) Development of an environment.
- iii) Using mobile as a mouse.

Thus two separate codes have been written, one for the server (laptop) the other for client (phone). Java was used to do the programming. I used eclipse (software) to build up the java platform and added android plug-ins to it. Further, in this application, java classes were used to put the function of the mouse to go to the next slide and the previous slide. These functions were put in the lower and upper volume buttons of the mobile respectively.

Web Base Ecg Monitoring & Recording Using Gsm & Gprs Technology

Mr. Aniruddha Patil
NMIET COE

Abstract: This project describes the development of a remote monitoring system for ECG signals. The system provides remote monitoring of several patients wearing a portable device equipped with GSM/GPRS module connective based on wireless networks. We have designed to record on-line database, server computer used to analyze ECG signals and detect serious heart anomalies in time sent a alarm to a authorized medical staffs or physician through telecommunication network. The system has a decision support on web based methods that can detect with high precision. Then the ECG signals are sent by a patient's equipped through wireless to the server of the ECG receiver used in hospital. The physicians as well as patient can have an easy access to that patient's information and ECG with web browser on PDA or PC computer.

A Pioneering Investigation on Microbial Degradation of Natural and Synthetic Rubber Waste

Mr. Zarrar Ashfaque Shaikh
H.P.T. & R.Y.K. College, Nashik

Abstract: Rubber is a natural polymer of Isoprene (2-Methyl -1, 3 – Butadiene). Synthetic rubber and related compounds cause environmental pollution. It takes very long time to degrade natural rubber and as the chemical degradation of rubber is expensive, the research on microbial degradation is gaining pioneering importance. Several species of bacteria and fungi are capable of degrading natural and synthetic rubber which includes standard strains of *Streptomyces coelicolor* CH13, *Bacillus* sp. SBS25 some *Nocardia* spp.

In a round Nashik there are large rubber waste products, the study in present investigation revealed that some Actinomycetes degrade natural rubber latex to produce translucent halos on a mineral salts medium. Natural latex samples were collected from rubber plant at Ernakulam, Kerala and synthetic rubber waste was collected from Octori Naka, Nashik and Nashik Municipal Corporation. Natural and synthetic rubber samples were studied for degradation using microbial isolates. Percent degradation was calculated based on the degradation studies. In only 15 days of duration around 20% of synthetic rubber was observed to be degraded using Actinomycetes.

The study concluded that Actinomycetes are potent degraders of natural and synthetic rubber and can serve as a very good candidate in reducing the rubber prone contamination in our country as well as globally.

Key words: Actinomycetes, synthetic rubber, natural latex.

Solve Complex Maths Problems Using Our Android Apps

Manas Gajare
K.T.H.M. College, Nashik

Abstract - We have developed 9 android apps for maths students & teachers. These apps can be used to solve / find derivative, integration, linear & non-linear equations, matrix calculations, graph plotting, interpolation, ordinary differential equations, fourier transforms etc.

These apps can be considered as highly advanced calculator which gives step by step solutions of a given problem. These apps are already live on internet and over 300,000 people world-over are already using them. The unique thing about our apps is that they have customized mathematical keyboard and all of them works offline.

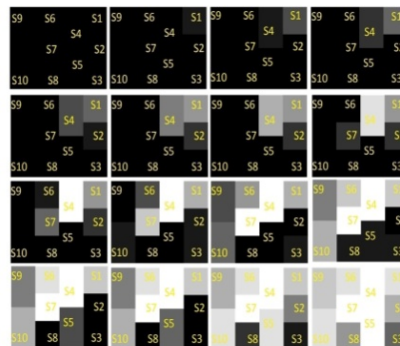
Waste to Energy: Biotechnological conversion of agro-wastes to myco-diesel**Gouri Katre,****Institute of Bioinformatics and Biotechnology,
University of Pune, Pune**

Abstract: Lipid- accumulating fungi have recently emerged as a promising feedstock for biodiesel production. However the major barrier is the high cost of sugars used for fermentation processes. Lignocellulosic biomass represents a suitable substrate for microbial biodiesel production due to its abundance and low cost. However, very few reports exist on biodiesel applications of fungi grown on lignocellulosic materials. This study highlights the biotechnological application of a mangrove fungal isolate *Aspergillus* sp. as a whole cell biocatalyst for production of biodiesel (FAME, fatty acid methyl esters). Lipid extraction and transesterification was performed by direct and indirect methods and direct (one step) method showed comparable FAME production efficiency. Furthermore, selection of a suitable growth substrate from a variety of locally-available agro-industrial residues is critical. Therefore, the biomass generation and fatty acid composition of transesterified fungal lipids (FAMES) produced by *Aspergillus* sp. was studied when the strain was cultivated on milled and chemically untreated agro-wastes such as banana peel, copra meal, corn cobs, grape stalk, groundnut oil cake, sugarcane bagasse and whey. Amongst them, whey was found to be the most suitable renewable carbon source for fungal biodiesel production on the basis of highest FAME yield (0.6 g/L) and desirable fatty acid profile for good quality biodiesel with higher amounts of saturated and monounsaturated fatty esters. The predicted fuel properties (density, kinematic viscosity, iodine value, higher heating value and cetane number) correlated well with the international (ASTM D6751) and national (IS 15607) biodiesel standard specifications. Briefly, biodiesel obtained from *Aspergillus* sp. by employing one step and cost effective experimental approach can serve as a viable alternative remedy for the future energy crisis.

Odor Movie Camera

**Ankush Shingade,
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Abstract_ Locating odor source, odor distribution and a gas leak is a difficult task due to dynamic behavior of odor molecules and environmental parameters like wind. Creating a spatial image of gas distribution in an environment is a challenging task in the field of leak detection. This paper describes development of a system, named Oder Movie Camera (OMC), which generates 2D (two dimensional) images of odor concentration with respect to time. The system consists of a odor detecting 2-D sensor circuits, fitted with a data acquisition, analysis and graphical display unit. Just like the working of a digital camera where the intensity of light is used to generate an image, our innovative OMC system uses the array of gas sensors for detecting the variation in odor concentration and generates an image. This image displays the odor distribution based on its concentration at different spatial locations. The sensor's responses are acquired and preprocessed using LabVIEW. This acquired data is sorted manually and given to a Matlab code for further manipulation. The Matlab code processes the digitized data for noise filtering and normalization. The grey shade values are assigned to the each sensor block depending on the intensity of the odor sensed by the respective sensor to generate an odor image. TGS 2620 sensor is used for all experimentation, which is sensitive to ethanol gas. OMC can be used for plume tracking, and odor source localization. Following figure shows images generated by OMC with respect to time. The ethanol odor is introduced in front of sensor S1. The images display the distribution of the odor with respect to the time.



Dental Biometrics Using Radiographs

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DYPatil COE

Abstract:-Dental biometrics utilizes dental x-ray radiographs for human identification. The dental x-ray radiographs provide information about special features of teeth, including tooth contours, relative positions of neighboring teeth, and shapes of the dental work (e.g., crowns, fillings, and bridges), a real tooth, a real dental work etc. The system is used to find match of query radiograph with database radiograph. This system is developed for operating on Periapical x-rays only. Also this system consider quadrant of teeth for processing. Dental biometric system has four stages: preprocessing, segmentation, feature extraction and matching. Preprocessing is done of radiographs to get good quality of results of feature extraction stage and matching stage. The feature extraction stage is used for calculating area of tooth and also for calculating area of dental work. In feature extraction stage histogram features of tooth and dental work is calculated. Feature extractions are used in the matching stage. The matching stage has sequential steps are Tooth area matching, Dental work area matching, Histogram features of tooth, matching of contour of teeth and matching of distances of teeth. In tooth area matching method, area of extracted from one radiograph is compared with area of extracted from other radiograph for matching of query radiograph with database radiograph. In matching of dental work area, area of extracted dental work is compared with area of extracted dental work of other radiograph. One radiograph is query radiograph which is tried to match with database radiograph. Area of tooth and area of dental work may get change after a long period. So this area matching method may get fail. For this reason next method of matching is developed. The method is matching of radiographs based on contour of teeth. In this method contours of teeth and dental work of query and database radiographs are aligned with each other to found matching and not matching of radiographs. Last matching method is distance based matching method. In this last method centroid of teeth is calculated and distance of centroid from reference line is found. Then distance of query teeth matched with database teeth. In this way dental biometry is operates in four stages to find match of query radiograph with database radiograph.

A Novel Robust Feature Extraction Technique for Speech Recognition and Study of Some Aspects for Development of Systems for Human Support

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Abstract:-Automatic Speech Recognition (ASR) by machine has been a goal of research from more than six decades. Before recognition, speech processing has to be carried out to get feature vectors of the signal. So, front end analysis plays an important role.

The aim of this work is to implement popular parameterization methods such as Linear Predictive Coding (LPC), Linear Predictive Cepstral Coefficient (LPCC), Mel Frequency Cepstral Coefficient (MFCC) and Perceptual Linear Prediction (PLP) in speech technology. Vector Quantization (VQ) and Hidden Markov Model (HMM) are used to prepare word model.

Front ends were compared in clean and noisy environment using the Texas Instrument (TI)-46, Marathi digits (0-9), NOISEX-92 and DYP database.

A new speech recognition technique based on speech features derived from Discrete Fractional Fourier Transform (DFrFT) is developed. The effect of an angle of rotation on speech recognition rate has been observed. The performance of DFrFT based technique is better than existing popular techniques especially in noisy environment (20dB to -5dB). These techniques have been tested and verified with various applications which can be useful for human support.

Front ends were compared in clean and noisy environment using the Texas Instrument (TI)-46, Marathi digits (0-9), NOISEX-92 and DYP database.

Keywords: ASR, LPC, LPCC, PLP, MFCC, VQ, HMM, DFrFT.

Cell Analysis and Detection for Abnormalities.

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Abstract:-Cell abnormalities have proven to be one of the most hazardous problems the world is facing. This is because they are detected in late stage stages and their treatment is very expensive. The cells can be used in detection of cell abnormalities with a technique called CADET (Cell Analysis and Detection for abnormalities). In this technique the blood sample is centrifuged with Ficoll-hypaque reagent. The separate layers of cells obtained are then passed through sieve tubes for Microscopic Analysis, Dye treatment and Chemical Analysis with marker like Ammonium perfluoroalkyl carboxylate and TNOX respectively. The morphological abnormalities can be detected by microscopic analysis and a supportive test will be provided by dyes. The treatment with marker will show the presence of antigen like TNOX, EGFR, TNF- α etc. This technique provides a preliminary aspect for detecting cell abnormalities.

Nanostructured SnO₂ thin films by spray pyrolysis technique for gas sensing application

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Abstract:-Nanostructured SnO₂ thin films were prepared by spray pyrolysis technique at a substrate temperature of 300°C. The structural and surface morphological properties were investigated using X-ray diffraction and SEM technique. X-ray diffraction studies revealed that film is nanocrystalline with 40 nm crystallite size. Gas sensor based on thin film was applied to H₂S sensing test as well as some other gases. Obtained results show that the sensitivity of nanostructured SnO₂ thin film sensor reaches 61 to 100 ppm H₂S gas with a response time less than 10 s.

Spray pyrolysis, Thin films, Gas sensor.

Study of response of Au-Al₂O₃-Au trilayered metamaterials over the electromagnetic spectrum

Dhaval Suri¹

Metamaterials are those materials which show negative index of refraction at certain range of frequencies [1]. The optical response of materials are being studied to trace the frequency range at which materials show negative refractive index (NRI). Thin films of tri-layers of metal-dielectric-metal composition are best suited to observe this optical response. Proper patterns which give capacitive and inductive effect are to be drawn on these tri-layers. The frequency of the reactive element patterns when match with the frequency of the incident radiation, resonate to give reflectance peak in that region and hence the negative index of refraction is most likely to be observed [2-3]. Until now it is known that those materials which show good plasma response are most suitable to show such an optical response. The metal-dielectric-metal tri-layer helps in forming capacitive reactance and the resonant patterns contribute to form the inductive reactance, which gives resonance peak at certain frequency, decided by the pattern dimension and the thickness of the stack. This resonant frequency and the wavelength of the incident radiation when match, favour the NRI behavior. Generally speaking metamaterials need resonant elements, but there are rare exceptions too [4].

Through this abstract, we demonstrate the fabrication of such tri-layers which have potential application as NRI materials in a specific frequency range in the terahertz regime. The work demonstrated here includes the trilayers of gold-alumina-gold on glass substrates. The deposition has been done using RF-plasma technique. Electron Beam Lithography technique is used to draw structures on the films that lead to LC and RC resonant behavior of the patterns, which are finally written using chemical etching. The patterns written, and the spacing in between two patterns are in the range of microns. Detailed characterization has been done using X-ray Diffraction technique, Infrared spectroscopy, Ellipsometry technique and radio-frequency response studies using vector analysis. The process of fabrication and testing of the developed thin films for their radio frequency response will form the part of this presentation.

Spatio-Temporal Locality Of Images

Varsha Mutha
B.R. Gholap College Sangvi Pune

Abstract:

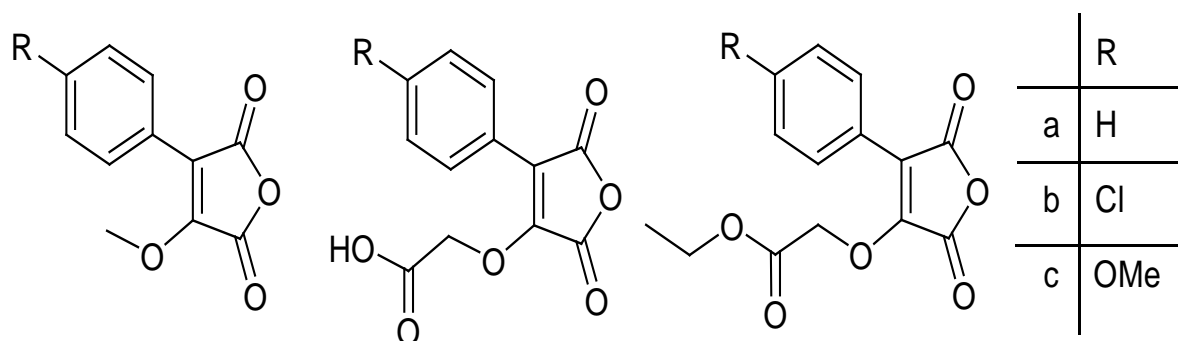
- In this application, Facebook user login the application with their username and password which helps to open the Facebook account simultaneously.
- After successful login, user can capture an image using android mobile phone and upload that image on their Facebook account. The uploaded image gets stored in a Facebook album. User can also upload image from mobile gallery.
- After uploading image on user Facebook account, any Facebook user can see that image with posted time, date and full address (location) of that captured image
- To use this application, user must have to connect with web browser and also start GPS (Global Positioning System).
- This application based on an android operating system.
- We have to use GPS for finding location of an image.
- The Global Positioning System (GPS) is a space-based satellite navigation system that provides location and time information in all weather, anywhere on or near the Earth.
- Currently, facebook user upload image on Facebook wall by adding time, date, location name manually. But we can do this easily by using our application.

New class of oxygen containing Fluorescent Labels and its Photophysical Properties

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Abstract:-In the recent years, fluorescence has fascinated the researchers throughout the globe from various branches of science, most prominently from the area of biological, medicinal, clinical and analytical sciences. In biological sciences, the fluorescence has found numerous applications to investigate the structure and dynamics of living system. Fluorescent probes are of great interest in the medicinal chemistry as various diseases mainly causing due to imbalance of metal ions in the body, are detected by fluorescent probes. For example, Alzheimer's and Parkinson's disease are caused due to Zn imbalance, to understand the details it fluorescent probes are useful. In recent times fluorescence material has replaced the harmful radioactive tracers in clinical diagnosis which also saves the cost of disposal of radioactive material. Human genome project were made practical by use of fluorescent labels. In analytical methodologies use of fluorescence reagents is increasing day by day as the sensitivity of fluorescence is far greater than common UV technique. For example, amino acids are poor UV absorbing compounds hence their fluorescence derivatization is employed.

Keywords: Maleic anhydride, Fluorescent label, ect.



Synthesis of Novel Composite for Wastewater Treatment

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Abstract:-Heterogeneous photocatalysis using nanostructured semiconductors constitute one of the emerging advanced oxidation processes (AOP) for destructive oxidation of organic contaminants in water or air. The photocatalysis is based upon the use of UV irradiated semiconductors, such as titanium dioxide (TiO_2), to destroy various organic pollutants. TiO_2 has been extensively studied for environmental purification applications, due to its good photocatalytic activity, high stability, non-toxicity and inexpensiveness. Finely dispersed TiO_2 has large reactive surface area, but it is difficult to separate and recover these nanoparticles from liquid phase. In order to enhance the immobility or separability of the photocatalysts, some researchers prepared titania-coated hollow glass beads, titania based thin film and titania-coated magnetic particles (e.g. Fe_3O_4 , Fe_2O_3). But the activity of titania photocatalysts in the photocatalytic system was reduced to a considerable extent because the effective surface area of photocatalysts decreased considerably after immobilization. To enhance the effective surface area and maintain the photocatalytic activity, the titania nanoparticles should be immobilized on supporters with high surface area, such as zeolite, alumina, silica, activated carbon (AC). It is well known that activated carbon (AC) is one of the low-cost and widely available porous materials with relatively large surface area. Commercial ACs have been widely used as adsorbents and catalytic supporters in liquid media to remove contaminants, and to recover valuable products. However, in the practical applications, the separation of AC from the liquid medium commonly involves complex and expensive procedures such as filtration or centrifugation. It has been shown that magnetic particles could be easily separated from suspension system. Thus a composite photocatalyst combining large surface area and magnetic separability is very attractive.

In the present work, we prepared magnetic activated carbon by dispersing powder AC in Fe_2O_3 sol which was prepared by co-precipitation of Iron (II) and Iron(III) in the presence of Ammonium Hydroxide. Titania which was synthesized by sol gel method was deposited onto MAC to get Titania coated Magnetic Activated Carbon. Several characterizations employed were X-ray diffraction (XRD), Scanning electron microscopy (SEM), Energy-dispersive X-ray spectroscopy (EDX), TGA, BET. Photocatalytic degradation experiments were carried out in a 100W low pressure mercury vapor lamp at $30 \pm 1^\circ\text{C}$, using the composite catalyst in a suspension mode. PNP was found to be degraded by the prepared composite, and the rate of degradation was found to be more than 90% in 4 hrs. The photocatalysts show good magnetic properties and can be separated easily by an external magnetic field and can be recycled and reused without much loss in photocatalyst activity.

Bacteriophage: An ideal biological weapon for safe drinking water

**Sangeeta Ahiwale
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Abstract:- Water resources are becoming limited in India as almost 70% resources are already contaminated by live threatening pathogenic microorganisms that may pose health hazards to human populations. Such natural water supplies particularly, rivers are likely to be polluted with the domestic wastes which are suspected as the major sources of water borne diseases. Pathogens may survive for a longer period in such polluted water. Traditionally, different disinfecting agents are employed worldwide viz., chlorine and chlorine compounds, ozone etc. Unfortunately; disinfectant by-products (e.g. trihalomethanes) are found to be carcinogenic for human being, not only this, resistant strains of pathogenic bacteria found in the water bodies are now a days becoming resistant to the chemical disinfectants. Therefore, there is a need of environmentally friendly strategies to overcome problems associated with the use of chemical disinfectants. Bacteriophage mediated biocontrol of waterborne pathogens could be an alternative strategy where phage formulations can be used as biological disinfectant. In order to achieve better efficacy of phage formulation in the bioremediation of water, Saclac globule (Homeopathy globules) formulation was selected to support pathogens to remain in a metabolically active state as these formulations contain goat milk sugar. Saclac globules get mixed rapidly with water and organisms in such exponential state will be killed rapidly by phages. Monovalent Saclac globule formulation of phages of *Salmonella* Paratyphi B, with varied multiplicity of infection (MOI) values could be able to kill log phase and stationary phase cells in water microcosm, with the maximum rate of killing at MOI=50 and MOI=100 under shaking conditions. The mean inactivation rate of an d *Salmonella* Paratyphi B ranged and -0.35 to -2.8.

Mimicking Hydrogen Atmosphere of Metal Crystal in Catalytic Hydrogenation of olefins (Electroorganic Reduction of Conjugate Double Bond)

**Mr. Dhatrik N. R.
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Abstract:- This research presented herein is a fusion of 'Electronics' & 'Organic Chemistry', an outcome of attempts made to mimic hydrogen atmosphere that exists on metal catalyst crystal during conventional metal catalyzed hydrogenation. Conventional hydrogenation methods use transition metal catalysts which are extremely toxic and costly. Simultaneously, use of pressurized hydrogen makes the experiment highly dangerous. There are several disastrous events recorded due to explosion of pressurized hydrogen gas during such hydrogenations. In addition to above problems conventional hydrogenation methods require heavy & costly instruments ranging from 5 to 20 lakhs. Hence conventional methods of metal catalyzed hydrogenation, along with being non-green are costly and dangerous.

Attempts were made to mimic the hydrogen atmosphere that prevails on metal catalyst surface using water as electrolyte. As a result we could generate analogous, replenishing active hydrogen atmosphere on platinum metal surface using suitable electronics. The method has been successfully applied for the conjugate reduction of Cinnamic acid and the Carvone.

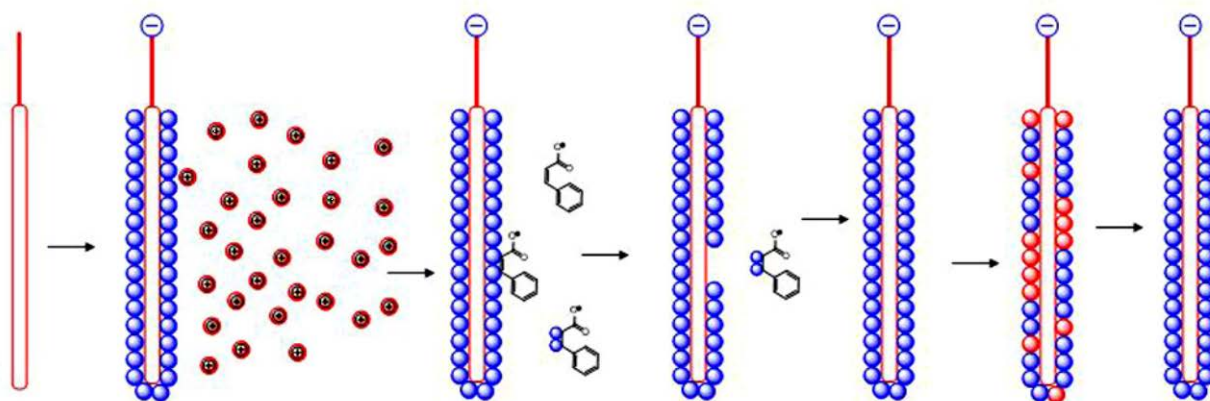


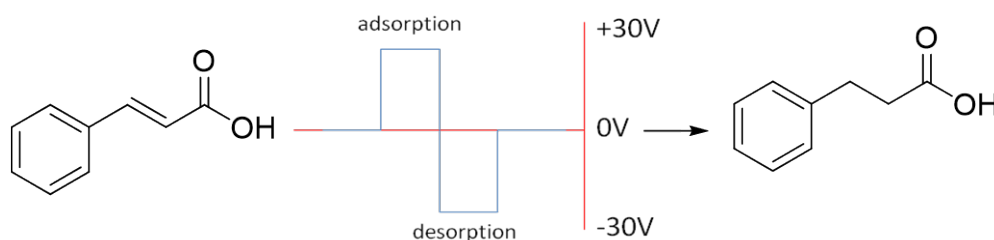
Fig 1 - Thematic Explanation of reduction process

Attempts have been made to eliminate dangerous and non-green components of routine catalytic hydrogenation of double bond. As a result we could devise a method which requires no catalyst & pressurized hydrogen. The fore said hydrogenation goes in water. As metal catalysts are totally avoided, this method thus becomes a green advancement. In situ generated small quantities of hydrogen make this method extremely safe. Beside this the instrumentation designed is cost effective too.



Fig 2 – Construction of Reaction Vessel

Cinnamic acid was selected as it is having aromatic, aliphatic & carbonyl double bond and the process of reduction could be monitored by NMR (Nuclear Magnetic Resonance Spectroscopy) spectroscopy. The process was monitored using Progressive NMR analysis. The NMR analysis clearly shows diminishing olefinic doublets and growing aliphatic twin triplets. The method has been successfully extended to conjugated ketone, carvone.



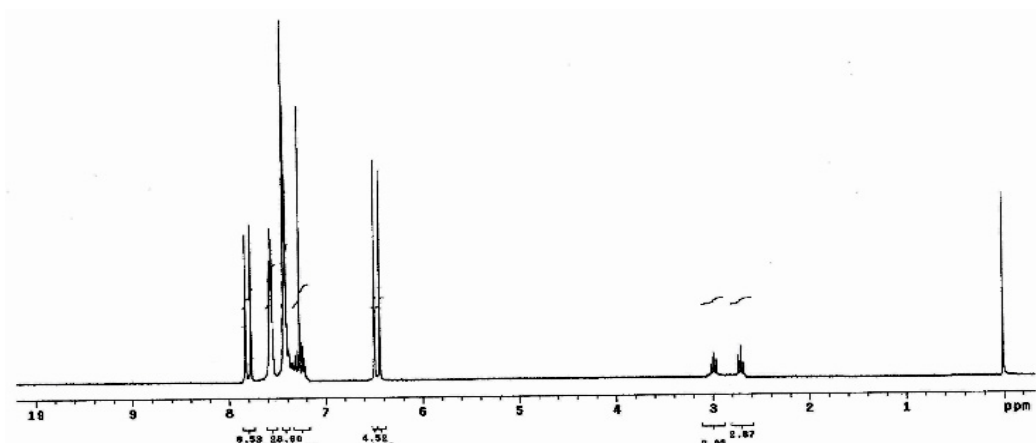


Fig 2 – A NMR spectra after 4 hours of experimentation

Conclusion

We have devised an alternative method, related instrumentation for the reduction of conjugated double bond using in situ generated active hydrogen atmosphere. The method has been proved successful for the region-selective reduction of conjugated double bond. Attempts to extend this method for other olefins are in progress.

A Novel Technology To Harvest Plant Transpired Water For Irrigation

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Abstract:-Transpiration is a process in which plants give out water in the form of water vapours from its aerial parts. In the technology we have developed a model to harvest water transpired by plants and its utilization again for irrigation. This technology is eco-friendly and uses solar energy to collect the water we can harvest about 90 L of water from 1000 sq. ft. area. Technology has application in rain fed areas, hilly areas, drought prone areas and even in terrace gardening.

Ticks –No problem : Herbal formulation to control ticks

Padole Shital

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Abstract:-Present work aimed to develop ecofriendly, low cost, herbal formulation to control ticks which affect on cattle. To prepare this formula two plants are used. These are Custard apple & Delonix regia. These two plants shade dried grind into fine powder & extracted with different solvent & aqueous extract is used for further study. Powder formulation contains various chemical compounds which show repellent action as well as they can cause death of ticks by action on their body. This product is developed in powder form, liquid form & spray form & activity is checked by performing experiments on ticks.

This product is easy to prepare, harmless to cattle & easily available as both plants are cultivated in large scale.

: Custard apple, Delonix regia, water extract.

SCADA in water management

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Modern College Shivajinagar Pune**

Abstract:- We had developed an integrated SCADA system for monitoring & accessing the performance of remotely situated Water tanks . We use this system to measure the water levels on real time basis. We had used the low cost electronic circuitary with wired sensors for Supervisory Control and Data acquisition.

SCADA system is application of computer technology that has created huge gains in productivity and efficiency in the processing industries. A SCADA system is an assemblage of computer and communications equipment designed to work together for the purpose of controlling a commercial process. SCADA is usually implemented on manufacturing , treatment and distribution systems. Besides it also perform monitoring, data logging, alarming functions so complicated process systems can be operated in a safe manner and maintained by small staff.

This trend also be seen in applying same technologies to industrial municipal water and wastewater treatment. SCADA systems is equally valid for the utility and waste treatment processes. Specific benefits include reductions in energy costs through more efficient usage and shifting of loads to off-peak hours, reductions in maintenance costs, and increases in effective capacity through optimization of processes.

The properly designed SCADA system saves time and money by eliminating the need of service personal to visit each site for inspection, data collection/logging.

Dairy Firm Management Application.

**Swapnil Kad & Amol Adak.
B.R. College Sangvi Pune**

Abstract: We have developed the Dairy Firm Application system , which will replace the existing manual system.

Currently an existing system all the work is done manually on paper for example the list of milk supplier & their information even if the rate of milk for specific LACTO,FAT & SNF combination is search on milk rate chart & then predicted.

This manual interaction may lead to human errors also it is very time consuming & complicated process, which our existing system we replace the human interaction hence all manual errors also the paper work will get eliminated completely.

With this software every modification in the milk rate & other information are easy to do as compare to old system.

In existing system there is no security nor any recovery mechanism , our system provides data validation & security to data by providing access to user by Administrator.

A Novel Formulation Against Drought Stress

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Abstract:-Drought stress is one of the most serious abiotic stresses that cause a reduction in plant growth, development, and yield in many parts of the world. The reactions of plants to water stress differ significantly at various growth stage levels depending upon intensity and duration of stress as well as plant species and its.

To prevail these problems, present investigation has been made to formulate a fermented antioxidant rich formulation. Antioxidants are well reported for reducing the perilous effects of drought stress. The methodology for production of antioxidant rich formulation was alienated into two major sets viz. 1) Extraction and 2) Bioconversion. Medicinal plant parts like Roots of *Aswagandha* (*Withania somnifera*), Plant of *Haritki* (*Terminalia chebula*), Fruits of *Amla* (*Emblica officinalis*), Flowers of *Dhataki* (*Woodfordia fruticosa*) were selected for the preparation of antioxidant rich formulation. These plants are well known for their antioxidant value and mostly used in preparation of *Ashwagandharishta*. It is a ayurvedic fermented formulation used as anti-stress for human beings. The final formulation was evaluated for its antioxidant Assay (DPPH assay).

In-vitro seed germination study on groundnut was planned to compare the efficacy of formulation on different levels (-0.2, -0.4, -0.6 and -0.8) of PEG-6000 induced drought stress. Seeds were soaked in two different formulations i.e. without fermentation (SAM A) and with fermentation (SAM B) for 30 minutes @ 30 ml solution (100 times diluted in distilled water). Seeds soaked in water served as control. Pot experiments were conducted on groundnut at four regimes of water levels (100%, 80%, 60% and 40%). On weekly basis, plants were sprayed with final formulations i.e. with fermentation and without fermentation @ 25 ml/pot (100 times diluted with distilled water). The plants applied with normal irrigation and water spray was taken as control. The efficacy of antioxidant rich organic formulation was determined by seed germination and foliar spray on groundnut, the results obtained are fascinating.

Antioxidant rich organic formulation, Fermentation, Draught stress.

Drought tolerance efficiency of indigenous mycorrhizal Chilli plant

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Abstract:-Dry soil condition affects agriculture thereby increasing the cost of basic food requirements in a nation like India. Thus, we studied the drought tolerance capacity of the test plant *Capsicum annum* sp. (Chilli) in association with five indigenous AMF species namely *Glomus fasciculatum*, *Glomus clarum*, *Glomus etunicatum*, *Glomus melanosporum* and *Aculospora rehmi*, isolated from the arid rhizospheric soil of Mangalwar village, Rajasthan State (India). Completely randomized design of 2 X 4 X 3 was set up under four levels of drought stress of humid, low, moderate and severe irrigation conditions. After 45 days of incubation of the Chilli plant, *Glomus fasciculatum* demonstrated statistically significant value of 9.26 μ mole/g tissue of proline content as compared to 2.67 μ mole/g tissue in non-mycorrhizal plants under severely stressed condition, thus executing extensive drought tolerance. *Glomus fasciculatum* showed an average fold increase of 1.728 followed by *Glomus melanosporum* with 1.673, *Glomus etunicatum* with 1.456, *Aculospora rehmi* with 1.401 and *Glomus clarum* with 1.398, under severely stressed condition. Two factorial ANOVA demonstrated that all AMF species studied improved drought tolerance in *Capsicum annum* sp. of which *Glomus fasciculatum* proved to be more efficient and thus can be exploited as a bioinoculant in semi arid and arid agricultural lands.

Keywords: - Dry soil, agriculture, indigenous AMF, *Glomus fasciculatum*, *Capsicum annum* sp.

Natural Polysaccharides – earning source for new age farmers

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Abstract:- Mother nature has gifted India with with great variety of flora and fauna. Plants are known to contain polysaccharides and various other phytoconstituents which can be effectively used in the development of dosage form. The present study focus on isolation and characterization of such polymer and its implication in the development of dosage forms.

Gums and mucilages are very popularly used as an excipient in the dosage form. Global market for excipient was \$3.5 billion in 2006, according to BCC Research. Expected to increase at (CAGR) of 3.8% through 2011 and reach \$4.3 billion. Gums and mucilages showed potential to change the economy in India. Ex. Guar Gum and Rajasthan, Isapgoala and Gujrat, rubber and Tamilnadu

A large no of plant based excipients are available today. These can be further modified to meet the requirements of drug delivery systems and thus can compete with synthetic excipients available in the market . these isolated polysaccharides have wide range of applications which can be a good source of earnings for the farmers

Amino-acid chelated multi micronutrient fertilizer for vegetable production

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Abstract:- Seed amino acid were used to chelate micronutrients. These chelated micronutrients like Amino-Zn, Amino-Fe, Amino-Cu and Amino-Mn were combined to form multi micronutrient fertilizer. This formulation was tested on Okra cv. Phule Uttkrsha at field level. The plants were treated with different concentrations of multi micronutrient fertilizer. Results are promising and 1.5 % treatment gives better yield and quality in Okra.

High Speed Circular Chromatography

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Loknete Dr. J. D. Pawar College of Pharmacy, Manur,
Tal- Kalwan, Dist- Nashik

ABSTRACT:- In the present work a novel chromatographic technique is devised where the separation of components were carried by circular motion of the stationary phase. The separation is achieved by centripetal and centrifugal force acting on the component. Depending on the molecular weight component get separated within a few minutes.

Production Of Lyco-Cookies

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Abstract:- Tomatoes have attracted immense attention because of carotenoid lycopene. The antioxidant and anticancer properties of **lycopene** make it an ideal component for daily food supplements. For this reason this study investigated the possibility of extracting **lycopene** from tomatoes. Isolation of lycopene from tomatoes was carried out by making its paste followed by purification using column chromatography. The pure lycopene was subjected for qualitative analysis followed by mixing with chocolate cream. This cream was embedded with cookies batter (3 mg/83gm cream) to improve its nutritional value. Further studies over synergistic medicinal effect of Lycopene in the cookies are in progress.

Stem Cells: An Innovative Perspective for Diabetes and Associated Cardiovascular Complications

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Abstract:- The objective of the present study was to investigate the effect of human umbilical cord blood cells (stem cells) on diabetes and associated cardiovascular complications in rats. Alloxan (75 mg/kg, i.v.) was used for induction of diabetes in rats. Human umbilical cord blood cells (hUCBC) were administered (500 μ l, 1000 μ l, 1500 μ l, i.v.) after 15 days of alloxan treatment with and without cyclophosphamide once. Insulin was used as standard. The effects were examined on serum glucose, cholesterol, triglyceride levels and on glycosylated haemoglobin. Oral glucose tolerance test was performed. Effect of hUCBC on vascular reactivity to catecholamines was measured. Treatment with hUCBC alone and in combination with cyclophosphamide significantly decreased serum glucose levels with reduction in glycosylated haemoglobin. Administration of hUCBC significantly reduced the increase in pressor response to catecholamines in alloxan-induced diabetic rats. Thus, it may be concluded that hUCBC has beneficial effect in reduction of diabetic and cardiovascular complications. hUCBC seems to be a favourable source of stem cells for conversion into insulin producing cells, because of its large potential donor pool and low risk of rejection. Therefore, human umbilical cord cells have the potential to become an excellent candidate in beta cells replacement therapy in diabetes.

Microwave Generated Bionanocomposites for Solubility and Dissolution Enhancement of Poorly Water Soluble Drugs

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ABSTRACT:-Solubility and dissolution enhancement of three practically insoluble drugs Atorvastatin calcium, Glipizide and Ibuprofen was done by formation of bionanocomposites (BNC's) using microwave induced diffusion (MIND), which ultimately leads to bioavailability enhancement. The BNC's were formed by using natural polymers such as gelatin, acacia, cassia and ghatti gum with the help of microwave. Selection of polymers was done on the basis of their surfactant and wetting property. Solubility studies were done in order to establish solubility enhancing property of this BNC's. To support solubility analysis results, dissolution studies i.e. powder dissolution and *in vitro* dissolution were done. It was found that a concentration of polymer in composite increases the solubility and dissolution enhances. The optimized ratio (drug: polymer) for all the composites was found to be 1:9. The BNC's were characterized by Fourier Transform Infra Red (FT-IR), differential scanning calorimetry (DSC), X-ray diffraction studies (XRD) and Scanning Electron Microscopy (SEM). The results of solubility and dissolution were confirmed by *in vivo* studies which shows predominant bioavailability enhancement. Hence the present study demonstrates the use of BNC's in solubility and dissolution enhancement.

Bi-Layered Artificial Skin For Burn Wound Therapeutics

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Abstract:-India is the only country in the world where fire (burns) was classified among the first 15 leading causes of death. The main cause of burn mortality is Burn Septicemia (Air born microbial infection in burn wounds). There are mainly four degrees of burn out of which third and fourth degree burn are life threatening. The present burn treatment (topical antibiotics, bandages, skin grafts and wound closers) have some or other disadvantages like frequent applications, semi biodegradability, limited body area coverage and prolonged wound healing time. In our work, we developed a modified chitosan based co-polymerised, medicated, bi-layered, flexible, gas and moisture permeable scaffold. One side of scaffold, which is micro porous, healthy skin cells can be cultured within few hours and on other side, which is flexible film, which resist septicemia. This bi-layered scaffold can be directly applied on the burn wounds which will protect the patient from possible burn Septicemia and as the scaffold is biodegradable, it will be dissolved in body fluids and healthy skin will take its place. The new flow chamber bioreactor is important for initial skin cell seeding, as it require sterile environment. The bioreactor can be operated with battery system (multiple flow chamber units arranged in series) which is very useful for large scale preparation of skin cell seeded scaffold for large surface burn patients.

Novel formulation for burn care

Pingle S.P
MVP'S college of pharmacy, Nashik

Abstract:-Burns are amongst the most serious and painful of all injuries. Most of the deaths in burnt patients are due to infections caused. Burn wound infection is problematic because it delays healing and results into bacteremia and sepsis. Nanotechnology is gaining tremendous impetus in the present century due to its capability of modulating metal into their nanosize which drastically changes the chemical, physical and optical properties of metals. The use of silver Sulfadiazine in combination with silver salt of fatty acid and combination of silver sulfadiazine with silver nanoparticles solves these problems. The formulation shows excellent photostability and displayed superior antibacterial action. The formulated cream of silver sulfadiazine and silver salt of fatty acid shows potent antimicrobial action and used in treatment of burn wound. The formulated creams of silver sulfadiazine: silver oleate: silver stearate (0.5%+0.25%+0.25%), silver sulfadiazine: silver oleate (0.5% + 0.5%) and silver sulfadiazine: silver stearates (0.5% + 0.5%) are more potent and show effective antimicrobial action with good wound healing properties. The silver oleate shows good penetration as compared to silver stearate. The silver nanoparticle cream (5µg/ml silver nanoparticles + 0.5 % SSD) is more potent and shows good wound healing within short period of time on rat without any side effect and the cream is stable for longer period of time. Silver nanoparticle cream is more potent as compared to silver sulfadiazine and oleate. The results clearly indicate that silver nanoparticles could provide a safer alternative to conventional antimicrobial agents in the form of topical antimicrobial agents. Evaluation of healing of burn wound is done on rat model. Results confirmed that these combinations exhibit a significant increase in permeability and healing rate as compared to silver sulfadiazine alone. The formulated cream shows broad spectrum of activity, efficacy.

Enjoy your travel: Chewing HappyTrip[😊] for the prevention of motion sickness

Shalaka Dhat
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Abstract:-Around 28% of Indian population suffers from travel sickness and is deprived of the pleasures of travelling. Use of conventional tablets to prevent motion sickness results in intense sedation and is moreover required to be taken half an hour – 2 hr before the travel. In contrast to this, a chewing gum delivery system would be beneficial owing to its mechanical, physiological and psychological benefits. The biggest formulation challenge is to mask the bitter taste of the antiemetic released during chewing of the gum.

In the present work, an attempt has been made to formulate a taste masked chewing gum containing an antiemetic drug dimenhydrinate (DMN) for the prevention of motion sickness.

Two cation exchange resins Tulsion[®]335 (polacrilex), and Tulsion[®]344 were studied and based on the maximum drug loading achieved (91.56% w/w), Tulsion[®]335 (polacrilex) was selected for masking the bitter taste of DMN. A 1:1 ratio of (DMN: polacrilex), pH 5, temperature (30°C), swelling time (60 min) and stirring time (240 min) was found to provide maximum loading. X-ray diffraction, FTIR and DSC studies confirmed the formation of resinate and time intensity method confirmed a low bitterness score. Chewing gums containing DMN-polacrilex were prepared by direct compression using directly compressible gum base and has been subsequently coated with aqueous based coatings. Further more they have been formulated in strawberry flavour (for kids) and mint & lemon flavours for adults. *In vitro* release studies in simulated salivary fluid (pH 6.8) showed 90.99% release of dimenhydrinate in 25 min. The formulated chewing gum was stable over a period of three months under the stability conditions as per ICH guidelines.

A rapid onset of action, reduced sedation, therapeutic efficacy at reduced dose, low bitterness score and wide acceptability among children makes DMN - polacrilex chewing gum (HappyTrip[😊]) a promising therapeutic approach for relief from motion sickness. In addition, ease of scalability and simple technology increases its potential for commercialization.

Novel colon targeted anti cancer drug delivery**Savkare A.D.
MVP'S College of Pharmacy, Nashik**

Abstract:-The aim of the current study was to synthesize di-azo polymers for colon targeted drug delivery and to characterize these polymers for the same. The novel azo crosslinking agents; diallyl ester of 4,4'-azobenzene dicarboxylic acid from p-Nitro benzoic acid & diallyl ester of 4,4'-azobenzene di-acetic acid from p-Nitro phenyl acetic acid were synthesized. These cross linkers were analyzed by spectral analysis like IR, Proton-NMR, GC-MS. Bulk polymerization method was used to synthesize azo polymers using different acrylate monomers viz. methyl methacrylate, butyl methacrylate. While synthesizing, the cross-linker concentration was varied. These di-azo polymers were characterized for organoleptic properties, solubility, film forming property, biodegradation study in rat caecal content, IR analysis. The polymers PMB 1:1:2:A and PMB 1:1:2:B were found to degrade completely in rat caecal content in anaerobic conditions only and further used to coat budesonide capsules. The drug release study revealed that the capsules coated with azo aromatic polymers PMB 1:1:2:A and PMB 1:1:2:B released 6.76% & 5.68% drug in pH 6.8 phosphate buffer respectively within 3 hrs. At the same time the release in media containing pH 6.8 phosphate buffer with 2% rat caecal content with anaerobic conditions was 36.98% and 25.03% drug within 3 hrs for polymer PMB 1:1:2:A and PMB 1:1:2:B respectively. There was significant ($P=0.0269$) ($P < 0.05$) difference between cumulative percent drug release (within 3 hrs) in presence and absence of colonic contents. This confirms the polymers releases drug only in presence of colonic contents in anaerobic conditions mainly due to azoreductase enzyme from colonic bacteria which cleaved azo bond in amines through amide intermediates. This gave finally bursting or erosion of polymer & release of drug in formulation.

Avishkar

2013

Dystopian Approach to the Select Fictions of J. G. Ballard & John Brunner.

**Ms. ModhaVaishali
H.V. Desai College Pune**

Abstract: Science Fiction can be divided into two strata; Utopian and Dystopian. In the connection of literature dystopia is a community or society, usually fictional, which is in some important way undesirable or frightening. It is the opposite of a utopia. Such societies appear in many works of fiction, particularly in stories set in a speculative future. Dystopias are often characterized by dehumanization, totalitarian governments, environmental disaster, or other characteristics associated with a cataclysmic decline in society. Elements of dystopias may vary from environmental to political and social issues. Dystopian societies have culminated in a broad series of sub-genres of fiction and are often used to raise real-world issues regarding society, environment, politics, religion, psychology, spirituality or technology that may become reality in the future. For this reason, dystopias have taken the form of a multitude of speculations, such as pollution, poverty, societal collapse, political repression, or totalitarianism. An attempt is made to specify various characters in the select science fictions of J. G. Ballard and John Brunner. These Science fictions are written in 1960s and projected 2010. With this analysis, theoretical framework is prepared and it will be helpful to visualize 2050. An attempt is made by the researcher to suggest some precautionary measures and application with the help of analysis of the novels.

Key Words: Science Fictions, Utopia, Dystopia, Sustainable Development.

Smart Electronic Voting Machine For Strengthen The Democracy

**Vaibhav Vijay Jadhav
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Abstract:- The objective of the voting is to allow, voters to exercise their right to express their choices regarding specific issues, pieces of legislation, citizen initiatives, constitutional amendments, recalls and/or to choose their government and political representatives. Technology is being used more and more as a tool to assist voters to cast their votes. To allow the exercise of this right almost all voting systems around the world include the following steps:-

1. Voter identification and authentication.
2. Voting and recording of votes cast
3. Vote counting.
4. Publication of election result.

DESCRIPTION:-

With the modern technology being used in all the aspects of the world, electronic voting machines were a boon to counting votes in an election. However electronic voting machines are not capable to detect fraud (such as double votes, invalid votes) all by themselves! Thus here is an attempt to make the EVM more reliable by introducing biometrics into the regular system.

The working of our proposed system is as follows....

1. The voter will have to pass through a biometric test, wherein he gives his finger print.
2. This will be scanned and checked if the person has voted earlier.
3. If voter tries to press the button again (give a double vote) he will be asked for a finger print again, thereby preventing a double vote!

Our pre-requisites include an UID card for voting. Today double/bogus vote is a massive problem, which can also change the result of an election! This is indeed harmful socially!

The basic concept behind our project is-

Finger print being the only fundamental unique identity, we are interfacing the system with it. This makes our project flawless and more reliable.

Relationship Between Motivating Job characteristic, Psychological capital and Job Performance

**Nikunja Vidyasagar Gujar
Fergusson College Pune**

Abstract:- The recently recognized core construct of psychological capital or PsyCap (consisting of the positive psychological resources of efficacy, hope, optimism, and resilience) has been demonstrated to be related to various employees attitudinal, behavioral, and performance outcomes mostly in the western context. However, to date, the role of PsyCap along with Motivating job factors and performance has not been tested. The present study meets this need by analyzing the role of motivating job factors and psychological capital with respect to job performance in Indian work milieu. The sample of 84 employees working in a manufacturing industry in Pune district, were given authentic and scientific tools to measure their psychological capital and motivating job factors. Job Performance was measured by using a specially constructed performance rating scale. The results indicate that there was a significant positive correlation between PsyCap and Performance ($r=.302, p<0.01$). However, there was no significant relationship found between Motivating job factors and Job performance. Therefore, as one of the implications of this study, investigator has further put forth an intervention program on PsyCap consisting of activities in order to bring desirable work outcomes such as, high job performance, high job satisfaction and job involvement.

Community Participation For Grassland Conservation Leading To Sustainable Development

**Punav Adam Athavale
BNCA, Pune**

Abstract:- Since ages, there is a severe human impact on grassland ecosystem. Impacts on human communities and grassland are due to various associations of grassland and people through various activities. In case of sanctuaries, these associations face problems and there is man-animal conflict which lead to the poor condition of human communities and grassland which are interdependent on each other. The research paper focuses on finding the associations between grassland and people. With the help of experts, Mayureshwar Wildlife Sanctuary, located in Maharashtra state of India, having dominant grass species, was selected as representative site for the research. Local villagers of Vadhane, Kutuwalwadi and Shantinagar villages surrounding sanctuary were selected for the study. A structured questionnaire survey was carried among local villagers and visitors of the sanctuary. The results obtained were analysed and it was found that the presumed associations exist. The research results will help in including local communities in planning of sanctuary and sustainable project can be implemented. Thus, the sustainable project will lead to the welfare of the local communities and grassland in Mayureshwar Wildlife Sanctuary which are interdependent on each other. Moreover, ecotourism can also be included through the project, thus, enhancing existing tourism.

Note: - For abstracts in Hindi/Marathi please type in Unicode font (Mangal). A PS/ISM fonts not allowed.

Share Market: Advanced Technical Analysis Using Head And Shoulder Pattern

Gaurav A. Muthe
Prof. R.M. College Akurdi

Abstract:- Present study focuses on the study of share market. The fundamental analysis and technical analysis are two methods through which we can study share market. With these two methods one can analyze the share market, and these are very useful in deciding the future share prices. The prime focus is on the study of technical analysis. Technical analysis is the study of market action, primarily through the use of charts, for the purpose of forecasting future price trends. There are various techniques which include as part the study of technical analysis. These are – Candlestick Chart, Point and Figure Method, Gap Analysis, Head and Shoulder Pattern. In the present work my focus is the study on Head and Shoulder Pattern.

In practice, however, traders actively use technical analysis to make investment decisions which makes this an important, but often neglected, area for study. This thesis includes empirical study, which provides important evidence on the profitability of technical trading. The results from the detailed analysis undertaken in this thesis have broad relevance to both academics and those in the investment community.

Recognition of Devanagari Handwritten Characters using SOFT COMPUTING

Zope Renuka
Vishvakarma College of Arts, commerce & Science Pune.

Abstract: A system that recognizes Devanagari handwritten characters using soft computing is proposed. Even with modern technologies, handwriting has continued to persevere as a way of interaction in everyday life. Challenges in handwritten characters recognition lie in the variation and deformation of Devanagari handwritten characters, since different people may use different styles of handwriting. Recognition of Devanagari handwritten alphabets is important because of its applicability to a number of problems like mythological records recognition in an archeology department and offline document recognition generated by the expanding technological society. There are around 7000 Languages in this world, but in every TWO weeks, One Language is extinct. According to UNESCO-2011 lingual laureate, Dr.Ganesh Devy, it is found that, there are about 170 Indian languages, which are in their last phase.

Use of traditional methods requires extensive training of the particular system. Therefore, here is an attempt to develop a system that uses the methods. This problem of Devanagari character recognition can be handled by multi-layer feed forward neural network architecture. Several attempts have been done, but very little efforts have been taken in India where it is widely used. Hence, we are proposing herewith the recognition of Devanagari handwritten characters using Soft-Computing. The data of local people will be used in various fields for the development of the system.

Dynamic Model For Sustainable Urban Planning Of Pune City

**Mr. Nitin Nathuram Mundhe,
S P College, Pune**

Abstract: Urban sprawl refers to the extent of urbanisation, which is a global phenomenon mainly determined by population growth and large scale migration. In developing countries like India, where the population is over one billion. Urban planners require information related to the rate of growth, pattern and extent of sprawl to provide basic amenities such as water, sanitation, electricity, etc. In the absence of such information, most of the sprawl areas lack basic infrastructure facilities. The growth patterns of urban built-up land have been studied initially by dividing the area into four zones. The observations have been made with respect to each zone. The study area is divided into concentric circles of 1 km buffer and the growth patterns have been studied on built-up density with respect to each circular buffer in all four zones. The present urban dynamic model has proved the potential of RS and GIS techniques in conjunction with Shannon entropy approach for sustainable urban planning of Pune city.

GIS; Remote Sensing; Urban sprawl; Urbanisation

Village Information System (Vis) Of Indapur Tahsil Using G.I.S.

**Sandip Babasaheb Shinde
University of Pune, Pune**

Abstract: Obtaining village level spatial information is essential but difficult task for researchers, educators and planners. The objective is to provide information of villages of various aspects using field data and GIS for Planning, Management and Development. The study area is Indapur tahsil located in Pune district experiences semi-arid climate and bordered by the perennial rivers. Medium to deep black soil covers the tahsil and agriculture is the main occupation here. A large part of agricultural land in twenty villages is submerged under backwater of *Ujjani* dam. The backwater is contaminated due to effluents from Pune and surrounding urban area. So, the farmers are facing the problems of water pollution and hence impacts on agriculture. NSS special winter camp is conducted by the institute in the adopted village to collect the primary data through extensive and detailed field surveys of various aspects like socio-economic, cultural, historical, vegetation energy consumption etc. The GPS receiver is used to record the locations of spatial entities and prepared village map in GIS. The water samples are collected to check the water pollution. The collected data is analysed in the institute's laboratories and is published on the website of the institute. The statistical and cartographic techniques are also used to publish the data. The VIS will be useful for the Planning, Implementation and Monitoring of projects related to resource management and infrastructural development. As the students and teachers are involved, it is cost-effective and also strengthens the students as well as reflects ISR. As the project is related to villages and implemented through NSS, it has nationwide applicability.

Surrogacy a Conspiracy

Abishek Wakhle
(presenting)
Abhishek Salian
DESNFLC College

Abstract:- India has been given the tag of the surrogacy capital of the world and according to a U.N. survey surrogacy is a 400 million dollar industry today. Despite this, in today's scenario there are no laws, there is lax regulation and there is very little empirical data available in this field. The ART Bill expected to be passed by parliament this year will provide much relief in this aspect but on examination of this bill certain shortcomings were observed, similarly the conditions of surrogate mothers any health risks they face and other such sociological problems are not documented. It is due to these factors that we chose the subject of 'surrogacy: a conspiracy' as the topic for research in Avishkar 2013/14 through which we hope to spread awareness on the realities of surrogacy today, examine the needs of surrogate mothers and bring about modification in the ART Bill which will enable it to better deal with the problems faced today.

Battle OF Betting

Deepam Rangwani
DESNFLC College

Abstract:- Sports betting is currently illegal in India, which does no good to the country though its illegal people continue to bet and since its illegal they are committing a crime, the project aims at showing the current scenario and the scenario if betting is legalized, legalized betting will aid the nation financially and help it develop, since betting is illegal all the money which is used or bet is all black and hence the government gets no tax or benefit out of this, betting if legalized should be under strict vigilance to avoid ill effects of betting like spot fixing etc, if betting is implemented correctly and regulated the right way it will help a long way in future development of country

A Study on Inventory Management at Ramelex Pvt. Ltd

Sagar Surendra Singh
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Abstract:- The researcher has worked at Ramelex Pvt. Ltd which is the main supplier to MSEB and Kirloskar electricals and it manufactures clamps and connecting rods for such electrical towers. The production at Ramelex Pvt. Ltd was batch production which created a problem of understanding the exact quantity of raw materials required in order to facilitate smooth and continuous production. Further there were certain Raw materials that were stored for more than 60 days in the stores which was the major concern to be looked upon. Further No card system was maintained in order to track the quantity of the raw materials and semi-finished goods. Hence the researcher has decided to work in the area of Inventory and stores. For the categorization of the Raw materials into ABC category, the materials were exported from Tally ERP9, the researcher suggested the organization to find the EOQ of these materials and find the buffer stock for the future purpose. The implementation of the card system made the register entry a regular practice. Also the area of waste management was highlighted and means to reduce the cost using scrap materials to make new products was implemented

A cost Saving Model for Import Logistics

Radheshyam Vijay Daga
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Abstract:-Indian industry/importer are losing huge amount of profit /foreign currency due to lack of awareness in supply chain management and import process. The concept of value delivery is well understood by the developed countries and they are capturing the major pie of market share. Minimizing the loss of revenue most of the Indian industry are concentrating on the raw material cost, electricity, labour cost etc. but neglecting supply chain costing. And thus the same is getting transferred to the final customer product costing. In the current process of import the customs process start on the arrival of vessel and getting completed within 10-12 days. Which ends with the heavy detention/demurrage/ground rent and other logistics activity cost. With the help of current available infrastructure and with the help of custom system we have designed the model where the importation cycle time is reduced and the cost of the logistics activity is reduced. And huge amount of the foreign exchange is also saved. Using this model Indian companies can also benchmark with global standard and can reduce the cost on import and will be get motivated for the export.

Emotional Intelligence: 'X' Factor in the Success (An Empirical Study: With reference to an Educational Institute)

Prachi Agarwal
Department of Commerce & Research Centre, University of Pune, Pune

Abstract:-It has been observed that the people with very high IQ are yet not the most successful one. Hence IQ is not the ultimate indicator of one's success in life. The missing element here is "Emotional Intelligence". Emotional Intelligence (EI) is the ability to understand and manage the emotions of one self and that of others. EI is required to cope up with the situations and relationships at both professional and personal front. Different professions need different level of Emotional Quotient depending upon the number of human elements to be dealt with on the job. Owing to the high importance to EI in the workplace, the present research aims at measuring the present level of awareness about the concept of 'EI' amongst the members of an educational institute. This study reveals that not much of the sample respondents are aware of the theory of EI. This study is an attempt to promote the concept of Emotional Intelligence. It also throws light on creation of awareness and development of EI.

An Analytical Study of the Impact of Perceived Retail Store Image on Consumer-Based Retailer Equity across Selected Retail Formats

Iman Gholizadeh Meidani
Vishwakarma Institute of Management, Pune

Abstract:- In a new era of increasing interest in globalization, competition, and international marketing, retailers find themselves unavoidably dealing with a host of factors including consumers, brands, competitors, and suppliers. This has given rise to the growing role of differentiation in an effort to cater to the customers' evolving needs distinctively, to compete effectively, and to survive successfully.

Consumers also looking for ambience and convenience in shopping. Consumers have a number of enduring perceptions, or images, in their evaluations of retail outlets. Retail stores provide the environment, merchandise, and services that they feel reflect the store's image as well as the consumer's self-image. Consumers tend to shop in stores that have images consistent with their own self-image. Major department stores and supermarkets have begun to focus on the need to build a strong store image for their outlets. They recognize the importance of building on identity to attract loyal customers.

In India the retail sector is the second largest employer after agriculture. The retailing sector in India is highly fragmented and consists predominantly of small, independent, and owner managed shops. There are some 12 million out-lets in India. There has been a boom in retail trade in India. This study focuses on the importance and impact of retail store image and consumer based retailer equity as part of retailer's marketing communications strategy, particularly in regard to understanding the importance and associated advantages of positive retailer equity development, and Represent a model for that.

Livelihood by integrating resources & local community Participation: A progressive Model

Rustum Darade
Samartha Group of Institutes

Abstract: Village livelihood has stagnated. The socio-economic development on agriculture (from traditional to scientific), counseling and guidance on education, improvement in infrastructure, healthcare and exploring entrepreneur opportunities etc. will lead to transformation of village lives. The implementation of above needs funds and manpower which was generated through collective efforts of generous members.

In Quest Of Justice **Combating Cartel: - A Crime Against Society**

Prof. Madhushree Mandar Joshi
Department of Law, University of Pune

Abstract:- Cartelization is a Crime against Society. The secret arrangement of such monopoly causes harm to the economic efficiency and consumer's rights. The *Competition Act of 2002* provides a regulatory mechanism, it deems every Act to have appreciable adverse effect on the competition and thus can be misused. This research is inquest of the justice combating Cartel which plays a fraud on Society. The researcher suggests some reforms in the available structure for effective implementation and some innovative suggestion for better functioning of Competition Law.

Bioplastics: The Green Alternative

Qusai Indonesiawala
Nowrosjee Wadia College, Pune

Abstract:- Bioplastics are plastics made wholly or partly from polymers derived from biological sources such as sugarcane, potato starch or the cellulose extracted from trees, straw and cotton. This study aims to synthesize degradable bioplastic using starch (extracted from corn and potato) and replace it with the conventional non-biodegradable petro-plastic. The whole project was divided into four parts viz. synthesis of bioplastic; physical analysis of prepared bioplastic; subjecting to natural degradation; isolation and identification of the starch-degrading microorganisms. Synthesis of bioplastic was done using starch as a major biopolymer and additives such as glycerol, acetic acid (vinegar), vegetable oil, cellulose, natural pigments etc. Once the plastic film was prepared, it was subjected to physical analysis to check its mechanical strength & properties (thickness, tensile strength check, SEM, XRD, UV-visible spectroscopy, FTIR etc.). After subjecting the bioplastic to degradation in natural environment (soil), rate of degradation was recorded and isolation of soil bacteria and fungi was carried out. Biochemical analysis and 16srRNA sequencing of the isolated colonies was carried out to identify the strains of microbes responsible for bioplastic degradation. Comparative studies were done between petro-plastics and bio-plastics and the advantages of the latter were stated.

Speed bump unit for air cooling system and energy source

Shirish Chandrabhan Pandit
Arts Commerce and Science College, Saikheda

Abstract:- Application of speed bump unit on road with suspension or spring, air compressor with air filter and air storage tank. Using water as coolant, temperature of compressed air can be minimized in heat exchanger. This cooled air can be used for air conditioning purpose.

The construction of speed bump unit is very simple & compact. Basically it is an assembly of: Base frame, Use: to give Support & Stability to all project components. Piston-Cylinder (compressor), - It is operated by action of speed bump and spring. Use: To pressurize the air **AIR RESERVIOR**: - made up of Mild steel. Mountings are pressure gauge, input & output air connection. Use: - To store the compressed air To supply this pressurized air for various use when required.

Heat exchangers (condenser and evaporator).

CONDENSOR: - Copper tube are used Use: - To cool the water by rejecting heat to atmospheric air.

EVAPORATOR: - Copper coil is used. A nozzle is used at the outlet. Use: - To cool the compressed air by rejecting heat to cooling water.

RACK MECHANISM: - Actuated by the action of speed bump, Fan is operated. Use: - fan is used to circulate the air over the condenser.

Future scope -: Using refrigerant coolant such as R-134 we can use refrigerator and air conditioner.

Piston cylinder size and type can be utilized in different operation like gym, garden, stair case, etc.

System can be used for water lifting.

For preservation of food and vegetable near market.

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“Slow motion steel speed hump barrier group product” from image bollard.

Water Level Indication and Controlling on Wi-Fi using Raspberry-Pi

Yogesh Neelkanth Gatlawar
Sinhagad College of Science, Ambegaon

Abstract:-The aim of this research is to develop prototype of Wi-Fi base water level indication and control system that can be viewed as a part of home use tank controlling and monitoring system and also a Wireless Sensor network communication system.

The system consists of two parts, transmitter and receiver modules. Transmitter module detect water level using an ultra-sonic range sensor, then transmit the data to server. Water level detection is performed without physical contact between the sensor and water surface. The calculation is performed by Python language program that reside in ARM microcontroller base development kit Raspberry-Pi. In receiver module, distance value received is passed the web base application to display the water level digitally as well as graphically. If water level goes below low level the water motor gets on and when the water level goes beyond high level the water motor automatically gets off.

This project is not only for controlling the water level at home but also for following:

Environment Monitoring System

Flood level Indication and Warning System for remote location monitoring.

Wireless Sensor Network for landslide detection.

In short we can use this prototype in NxN ways. In future wireless sensor network communication is going rule to the world. For which this prototype is just a start.

Isolates from fruit with high Alcohol tolerance

Badola Poorwa
Fergusson College, Pune

Abstract:-In the present study yeast isolated from Umber (*Ficus glomerata* Roxb) was screened for ethanol production and tolerance which can be used as an alternative source of fuel. Attempts have been made to improve this particular yeast strain for higher ethanol tolerance. Optimization of different fermentation parameters like inoculum size, concentration of mineral salts and amino acids, concentration of sugar (Glucose) have been carried out. Individual effect of each parameter in the fermentation medium was tested. It was observed that 0.06 g % of $MnSO_4$, 0.01 g % of proline, 4.5g% of inoculum size and 30% of Glucose was found to be optimum for maximum ethanol production. Fermentation was also carried out using co-culture of yeast and bacteria obtained from the same fruit. Highest ethanol production was seen when the ratio of bacteria to yeast was 1:4 and the ethanol produced was around 3.7 %.

Key words: Ethanol tolerance, parameter optimization, co-culture

Development of DBD Plasma Device for Air Pollution Control

Avinash Santram Bansode
Physics Department, Pune University, Pune

Abstract:-Huge amounts of air pollutants like carbon monoxide, unburned hydrocarbons, nitrogen oxides (NO_x) and particulate matter have been released in the environment by motor vehicles and diesel engine exhausts. These pollutants are the main cause of acid rain, urban smog, and respiratory or organ disease. Motor vehicles are the major sources of pollutants in urban areas. Therefore it is necessary to devise a probe to dissociate these NO_x, and Particulate Matter into nonhazardous gas products. It is observed that dielectric barrier discharge (DBD) is one, which can control these environmental pollutants. Since then applications of DBDs for pollution control and for the destruction of poisonous compounds have received growing attention. Many hazardous organic molecules are readily attacked by free radicals, electrons or UV photons. DBDs are utilized to provide reactive species such as N₂, O₂, O, H, OH, and N. These species are initially generated by electron collisions in the microdischarge filaments and subsequently initiate a number of reaction paths generating additional O, OH or HO₂ radicals for decomposing pollutants. We have developed DBD device which shows the controlling effect on the removal of Carbon suite in the environment through vehicle exhaust. The device consists of two electrodes with dielectric barrier material in between and the passage volume to expose the pollutants to the plasma. This device is portable, easy to handle and can work at 230V like home appliances.

Novel biomarkers for identifying productive honeybee colony

Rahul Ravindra Gaikwad
Department of Zoology, Pune University, Pune

Abstract:-Honeybee races are more diverse and commercially important than any other insect species. There does not exist reliable morphological markers for beekeepers to identify productive colonies. I have developed a comprehensive method of identifying high honey-yielding colonies of Indian honeybee species *Apis cerana*. This method is based on selected morphometric characters. I have combined a novel video-based foraging behavioural assay to identify colonies and efficient pollen foraging worker bees. This novel method has a potential to improve honey production and beekeepers can use these parameters as 'biomarkers' for commercial exploitation.

Breast Cancer detection with effective selection of biomarkers

Prasanna Gopal Shete
PVG COE, Pune

ABSTRACT:-The research approach involves digital image processing for estimating the extent of breast cancer in a breast tissue sample. The process aims at providing a reliable, repeatable, and fast method that could replace the traditional method of manual examination and subsequent estimation. The markers discussed are the Estrogen Receptor (ER), Progesterone Receptor (PR) and Human Epidermal Growth Factor Receptor (HER2) that give clear indications of the severity of cancer cells in the tissue sample. For ER evaluation, a modified watershed algorithm designed for eliminating errors arising due to over-segmentation in traditional watershed algorithm is proposed to provide comparatively more accurate results. Further, intensity based thresholding is performed for identifying and categorizing the cancerous cells into levels of severity of damage done to cells due to cancer. For HER2 evaluation, the ratio of extent of staining to the total size of image gives an estimate of the extent of cancer cell spread. The proposed method categorizes the images into four groups namely 0+ (negative), 1+ (mildly negative), 2+ (mildly positive) and 3+ (positive). The results were confirmed from the Pathologist and were found to be accurate and in the case of ER evaluation average accuracy is of 96%. While 26 out of 30 HER2 images were accurate.

Design and Integration of Evolutionary methodologies for classification of Non-modular Histo-pathological Screening.

**Rajendra Shankar Talware
VIIT, Pune**

Abstract:-Automated pathological diagnosis holds great promise in the advanced cancer treatment and partly because automated cancer diagnosis is not a straightforward task. Cellular image analysis is being attempted by several Image Processing (IP), statistical approaches and Machine Learning (ML), Neural Networks (NN) techniques. IP based algorithms are getting trapped into subjectivity. ML based methods suffer from large training sets and curse of dimensionality.

It is proposed to design spatio-temporal evolutionary neural network for Non-Modular High Content Pathological Screening and evaluating Recognition/Classification accuracy. Major thrust is on design and integration of evolutionary methodologies with spatio-temporal characteristics and on-the-fly learning for modifications in weights, architecture and learning patterns of ANN to improve upon diagnosis with the help of expert annotation and established ground truth. The distinct features of the scheme are

1. Self-learning nature provides adaptive quotient, Provides scalability and flexibility.
2. Quantifies lumen information more objectively,
3. Provides effective user interface to blend best of the machine tasks (heuristic) and manual tasks (holistic, perceptions).

A tool which may be a by-product of the result along-with technological advancement can assist a pathologist for quantitative analysis during classification of cells and to decide malignancy level within confidence interval.

Automotive Safety And Driver Assistance System

**Saurabh Mohan Muley
PVG, Pune**

Abstract: The number of road accidents reported in India is highest in the world. As per the data available from Ministry of Road Transport and Highways, it is three times higher than any other country. Some of the basic reasons for road accidents may be

Drink and Drive

Poor visibility at sharp turns due to insufficient light

Poor visibility due to blind spot

Reading road sign boards due to

Lack of visibility due to

Insufficient light at nights

Heavy rains, fog

Line of sight blocked by heavy vehicles

Higher speed of vehicles which increases the probability of missing out the sign boards

Considering all the difficulties, an effort has been made by us in order to make the driver aware of the situation before hand so as to prevent the fatalities.

In our prototype we provide five modules:

1. Alcohol test to allow the engine to start
2. Adaptive headlight control
3. Blind spot detection alerting the driver
4. Traffic Sign board detection
5. Real time signal status tracking

We are sure that our ideas will bring a positive change in increasing automotive safety and help the society by reducing road accidents.

Machine Vision Guided System For Classification And Detection Of Plant Diseases Using Support Vector Machine (Plant Pathology!)

Priyanka Shashank Padhye
BVCOEW, Pune,

Abstract:-We propose and experimentally evaluate a software solution for automatic detection and classification of plant leaf diseases (Classifier- Support Vector Machines) using a machine vision guided system. The proposed system is a combination of robotics and image processing a step towards automation. The robotic system is used for real time crop monitoring and used for image acquisition, it is a complete wireless system controlled by the laptop using Bluetooth device and a T.V. tuner for video processing and the image will be transferred to the host laptop. The developed processing scheme consists of using color transform followed by the segmentation phase. In the first step we identify the mostly green colored pixels. Next, these pixels are masked based on specific threshold values. The other additional step is that the pixels with zeros red, green and blue values and the pixels on the boundaries of the infected cluster (object) were completely removed. Further we train samples and using SVM classifier and identify the diseases. For experimental purpose we use Mango plant. The technique is a robust technique for the detection of plant leaves diseases.

Support vector machine (SVM), segmentation, plant leaf diseases, machine vision guided system and real time crop monitoring.

QoS Improvement Using Federated MAC Protocol (FMAC) In Wireless Sensor Networks

Dattatray S. Waghole
MIT COE,Pune

Abstract:-The collection of different nodes are randomly deployed in geographical area is called as wireless sensor networks (WSNs). Packet delivery ratio, Packet loss ratio, Throughput, End-to-End Delay, Energy consumption, Congestion control etc. are the some quality of services (QoS) of sensor networks. The invention of given Federated MAC (FMAC) is basically related to technology of WSNs. To achieve QoS and improve the performance of the WSNs. Minimize Average End-to-End Delay, Reduce Average Energy Consumption of the nodes, and Increase Packet Delivery Ratio (PDR) as well as Average Throughput, are some QoS parameters to be achieved. Apply TDMA on the Nodes which are one hop away from the sink node and reduce Average Energy Consumption as well as Congestion (Traffic). Rest of the nodes working with CSMA for a void collision and improve reliability during the data communication. And perform same concept vice-versa to achieve QoS of the network. The combination of TDMA and CSMA applying entire network is the idea of the invention. So design and implementation of FMAC using TDMA and CSMA achieve more QoS of the network.

Isolation of chitosan from mushroom and prawn waste and its applications.

Amrita Bhagwat
K.T H M College Nashik

Abstract:-Chitosan is a biopolymer and has great economical value and has wide industrial applications. Industrial effluents mainly contain dyes, heavy metals and oil that cause threat to environment. Chitosan due to exhibiting adsorption property is used for their removal. It was extracted from mushroom stalk waste powder (MP), prawns waste powder (PP). Extraction of chitosan was carried out by chemical method which includes demineralization and deproteinization. Characterisation of the powder was done by FTIR method, in which amino groups were observed. Activated chitosan was used for removal of dyes, heavy metal and oil. Activated MP and PP obtained was used for Batch & Column studies of textile dye removal. In Batch studies screening of different dyes were done such as Malachite green, Amido black 10B, Methylene blue, percent removal of dyes observed were 95%, 90% and 87% respectively and percent removal for Chromium was 96%. Column studies of Amido Black 10B was carried out which is a diazo dye. Above mentioned MP and PP were used in column. 10ppm of dye concentration was used and flow rate for both columns was 1ml/min. Efficiency of both the column was above 95% even after passing more than 100 void volumes. Similarly, column study was also carried out for oil removal.

Vision Based System for Driver Drowsiness Detection with Security Issues

Mali Hemantkumar Babu
Sinhgad College of Engg. Pune

Abstract:-Traffic accidents over the last decade have significantly increased and have become the serious concern. And most of the accidents are due to the human error and human fatigue during driving the vehicle. The intelligences of system lies how the same system is used for security of vehicle. If stand-alone system is made in this way definitely it is going to help the Indian vehicle market, because automation which offers the lifestyle of safety with security is always preferred, more people will prefer to choose smart car for the range of benefits offered. The concept involves sensing various driver-related and driving related variables. Computing measures from these variables on-line, and then using the measures in a combined manner to detect when drowsiness is occurring. Measures are combined because no single unobtrusive operational measure appears adequately in reliably detecting drowsiness. The most promising approach uses mathematical optimization procedures to develop algorithms with the highest potential detection accuracy.

The research target is to develop a system which will be efficient, real time, and non-invasive with good early symptoms of driver fatigue detection to prevent vehicle accident.

An Improved Lane Departure Warning System for Advanced Driver Assistance An Improved Lane Adaptive Warning System For Advanced Driver Assistant

**Vijay Dattatray Gaikwad
SCOE,Pune**

Abstract:-Now-a-days, an important social and economic problem is driving safety. In 1999, about 800,000 people died globally in road accidents causing losses of around \$518 billion. According to the United States National Highway Traffic Safety Administration (NHTSA), 41% of the total road accident casualties are the result of abnormal lane departure on the road. The lane departure warning system (LDWS) is an in-vehicle machine vision based system which monitors the position of the vehicle and provides a warning to the driver if the vehicle deviates or is about to deviate outside the lane.

In this project, an innovative algorithm is presented for LDWS. Experimental results show that proposed algorithm has more than 98% lane detection rate. The processing time of 30 milliseconds per frame ensures that this algorithm can be used for real time systems. The algorithm is tested on many images and real-time videos. The results show a robust performance under various lighting conditions such as fog, rain, night, under tunnel and shadow regions. This project has the potential to offer active safety to all types of vehicles on road contributing in saving people lives.

Security Issues in Cognitive Radio

**Seema H. Rajput
SAE
Kondhwa**

Abstract:- Cognitive Radios (CRs) address the problems of spectrum scarcity and under-utilization of the spectrum. Cognitive radio is a new emerging technology which draws attention for more efficient spectrum utilization systems. Therefore for spectrum security & spectrum sharing purpose we enable cognitive radio reuse spectrum band avoiding Jamming attack and Harmful interference to secondary users. IEEE 802.22 is a rising standard meant to utilize the white-space left in the TV frequency spectrum and can co-exist with themselves and existing users of the TV frequency spectrum. As TV whitespaces are in the low frequency range (54-698 MHz) compared to typical cellular and ISM bands, this is an exciting growth which results in much better propagation characteristics and much higher spectral efficiencies. We proposed a new security algorithm to measure the ability of the adversary to deny access to the control channel. We introduced a distributed as well as centralized scheme that allows nodes to establish and maintain the control channel in the presence of the jammer. Further we propose method for detection of jammer called quiet period scheduling scheme. To mitigate jamming evaluation of the security method, extensive simulation results are provided to demonstrate the efficiency of our methods.

Innovative method of Low Cost Storage for Vegetable Preservation.

**Kale Ajay Dattatraya
VIIT, Pune**

Abstract:-India is the second largest producer of fruits and vegetables. 20-30% of the total production of fruits and vegetables goes waste from the time of harvesting till it reaches the consumers. Regardless of the scale of harvest, from domestic garden to industrialized farm, the basic principles of post-harvest handling for most of the crops are the same: handle with care to avoid damage, cool immediately and maintain in cool conditions, and cull. The present research methodology is planned to use combined cooling, thermal energy storage and drying processes to enhance the shelf life of cruciferous vegetables.

Among the cruciferous vegetables, Cauliflower is selected first for shelf life study by understanding its intrinsic and extrinsic parameters. Arrhenius reaction kinematics approach is used to transform shelf life equations of Cauliflower in terms of three important quality parameters namely Moisture Loss, Energy Value and Vitamin C. These equations are useful to retain the Cauliflower quality and its nutritional value in post-harvest management.

Thermal Modeling is done for selecting the design parameters of Innovative Cold Storage. Based on this analysis fabrication of 30 kg capacity Cold Storage is made. Experimental investigations are made to measure variation in Temperature and Relative Humidity of cold storage and also changes in important nutritive properties of Cauliflower. Development of Cauliflower shelf life equations, thermal modeling and fabrication of cold storage and experimental analysis may form the basis to design and develop new cost effective cold storages for Vegetable Preservation in India.

Ticks No Problem

**Padole Shital Adinath
R.B.N.B. College, Shirampur**

Abstract:-Bugs and ticks are well known animal parasites on dairy animals. Chemical control of these parasites is costly and risky. Most of these parasites are resistant to chemical control. Present work was aimed to develop eco friendly, low cost, herbal formulation for effective control of bugs and ticks which affects cattle. Custard (sugar) Apple is a subtropical bush belonging to *Annonaceae* family. Plant material is collected shade dried grind in to fine powder then subjected to solvent extraction. Solvents from different extracts were removed and residue was dissolved in distilled water used for further study. These extracts were screened for anti ticks and antimicrobial activity. Results were promising and show that extracts of Custard (sugar) Apple leaves can be used as anti ticks and antimicrobial agent in dairy farms for control of ticks.

User Friendly Multipurpose Spray Pump

**Mr. Wagh Tushar Mahadev
Hon.Balasaheb Jadhav CS College, Ale Pune**

Abstract:-Now days, Farmers have to spray fertilizers and chemicals on crops like tomato, potatoes etc. This method cannot protect environment and not save electricity. Generally, farmers use different types of methods to spray fertilizers and chemicals on the plants like petrol spray and charging battery spray pumps. But these methods are very tedious and large amount of energy lost in case of these pumps. The model spray pump with its connecting rods, actuated piston pumps are capable to produce a wide pressure range. They are capable of performing virtually every spraying task easily and effectively handles disinfectants. In this Model, we developed new technique of semi automatic push spray pump. Those are very easy to carry during spraying, takes less energy and generating electricity.

Wine bio-refinery: A novel waste management strategy

Vishal Ashok Mahale
Institute of Bioinformatics & Biotechnology, University of Pune

Abstract:- Wine production is one of the major agro-food industries contributing to national economics worldwide. However in wine making variety of residues are generated with high organic content resulting in potential pollution problems. Being cheap and naturally rich in nutrients, winery residues can be suitable substrates for biotechnological production of value added products and present study evaluates three agro wastes of winery (grape stalks, grape seed oil cake, yeast lees), in a bio-refinery approach. When grape stalks were used as growth substrate for oleaginous fungal culture under submerged fermentation conditions, it resulted in production of lipids (single cell oil) with yield of 4 g 100⁻¹ of substrate dry weight. Seed oil cake remaining after grape seed oil extraction was evaluated as an additive to the bakery product to enhance its nutritional value, resulting in 16 %,19% and 4 % increments of carbohydrate, energy value and vitamin A, respectively. Furthermore the yeast lees was found to be efficient in decolourization of textile dyes (Vat Green & Reactive Red) up to 94% and could be a novel adsorbent for treatment of textile waste-water. This novel waste management strategy of winery wastes could be important for the sustainability of the wine- industry.

Ms. Pallavi Kakkad
Institute of Bioinformatics & Biotechnology University of Pune

Abstract:-

Way Towards Dietary Pesticide

Rakesh Shamsunder Joshi
NCL Pune

Abstract:- Development of new arena of metabolic inhibitors, which are ecofriendly and healthy to humans, is need of effective pest management strategy. *In silico* screening of several natural phenols provided that cinnamic acid and their derivatives can act as effective inhibitor of *Helicoverpa armigera* gut proteases. Caffeic acid found to be one of the most potent inhibitor, with detrimental effect on growth and development of *Helicoverpa armigera*. Caffeic acid derivatives were synthesized and tested for their inhibitory activity against different proteases. Some compounds showed higher inhibitory activity than caffeic acid and also found to be effective in insect growth retardation. *Helicoverpa armigera* fed on artificial diet containing caffeic acid and their derivatives showed inhibition of different gut protease isoforms. The results suggest that caffeic acid scaffold may be promising insect protease inhibitor and effective pest growth retardant agents.

Understanding molecular insight of crop plants to herbivore attack

Neha Khandelwal
NCL Pune

Abstract:- Constantly expanding population has exerted a great pressure on current food supply. To meet this demand, crop productivity needs to be enhanced by their exploitation to make it robust under various stresses. Pigeonpea, one of the staple legume crops is largely being grown in India and is the major source of protein for humans and also serves as a livelihood for resource poor farmers. Pigeonpea suffers potential loss in its productivity due to insect pest *Helicoverpa armigera*. Plants possess the ability to protect themselves against various stresses. However, looking at current scenario of increasing food demand there is an urgent requirement of boosting crop defense power through modern biological tools. Thus our objective essentially is to gain insight into crop molecular responses towards pest attack in order to design strategy to protect them against insects thereby increasing the yield. In this study, plant proteome have been analyzed post insect feeding to determine differentially regulated proteins. Knowledge of these proteins has revealed that insect feeding leads to stimulation of various biochemical pathways in the plant to deal with the stress.

An eco-friendly fruit sucking moth trap

Swarupa S. Chowdhury
Fergusson College, Pune

Abstract:- Maharashtra is one of the leading states in production of export quality pomegranates. But one of the serious threats of this fruit is the infestation of the fruit sucking or fruit piercing moth- *Othreis fullonia* Clerk. The moth punctures the fruit and forms pin hole sized spots on the rind resulting in secondary bacterial and fungal infections. This results in premature falling of fruits leading to enormous losses to farmers. The control measures used by farmers to combat the infestation are tedious and economically unviable. Hence we have devised a moth trap which attracts the moths by not only light but also by use of bioattractant. Artificial fruits which will act as bait has been loaded with biopesticides. These fruits can efficiently control the number of pests in the orchards. The advantage of this trap is that it is portable and easy to install and the bait requires weekly replenishment, thus making it a farmer friendly device.

Ecofriendly catalyst for the one pot synthesis of B – acetamido ketones

Guremeet C. Wadhava
R.B.N.B. College, Shirampur

Abstract:- Aim Present work is aimed To Develop Low cost Ecofriendly Method For Synthesis Of Pesticides and Herbicides Most of Pesticides and Herbicides Contain Beta Acetaamidoketones as one of the components We are trying to develop simple method for synthesis of pesticide and herbicides

Polyherbal lozenges for throat infection

Reshma Anand Jadhav
Seth Govind Raghunath sabale College of Pharmacy, Saswad

Abstract:- Ayurveda is a system of holistic medicine from India that aims to bring the individual into harmony with nature. The most important advantage is coarse it uses only nature substances derived from parts of plants and being consumed as food stuff since year together. Then they are proven to give less a side effects than modern system of medicine which is based on isolated or synthetic molecules. In the present work an herbal pill for palliative treatment of sore throat (throat infection) is designed and developed. There is no recommended antibiotic treatment for sore throat as it is due to viral infection in most of the cases. According to traditional Indian system medicine honey ginger aloe Vera turmeric and licorice are strongly recommended to treat to sign and symptoms of sore throat. All of them are mixed in prescribed amounts to form a lozenges by molding method. There will be improvable patient compliance and convenience is presentable in the form of suitable dosage form. This will be Ayurvedic system of medicine. The goal of whole project was to see anti-throat effects. The contribution of these drugs As it is not a marketed preparation. To design herbal lozenges according to “WHO Guideline” and categories under modified herbal medicines.

Antioxidant Activity of Biscuit Supplement With Amla and Aloe Vera Powder

Chanale Ajit Mahesh
PVP, Pharmacy College, Ahmednagar

Abstract: Bakery Products Are Now In Common Use In India And Are Preferred And Loved By Almost Every Individual Irrespective Of Class Aged. Incorporation Of Amla And Aloe Vera Powder In Biscuit Enriched The Biscuit. An Idea Of Making Biscuit With An Ayurvedic Herbs Was An Innovative Steps In Upgrading Nutritive Value Of Biscuit Along With Medicinal Value. Present Work Was Carried Out For The Development And Evaluation Of Bioactive Components In Processed Product (Biscuit) Prepared From Amla And Aloe Vera Powder.

Methanolic Extract Of Amla And Aloe Vera Powder Was Tested Individually And In Combination In Equal Portion Of Each Extract For H₂O₂ Scavenging Activity Compared With Standard Ascorbic Acid. The Result Indicates That The Combination Of The Extract Has Better H₂O₂ Scavenging Activity Compared To Individual Plant Extract Indicating Synergistic Effect. There Fore Utilizing This Fact (Of Synergy Of Phytochemical In Herbal Preparation). Development Of Biscuits was done Which Showed Good Antioxidant Activity With Pleasant Test And Appearance.

Transdermal Drug Delivery System for the Treatment of Folliculitis

Ms. Sarojini Ganpat Mali
Seth Govind Raghunath sabale College of Pharmacy, Saswad

Abstract:- Transdermal drug delivery system (TDDS) has been in existence from long time. TDDS includes the entire topically administered drugs that are intended to deliver the active medicaments into the systemic circulation and provide the controlled release of drug. It overcomes the side effects of painful delivery of drug and first pass metabolism of drug which occurs with other drug delivery system. Transdermal patch has components viz. liners, adhesives, drug reservoir, drug release membrane etc. which play vital role in release of drug via skin. It also promotes healing to an injured area of the body. Folliculitis is the infection or inflammation of the hair follicles which affects any part of the body. In serious condition it may cause the boils, carbuncles and furuncles. The bacteria present in the folliculitis infection may get enter into the blood stream and may affect the other body parts also. Erythromycin is the drug of choice for the treatment of folliculitis infection. Traditionally Erythromycin was administered through oral route, but there are several disadvantages such as First pass effect, accumulation of drug to other body parts, so the objective of the current study is to prepare transdermal patch to overcome these disadvantages.

Herbal Nutritionally Rich Biscuits

Harshita Singh
Smt. Kashibai Navale College of Pharmacy Kondhwa Pune

Abstract:- Nutraceuticals can play an important role in development of future therapeutics but it depends on control on purity, efficacy, safety & novelty of composition in such products. Under this project combination of *Amaranthus bilitum* & *Cucurbita maxima* seeds was used due to the complementary nutrients present in them. This combination is novel & its nutraceutical efficacy which is proved by the proximate analysis, acute toxicity, biological evaluation. 1:1 powder mixture was then formulated into biscuits & health drink powder formula and few more formulations. Novelty of the project lies in the fact that the combination was used for the first time & the efficacy was proved by microbiological & animal testing along with proximate analysis. Both biological sources are economical & abundantly available in India. This project could be extended into clinical trials & other clinical benefits of combination.

Multiunit and Multilayered Colon Specific Drug Delivery System: A Novel Approach

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Abstract: In the present investigation maltose was used as a saccharide carrier to deliver drug more specifically to the colon to treat various pathological conditions of colon. It was evaluated for pH change study, by using *In-Vitro* and *In-Vivo* testing in Wistar rats. The colon specific multiunit drug delivery system as microspheres of Prednisolone, maltose and various additives were developed by extrusion and spheronization technique. These core microspheres were coated with different polymers like acid soluble polymer, barrier coating layer and enteric coating polymer. The coating layer of different polymer was optimized as a function of time by considering gastric emptying time of GI tract. The optimized formulation was evaluated for various physical parameters and *In-Vitro* drug release study without and with rat ceecal content. The *In-Vitro* dissolution of optimized batch was conducted in different dissolution media viz. 0.1 N HCL pH 1.2 buffer solution for 2hrs, pH 6.8 buffer solution for 4hrs and then study was continued in pH 6.8 buffer solution without and with rat ceecal content. The dissolution study was performed without ceecal content in dissolution media showed less drug release i.e. up to 40% at the end of 8.5 hours. The dissolution media consisting ceecal content showed the drug release up to 93% at the end of 8.5 hrs. The optimized formulation was further evaluated for *In-Vivo* study for ulcerative colitis in rats. The ulcerative colitis was induced in Wistar rats by using 2ml of 3% acetic acid in saline solution by rectal route. The ulcerative colitis induced rats were treated with developed formulation and sacrificed at eleventh day. The colon tissue was evaluated for macroscopic ulcerative scores, Histopathological study, Myeloperoxidase, Catalase, Superoxide dismutase and Lipid peroxidation. The analysis of the results indicated that all the parameters evaluated for ulcerative colitis were significant.

Keywords- Colon specific, Polysaccharide, Multiunit, *In-Vitro* study, *In-Vivo* study, and Ulcerative colitis.

Polyherbal Pressurized Package System: A Novel Approach

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Abstract: In present investigation, Herbo Spray, a novel herbal formulation was developed and evaluated for its anti-inflammatory potentials by employing carrageenan-induced rat paw edema, Xylene induced ear edema and Formalin induced inflammation models in experimental animals. The observations of the present study revealed that, Herbo Spray produced significant anti-inflammatory action by virtue of its effect on different inflammatory mediators. The formulation was also standardized by using HPTLC methods. The efficacy of the formulation was established in the clinical studies on human volunteers. The present investigation explores potential benefits of the formulation in treating different conditions associated with inflammatory pain.

Keywords: Inflammation, Polyherbal formulation, Pressurised package system, Standardization.

Herbal Bilayer Floating Tablet: A New Dimension To The Cure Of Gastric Ulcers

Arati Nikhil Ranade
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Abstract:-Approach of novel drug delivery system (NDDS) overcomes the limitations of conventional dosage forms. However, this concept is still not practiced to a large extent in delivery of herbal drugs in Ayurveda. Thus, the potential of herbal drugs has not been explored to its fullest. Hence, there is a growing need to amalgamate the concept of NDDS in delivery of herbal constituents. The present investigation is designed to deliver and retain two herbal constituents in stomach for better action against Helicobacter pylori induced gastric ulcers. The objective was to develop a bilayer floating tablet of ellagic acid and *Aloe vera* gel powder through rational combination of excipients to give the lowest possible lag time with maximum drug release in the period of 4 h. Formulation F9 containing 100 mg of HPMC K15M, 27 mg of crospovidone, 80 mg of mannitol and effervescent agents in the ratio 1:2 gave 92% drug release and desired floating properties. In vivo studies showed that combination of ellagic acid and *Aloe vera* gave 75 % ulcer inhibition in comparison to 57% ulcer inhibition in the group which was administered with ellagic acid alone. This suggests the use of bilayer floating tablet in gastric ulcer treatment.

Nanoparticulate Drug Delivery for Dermatitis

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Abstract: -Dermatitis is burning and itchy rashes and inflammation of skin. The current clinical treatment for dermatitis includes use of topical corticosteroids as Hydrocortisone acetate which has poor water solubility and is accompanied by several side-effects. Stratum corneum is a major barrier in the percutaneous absorption of drugs which are topically applied. To increase the penetration and thereby reduce the associated side effects of Hydrocortisone acetate, lipid polymer nanoparticles (LPN) were prepared. The LPN optimization was carried out by Box-Behnken design and evaluated for % drug release (after 24 hours), % entrapment efficiency, and % transmittance. The results of optimization showed that as the lipid:Smix ratio and lipid ratio was increased, % drug release (after 24 hrs) and entrapment increased. On increasing polymer concentration, there was decrease in % drug release (after 24 hrs) and increase in the entrapment efficiency. The optimized batch showed average particle size of 147.08nm. The formulation was further incorporated in gel and was evaluated for particle size, *ex-vivo* diffusion, *in vivo* efficacy in rat model, skin irritation test and stability. The prepared LPN gel was translucent, and viscous with the average particle size of 166.49nm. In vivo efficacy study in rat proved that 0.2% formulation gave protection from uv radiation as that of 1.0% marketed cream. The formulation was nonirritant to skin as test carried out in rabbit model. Thus Hydrocortisone acetate PLN gel can be formulated for deep penetration of active agents inside the skin and sustained release of hydrocortisone for the treatment of dermatitis.

AVISHKAR 2014



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Study Memorising Device.

Abstract: Maths is very difficult subject to all students from childhood because of the formulae which are including in maths. By using this device we can easily memorise this formulae. When students are memorise the formulae they able to solve example very easily. This device is made up of two parts of various formulae are listed in two column. The student knows the formulae, when they match the formulae by connecting wires the bulb glows. They can make practice with device. When we take test on 30 students, we get very good result. This device can make for any subject for any standard. Advantages of this device are, it is easy to make, it is not so costly, easy to handle, means anyone can handle this device. Because of it is not heavy, so that it is possible to transfer from one place to a nother place. The cost of this device is only 150 / -. This device is use to memorise any subject from K G to P G. A fter using this device in i s confidence o f s tudents a nd decrease the fear. When the increase in confidence in students for their study, they can face any examination. They are leave firm in Globalisation situation.



Shinde Tejshri Dhananjay
Sinhgad Institute of Pharmaceutical Sciences, Lonavala

Collection And Analysis Of Nicotine As A Marker For Environmental Tobacco Smoke

Abstract: Nicotine is a potential marker for environmental tobacco smoke (ETS) because it is unique to tobacco smoke and is a major constituent of the smoke. The purpose of this project is to detect the presence of nicotine in the environment. Nicotine in the vapour phase was collected on the filter paper impregnated with sodium bisulphate. Nicotine reacts with sulphate and forms nicotine sulphate salt. This absorbed nicotine was desorbed from paper and then its presence was analysed by using dragendorff's reagent. The method was employed for field study in smoking zone for the detection of nicotine. This sodium bisulphate paper can be used to detect the presence of nicotine in public places such as offices, colleges, restaurants and schools to avoid passive smoking. This method for the detection of environmental smoke was adapted because it is simple to perform, requires no instrumentation, cost effective and affordable to everyone. The results are available within 15 minutes. Especially in developing countries due to minimum public awareness this paper can be efficiently used. This technique does not involve rocket science and can be understood by everybody hence it is user friendly and efficient process for the detection of nicotine.



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Organizational Climate Organizational Physical Environment and Work Engagement

ABSTRACT Recent studies have claimed that employee engagement is on the decline and there is a deepening disengagement among employees. For the present study a purposive sample of 120 employees filled the Litwin and Stringer Organizational Climate Scale (2013), Utrecht Work Engagement Scale (2003) by Wilmar Schaufeli & Arnold Bakker and the Organizational Physical Environment Rating Scale constructed by the researcher. The results indicated a significant positive relationship of overall organizational climate ($r = .398, p < .001$) and overall physical environment ($r = .329, p < .001$) with work engagement. The individual dimensions of reward ($r = .341, p < .001$), support ($r = .354, p < .001$), structure ($r = .343, p < .001$), and risk ($r = .340, p < .001$) were found to be positively correlated with overall work engagement. The Regression Analysis revealed that support and commitment; and risk and conflict as dimensions of organizational climate, were significant predictors of work engagement accounting for 12% and 5% variance respectively. The results of the present study are discussed in the light of theories and empirical evidences. Implications for enhancing work-engagement are given.

Keywords *Organizational Climate, Organizational Physical Environment and Work Engagement.*



Mahesh Rameshwar Bangad

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Environmental Development plan for Kalamb

Introduction: We had the opportunity to closely observe the various forms of interventions and interactions taking place within the village and understand the impact of such interventions on the lives of the people of the village. **Objectives:** The main objective of village study segment is to create an Environmental Development Plan for villages which will act as a model for other villages across India for sustainable development Other Objectives of the study were: 1.To understand the socio-economic and cultural realities of rural life.

2. To understand the dynamics of various village level institution in addressing the developmental work. 3. To understand the dynamics of social structure, infrastructure, resources, and various intervention on the villagers.

Methodology: The data collected are on demography, social structure, infrastructure facilities, agro resources, village economy, village organizations and people's institutions and the issues of development. Both Quantitative and Qualitative data were collected.

Source of data: The required data were collected from both primary source and secondary source. The primary data were collected from direct interaction with villagers.

Sample design: For questionnaire survey, random sampling was done. 51 households were selected randomly. **Data analysis:** Statistical tools like tables, graphs, bar charts, averages, percentages etc. are used to analyze the data collected.

Outcomes: Propositions are made in the sectors of Public Health and Infrastructure, better living standards and conditions for people and better Governance.



MIT College Kohtrud

Bridging Gap for survival of Hindi / Marathi languages through Automatic Cheque Processing

Abstract: There are about 7000 languages in all over the world, but every two week one language is dying. To survive language in next generation it should be in digital form. To make language more useful it should be used in different areas of day to day transactions.

The Indian banking is the world's 2nd largest banking sector in secure transactions. In the banking transactions the majority of transactions can be processed by using online money transfer or Demand Draft or Cheque. In all of these ways cheque can be in the form of handwritten or printed. If the cheque is handwritten then majority of Indian will write it in the Hindi or their mother tongue language. To make the cheque processing automatic there should be such a system which can recognize the languages used by Indian people.

In cheque processing three things are very important: 1) Signature Recognition 2) Name Recognition 3) Amount Recognition.

Here is the introduction of the system which can be recognize the cheque written in Devanagari script. Devanagari script is used to write the languages like Marathi, Hindi and Nepali etc. In amount recognition, we have to check whether the amount is right or wrong and also have to compare the amount written in digit with amount written in words.

If the amount matched then cheque should be accepted otherwise it should be rejected.



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Reconstruction of palaeoflood history and monsoon variability: A case study of the Sina River basin

ABSTRACT: The fluvial systems are sensitive to climatic changes (i.e. monsoon) and they respond to such changes by changing their morphology and sedimentation pattern. Therefore, fluvial deposits are used to study a detailed record of river responses to climatic and environmental changes on different spatio-temporal scales. The fluvial deposits preserved in the overbank sites are largely the records of flood events. Therefore, bank deposits of Sina River have been studied to investigate palaeohydrological conditions of the river in response to the climatic variation.

Palaeoflood studies of most of the major rivers of central, western and southern India have been carried out by many workers over the last three decades. Their results have shown immense scope for further palaeoflood analysis. The Sina River rises about 25-30 km in the northeast of Ahmednagar City. After flowing some distance through the Ahmednagar district, the Sina river enters into the Karmalatahshil of Solapur district. It is a monsoon rainfed non-Ghat river and originates in the rainshadow zone of the Western Ghats. The main objective of this study is to analyze and interpret the records of Sina River Bank deposits to reconstruct the palaeoflood history and to understand the nature of variations in the palaeohydrological conditions of the river.

In order to interpret the sedimentary records of Sina River bank deposits, a litho section was made at the bank of the river and sediment samples were collected at close interval (10 cm) for laboratory analysis. Grain size and magnetic susceptibility analyses were carried out in the laboratory.

Texturally, the bank deposits sediments were found to be dominated by sand and silt with considerable amount of clay in some samples. By and large, the uppermost unit is characterized by high percentage of clay and middle section shows high amount of sand particles. The grain size parameters (mean size, sorting, skewness and kurtosis) show subtle to minor variations within the section. The major conclusion that emerges from the analyses is that no major changes in the palaeohydrological conditions have been occurred but some small flood events have been identified in the bank deposits of Sina River.



Banubhen Nanavati college of Architecture

Ecotourism: Landscape Approach Model for Ellora Region

Abstract: Maharashtra - The most fascinating region of India. It is the state with rich cultural heritage and is a land of intense spirituality and religious faith and a lot of tourism potential.

Foreign tourists in Maharashtra accounted for only 2% of the total tourists/ visitors to the state.

World Heritage sites like Ajanta and Ellora near Aurangabad are the ancient proofs of rich artworks of India. All festivals, in Maharashtra are a tribute to its rich culture and legacy.

The government's promotion and development initiatives to harness Maharashtra's tourism potential reflect the state's commitment to this industry. Although, Along with the growing recognition of the importance of Travel & Tourism by the Government of Maharashtra, there seems to be a lack of appreciation of its scope, complexity and dynamism.

There is an urgent need to view tourism in a holistic sense, beyond its regional and national boundaries, bringing together the internal dynamic elements like its stakeholders – the community and the private sector to work towards a tourism concept that benefits all and retains tourism assets for future.

The Research aims to understand the potentials of Ecotourism in the world Heritage site context of Ellora Region and the outcome is in the form of Project Proposals which are generated through different Landscape Approaches.



Arote Sandeep Annasaheb

**S.N. Arts, D. J. Malpani Comm. &
B.N. Sarada Science College, Sangamner**

Identification Of Landslide Susceptible Villages (Lsv) Around The Kalsubai Region Of Maharashtra, India

Abstract: This project aims to identify the landslide susceptible village (LSV) around the Kalsubai region of Maharashtra, India. There are 8 weighted landslide parameters were collected from survey of literature method such as (1) lithology and rock type, (2) rainfall, (3) slope, curvature, (4) land use/land cover, (5) soil properties, (6) anthropological influence, (7) lineament and (8) aspect. All parameters data were collected from conventional as well as advance Remote Sensing (RS) data

and processed in Geographical information System (GIS) software. LSV locations were identified from georeferenced topographical and geological maps, Digital Elevation Model (DEM), field surveys and previous landslide inventories in the study area. LSVs were identified using superimposing of multiple databases in GIS software and statistical correlation of landslide occurrence parameters. Further, village population data were collected from census 2011 and villages' tehsils boundary from political maps for showing the administrative position of villages. Finally, acquired results of 09 very high, 13 high, 12 moderate, 11 low and 14 very low risk villages were confirmed from past landslide record, field inventory and local interaction. Such LSVs identification and its database creation will support for pre landslide hazard mitigation and post landslide disaster management in the study area.

Keywords: Landslide susceptible village, Kalsubai region, GIS, RS.



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To Control Epidemic diseases in kumhamela using fuzzy soft set

Abstract: We apply Fuzzy Soft Set Theory to well known KUMBHMELA 2015 will held at Nashik and to control the diseases spread after kumbhmela. Using Fuzzy arithmetic operation and exhibit the technique with a hypothetical case study.



Borkar Reshma Anil

S.N.Arts, D.J.Malpani .Comm.B.N.Sarada Science College, Sangamner

“भाजी बाजार व मच्छी बाजारातील टाकाऊ पदार्थ : एक समाजपयोगी कचरा”

प्रस्तावना;

आपल्या समाजामध्ये मोठ्या प्रमाणात कचऱ्याची समस्या जाणवत आहे. महानगरपालिकांना या कचऱ्याची विल्हेवाट लावण्यासाठी वेगवेगळ्या अडचणी येतात. त्याच बरोबर प्रशासनाला कचरा निर्मुलन करण्यासाठी मोठ्या प्रमाणात खर्च येतो. म्हणून या प्रकल्पामध्ये कचऱ्याची विल्हेवाट व पुर्नवापर कसा केला जातो याची माहिती दिली आहे. त्याचप्रमाणे हे उत्पन्नाचे साधनही बनू शकते.

सध्द्यस्थिती;

आजच्या मितीला कचऱ्याची विल्हेवाट योग्यप्रकारे लावली जात नाही. त्यामुळे दुर्गंधी आणि इतरत्र कचरा रस्त्यावर पडलेला दिसतो.

साठवणुकीचा प्रश्न;

घनकचरा, विघटनशिल कचरा, घरातील ओला सुका कचरा इ. प्रकारचे टाकाऊ पदार्थ मोठ्या प्रमाणावर साठवून ठेवणे शक्य नसते. म्हणून या प्रकल्पामध्ये कचऱ्यावर नैसर्गिक प्रक्रिया करून याचा पुर्नवापर केला जाऊ शकतो.

उपाययोजना;

या प्रकल्पामध्ये ‘भाजीमंडी’ मधील टाकाऊ कचऱ्याचा वापर गाई म्हशींना खाद्य म्हणून दिले जाऊ शकते. त्यातून मिळणारे शेण हे ‘बायोगॅस प्रकल्पात’ प्रक्रिया करून त्यापासून ‘मिथेन गॅस’ बनवला जाऊ शकतो व उरलेल्या राळ्यामध्ये ‘गांडुळ खत’ प्रकल्प केला जाऊ शकतो. मोठमोठ्या कचऱ्यांच्या ढिगाऱ्यांमधील काच, लोखंड व प्लॅस्टिक वेगळे करून त्याचा पुर्नवापर केला जाऊ शकतो. त्याचप्रमाणे त्यामध्ये तयार होणाऱ्या किटकांचा वापर कुक्कुट पालना मध्ये कोंबड्यांचे खाद्य म्हणून केला जाऊ शकतो. हे उत्पन्नाचे चांगले साधन बनू शकते.

त्याप्रमाणे मासे बाजारातील टाकाऊ कचरा (खराब झालेले मासे) याचा वापर बदक पालन करून बदकांचे खाद्य म्हणून केला जाऊ शकतो. तसेच या प्रक्रियेमुळे उत्पन्नाला हातभार लागू शकतो.

सुचना;

हा प्रकल्प सुचनात्मक असल्याकारणाने याचा उपयोग महानगरपालिकांना मोठ्या प्रमाणात होवू शकतो.



Swapnil Prakash Pawar
Department of Law, Savitribai Phule Pune University, Pune

Cord to cloning: Threat to human species

Abstract: The recent developments in bio technology have been very rapid. These developments have shown the preservation of umbilical cords of the babies and its use for curing various life threatening diseases. Umbilical cord has the genetic material which can prove to be very useful treating the diseases. Many parents are opting for preserving their baby's umbilical cord. But this has raised issues of misuse of the umbilical cord too. One of the threats is of its use for human cloning. No one truly knows the future of human cloning, but many believe models will be cloned to make designer babies. It is highly probable that a cloned human being will be living among us within few years. There several issues in human cloning- ethical, moral, religious, economical, social.

There are countries where they have specific statutes prohibiting human cloning and research in this regard. Whereas, in India there isn't a statute regulating the research in this field and human cloning. There are several guidelines which are insufficient. The banks preserving the umbilical cords are not regulated by a statute either. A statute having clear and specific provisions regarding human cloning and preservation is the need of an hour.



Wagh Bhushan Suresh
SKN, SSBM, Vadgaon

Process improvement for first time right quality

Abstract: Business today offers the spectacle of a succession of companies, leaders, products & even industries getting their "15 minutes of fame" & then fading away. It's like riding the wheel of fortune as consumer tastes, technologies, financial conditions, & competitive playing fields change ever-more-quickly. It builds on many of the most important management ideas & best practices of the past century, creating a new formula for 21st century business success. It's not about theory, it's about action.

The project entitled "Improvement in First time Quality (FTQ)" related to improving assembly line to achieve minimum lead time, minimum defects, minimum rejections, improving quality, and improving first time quality with improved productivity.

General Motor has manufactured five different types of engine namely BDOHC, XSDE, 1.2NGS, 1.3NGS, CN100. In month of May, company has found that damage of crank pulley of CN100 engine, clutch plate alignment not ok for all engine & other defects also come on the line. Company needs to take immediate action to reduce these defects. For this they have to improve their assembly line.

This project was started in month of May. During summer project period, I have successfully completed this project. First of all my concentration was on the defects, suspect part find out at assembly line. I tried to find out root causes of each & every defect. Rejection details due to each defect for previous months were provided by the quality officer. There were total five phases to complete this project namely,

1. Define Phase
2. Measure Phase
3. Analysis Phase
4. Improve Phase
5. Control Phase

Each phase requires certain period to finish. Define phase involves project charter which further includes project title, current issues, target to control issues, project team, Voice of business, Voice of customer. Measure phase mainly concentrates on output of the process. Analysis phase focuses on inputs of the process. By designing & analyzing Cause & Effect Diagram (Fish Bone Diagram), we can find out what are the major root causes and sub-causes of defects in the rejected product, so that action can be initiated. FMEA (Failure Mode Effect Diagram) analysis was also done to find out RPN (Risk Priority Number = Occurrence * Severity * Detection) of each defect related to Aesthetic & Functional Parameters of the product. Pareto Diagram Analysis also helped to find out major defect by analyzing cumulative percentage. By using Six sigma, TQM, Plan-Do-Check-Act (PDCA), Kaizen, 5's, Just in Time (JIT), statistical quality control (SQC), Quality circle (QC), Acceptance sampling we analyze the defect. Improve phase involves findings & solutions of those root cause problems. These problems might be technical problem, assembly process problem, inspection problems. Most of the problem solved was related to assembly line etc. In control phase, major focus was on to check whether process is under control or not.

These all five phases helped to find out major defects, solution to reduce those defects. All changes & actions results in,

1. Defect reduction
2. Rework reduction
3. Improvement in first time quality (FTQ)
4. Productivity improvement

Cost & Time saving



Rati Chandra

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Banking the Unbanked : Through the collaboration of banks and post offices

Abstract: The Indian economy today is grappling with the issue of financial inclusion. Today Indian banks have very high transaction cost and limited reach in far reach rural areas. Technology can play an important role in reducing this gap and providing banking services at a reasonable cost, especially in the far reach rural areas where actually the unbanked population lives. It is not easy to provide banking facilities to such huge section of unbanked population, Mere provision of bank account is not sufficient our population need timely credit facility at reasonable rate and returns on their savings. The governments have to tackle both the supply side and demand side. A model is proposed where Indian banking system and Indian post offices network 1,54,866 Post Offices, of which 1,39,040 (89.78%) in rural areas can work hand in hand. This model can play a strategic role in enhancing their efficiency and effectiveness in bridging the financial inclusion gap. The objective is to bring Indian rural populations in the area of financial inclusion by strengthening and revitalizing the small savings network by digital revolution. Suggested Model will provide means of Savings, funds for credit servicing at a reasonable rate, generate income to post office, employment to 24 lakh rural youth without any burden of salaries on government and women empowerment.



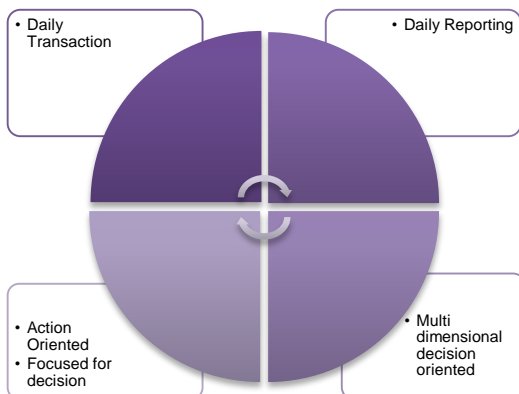
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Business Intelligence in Banking Industry

ABSTRACT: Introduction: The use of Business Intelligence in every business function is growing. As the volume of transactional data goes up, insights hidden into this data can be mined using business intelligence. Banks have huge volumes of transactional data gathered over a period of time. The trends and patterns of the transactions can throw up many new perspectives and foster a data driven decision making. Business Intelligence in banking can be unveiled by asking these four questions:

- What business requirements?
- Which challenges to solve?
- Who champions the cause?
- How to do BI – the approach?

Objectives To solve Business Questions from gathering business requirements to applying the technology, there is unwavering focus on answering business questions, not delivering the reports. Application of BI Methodology to get answers is the focus.





Shrikhande Yogesh Narhari

Amruteshwar Arts, Commerce and Science College, Vinzar

Amrutvarsha Mahotsav: A Model of Institutional Social Responsibility

Rational of the study

One one hand farmers are committing suicide due to various problems and on the other hand the youth of the nation is putting their energy for enjoyment. If this energy put into the right direction this youth can help farmers. Therefore, one day for the farm for the help of farmers is the catch line of the project.

Background of the study: ‘Amrutvarsha Mahotsav’ a model of an Institutional Social Responsibility in which college students from Pune City helped farmers in the process of rice transplantation by practically stepping down in to the farm. It solved the problem of labour for farmers and students get firsthand experience of farming process. Most importantly unutilized land come under cultivation and resulted in increase in income through increase in production

Objectives

1. To study institutional social responsibility aspect of educational institutions in rural areas
2. To study ‘Amrutvarsha Mahotsav’ as model of institutional social responsibility
3. To study Productive Labour hours created and cost incurred per student
4. To study impact of institutional social responsibility through ‘Amrutvarsha Mahotsav’ on education in Velha tahsil

Methodology: A] Primary data through Interview and questionnaire from Farmers, Student participants, NSS PO of colleges of rural area, Interview of Amrutvarsha Mahotsav core committee

B] Secondary data: Websites, Books, Journals, periodicals etc.

Universe and Sample size :

1. Area of study is limited to Velhe Tahsil.
2. Total 7,200 students from 16 different colleges from Pune City
Total 382 farmer from 12 villages benefited

Primary data collected through Interview and questionnaire from 383 Student participants & 50 farmers as per Stratified Convenient Random sampling method

Findings

1. It is found that colleges of Pune rural area follow ISR mainly through NSS activity
2. It is found that per student 6 labour hours i.e. total 43,200 productive labours hours created against cost of Rs. 160 per student i.e total cost Rs.11,52,000.
3. Amrutvarsha Mahotsav is successful model
 - i) As 49 farmers i.e. 99 % expressed that the college is socially responsible.
 - ii) 43 farmers i.e. 86% are satisfied from the rice transplantation work done by the students
 - iii) 98 % Farmers expressed that they want their children to take higher education in the same college as college has solved their agricultural problem
 - iv) 349 student i.e. 89% realized the pain and agony of the farmers
4. College record reveals that gross enrollment ratio has increased by 47.18 %

Suggestions

1. The model can be implemented under Mahatma Gandhi National Rural Employment Guarantee scheme.
2. It is suggested to the central government to frame a policy to finance and implement such institutional social responsibility projects of rural area.

As institutional social responsibility, colleges in rural area should identify and undertake an activity to tackle the problems of the local stake holders



Madhushree Joshi

Ness Navalmal Firodia Law College, Pune

Revisiting Vedic Philosophy for making efficient law & Policy

Abstract: India is a developing country and the dream of being a self independent developed country is far from reach. Economic Development is a global phenomenon. For attaining this goal effective and efficient laws and policies are needed thus the researcher has undertaken a study of searching the roots of Indian thoughts namely the Vedic Philosophy and to analyze its relevance in making of policy and law seeking development.



Nair Shiju Unnikrishnan

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60 Watt DC Powered Iron Box

Abstract: Introduction: Day by day the need of energy generation and energy saving is very much necessary. In our day to day life we use most of the electrical appliances that consumes high amount of energy e.g. water heater, room heaters, roti makers, Iron box etc., around thousands of watt energy. Here we are presenting a iron box which consumes only 60Watt of energy. The purpose of my experiment was to reduce the usage of electricity and to give equivalent output similar to that of ideal iron box. Also to provide protection for human life. The procedure involved selection of accurate coil for heating and accurate resistance calculation.

Existing Concept: Most of the iron box that is available in the market are consuming around 800 to 1200watt electricity. All these works on 230V AC power supply. Which is not usually shockproof device and no reverse flow protection. These iron box needs high power coils which we need to replace regularly.

Need of Project Study: It also involved the procedure of making coil, heat variations for different fabrics along with the coil we have used rangoli powder and also ceramic as insulator and packing element and continuously heated it for three days and observed it for three days. The amount of heat that was recorded on iron box was equivalent to that of ideal iron box and was constant. We repeated this step for two types of coils i.e. tungsten and Nichrome. My results of my data resolves that the tungsten coil burnt off while Nichrome didn't burn and was also cheaper than tungsten. My data also concludes that by considering human safety we have given the output similar to that of ideal iron box and also meet all the needs of the society.

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Hand for Handless (Robotic Hand)

Only in India 2.21% are handicapped means there is huge population which is unable to give their 100% for development of India. If a person is without hand or with one hand, He is unable to do work like person having both hand so the concept of this Robotic Hand is generated through it.

This Robotic Hand can be fitted at the place of disabled hand and movement of robotic hand can be controlled with movement of another hand or with even foot too due to micro switches used as pressure sensors.

Main application of Robotic Hand is for handless people. We can do remote surgery with this hand which is useful in Army, also by fitting it on moving vehicle we can check doubtful things or handling of bomb. As it is a part of robot, its application are depends on our imagination.

Since all the parts use in robotic hand are E-Waste which are harmful to environment and our health. These materials have very low cost so I need only 150 Rs. to make this fully working model. Due to its low cost, many poor handicapped people can also use it.

With the help of this Hand such people can successfully perform their day to day work in some extent. This small innovative idea will give big hope for them.



Pirale Gayatri Beepak
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Structure, Texture & Morphology Modvation of ZnO Electrode on Efficiency of DSSC

Abstract : Mesopoeous ZnO Nanoparticles have been synthesized with tremendous increase in surface area upto 578 m²/g which was 5.54 m²/g in previous report. Different Mesoporous ZnO nanoparticles with average pore sizes ranging from 7.22 nm to 13.43 nm and specific surface area ranging from 50.41 m²/g to 578 m²/g were prepared through sol gel method via simple Evaporation Induced Self Assembly process. Hydrolysis rate of zinc acetate was varied at different concentration of Sodium Hydroxide. Morphology, crystallinity, porosity and I-V characteristics of the materials have been studied using transmission electron microscopy (TEM), X-ray diffraction (XRD), BET nitrogen adsorption-desorption and Keithley Instruments.

Key words:- Mesoporous ZnO, EISA, Co-Polymer, DSSC



Pawar Sagar Arvind
K.T.H.M. College Nashik

Rotten Onion Sniffer

Abstract: India ranks second in onion production in the world. Onion acquired 6% share in the production of vegetable in India. The land under onion crop was 11.3 lakh hectares and production was 18777 million MT (2013-14). The cultivation in India is growing day-by-day[1]. Hence it has a wide impact on national economy and financial status of growers/consumers[2]. The annual production pattern is 15-20% in Kharif (Octo-Dec), 20-25% in late-Kharif and 60-65% in Rabi (Mar-Jun) seasons. The major production is stored from March-November [3]. The post-harvest treatment involves selection, grading and curing of the bulbs. Curing needs heat, ventilation and low humidity[4].

The stored onions in sheds are exposed to the hot, cold and humid air. The Indian climate is becoming more erratic during various seasons causing unexpected fluctuations in temperature and humidity. The Indian onion bulbs have higher water content [5] making them more susceptible to rotting. Secondly, in the view of dearth of cold storages, majority of storage sheds are conventional and are not scientifically designed. This leads to rotting due to growth of fungi leading to bacterial rot, sprouting, roting. The rotten onion emits gases[6]. Once the process is initiated it grows drastically and rapidly resulting in unexpected losses (10%+).

In view of this scenario the authors have studied the storage techniques and losses through field visits and referred the literature. Further a need based electronic circuitry has been designed, developed and tested. The device works on principal of sensing temperature, humidity and gases emitted in rotting process using appropriate sensors interfaced to Microcontroller. When sensed level exceeds programmed level system provides three way alert (alarm, display and sms). Inbuilt wireless transmission system enables preserving record for analysis in the laboratory.



Manisha Pandharinath Tale
Microbiology Dept. S. P. Pune University

Waste to Wealth: Identification and characterization of microalgae

Abstract: Global energy crisis, fuel shortages and climate change due to greenhouse gas emissions are posing serious challenges; hence it is essential to explore alternative energy source. Microalgae provide a sustainable alternative for fossil fuels due to their dual potential for phycoremediation and rapid biomass accumulation by efficient CO₂ sequestration leading to biofuel production. Five microalgae were isolated and identified from effluents of biogas plants. Growth and lipid accumulation potential of these microalgae were investigated. This study demonstrates that effluent can support high density algal growth. Large quantities of residual biomass generated after lipid extraction can be utilized as quality organic manure and soil enrichment agent. The biomass properties of five microalgae and their potential in different bio-applications based on their chemical and physical characteristics were studied. The highest protein (45 ± 0.21%) and carbohydrate content (32.6 ± 0.36%) was observed in *Chlorella sp.* KMN3, while *Monoraphidium sp.* KNM5 showed maximum lipid accumulation (35 ± 0.22%). Microalgal extracts were tested for their anticancer and antioxidant properties. Microalgae are rich in protein, carbohydrate and lipid with demonstrated antioxidant and anticancer properties. Hence it can be used as animal feed and source of nutraceuticals.

**Shahzad Ateeque Ahmed**

Physics Dept. S P Pune University, Pune

Design and Development of Medical Accelerator Head Assembly for Cancer Therapy Application

Abstract: Important components of a radiation therapy medical accelerator head assembly consisting of a 270 degree magnet, scattering foils, x-ray target and Applicators have been designed, fabricated for 6 to 18 MeV electrons and successfully tested in the laboratory. For radiation therapy, a linear accelerator of variable energy ranging from 6 MeV to 20 MeV is mounted horizontally and the extracted electrons are used for the cancer therapy applications by employing the above mentioned components. The profiles of the electron and photons required for treatment are of square shape and can be varied in the range of $10 \times 10 \text{ cm}^2$ to $25 \times 25 \text{ cm}^2$ through specially designed Scattering foils and Applicators. The profiles of 6 to 20 MeV electrons at a distance of 100cm from the scattering foil are found to be uniform within $\pm 5\%$. The above results reveal that the developed system components can be used for the cancer treatment and other applications. After successful development and testing of the accelerator head components in hospitals, the present system will be duplicated and produced on commercial basis. Such systems are required at every district place in the country.

**Rakesh Shamsunder Joshi**

IBB, S. P. Pune University, Pune

Harnessing Edible Pesticides: Molecular Investigation of Insecticidal Action of Caffeic Acid against

Abstract: Bioprospecting of natural molecules is essential to overcome serious environmental issues and pesticide resistance in insects. Here we are reporting insights into insecticidal activity of a plant natural phenol. In silico and in vitro screening of multiple molecules supported by in vivo validations suggested that caffeic acid (CA) is a potent inhibitor of *Helicoverpa armigera* gut proteases. Protease activity and gene expression were altered in CA-fed larvae. The structure-activity relationship of CA highlighted that all the functional groups are crucial for inhibition of protease activity. Biophysical studies and molecular dynamic simulations revealed that sequential binding of multiple CA molecules induces conformational changes in the protease(s) and thus lead to a significant decline in their activity. CA treatment significantly inhibits the insect's detoxification enzymes, thus intensifying the insecticidal effect. Our findings suggest that CA can be implicated as a potent insecticidal molecule and explored for the development of effective dietary pesticides.



Pragati S. Abhyankar

Post harvest fungal disease management using lactic acid bacteria

Abstract: Post harvest losses are serious. The most important microorganisms involved in deterioration of agricultural produce are fungi. Several species of fungi which may infect agricultural produce extremely toxic compounds, the presence of which renders agricultural produce unsuitable for human or animal consumption. Any agent that prevents the growth of fungi is termed as antifungal or fungicide, antimycotic agent. Consumer demand for fresh, preservatives free food has been growing and there have been efforts to reduce or eliminate consumption of preservatives. Lactic Acid Bacteria (LAB) have mostly been isolated from food and dairy products. There are a very few reports of isolation of LAB from aerial surfaces of plants and their exploitation for production of antifungals. The work explores the possibility of using one microorganism to inhibit another, more precisely, the use of lactic acid bacteria (LAB) to inhibit fungal growth.

From 57 LAB isolates five were selected on the basis of the spectrum of the fungi affected and the extent of antifungal activity demonstrated against the test fungus *Fusarium oxysporium*. The antifungal activity was checked by using agar overlay method. Complete characterization of LAB has been done. 16S rRNA identification has been carried out. DNA sequences for the five isolates have been deposited in the gene bank and accession numbers obtained.

In order to rule out the toxic effects of the antifungal extracts a animal toxicity testing has been carried out. Tests have revealed safe reports. These microbiological antifungals can be safely administered as against the highly toxic chemical fungicides.

The production technique is simple, requires less time, low cost media can be used and has a huge potential for post harvest application. The LAB used are plant isolates and hence have better adaptability when used for agricultural produce. A simple principle of using one microorganism against another has been used. The microbes are widespread on plants and need to be explored for their beneficial properties.



Argade Hrushikesh Pandurang
Jijamata College of Science & Arts Bhende

Preparation of Cost efficient Biogas up gradation kit for sustainable Agriculture

Abstract: According to 2011 studies by the world meteorological organization and the UN Environmental program, a aggressive reduction of methane emission together with action of black carbon, can substantially slow the role of climate change over the next few decades, the study shows that the reduction of CO₂ from methane and increase the burning capacity of methane gas as an alternative energy by using particular low cost design kit. Direct use of biogas causes many problems to user and nature, so it is necessary to upgrade biogas into bio-methane. It is costly to make separate methane into bio-methane by filter available in market. For this we developed cost efficient system for household biogas plant, which consist four cylinders. The removal of H₂S from biogas is done in the first cylinder which contains pure water by water bubbling method where the

H₂S is removed. Remaining gas passes through the second and third cylinder which consists of lime water. CO₂ is completely reduced in this both cylinders where it forms calcium carbonate. After the removal of CO₂ the gas is passed through the fourth cylinder which contains co-co-thread and charcoal to remove the water moisture which is responsible for corrosion.

Finally we succeed to reduce corrosion of burner, Increase burning capacity of biogas, reduce bad odor of biogas, reduces emission of green house gases, increase life of mechanical material.

Keyword- Biogas, Sorption, Purification.



Pahuja Rahul Vijaykumar
Fergusson College, Pune

Contact angle a novel technique to determine Surfactant-Pesticide ratio

Abstract: When pesticides are sprayed on plants, they do not spread easily on leaf surface due to hydrophobic nature of leaves. To make the pesticide spread and adhere to the plants, surfactants are used. If surfactants are not used in proper amount the sprayed pesticide droplets fall off the leaf surface thus leading to waste of pesticide, money and time. Most surfactants available in market are quite generalized for all crops. But leaf surfaces of all plants vary in level of hydrophobicity, so the amount of surfactant required may vary for different plants.

To determine the appropriate amount of surfactant in pesticide solution, an instrument known as Contact Angle Goniometer can be used. Goniometer measures contact angle between tangent drawn to the liquid drop and solid surface. In present study, this instrument was used to determine the amount of surfactant for different plants.

A solution of carbendazim (12%) and mancozeb (63%) was used as pesticide. Surfactants used were Stick Raj which is an anionic surfactant and Acti Wet which is non-ionic surfactant. The plants used for study were custard apple, ridge gourd, guava, sweet lime, lemon, onion and garlic. By performing the experiment, it is concluded that different plants require different amount of surfactant. Also the amount of surfactant varies in members of same family.



Bhide Chaitanya Vinayak

Spirulina: A new life to malnourished

Abstract: *Spirulina* is an autotrophic cyan bacterium. It is an edible micro alga which has a great potential for development, as a small scale crop for nutritional enhancement. The major nutritional interest in *Spirulina* is due to its high protein content, ease of digestion and a significant content of vitamins, minerals and amino acids. It is also economically beneficial for livelihood development in rural areas with tropical climate where its growth is most favourable. The present study was aimed at optimization of major growth parameters of *Spirulina platensis*. A study of effect of light intensity, aeration, pH, sodium bicarbonate content and material used for cultivation on the yield of *Spirulina* biomass and by use of economical synthetic media than fertilizer media. The product obtained on harvesting was subjected to biochemical analysis, FT-IR, DSC and XRD. In conclusion *Spirulina platensis* was cultivated by simple 'terrace method' and final biomass gave high yield of protein and micronutrients.



Darshana Pradeep Kshatriya
K.T.H.M. College, Nashik

Extraction and characterization of chitosan from shrimp shells and its applications in agriculture product preservation

Abstract: Chitosan is a chemically processed form of chitin and it is mainly found in exoskeleton of marine animals such as shrimp, crabs or lobster also found in mushrooms and yeasts. Chitosan is a natural biopolymer, therefore it has a low potential to be harmful and environmentally safe. Shrimp waste collected from fish market, dried, powdered and then treated with chemicals like 7% HCl, 10% and 50% NaOH, 95% ethanol, 4% H₂O₂ and activation of chitosan. Characterization of chitosan was carried out by FTIR which showed enhanced presence of amine groups. The activated chitosan was dissolved in ascorbic acid (1.5% chitosan in 1% ascorbic acid). Antimicrobial activity of chitosan was tested by zone of inhibition performed on *Enterobacter aerogenosa*, *Staphylococcus aureus*, *Pseudomonas aerogenosa*, *Proteus vulgaris*, IS1 (cellulose utilizing bacteria isolated from soil). On nutrient agar plates above mentioned organisms spread on plates and 50 μ l chitosan solution was added in well. After incubation for 24 hrs the diameter of zone around well was found to be 19 mm, 18 mm, 15 mm, 18 mm, and 16 mm respectively. This chitosan solution was used for coating of fruits. Incubated for several days and compared with control which was without coating of chitosan. Coated fruits showed higher shelf life as compared to control and bacterial fruits exposed.



Pallavi Shivaji Takawane
Ramkrishna More College, Pune

Housefly Control - Biorational Approach

Abstract-With a greater awareness of the hazards associated with the use of synthetic organic insecticides, there has been an urgent need to explore suitable alternative product for pest control. *Musca domestica* is ubiquitous insect that has the potential to spread a variety of pathogen to human and livestock. The aim of this study to investigate the larvicidal, oviposition deterrent, repellent properties of leaf extract of *Ocimum sanctum* and *Mentha piperita* against *Musca domestica*.



Jagtap Swapnil Shirang
Fergusson College, Pune

Elite High yielding mutant of Bolichos Bean

Lablab purpureus (L) belongs to family Fabaceae. It is used as Pulse crop in India, as well as green fodder with other crops. It is perennial, twinning or creeping herb generally cultivated as an annual. The plant is cultivated as a pure crop or it is mixed with some other crops like corn, groundnut, castor, bajra etc. The plant is widely cultivated for its green pods and seeds used as vegetables, green leaves used as a fresh fodder live stock and increases soil fertility. It is one of the major crop in southern India like Tamilnadu, Karnataka, Andhra Pradesh. In the present study seeds of *Lablab purpureus* (L) Variety P hule s uruchi were treated with Ethyl Methane Sulphonate (EMS) at concentration of 10mM, 20mM, 30mM, 40mM, Gamma radiation treatment with 100Gy, 200Gy, 300G y, 400G y, and EMS with Gamma radiation treatment with 100G y+40mM, 200Gy+30mM, 300Gy+20mM, 400Gy+10mM, in M₁ generation. The treated seed samples were sown in field as M₁ generation and evaluated for growth and yield parameters. The seeds from M₁ generation was used to raise M₂ generations. In the M₂ generation High yield mutant, High yield luxuriant mutant, Broad pod mutant, Tall mutant, Dwarf mutant, and white flower mutants were observed. The seeds of the selected mutants collected to raise M₃ generation. In M₂ generation at 200Gy+30mM concentration elite early flowering and high yielding mutant observed. The seeds of the elite early flowering and high yielding mutant from M₂ generation collected and sown to raise M₃ generation. The mutant show uniform growth, branching and flowering. The Mutant is stable up to M₄ generation. The observations of different agronomic traits and Biochemical analysis is done for Carbohydrate and Protein content from the mutant.



Swarupa Sachindra Chowdhury
Fergusson College Pune

Fruit Baits: An effective control for fruit sucking moths

Abstract: Maharashtra is one of the leading states in production of export quality pomegranates. But a serious threat to this fruit production is the infestation of the fruit sucking moth: *Otheris(Eudocima) fullonica* Clerk.

This nocturnal moth punctures the rind of the fruit to form pin hole sized spots which results in premature falling of fruits leading to enormous losses to farmers. The control measures for this pest are tedious & economically unviable. Hence, we have devised a moth trap with artificial fruit bait which acts as a bioattractant. This fruit bait has a potent mixture of pesticides hence, it can kill the trapped moths leading to less infestation. The advantage of the bait and the trap is that it is portable, easy to install thus making it a farmer friendly device.



Varsha M. Bapat

Modern College Ganeshkhind, Pune 16

Perimeter Control System for Diverting Animal Attack in the Crop Field

Abstract: Crop damage by animal and bird attack is one of the major factors contributing to the reduction in the overall yield in the crop field. It is observed that wild animals like deer, wild pigs, Bison, boar, elephants etc. are responsible for large amount of damage to the crops. Effective measures are necessary to control their attack in the crop field. There are a variety of traditional and non-traditional methods used by the farmers to control these attacks. The traditional methods make use of a sling, a scare-crow, Helikites, Balloons, use of mesh etc. Most of which are partially useful to protect the crop.

In this research study an Electronic Perimeter control system is developed using sensor technology which identifies the existence of an Intruder/ animal. Then according to the type of animal attack particular set of gadgets will be activated in order to divert them from the crop area. Here, efforts will be taken in order to maintain a balance of the Eco-system as well as achieving the protection of the crop. Also the system will be easy to use and adaptable by the farmers.



Priyanka Pradeep Giri

Smt.Kashibai Navale College Of Pharmacy, Kondhwa

Design and development of Trans-scleral Iontophoresis unit for treatment of Cytomegalovirus Retinitis (CMVR) by Ganciclovir

Abstract: Prevalence rate of Cytomegalovirus retinitis, disease of posterior segment of eye occurs in approximately 33% of AIDS patients and accounted for 90% of cases of blindness. Transscleral Iontophoresis, non-invasive technique can be useful for targeting drug to posterior part of eye. The pH- dependent in situ gel system of ganciclovir was used as a probe for iontophoresis and formulation variables i.e. concentration of Carbopol 940 and HPMCE 50LV and current density, pulse and passive iontophoresis was optimized. The 3^2 full factorial design was used for study the effect on viscosity and % drug release. It was observed that concentration of polymers directly affect the viscosity and drug release profile. The effect of the variables and behavior of the system was studied using response surface plots. The optimum transscleral permeation was observed in formulation with 0.4% w/v concentration of carbopol 940 and 1.5% w/v concentration of HPMCE50LV.

For iontophoresis we used a portable Mini Ion device and applied a current from 0.5 to 2.0mA/cm² for pulse with ON-OFF time from 1:1, 1:2, 2:1, 3:1 and 4:1 seconds. The highest concentration of ganciclovir was reached after iontophoresis with current intensity of 1.0mA/cm² applied for pulse with ON-OFF time 2:1. The delivery of ganciclovir to the eye via iontophoresis seems to be promising method achieving high concentrations of the drug in the eye tissue.

Keywords: Ganciclovir, Iontophoresis, Carbopol 940, HPMCE 50L, in-situ gel, optimization.

**Rucha Milind Vitonde**

Sinhgad College of Pharmacy, Vadgaon Pune.

Diabopatch: A new approach to treat diabetes

Abstract- The aim of the study was to determine anti-hyperglycaemic effect of *Bougainvillea Spectabilis* extract in Alloxan induced diabetes in albino mice along with evaluation of 3rd generation polymeric matrix sustained release transdermal delivery system involving gel which contains D-Pinitol. Diabetes was induced in albino mice by administration of Alloxan (100 mg/kg body weight) by subcutaneous injection. Blood glucose levels were estimated 24 hours after administration of Alloxan in test and control groups in order to confirm induction of hyperglycaemic condition. The results revealed that administration of BSE extract (5mg/kg body weight) reversed the hyperglycaemic condition significantly. A gain, *in-vitro* skin permeation studies revealed 84% absorption (drug diffusion) in 75 minutes and then the transdermal patch was developed. BSE extract possess anti-hyperglycaemic activity. Permeation study reveals possibility of delivery of BSE through transdermal patch that opens up exciting possibilities for management of diabetic through holistic method.

**Swati Saxena**

STES, Sinhgad Institute of Pharmacy, Narhe, Pune

In situ Gel: A new vision for Glaucoma Treatment

Abstract: Although the pathogenesis of glaucoma is not fully understood, it is believed that increased intraocular pressure (IOP) is a basic reason of glaucoma. It is expected that almost 80 million people may be infected from glaucoma till 2020. The conventional eye drops possess poor bioavailability and several adverse effects at high concentration. The developed *In situ* gel formulation showed solution state during administration and gelation at physiological condition (in eye). A 3² factorial study used to reach up to optimized batch from developed formulations. *In vitro* study and *Ex vivo* through goat cornea showed developed formulation possess sustained release property with ¼ th dose of marketed eye drops. *In vivo* therapeutic efficacy study confirmed that reduction in intraocular pressure in normotensive rabbits. Histopathology study on goat cornea proved the presence of normal ocular surface structures with cells maintaining normal morphology. The developed non irritant *In situ* gel would provide new dimensions in glaucoma treatment which can be further evaluated in clinical studies.



Hidadugi Shraddha Dundappa
STES, Sinhgad Institute of Pharmacy, Narhe, Pune

Zolmitriptan Buccal Patch: A Novel Migraine Treatment

Abstract: Zolmitriptan, an anti-migraine drug, is a new 5-HT_{1B} and 1D receptor partial agonist, which causes vasoconstriction and also activates 5-HT₁ receptors. But, per oral administration of Zolmitriptan has many disadvantages such as hepatic first pass metabolism (60%), shorter $t_{1/2}$ viz. 3 h and hence there is need to develop other alternatives. Transmucosal routes of drug delivery offer distinct advantages. Among the various transmucosal sites available, mucosa of buccal cavity was found to be most convenient and easily accessible site for the delivery of therapeutic agents.

Thus the main objective of the present work was to formulate and evaluate Zolmitriptan mucoadhesive patches which may overcome the above mentioned drawbacks of drug as well as dosage forms. In the present study mucoadhesive patches were prepared by solvent-casting method using hydrophilic polymers like xanthan gum, PVA, HPMC E-15, and propylene glycol as plasticizer. Optimization of mucoadhesive buccal patches was carried out using 3² factorial design, with independent variables as concentration of xanthan gum (X_1) and concentration of PVA (X_2). As the Zolmitriptan drug has low permeability, different penetration enhancers like oleic acid, sorbitol and DMSO were incorporated into optimized batch, to increase its permeability. The optimized batches showed desirable drug release in 1h (73.15%) and at 5h (95.05%), optimum mucoadhesive strength (20.78 g) and optimum swelling index (174.32%).



Megha Sahu
STES's Smt. Kashibai Navale college of pharmacy, Kondhwa (BK)

In Silico Design, Synthesis and Pharmacological Screening of Quinazolinones Derivatives as Dihydrofolate Reductase Inhibitors for Anticancer Activity

Abstract: Dihydrofolate Reductase plays key role in cancer. It plays important role in conversion of deoxyribouridine into thymidine and also down regulates folic acid. Main aim of this research work carried out was to develop novel molecule having quinazolinones derivatives as DHFR inhibitor for anticancer activity. In this procedure, selection of molecule, selection of PDB, optimization of PDB and docking of molecules was carried out. *In silico* simulations were performed on VLife MDS 4.3 Drug Design software. PDB was obtained from www.rcsb.org. The file was validated with Ramchandran plot and error report. Docking was performed for cost effective process of prioritization before actual synthesis and pharmacological screening. Further prioritized molecules were synthesized using conventional and microwave assisted organic synthesis. Synthesized quinazolinone derivatives were characterized by TLC, IR, ¹H-NMR and melting point. Interaction analysis was performed to know the hydrophobic interaction of molecules with different types of amino acids like Ser59A, Leu22 A, Gly116 A etc. Prioritized

molecules were further evaluated by *in-vitro* anticancer cell line assay on ten cell lines and methotrexate was standard for *in vitro* assay of molecules. Also novel molecules were evaluated for *in vitro* DHFR inhibition assay. SAM-25, MS-20, SS-36 and SS-53 were found to be active on K562 at a nanomolar concentration and SS-36, SS-53 were also active on A 549 at a nanomolar concentration. All these four molecules were active on *in vitro* DHFR inhibition assay. The project is funded by Indian Council of Medical Research, health research, ministry of health and family welfare, New Delhi vide sanction grant number **58/35/2011-BMS** and hereby acknowledged.

Key words: DHFR, metal complexes, quinazolinones, nanomolar



Zalte Amar Gangadhar

R.G.Sapkal College of Pharmacy Anjeneri, Nashik

Novel Sustained Release in Situ Nasal Mucoadhesive Gel of Methoprolol Succinate

Abstract: Recent advancement of nasal drug delivery system of challenging drugs created interest in recent years in pharmaceutical industry. Nasal route is most reliable alternative to oral and parenteral route because nasal mucosa offers numerous benefits as a target tissue for systemic drug delivery, useful in emergency case, also this route increases the bioavailability of drugs and decreases hepatic first pass metabolism. Nasal in situ gel of metoprolol succinate was formulated to sustain the release of drug, to reduce mucociliary clearance by using mucoadhesive polymer xanthan gum in gel, thereby increasing the contact of formulation with nasal mucosa and hence improving the absorption of drug. Carbopol 940 was key ingredient which gives pH induced sol gel conversion of formulation. These formulations were evaluated for pH, drug content, viscosity, gel strength, mucoadhesive strength, *in vitro* drug release and *in vitro* permeation profile. A 3² full factorial design was applied to study effect of varying concentration of independent variables carbopol 940 (X₁) and xanthan gum (X₂) on dependent variables *in vitro* drug release, viscosity and mucoadhesive strength. *In vitro* release data was fitted to different models to know exact mechanism of drug release. Formulation additives shows effect on drug release, viscosity and mucoadhesive strength, as the concentration of polymers increases mucoadhesive strength and viscosity increases but drug release decreases.

Keywords: Metoprolol succinate, mucoadhesive gels, emergency gels.



Ranpise Hemantkumar Arvind

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Novel Nanoparticle Enriched gel for treatment of fungal Infections

Abstract: In the present study ketoconazole loaded PLGA [Poly (lactic-co-glycolic acid)] nanoparticles were prepared for topical delivery. The nanoparticles were optimized using 3² full factorial design to evaluate the effects of process and preparation variables. Nanoparticles were prepared by the nanoprecipitation method and characterized for particles size and entrapment efficiency. The nanoparticles prepared as per design possessed entrapment efficiency in the range of 58-84 %. Particle size and morphology analysis revealed that the nanoparticles were found in the

size range of 122-435 nm in average diameter and exhibited good sphericity. Zeta potential analysis showed negative charged surface with value of -18mV. The nanoparticulate dispersion was suitably gelled and characterized with respect to drug content, pH, spreadability, viscosity, skin deposition and permeation. Efficacy of the PLGA nanoparticles-based hydrogel was confirmed using *in vitro* drug performance. The developed gel showed prolonged activity up to 12 hours. *In vitro* studies suggested that the PLGA nanoparticles-incorporated gel was more efficient in the treatment of mycosis. It can be concluded from our study that PLGA nanoparticles provide a good skin targeting effect and may be a promising carrier for topical delivery of ketoconazole.



Vandana T. Gawande

STES, Sinhgad institute of Pharmacy Narhe Pune

Gnidia glauca: Source for novel potential anticancer lead

Abstract: The use of herbs as medicine is the oldest form of healthcare known to humanity and has been used in all cultures throughout history. Cancer is one of the largest causes of mortality worldwide. Existing chemotherapy for cancer is painstaking along with a large number of side-effects. Hence the emphasis is given for research on drugs of plant origin. *Gnidia glauca* (Thymeleace) is one of the traditional plants having a wide range of applications. Different activities such as antidiabetic, antioxidant, free radical scavenging, anticariogenic etc have been reported for this plant. Some of the species of *Gnidia* genus are also known to possess anticancer activity. The presented work includes pharmacognostic account, chromatographic fingerprinting and anticancer activity of *Gnidia glauca* leaves extract on human breast cancer (MCF-7) cell lines. The plant showed presence of Phytoconstituents such as steroids, tannins, terpenoids, flavonoids and saponins. One novel constituent was isolated and characterized by elemental analysis, IR, Mass and NMR spectroscopic studies which can act as a potential anticancer lead.



Rohan Chandrakant Vardekar
P.E.S. Modern COE, Shivajinagar

Smart Space Services

Abstract: The basic idea behind the 'SMART SPACE SERVICES' is providing access and user friendly interface with surrounding electronics equipment. Simultaneously navigation and crowd analysis is also provided. The aim of project is connecting digital and physical world which will provide us preset environmental conditions and services.

The main objective of the project is identification of a person, automatic Navigation and providing smart services using smart communication technology through secured access.

The implementation of project can be varied as per the educational institute level, office level, industry level and market level. In the case of education institute and office level important notices

as well as responsible person location and services can be provided by system. In industry level complex system monitoring, workload distribution, quality and quantity of production can be controlled. In the case of fire alarm situation, traffic can be controlled by observing sensitive area and density of users. Person with physical disabilities will have highest priority at time of evaluation. With the help of this system user will also be able to send or receive messages within area without any cost.

This system is cost effective solution over all the present system in the market.



Pranav Vikas Tagwale

Sinhgad College of Engineering Vadgaon, Pune

Potential of Carbon Dioxide Absorption in Concrete

Abstract: Cement industry contributes to 5% of global CO₂ emissions. To mitigate pollution, there is a need of CO₂ sequestration into stable forms. Present research focusses on CO₂ being channelized towards an important construction practice. This paper summarizes the potential of CO₂ absorption in concrete. To verify CO₂ absorption in concrete, an artificial CO₂ environment for curing of concrete cubes (150×150×150 mm) using dry ice was created. Considering concrete of M20 grade, a comparative experimental study of water cured concrete cubes and CO₂ cured concrete cubes, in terms of penetration (using phenolphthalein indicator) and compressive strength was carried out. The result analysis of the tests indicated that CO₂ cured concrete cubes showed 22.12% higher compressive strength than water cured concrete cubes and CO₂ penetration of 13.5 mm after 2 hours. The rate of CO₂ penetration and strength gain in concrete was found to be rapid in the early hours, and slow during the latter days. It is shown that CO₂ can prove to be a useful resource in the construction scenario, especially in the precast industry. It can be incorporated in the current curing module, giving economic and environmental benefits.

: CO₂ absorption, concrete, sequestration, compressive strength, construction, precast



Tushar K. Damle

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Design & Experimental investigation of online soot cleaning methods in Bailer Economizer

Abstract: The carbon soot particulate deposits formed on the outer surface of economizer tubes inhibit the heat transfer to water, reducing the thermal efficiency. While the off-line cleaning techniques call for costly shutdowns, the on-line methods reduce downtime and associated costs, and also improve the heat transfer by continuous cleaning. The present study mainly focuses on the design and experimental investigation of two on-line soot cleaning techniques: sonic horn and supersonic air nozzle; with heat transfer improvement evaluation in an experimental-test facility. The experimental results showed that while the sonic horn gives about 23% enhancement in the average heat transfer to economizer water, the supersonic air nozzle gives an improvement of about

29%. Based on the experimental observations, it is concluded that both the techniques are effective in soot removal but differ in the area cleaned, cleaning time and intensity. The high energy low frequency sound waves give uniform cleaning effect in all directions, penetrating even to the hard-to-reach areas. The supersonic air nozzle, on the other hand, gives concentrated cleaning only in the area accessible to the high velocity jet. The gentle nature of sound waves takes more time to clean as compared to the highly erosive supersonic air jet.



Anurag Sapkota
Sinhgad Architecture College, Pune

Sustainable Façade

Abstract: The research aspires to work towards developing a pilot study by generating one basic form which attaches itself in various arrangements with other similar forms to create a larger form. This research works towards producing physical living module that can be applied and tested, this form of applied research in architecture is rare. The purpose is to create a sustainable building skin by creating one modular form and through the evolution of the composition of those modules in various arrangements. This skin should work on the ground of sustainability.

Requirements from the skin

It should control the microclimate of the building. Due to the virtue of its position where it receives maximum sunlight. The resources inside the building can be used along with the skin to produce.

- 1 Energy from the sun
- 2 Produce oxygen by taking in carbon di oxide and thereby cleaning the air.
- 3 Control the micro climate
- 4 Change its color according to the change in the co2 level in the atmosphere

Procedure : The primary approach towards this research was on the grounds of finding a form of a module which would on being aligned with its external surfaces with other pieces of the same module would create a geometry which would be well suited to be a skin for a building. For this, the procedure was of creating three dimensional triangular forms and finding how the geometry would form when the parameters of the module would be altered such as the number of sides .

The use of a living module for the assembly is done for the purpose of having a bio cell(a cell that consists of life i.e Algae) The algae respire and photosynthesizes thereby producing oxygen by taking in the carbon di oxide in the atm.

Further, the use of Hydrogen carbonate indicator allows the module to be responsive to the change in the atmospheric co2 level and thereby changing its color accordingly.

Anticipated Outcome: The primary purpose of having this skin is to make the building that it covers an environmentally sound one which works towards sustenance of the ecosystem.

A building is a structure which is large in volume and is erected from land. Right from the initial approach towards construction till the completion, the earth is being affected. Great deal of natural resources such as bricks, rocks, sand, wood etc is required for the construction.

It's time for the building to make up for the damage it caused to the environment.

With the involvement of biological research, this skin works as a living biological body which will bestow upon the atmosphere the same benefits that are provided by trees. This research works on

- 1 Living component generation
- 2 Component assemblies.
- 3 Parametric variations
- 4 Atmospheric responsive modules

Significance of Study: This research aims on bringing out the solution to the environmental problems such as

- 1 Pollution
- 2 Global Warming
- 3 Energy Crisis.



Shailendra C. Badwaik

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Real Time Palm Segmentation from Hand Gesture to Recognize Marathi Sign Language

Abstract: This invention associates to automatic palm separation from hand gesture. Hand gesture which are done in front of camera are capturing complete hand image but palm is only region of interest in hand gesture based sign language recognition. Normal person does not aware of hand gestures performed by deaf and dumb people. To interpret hand gestures captured by camera many researchers used colour bands on wrist like yellow, red, green etc. Sometimes researcher asking deaf and dumb to wear hand glove equipped with sensors like accelerometers, infrared cameras and even fibreoptic bend-sensors (optical goniometers). Some of those developments uses glove based systems to realize computer vision based recognition without any sensors attached to the glove. These are the coloured gloves or gloves that offer unique colours for finger tracking ability. Also sometimes full sleeve shirt is used. All these methods tax deaf and dumb to wear colour band, full sleeve shirt, colorful glove or glove with sensors attached. This invention is not demanding any wearable on hand to detect palm and wrist position. An algorithm is developed to recognize static and dynamic hand gesture and interpret them into audio form. The algorithm is deployed on embedded video image processing platform and able to recognize ISL words. The algorithm is groomed up intelligently to tell no gesture, wrong gesture and insufficient light conditions. The system will greatly benefit physically challenged persons. Two patents are filed for this invention.



Kulkarni Yogesh Haribhau

College of Engineering, Pune

Gain in Computation by reducing Dimension

Abstract: At the conceptual design phase, Computer-aided Design (CAD) models are often simplified before analyzing them in the Computer-aided Engineering (CAE) applications. Such simplified models give fairly accurate results while requiring far lesser computational resources/time. Thin-walled models, such as sheet metal/plastic parts are often simplified by midsurface, a surface passing midway of the model.

Extraction of the midsurface is still mostly, a manual and time-consuming process due to lack of a robust and automated method, especially for the complex shapes. Most of the existing methods are applicable for the thin-walled shape. Therefore it is challenging to detect sub-shapes and interactions, needed to compute the midsurface. Failures manifest in the form of gaps, overlaps, voids, etc., which take hours or even days to correct. So, a robust and automated midsurface extraction method is critical for the seamless CAD-CAE integration. This study presents such a method, using a novel Divide-and-Conquer approach, leveraging feature-tree information and cellular decomposition.



Modak Girish Sudhir
PVG's College of Engineering Pune

Staircase Climbing Platform

Abstract: Staircases are seen in almost every man made civil structure, meant for humans. The task of climbing stairs may seem very natural activity for a physically normal person but it becomes a major challenge for physically handicapped person on a account of the obvious restrictions or for elderly person due to the ageing effect.

Many old buildings in the densely populated areas of society are without elevators and these structures can't be re-developed just because they are without elevators. To transfer material from ground floor to upper levels is another challenge for even a normal bodied person living in these old and high buildings without elevators. So 'Staircase Climbing Platform' is a need of the day, at least in the developing countries.

Available designs are not cost effective. This invention provides a new, innovative, simple but 'Affordable' design of Staircase Climbing Platform. It uses wheels with their profile similar to a 'Pinion Gear' perfectly conjugate to the staircase profile, treating the stairs as 'Rack'. Due to the elimination of complicated parts and transmission elements, it is easily adoptable in the wheelchairs or in material transfer trolleys. The resultant 'Staircase Climbing Wheel-chair' or 'Staircase Climbing Trolley' is a Low Cost Solution to the problem.



Moreswar Ramkrishna Khodke
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Strain Sensing by Carbon Nanotube Film

Abstract: Sensors are key components in most of the systems for industrial and consumer applications. Traditional strain sensors such as foil strain gauges can only measure the strains on the structural surface in designated directions and locations. The strain sensing characteristic of carbon nanotubes is used to develop a carbon nanotube film sensor that can be used for strain sensing on the macro scale. A film made from SWCNT or MWCNT by use of solvent/surfactant and vacuum filtration method is called as buckypaper (BP) or CNT Network.

The objective of the research work is to demonstrate strain sensing capability of CNT Film and to study effects of parameters such as Bucky paper constituents (SWCNT /MWCNT /or mix of both; Surfactant used, Manufacturing process), Bucky paper geometry and its configuration (Length, width, thickness, layers) on performance of strain sensors.

Experimental work demonstrates that the CNT film shows linear relationship between strain and change in resistance. Further, gauge factor of the sensor increases as the aspect ratio increases and higher gauge factor is observed for Brass than Aluminum.

Applications of research work is envisaged in multidirectional strain measurement, continuous health monitoring of equipment and structures, fatigue monitoring and in development of smart material and sensors.



Avishkar

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Impact of e shopping on consumer behavior

Sayani Biswas

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Abstract: Indian consumers have been more inclined towards online shopping in the present era. This trend has not only influenced their consumption behavior but also their saving and expenditure parameters. The study in general has revealed that 53% of the consumers would save the amount they would otherwise spend purchasing online. In particular, the trend is also witnessed more in the young age group and female online buyers. The study is vigorously attempted to generate an awareness among the young and female consumers in particular, about their irrational consumption behavior. The impact is seen to be two fold. Firstly, there is a trend in declining savings and expenditures are irrational. The irrational spending is resulting from the subconscious unawareness about the basic repercussionary possibilities like inflation and high interest rates. Secondly, possibility of heavy credit card debts is mounting high with increase in demand and hence may shoot up the general price level and create inflationary tendencies.



Dispositional FLOW and Stress among Employees

Shantanu

Shailesh Saraf

Fergusson
college

Abstract: Modern changes like extended work schedules, time pressure, and increased responsibilities and duties have led to stress, causing health problems in employees. The present study was conducted in lieu of this changed scenario. Studies have shown that stress is one of the crucial variables defining overall job dissatisfaction. FLOW refers to the mental state of operation in which a person performing an activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. In essence, FLOW is characterized by complete absorption in what one does. Dispositional FLOW explains an individual's behaviour with help of internal characteristics that reside within him, as opposed to external or situational influences that stem from the environment or culture in which that individual is found. The present study intended to investigate into the relationship between dispositional FLOW and stress. It was hypothesized that employees with high dispositional FLOW will experience less stress. Data were collected from 60 employees from Pune, in the ages of 28 to 50, married, with at least one child. Respondents were contacted at their work place and they were ensured confidentiality. Jackson's Dispositional Flow Scale (General) and Smith Stress Symptoms Inventory were administered to measure the aforementioned variables, along with a personal data sheet. Pearson product moment correlation ($r = -.27$; $p < .05$) indicated a negative relationship between dispositional FLOW and stress, thus supporting the hypothesis; all domains of FLOW jointly contributed 25% variance in stress. Based on the results, a module is developed to instil FLOW in employees so as to reduce their stress at work. Results are discussed in light of theory, and implications for human resource management are given.

Key words: FLOW, Stress, Employees



Gender Equality- A Module for Gender-Sensitization Among Late Adolescents.

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Autade**

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Abstract: Inherent is the nature of sexism in our country. Contradictory to the aims of reaching utmost development for India, where half of the population is considered to be meager, and the other half have to abide by the rules of manhood. Tradition is what dictates this view towards women and men to follow rules meant for their sex. The study aimed at observing changes in the concepts and thoughts of young adults regarding sexism, and their view towards the opposite sex. A pretest-posttest control group design was chosen for this purpose; where the experimental group was provided with an intervention, a gender sensitization program with a self-designed module for a span of two weeks. Pretest and posttest were administered a week before and after the intervention respectively. A total sample of 85 young adults with 48 females and 37 males were included in the study. In order to measure sexism a tool by Glick and Fiske (1996), the Ambivalent Sexism Inventory was used. The results calculated using SPSS show that the experimental group and the control group were not significantly different on Sexism in the pre-test, Mann Whitney U scores were 849.000 and $p > .05$. After the intervention, the scores on sexism of the experimental group were significantly less as compared to the control group (Mann Whitney U score = 577.000, $p < .01$), thus establishing the effectiveness of the program.

Keywords: Sexism, Gender-Sensitization, intervention, young adults.



'Koogai': Toward a New Paradigm in Dalit literature

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Abstract: The objective of this paper would be to critically analyse Cho. Dharmans's novel *Koogai*, and understand how it manages to repudiate notions about dalits and their culture in popular imagination. Simultaneously it will try to showcase how this endeavor attempt is inextricably linked with the novel's attempt to transcend the boundaries set by Western models of the realist/modernist novel genre by incorporating myths and folklore which form an integral part of the dalit imagination.

Cho. Dharmans's novel *Koogai* marks represents this trend and creates a new space to imagine dalit life and modes of resistance. Dharmans does away with the notion of the caste system as a clear vertical hierarchy and instead prefers to see it as a rhizome of different communities simultaneously refrains from romanticizing the village society challenging stereotypical portrayal of dalits.

Koogai not only asks us to reconsider the notion of new aesthetics for dalit literature but question our embrace of the western model of the novel genre itself. It marks an endeavor to bring subaltern cultures into popular imagination and transcend western model of literature that we seem to have imbibed, moving away from a politics of rage.



Translating Fiction: A Framework for Resolving Cultural Untranslatability

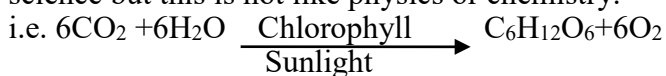
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Abstract: The present research project is entitled ‘*Translating Fiction: A Framework for Resolving Cultural Untranslatability.*’ The aim of the present project is to analyse the process of translation of *Bangarwadi* as *The Village Had No Walls*. The present project also attempts to explain the cultural untranslatability and other factors. So far the translation of the original work (end product) has been studied but the translation process has not been studied. The researcher has tried to do this. Susan Bassnet in her introduction of *Translation Studies* observes: “..... What is analyzed in such studies is the product only, the end result of the translation process and not the process itself.” This brings out the need for the study of translation process which is necessary.

The Novel *Bangarwadi* has been studied from various perspectives e.g. there is research in Department of Marathi, Savitribai Phule Pune University on the topic *Bangarwadi* (Marathi) *Va Maila Aanchal* (Hindi) *Ya Kadambaryancha Tulnatmak Abhyas*. In the journal, *The Economic and Political Weekly* Taya Zinkin has written the book review of *The Village Had No Walls* (*Bangarwadi*) by Vyankatesh Madgulkar which was entitled as *India Has No Walls*. So the novel *Bangarwadi* has been studied from various perspectives but the translation of *Bangarwadi* into English has not been studied. That is why the researcher has chosen the novel *Bangarwadi* for the present project. *Bangarwadi* consists of the colloquial language of *dhangar* people. It is really a difficult task to translate the colloquial Marathi language into English.

One has to know the meaning of translation before doing the study of translation process. Translation is a complex process that demands linguistic competence, knowledge of source language culture and target language culture and practice or experience. Eugene Nida in his *Theories of Translation* says that there is an Idea that “translation is a science.” Translation is a science but this is not like physics or chemistry.



This reaction only gives glucose (Carbohydrate). It does not give salt (NaCl-Sodium Chloride) or any other element. In this case, if one applies particular theory or formulae, one gets the specific result. But this is not the case with the translation.

Eugene Nida in his *Theories of Translation* stated “Translating is essentially a skill and depends largely on a series of disciplines, for example, linguistics, cultural anthropology, philology, psychology and theories of communication.” The Translator should know the culture of source language as well as target language. If the translator continuously translates various books, he will become habituated with task or become familiar with this task. So, various theories of translation are also helpful for doing translation. But there can be a person who doesn’t know any theory of translation however he/she can translate a text from source language into target language. To some extent one can say that translation is an art. As Theodore Savory defines “translation as an ‘art’.” It is possible in certain circumstances. It is really a difficult task to give the exact meaning of translation. Aniket Jaaware in his article *Bhashantar-Ek Tipan* [*Translation-a note*] says that ‘the meaning of translation has been given in various ways, in different cultures and in different periods.’

To understand Luther’s point of view in the relationship between the translation and original, Walter Benjamin in his *The Task of the Translator* provides a simile. “Just as a tangent touches a circle lightly...”

George Steiner explains the four steps of translation process in his essay *The Hermeneutic Motion*. These four steps are trust, aggression, incorporation and compensation. So the meaning of

translation differs according to the different persons with different perspectives in different cultures and in different periods.

Analysis of Translation Process of *Bangarwadi* ; *The Village Had No Walls* :-

1.1 Transliteration of Proper Noun and Some Changes Occur in Proper Noun:

Catford in his *A Linguistic Theory of Translation* described the transliteration.

Ram Deshmukh uses transliteration for proper noun in the translated novel *The Village Had No Walls* e.g. Dadu-Dadu, etc. Sometime Ram Deshmukh has made a slight change in the proper noun.

In Queen movie Kangana Ranavat also has used transliteration e.g. Rani –Rani, Queen-Rani.

1.2 The Factor Culture in the Translation : J.C. Catford in his *A Linguistic Theory of Translation* defined the cultural untranslatability. Ram Deshmukh has used the words snack and lunch for *dashmi* . In English language there is no equivalent word for the word *dashmi* because of cultural difference. There are lot of examples of cultural untranslatability in *The Village Had No Walls*. There is also example of cultural untranslatability in Hindi movie Queen.

1.3 Use of Hindi Words in English Translation: Ram Deshmukh has used many Hindi words in *The Village Had No Walls* e.g. *choli* for *choli*, *gur* for *gul* etc.

1.4 Use of Pictures: There are lots of illustrations in *Bangarwadi* and Vyankatesh Madgulkar has drawn this illustrations. There are two illustrations in the *Village Had No Walls* .

1.5 Some Observations: Ram Deshmukh has made addition and omission of some sentences and words. *Bangarwadi* has translated in most of the Indian Languages. Gunther Sonthimer has translated the novel *Bangarwadi* in German Language.

The original novel *Bangarwadi* cannot exist again in the receptor language i.e. in English language. So this transfer of meaning cannot be perfect translation. But in the hermeneutic motion the target text should have the equity with the source text. So here, *The Village Had No Walls* has the equity with the novel '*Bangarwadi*.' Foreign reader can understand the Indian Culture because of this translation. The translator also gets inspiration for translation because of the study of translation process.



Predicting soil loss from a watershed: Application of SWAT model

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Abstract: Of all the hazards, soil erosion is considered to be one of the most serious one especially in India, a tropical country with an agrarian economy. The first soil loss model ever presented in the world is Universal Soilloss equation by Wischmeier and Smith (1959). In this paper an attempt has been made to estimate the sediment yield along a deeply dissected region in the Western Deccan, by applying USLE derived model SWAT (Soil and Water Assessment Tool), the physically based, watershed scale hydrological model. The study area is a deeply dissected badland in a semi arid part of Western Deccan in India with 5000² km area. SWAT requires specific inputs about weather, soil, topography, landuse - landcover data. IRS Cartosat stereo pair imageries and LISS IV multispectral imageries have been used to create DEM and the landuse classification for the model. The average sediment yield predicted by the model indicates that the region is holding on close to the threshold level of soil tolerance limit. There is a need to evaluate the type of landuse practicing in the region. The study will help the local farmer population as well as planners in proper land use planning for the future.



Yehi Hain Right Choice? : Mapping Youth Perceptions and Attitudes towards Declining Sex Ratios in Maharashtra

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Abstract: This project was conceptualized in the context of the ubiquity of the issue of declining child sex ratios in the context of 2011 Census data. The problem that this project tried to address is how do we introduce the issue of declining child sex ratios through feminist perspective to young people? The idea was to push them to ask and answer the question: in a context where there has always existed son preference, how and why does the girl child become particularly undesirable in the contemporary moment? The significance of the project is to try to critically engage a generation which will be future decision makers.

The project was carried out as a participatory research, envisaged as using the workshop mode to simultaneously raise awareness about the issue of sex selective abortions and the declining sex ratio and its linkages to gender, caste and class relations in a liberalizing economy at large as well as generate data to understand the issue in a nuanced manner. The workshop had components of baseline questionnaire, focus group discussions and exercises using maps, audio-visual content etc. The baseline questionnaire was primarily intended to map the perceptions and attitudes of young people and provide us guidelines as to the format and issues to be addressed for the workshop. What emerged from a reading of these responses was a high degree of awareness about the issue, but they tend to reproduce the common-sense, seeing the problem only within the framework of 'killing (bhrunhatya) of the girl child', as being located outside of them, and as something that can be resolved through a change in mindsets. Through the oral histories and FGDs, we found that the problem needs to be understood in terms of active daughter aversion in addition to son preference, sex selection is one of the continuum of strategies used by the family to achieve optimal size and composition and that it needs to be therefore read in continuation of such practices as adoption and use of ARTs, idea of optimal family size and composition are shaped by the changing occupational profile of the family, migration patterns, relationship to land and property etc. and that across caste groups there is a definite downward trend in the number of children generationally and the desire for a small family is a result of the desire for modernity and class mobility; also continuum of sex selective practices, medical, non-medical, ritual, religious and occult which are routinely used and not seen as 'problematic'. It then challenges the simplistic understanding of the problem in terms of good people who don't abort/ bad people who do. The important thing that emerged was that the problem needs to be located in the changing political economy- linkages to State, market, family-household system and individuals as located within and shaped by these. The outcome of this project is an innovative workshop module which brings the state and market into the frame to understand how decision regarding sex selection and termination are made in the family and which allows young people to critically engage with and understand structures and systems, as well as the peculiar contemporary juncture which produces the phenomenon. The immediate impact has been in terms of using this workshop module in fifteen colleges as a entry point to raise gender issues at large.



Decision Making Tool based on Residential Location Preferences for a Fast Growing Indian City

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Abstract: Residential location preferences depend on diversified sets of physical, social and economic parameters with highly non-linear interconnections. Factors governing residential location preferences may broadly be grouped as socio-cultural, socio-economic, socio-demographic, spatial and geographical. Each of these factors incorporates a wide range of parameters that characterize residential location preference, to a varying degree of significance, such as monthly household income, family size, religion, cost, etc. Estimating rapid, yet accurate residential location, requires identification of the most significant factors governing preference. Thus, a concept of extracting significant parameters and identifying their importance is carried out using an analytical hierarchy process introduced herein. Further, the most preferred zone to live is identified using technique of order preference by similarity to ideal solution. The opinion difference between Experts' and Urban Dwellers' is analyzed. Combined AHP-TOPSIS method is managerial decision making analytical tool that will be helpful for Urban Planners in the process of preparation of development plan for a city. This tool bridges the opinion gap between the decision makers: Urban Planners and the end user: Urban Dwellers in Urban Planning process. A novel application of multi-criteria decision making technique to residential location preferences, a complex problem in urban planning, is presented.



“Economical Family Doctor” Bring the Doctor at Home

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SMBST College,

Sangamner

Abstract: A reliable wireless healthcare monitoring system has been designed and successfully implemented in this work. The proposed system has been field tested. The test results show that the proposed system is able to monitor the body temperature, heart pulse rate, ECG signal, blood pressure and moisture with enough accuracy. Since the proposed system is based on ZigBee, we can conclude that it is a low power and low cost system. Moreover, major part of the proposed system has been implemented in using HyperTerminal. Hence, the proposed system is easily reconfigurable and it can be connected to the Internet easily. The system is also able to store physiological data of patients for 24 hours a day and seven days a week. In future the proposed System can be extended to include more sensors that can measure more parameters like diabetes and GSM Technology. The proposed system is flexible enough to include such kind of modifications.

Keyword: - Healthcare, Heart pulse, blood pressure, body temperature etc.



“Price Of Guilt : Plea Bargaining- Expiation Through Compensation”

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Abstract: In India the conviction rate has fallen which indicates an abysmal state of ‘law and order’ or rather the lack of it. The statistics relating to crimes in 2014 released by National Crime Record Bureau reflect the inefficient functioning of the system. In 2014, the number of violent crimes registered were an astounding 2,56,000. While only 84.5% of these crimes marched to the stage of charge sheeting, just 28% ended in conviction. Maharashtra recorded lowest conviction rate at 8.2%. This incompetency not only puts the crime rate at an all time high, but also leads to gross injustice towards the victims, who remain nothing more than a secondary factor in our contemporary criminal jurisprudence. Hence, need was felt to introduce an Alternate Dispute Redressal Mechanism for criminal cases. Therefore, the concept of plea-bargaining was introduced in India by the Criminal Amendment Act, 2005 via Chapter XXI-A of the Code of Criminal Procedure. However, this novel concept has faced many challenges in its application in India, especially due to lack of awareness about its existence.

This project aims to bring Plea-Bargaining in to the limelight with a view of using it to compensate the victim along with certain suggestions to improve its application. When successfully availed, plea-bargaining will be a win-win situation for all- for the victim via compensation, for the accused via concessions, and for the prosecution via conviction.



Land Acquisition – Corporate Interest v. Land Owner’s Interest.

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Abstract: After the enactment of the new land acquisition act in 2013 Prima facie it is felt that the provisions of the Act would act as a hindrance in land acquisition and consequently slowing down industrial development. The provisions of the act provide for a large amount of compensation and other compliances that the corporate world may not be able to fulfil. But the question arises that, can for the sake of industrial development, the interest of the farmers who own the land be sacrificed. No doubt there is a need for industrial development in India. India is also considered to have the least favourite countries when it comes to ease of doing business. One of the factors for this is the difficulty in land acquisition. From the farmer’s point of view, the old laws provided for very minimal amount of compensation and therefore the new enactment is a welcome change. A balance is needed to be struck to secure industrial development as well as interests of the farmers or other land owners. Leasing of lands should be provided as a substitute of acquiring as well as interests should be given to the farmers. Rehabilitation and resettlement of farmers shall be considered taking into consideration each family on a separate basis.



Need of Sex Education in India

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Abstract: This largest democracy in the world is also home to the largest number of children in the world. The children have not benefited equitably from the development in India. The lives of children in contemporary India are struggles for survival revolving around health, education, protection and so on.

In spite of policies and law, children continue to be exploited and subject to abuse, violence, and discrimination concerning gender, caste, community.

According to UN report on Rising adolescent pregnancies and abortion, every hour 3 out of 7 deaths taking place due to complications in pregnancy, child bearing and unsafe abortions among girls in a age group 15-24 noticed. Alarming rise in teenage pregnancies and abortions has been observed in India.

Underlying factors: 1. Unawareness, 2. Lack of knowledge, 3. Social silence, 3. Media and technology portrayal and its impact, etc.

Consequences: Health, Social, economic and legal issues

Solution: The State should include "*Building Psycho-Physiological Integrity*" a separate subject as a part of education.

Objectives: 1. To enable adolescent to know what is right and wrong? 2. To maintain health with changing psycho-physiological conditions, 3. To foster health and well being, 4. To make health rights exercisable, 5. Avoid abuse, violence and complications.

Legal reference: Constitution Article 15(3) special legislation for girls and women, Article 21 Right to life includes Right to health, dignity and bodily integrity and Directive Principles and UN Report.

Thus the issue carries multidimensional angles which need to be answered.



Gender Audit in Educational Institutions: Problems and Prospects

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Abstract: Gender Audit is a feedback mechanism, a Management and Planning Tool. There are two Types of Gender Audits viz. non-financial (as described by UNESCO) and financial (i.e. which is conducted after the implementation of Gender Budgets to analyse the incomes and expenditures of the organisation from a gender perspective.) The study, which was conducted with the two-fold objectives of identifying the feasibility of introduction of Gender Budgeting in Universities in XXX City and studying the disclosures regarding Gender Audit made by these Universities in their Self Study Report of the NAAC, revealed lack of uniformity in reporting practices and misconceptions in interpretation of Gender related terms. Structured Interviews with the management revealed their willingness for introduction of Gender Budgeting in some Universities while lack of awareness in the remaining. The outcome of the project is a conceptual framework for Gender Audit of Educational Institutions and a Gender Budgeting Action Plan. The study will benefit the IQAC in each University, the Management of the Universities as well as the NAAC. Also it will create awareness and bring uniformity in the Gender Audit Reporting.

Key Words: *Gender Budget, Gender Equality, Gender Audit, Gender Mainstreaming*



Merciful Nexus of capital Punishment with Pardoning powers

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Abstract:



Cyber Crime: In the Borderless, Paperless and Faceless World.

(Realizing the Realities of the Virtual World)

Asst. Prof. Deesha Meshram

DES's Navalmal Firodia Law College, Pune

Abstract: The internet has transformed many different aspects of human material life. We are almost living a parallel life over the internet. The bits and bytes are identifying us. Computer-based communications move across the globe cutting down the distances and lifting barriers. Whatever a person can do in real space, he can do the same through a computer too. The internet allows anonymous communications that dispense with face-to-face interactions.

Such uncontrolled growth in the IT sector gives birth to various unexpected and undetected crimes contributing to the negative growth of in the crime rates around the globe. Computer technology is advancing in leaps and bounds and every day the gap between the computer technology and computer security technology is growing wider, thereby providing a lot of scope for committing cyber-crimes.

The problem is compounded by the fact that many of the users, themselves are unaware about what a cyber-crime means, and the crooks are exploiting this weakness for their own advantage. While those responsible for the prevention of these crimes are groping in the dark, the system crackers are busy jumping in and out of so called secure networks, learning about latest security holes as well as discovering bugs and vulnerabilities.

There is a continuous increase in the cyber crime, though since 2000 the IT Act with an amendment in 2008 is in place in India for curbing cyber crimes, but the problem is that still these provisions are more on papers than on execution.

This project is a small attempt in throwing some light on the whole issue as to how cyber space is misused and with this pointing out the shortcomings and lacunae in the cyber laws and understanding the urgency of dealing with one of the important aspects of involved in the investigation and enforcement of cyber crimes and laws, i.e., cyber forensic and with it to suggest remedial measures to ensure effective prevention and control of the cyber crimes.



3 A Model For Clean Education Campus!

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Abstract: Cleanliness is a holistic concept that involves personal, environmental and social cleanliness. Educational institutes are a part of the larger society and hence the need to maintain a clean campus becomes an imperative. This study aims to highlight the need to promote cleanliness in academic institutions. The premise of the study includes: a clean education campus will contribute positively to the mission of a clean country.

In an educational institute, all its stakeholders: Teaching, non teaching and students are equally responsible for maintaining cleanliness on campus. This study is an attempt to identify the gap between perceptions of the stakeholders and the actual behavior demonstrated by them on campus.

The methodology used for this project is a questionnaire to collect the perceptions of the respondents and observation of their actual behaviors on campus. The primary findings reveal a gap in perceptions and behaviors demonstrated by the stakeholders towards achieving a total clean campus. Hence, a 3A model is suggested by the researcher to support the cause of 'Clean Campus Movement'.



Electric Energy Generator

Rohit Bhivaji Waykar & Aniket Padmakar Gore.
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Abstract: We have used Nd (neodymium) Magnets on the fins of the fan. The magnetic field is produced after rotating fan and e.m.f is induced. The generator is basically works on wastage of mechanical energy like sewing machine CNC machine wheels and any rotating machine .we used gear system in that generator by this system we convert small amount of mechanical energy into more electric energy. Voltage doubler circuit is used to increase the voltage. It generates electric energy and we store this energy in battery for many purposes, like home electricity, charge mobiles and small batteries.



Surfacetouch

Kishore Ubale
Dr. D.Y. Patil Technical Campus Lohgaon

Abstract: Surfacetouch has a revolutionary implementation in field of education as it provides way for students in schools to interact with computers by touch or just Project Code name SURFACETOUCH mainly focus on developing efficient and seamless computer interacting devices & provide a single way to interacting with computing devices such as computers, projectors, mac or any surface just using a finger or by pointing their finger towards the projected screen it means students can touch the projected screen and also air touch the projected screen. Surfacetouch is implemented in such a way that it can be implemented on any existing devices and also upcoming devices without any need of extra cost for hardware.

It can be implemented in government sectors where government is too slow to implement touch based computers for government workers but surface touch can fulfil the needs of this workers by providing touchscreen and airtouch interfaces which was only science fiction before a year ago.

The Applications of This Technology Are Limit less.

It can be used in Schools and Collages to help students better learn. Students can actually touch the content.

It can be used in Corporate presentation to Visualize and explain Concepts effectively.

It can be used to turn any laptop or Desktop into touchscreen device, it can also any display device to Airtouch

It can be used in CAD/CAM Applications to interact with 3D designs and models, Virtual reality is an another great application of "Surfacetouch"

"SURFACETOUCH" is Cross-Platform Software that allows to turn any Surface to touchscreen.

Software take the 3D measurement of the surface from the hardware which is placed over projector or directing towards surface which is to be turned a touchscreen. Hardware consist of accelerometer, infrared camera and Bluetooth.

Accelerometer is used to track the exact pointing location in 3D. Infrared camera is combined with accelerometer to work precisely and efficiently. Whole hardware is powered with just 3 Volt using AAA batteries which lasts long as 30 Days.

There is a infrared red emitter which is placed on finger. Whenever user touches on surface infrared rays are emitted, this infrared rays are sensed by infrared sensor which calculates exact X,

Y and Z co-ordinates in the real physical world where we are performing touch. The 16-bit packet is formed and sent to Surface touch Application over the medium of Bluetooth 4.0 at Amazing refresh rate of 10 packets per second. The packets are received by "Surface touch" software which process data in the packets using Highly Complex Algorithms coded with C# this plot the location of touch using calibrator once calibration is done then user can use the whole system and touch on calibrated surface.

In "Surface touch" we have implemented parallel processing technique which works at higher refresh rates and precisely recognizes the users pointing location.



Shopping tool for blind person Using Raspberry Pi Abstract

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Abstract: Our solution aims to offer eyes-free technological support for blind people to shop around as if they saw, without altering conventional shopping patterns.

In this generation printed text appears everywhere. So Because of this the blind People always take a help of other to buy some Product, Thus Blind People need some assistance to read Text Information of the Product.

So we thought that to Develop some kind of Tool/Technology that Blind Person buy a Product by their own without taking any one's help and Blind Person feel Confident about them self.

The main Contributions are as follow:

- 1) Image capturing-By using mini camera captured as an image and have to send to the Image Processing Platform.
- 2) Text Recognition-by using a OCR the text will get filtered from the Image.
- 3) Speech output-A filtered text will be passed into this System and Converted into an audio Output.

This Paper Present Raspberry Pi based Tool which help the Blind People in their daily life.



Online Train Track Breakage Detection System

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Abstract: Now a days we know that several incidents are happened with railways such as Track discontinuity, fish plate removal & track deformation, Cheap-out of track or crack on tracks. Because of these there is big loss for railways like Property loss to railway & human loss to nation, and also some accidents are happened with trains because of these reasons.

To avoid such incidents we developed Remote automatic sensor system to detecting online health or condition of the track. And it will communicate with station controller/master.

In this project we transmitting some power by using two different frequencies through train tracks, and measuring reflected and transmitted power ratio by using VSWR (voltage standing wave ratio) meter. Display the readings in control room. By this we can predict or recognize the attenuation to the frequency and analyse of the obstacle. And take corrective or required action.

The advantages of the project for railway are: Early warning about sabotage, safety of passengers, to avoid property loss of railway.



Effect of *Ductus carota* & *Beta vulgaris* on colouration of *Anabus testudineus*

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Abstract: Ornamental fish keeping is one of the most popular hobbies in the world today and rapidly gaining importance for their aesthetic value as well as trade value. The knowledge of nutritional requirement in ornamental fish species is essential to improve productive development and also for color improvement. The Climbing Perch, *Anabus testudineus* (Bloch) is a highly priced air breathing, freshwater food fish species which belongs to the family Anabantidae and order Perciformes. This paper deals with effect of feed; formulated from Natural plant products viz. carrot (*Daucus carota*) and beetroot (*Beta vulgaris*) on color improvement of *Anabus testudineus*. The feed and water environment changed the color of *Anabus testudineus* by 80% during the experiment. In practice, Fishery business has enormous potential to accelerate Indian Economy by earning foreign currency as well as it may also reopen a door for young entrepreneurs to do fishery business using natural plant products as feed. Also Ornamental fish feed from natural plant product will make its culture and rearing easy and less expensive and makes this business vibrant and native fishes will get the level of demand they deserve.

Key words: Ornamental fishes, aesthetic value, nutrition, color improvement, feed formulation.



Unused Air Power for Electricity Production

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Abstract: Today according to World's need Energy now becomes the most necessary things to Human being. Electricity is the most important factor in human life. Energy is generally divided into Renewable and Non-renewable energies. Non Renewable energy produces lot of pollution and hazardous atmosphere to the Earth atmosphere. Due to these difficulties, we are searching another option of renewable energy sources like wind power and solar energy. In our daily life we have observed there are lots of energy sources are available in our surrounding but due to lack of technique we are not able to extract energy from them. e.g. in our Wall fans, Kitchen Exhaust fan, splitting AC exhaust fans and wash rooms exhaust fans have rotating fans, that creates lot of wind power that are thrown outside. But if we used these wind power and converted them into some electric power then we can utilize them for our power consumption appliances like emergency lights, Mobile, laptops, tablets, Torch, or for charging small batteries. Also we can store this power to batteries and using inverters, re-use again for our home appliances. We can use these small magnetic fans or DC motors which are rotating using wind power produced using the exhaust fans, and produce the electricity. Also by using series arrangement of smaller motor generator, produces the more electricity to use which is low cost and free to use for lifetime.





Identity Recognition without Consent

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Abstract: Physical biometrics like fingerprint, iris offer very good recognition rate, but when an individual may deny revealing his/her identity then these techniques prove to be falsified.

A new pattern recognition technique for identifying individual without requiring subject consent, co-operation and proximity is presented. It uses identifying individuals on the basis of walking pattern called gait. Gait is weak behavioral biometric suffering from diverse and anonymous covariates posing considerable challenges for achieving promising recognition results. A new technique based on video processing and tensorial framework using multilinear approach is developed. Robust single template based, and binary silhouette gait video sequence based representation scheme is adapted to preserve discriminative information. Feature extraction along with dimensionality reduction using multilinear Laplacian discriminant analysis is used to compute tensor distance. The tensor distance is used along with proposed class separability measure gives correct classification rate of recognition. The technique finds application for visual surveillance, counting number of tigers (animal) in forest and early diagnosis of disease like Parkinson disease.



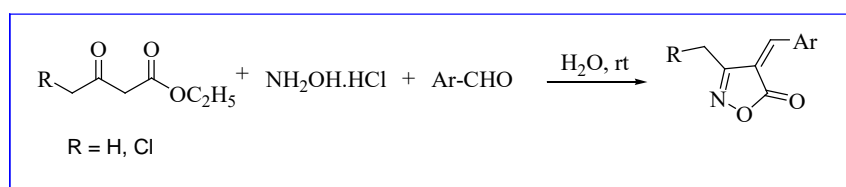
Green Synthesis Of Potential Drug Candidate Against Tuberculosis

Abhijit P. Chavan

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Abstract: Tuberculosis is a contagious disease with comparatively high mortality worldwide. More than 80% of TB patients are in the age of 15 to 49 which is considered to be economically productive age group and hence it results in tremendous social and economical problem. India is the highest TB burden country accounting for more than 1/5th of the global incidences. The last major clinical advance in tuberculosis chemotherapy was the introduction of Rifampicin in 1968.

Isoxazolone a class of heterocyclic compound having a remarkable pharmaceutical importance. A series of 4-arylmethylidene-3-substituted-isoxazol-5(4H)-ones derivatives were synthesized by catalyst-free, three-component reaction using water as solvent at room temperature. All the synthesized compounds were evaluated for inhibitory activity against *Mycobacterium tuberculosis*. Among them, three compounds exhibited comparable activity with reference to standard drug viz. Rifampicin and Isoniazide, on the growth of the *M. tuberculosis* (H37Rv) bacteria.





Disease Diagnosis Software

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Abstract: Plant disease detection is vital for food security, quality of life and a stable agricultural economy. India is an agricultural country where most of the population depends on agriculture. Research in agriculture aims to increase quality and quantity of the crop. Enormous agricultural yield is lost every year due to rapid infestation by pests the various methodologies were proposed earlier for detection of agricultural diseases. We proposed a new approach which exposes advance computing technology that has been developed to help the farmer to identify agricultural diseases and take proper decision about preventive or control measure on it. Our proposed work we have captured images of leaf from various crops like cabbage, wheat, maize, chilly, rice, etc. We describe a software system for disease detection on the infected images of different leaves. Images of the infected leaf are captured by digital camera and processed using image growing, image segmentation techniques to detect infected parts of the particular plants. Then the detected part is been processed for further feature extraction which gives general idea about disease. This proposes automatic detection and calculating area of infection on leaves. Automatic detection of plant diseases is an essential research topic as it may prove benefits in monitoring large fields of crops, and thus automatically detect the symptoms of diseases as soon as they appear on plant leaves.



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Abstract: The present invention is directed to a machine which is attached to the tractor to lay film over the face of a landfill. The machine is coupled to a standard tractor and normally slides over the ground on skid plant as the vehicle moves forward. A film roll is supported on machine in position to be unwound , and the film is progressively deposited on ground behind the skid plate .Groove forming structure under the skid plate is disposed centrally inward from the edges of the film roll, and following wheels depress the edges of the film into the groove. Scraper plates then move earth into grooves, entrapping the edges of the film.

More specifically , the present invention is directed to a machine and method for laying a polyolefin film over the face of a landfill and distributing available solids such as dirt ,clay , gravel or other solid martial inside the edges and across the surface of the film to hold the film against the face of the landfill.



Development of potential viable vaccine for combating the *Hyalomma* spp
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Abstract: *Hyalomma* sp. (Ticks) is one of the obligatory parasite prevalent in Baramati region. These ticks are responsible for diseases leading to huge losses of agriculturally important animals and product derived from them. Ticks feed on these animals by sucking their blood and thereby transmitting the infection to them. The hosts react by the formation of a haemostatic plug, activating the coagulation cascade, which would disrupt tick feeding and cause rejection of the tick with detrimental effect on tick viability and reproduction. In response ticks develop a pool of molecules which digest the host immune response.

The strategy of the project is to use the immunological response of an antigen in host that elicit an antibody response. Secondly to identify immunomodulatory important factors for the ticks function or survival and its evaluation as potential vaccine antigens. Lastly biochemical fractionation, evaluation of simpler protein mixtures by host vaccination and parasite challenge trials. Protein profile studies of the salivary glands from the *Hyalomma* species has revealed separation of more than 15 prominent protein fractions. Further characterization, identification and immunological assays will help in identifying a suitable candidate molecule. Vaccine developed with the identified candidate will be a potential non-contaminating, sustainable, cheaper and applicable to a wide variety of hosts.

Key Words : *Hyalomma*, Ticks, coagulation cascade, immunomodulator, vaccine



PestSure: Pesticide resistance prediction server for lepidopteran pest insects
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Abstract: Insect pests remain a major reason for crop loss worldwide despite extensive use of chemical insecticides. Uncontrolled application and strong selection pressure led to the emergence of insecticide resistance in insect pests. There are two types of resistance mechanism in insects, mainly metabolic detoxification and modification of the target site. These mechanisms alone or in combinations confer the resistance towards the insecticides to high levels or against the specific class of insecticides. It has been observed in most of the cases that enzymatic detoxification by glutathione S-transferase is a prime cause of emergence of insecticide resistance in lepidopteran insects. Here we are representing binding energy based server "PestSure" for insecticide resistance prediction. We have used 98 commercial pesticides molecules belonging to seven classes namely plant derived, pyrethroid, organophosphate, organochloride, carbamate, neonicotinoides and ryanodine. We have calculated the binding free energy for these pesticide molecules with 210 GSTs belonging to 37 lepidopteran species. Furthermore, this server is supported with extensive statistical analysis and data mining to validate our predictions. We proposed this server with significant accuracy in prediction of resistant and effective pesticide for insect pests. This server will provide an easy way to select effective pesticide against any pest. Identification of probable effective pesticide will be useful to reduce ecological burden of pesticides and also it will be time saver.



Bacteriophage: A Magic Biomachinery to Save Pomegranate

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Abstract: Pomegranate which is also known as ‘Fruit of Paradise’ is a vital fruit crop cultivated in varied provinces of India. Due to its enormous export prospective, pomegranate is of great economic value. In past few decades, pomegranate is suffering from greatly catastrophic disease known as ‘Bacterial blight’ not ably caused by genus *Xanthomonas* which results in 60 – 80% losses of export standard fruit. Traditional cultural practices and antimicrobial agents have failed to control the spread of this disease. Phytopathogen has developed resistance against various agrochemicals due to their exorbitant use. On the other hand, heavy usage of bactericides leads to the killing of non-target microorganisms and also leads to soil pollution. The phytopathogen is undergoing continuous evolution so that this critical time there is a need of distinctive and ecofriendly biological approach to restrain this fatal disease. A step towards these is usage of ‘Bacteriophages’. Lytic phages infect specific bacteria and are self-limiting in nature. Killing technique of phages is different from that of antibiotics and is much safer than chemotherapy. Thus, lytic bacteriophages being specific for their targets, non-polluting, ecofriendly and reasonable could be substantially used as a green technology to fight against bacterial blight.

Keywords: *Bacterial blight; Xanthomonas; pomegranate; bacteriophage*



Biosurfactant from Agro-waste

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Abstract: Biosurfactants are surface active compounds consisting of hydrophilic and hydrophobic moieties secreted extracellularly by wide range of microorganisms as their secondary metabolite, mostly for internalization of hydrocarbon molecules and antagonistic activities in the environment. The diversity and ecological acceptance of biosurfactants are attracting attention of scientific community. Fifty-four isolates were positive for biosurfactant production based on the results of this test, among which 20 could reduce the surface tension below 30 mN/m of a 24h culture supernatant. One of the isolates, (#88) producing higher biosurfactant yield (0.22 g/L) on minimal medium (carbon source: glucose) was selected for further studies. Biosurfactant production by this isolate was evaluated using different carbon sources, such as, glucose, sucrose, starch, fructose, glycerol and some agro-industrial wastes like whey, orange peels, potato peels, banana peels and molasses. These agro-industrial wastes are rich in carbohydrates and minerals and hence very attractive for biotechnological use. As a single carbon source, Molasses gives best yield in terms of highest biosurfactant. Biosurfactant obtained by the isolate when grown on the agro-waste showed good dispersion activity on the wax coated leaves and hence can be used in the application of water insoluble fertilizers and pesticides.

Keywords: Biosurfactant, Agro-industrial waste, Surface tension



Application of phytase for improved mineral mobilization and dephytinization of poultry feed

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Abstract: Phosphorous is a basic component and energy conduit of life despite that it does not have a cycle to constantly replenish its supply. Therefore, hydrolysis of phytate, a phosphorus locking molecule, into phosphate by phytase is an important process. Phytases have emerged as key enzymes in rapidly growing white biotechnology due to their diverse application in animal nutrition, human health, environmental protection and pharmaceuticals. It is almost certainly that use of phytase will expand as the need to conserve the world phosphate reserves increases. Phytic acid frequently occurs in nature and constitutes the principal storage form of phosphorus (60–90%) and inositol in plants, legumes and oil seeds. It is primarily present as a salt of monovalent and divalent cations (Fe^{2+} , Mn^{2+} , K^+ , Mg^{2+} and Ca^{2+}) and accumulates in seeds during the ripening period. Phytic acid is therefore a common constituent of plant seeds derived feed and food. Phytic acid exists as an extremely negatively charged ion over a broad pH range and therefore has a tremendous affinity for food components with positive charge(s), such as minerals, trace elements and proteins. Among different microbial phytase source, yeast has potential use in animal nutrition and human health. Most of the yeasts are come under GRAS (Generally Recognize As Safe) status and therefore, can be used whole cells in feed as protein and enzyme source. Cereals and grains, used in poultry and piggery feed, are rich in phytate and because of unavailability of phytase in these animals they cannot able to utilize phytate bound phosphorus. Therefore, external phosphorus has to be added in the feed so as to improve the nutrition value of the feed. This leads to increase in phosphorus concentration in nearby water bodies and results in eutrophication.

About 600 yeasts were screened for phytase production, among them *Williopsis saturnus* NCIM 3298 was selected as it produced high cell associated phytase. Enzyme has been tested for biochemical characterization and showed maximum activity at 50°C and pH 5. This enzyme retained about 50% activity at pH 2-3 (Stomach pH of pig and chicken). Effect of phytase checked on chickpea, mainly used in poultry feed, to increase the bioavailability of phosphorus and other minerals (Fe, Ca, and Zn). Two fold increases in phosphorus content and 80 % decrease in phytate were seen after treatment with phytase. Minerals availability of chickpea determined by Inductively Coupled Atomic Emission Spectroscopy (ICP-AES) was increased in phytase treated chickpea as compared to control by 28%, 32% and 39 % for Zn, Fe and Ca, respectively. Different agricultural and industrial waste such as rice bran, wheat bran, cane molasses and cane juice were tried for phytase production from *Williopsis saturnus* NCIM 3298. Amongst them, cane molasses and cane juice were observed as a good substrate for phytase production. Maximum phytase production on these media was 190 IU/g DWC. Phytase production further enhanced by using statistical approach, Placket Burman design, and enzyme production improved to 268 IU/g DWC.



Chelated Multi Micronutrient Liquid Organic Fertilizer

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Abstract: Present investigation was aimed to determine the effects of foliar application of organically chelated micronutrients on growth and yield in chili (*Capsicum annum* L.). The micronutrients like iron, zinc, copper and manganese were organically chelated with citric acids. A pot experiment was carried out to study the effect of foliar application of micronutrients, citric acids and citric acid micronutrient chelates on growth and yield of chili (shama) during 2013 and 2015. Forty day's old seedlings of chili were transplanted in pots. The experimental plants were sprayed with three doses (0.5, 1.5 and 2.0 %) of organically chelated micronutrients along with unchelated micronutrients, citric acid solution and untreated control plants on 15th and 30th days after transplantation. The results based on two years mean revealed that out of five different treatments, the application of citric acid-micronutrient chelate at the concentration of 1.5 and 2.0% resulted in maximum plant height, number of primary branches, higher leaf area per plant, fruits per plant and more total yield per plant.



Economic Production of Amylase from Agro-wasteSalunke

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Abstract: Now days the potential of using microorganisms as a biological sources of industrially economic enzymes has stimulated interest in the exploitation of extracellular enzymatic activity in several microorganisms. Amylase is one of the most important enzymes which can be used in number of industrial processes including brewing, baking, textile, detergent and paper industries. Because of low pH stability, raw starch digestibility and utilization of high concentration of starch, amylase can be very useful in related applications. The continued development of biosustainable and renewable resource technology is of great importance with respect to environmental concerns. The present work was carried out to comparatively see the production of amylase in medium where different combinations of agro-wastes like banana peel, orange peel, apple peel, potato peel were used in powder form in the production media instead of starch. The highest enzyme activity was observed at pH 7, optimum temperature 90°C and highest enzyme concentration is found in apple peel and combination of apple, orange and potato peel.

Keywords: *Hay bacillus*, Amylase enzyme, Agro waste



Dualrel buccal patches: An Innovation to control hypertension

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Abstract: Hypertension, a s one of t he m ain c omponents of M etabolic S yndrome, i s a m ajor cardiovascular r isk f actor. Lowering BP co uld s ignificantly r educe m ortality a nd m orbidity i n patients with diabetes, stroke, heart failure. Combination therapy has become standard practice in contemporary m anagement of h ypertension. In th e p resent w ork, mu ltilayered p atches w ith bidirectional r elease o f antihypertensive d rugs for ef fective m anagement o f h ypertension w ere developed. Quinapril h ydrochloride i s A CE i nhibitor w ith h alf l i f e o f 2 h rs, e xtensive h epatic metabolism. H ence i t w as e m bedded i n s ustained r elease m ucoadhesive l ayer. Indapamide i s a thiazide l ike diuretic w ith half l i f e o f 14 h r s and good b i o a v a i l a b i l i t y. T h e r e f o r e i t w a s c a s t e d o n i m m e d i a t e r e l e a s e l a y e r. T h u s a t r i l a y e r e d p a t c h c o n s i s t i n g o f s u s t a i n e d r e l e a s e o f Q u i n a p r i l a n d i m m e d i a t e r e l e a s e o f i n d a p a m i d e s e p a r a t e d b y m i d d l e l a y e r o f e t h y l c e l l u l o s e w a s f o r m u l a t e d u s i n g s o l v e n t c a s t i n g t e c h n i q u e. I n p r o c e s s e v a l u a t i o n s o f e a c h l a y e r s h o w e d g o o d r e s u l t s. T h e m u l t i l a y e r e d p a t c h e s w e r e 0.170 - 0.010 m m t o 0.300 - 0.010 m m t h i c k a n d w e i g h t v a r i e d b e t w e e n 45 - 0.008 m g a n d 57 - 0.008 m g. T h e f o l d i n g e n d u r a n c e w a s > 200. D S C a n a l y s i s i n d i c a t e d a b s e n c e o f i n c o m p a t i b i l i t y. T e n s i l e s t r e n g t h r a n g e d f r o m 0.441 t o 1.825 N / m m ². S u r f a c e m o r p h o l o g y i n d i c a t e d u n i f o r m d r u g d i s t r i b u t i o n. *In vitro* d r u g r e l e a s e p r o f i l e a n d p e r m e a t i o n s t u d y o f t h e f o r m u l a t i o n s s h o w e d d e s i r e d d r u g r e l e a s e. *In vivo* r e s u l t s o f t h e p l a c e b o m u c o a d h e s i v e p a t c h e s s h o w e d r e s i d e n c e t i m e o f 6 - 8 h r s a n d g o o d p a t i e n t c o m p l i a n c e. T h u s, t h e s e D U A L R E L p a t c h e s w i t h d u a l r e l e a s e o f c o m b i n a t i o n o f d r u g s w o u l d b e a n i n n o v a t i o n f o r e f f e c t i v e m a n a g e m e n t o f h y p e r t e n s i o n.

Keywords: Anti h ypertensive, B uccal p atch, D iabetes, I m m e d i a t e r e l e a s e l a y e r, M e t a b o l i c s y n d r o m e, M u c o a d h e s i o n



Targeting ulcerative colitis with Nano-bullets\

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Abstract: Ulcerative colitis, a c h r o n i c i n f l a m m a t o r y c o n d i t i o n o f c o l o n i s o n e o f t h e c a u s e s o f c o l o r e c t a l c a n c e r. A n a n o p a r t i c u l a t e d e l i v e r y s y s t e m b y v i r t u e o f i t s s i z e a n d s u r f a c e p o t e n t i a l o f f e r s s e v e r a l b e n e f i t s o v e r c o n v e n t i o n a l c o l o n t a r g e t e d d e l i v e r y s y s t e m. T h e a i m o f t h e p r e s e n t s t u d y w a s t o f o r m u l a t e c o l o n t a r g e t e d n a n o p a r t i c u l a t e d e l i v e r y s y s t e m o f a c t a r i t f o r t r e a t m e n t o f u l c e r a t i v e c o l i t i s a n d p r o v i d e e v i d e n c e b y i n v e s t i g a t i n g p h a r m a c o d y n a m i c e f f i c a c y i n a c e t i c a c i d i n d u c e d c o l i t i s r a t m o d e l (A I C R M). p H s e n s i t i v e n a n o p a r t i c l e s o f a c t a r i t w e r e p r e p a r e d b y n a n o p r e c i p i t a t i o n t e c h n i q u e u s i n g E u d r a g i t S 100 (E S 100). A 2⁴ B o x B e h n k e n d e s i g n w a s u s e d t o s t a t i s t i c a l l y o p t i m i z e t h e f o r m u l a t i o n. T h e d e v e l o p e d N P s s h o w e d - a v e r a g e 203.52 ± 0.8 n m, P D I 0.271, z e t a p o t e n t i a l - 5.67 m V a n d e n t r a p m e n t e f f i c i e n c y 74.92 %. *In vitro* d r u g r e l e a s e b e h a v i o r f r o m o p t i m i z e d l y o p h i l i z e d n a n o p a r t i c l e s s h o w e d o n l y 18.46% r e l e a s e d u r i n g f i r s t 5 h, f o l l o w e d b y r a p i d r e l e a s e (96.30%) a t p H 7.4. T h e c l i n i c a l a c t i v i t y s c o r e, c o l o n b o d y w e i g h t r a t i o, u l c e r i n d e x a n d h i s t o p a t h o l o g i c a l s t u d y i n A I C R M d e c r e a s e d s i g n i f i c a n t l y a f t e r o r a l a d m i n i s t r a t i o n o f A c t a r i t - E S 100 N P s (50 m g / k g) i n c o m p a r i s o n t o c o a r s e a c t a r i t s u s p e n s i o n (100m g / k g). T h u s n a n o p a r t i c u l a t e d e l i v e r y o f a c t a r i t o f f e r s a n o v e l a n d p r o m i s i n g a p p r o a c h f o r u l c e r a t i v e c o l i t i s.



Novel herbal treatment: Using *Dodonaea viscosa*: A boon to COPD

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Abstract: Patients with chronic obstructive pulmonary disease (COPD) experience progressive pulmonary decline with each acute exacerbation of disease. Current available choices of treatment are very limited and the economical burden hasn't changed much in the last decade. Herbal medicines are very promising having no adverse effects. *Dodonaea viscosa* has proved to show a good anti-inflammatory and antioxidant activity in studies carried out before and can reproduce those effects in COPD.

Methods: Hydroalcoholic leaf extract of *Dodonaea viscosa* at doses of 100mg/kg p.o, 200mg/kg p.o and 400mg/kg p.o were treated in Side Stream Cigarette Smoke (SSCS) induced COPD in Wistar albino rats. Methylprednisolone 6mg/kg p.o was used as a standard drug. The study was carried out for twelve weeks and the animals were analysed for their respiratory volumes, body weight changes, lung index, biochemical parameters, BALF analysis, histological changes and lipidperoxidation in blood.

Results: There was a decrease ($p < 0.05$) in body weight was observed in animals exposed to cigarette smoke from sixth week onwards, which decreased ($p < 0.001$) even further by the twelfth week. A very low ($p < 0.001$) level of FEV1/FVC was seen in cigarette exposed rats, whereas a protective effect was indicated by high ($p < 0.001$) levels of FEV1/FVC seen in doses of 200mg/kg and 400mg/kg. An increase ($p < 0.05$) in lung index was seen only in cigarette smoke exposed animals. In blood a very high ($p < 0.001$) levels of neutrophils, RBC and serum LDH was observed in cigarette exposed group. Low ($p < 0.05$) levels of neutrophil was observed in group treated with extract at 400mg/kg p.o. A decrease ($p < 0.001$) in serum levels was observed in all the other groups. BALF showed high ($p < 0.001$) levels of neutrophils in animals exposed to cigarette smoke only and low ($p < 0.01$) levels in groups given extract at 200mg/kg and 400mg/kg. Animals exposed to cigarette smoke showed a very high ($p < 0.001$) levels of TBARS, whereas as all the other groups showed very low ($p < 0.001$) levels.

Conclusion: The induced of COPD by cigarette smoke using side stream cigarette smoke was observed and the hydro-alcoholic extract of *Dodonaea viscosa* at 400mg/kg p.o showed a significant protective effect for COPD.



Kafirin loaded curcumin nanoparticles: A boon to cancer treatment

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Abstract: Kafirin is protein which is found in a sorghum (Jwari). kafirin has following applications, as a novel excipient, a substitute for gluten proteins to prepare products suitable for coeliac patient, biofilm formation, food packaging and polymer for nanoparticle formations. Thus kafirin was extracted for investigating its use as a novel pharmaceutical polymer for preparation of nanoparticles with curcumin (turmeric) as anticancer agent. Curcumin nanoparticles were prepared by simple precipitation method using a novel natural polymer Kafirin. Kafirin, a food grade biopolymer, was successfully extracted from sorghum (jowar) using a simple extraction procedure. Yield of kafirin from 100g of jwari is 5.1gm (5.1%). Kafirin and Curcumin were taken in different ratios and nanoparticles were formulated. Further, optimization technique (3^2 factorial design) was applied to predict the best possible formulation. The optimized batch B8 (Curcumin: Kafirin -1:5) had round and uniform shape and an average particle size of 100-200 nm (based on the scale). Infra-red (IR) studies revealed that there was no interaction between the drug and the polymer. DSC studies also confirmed the absence of crystalline drug. *In vitro* permeation and release studies showed a good release profile with around 90%. *In vivo* studies was carried out on A 549 human lung carcinoma cell line and MDA-MB 231 human breast cancer cell line using pure Curcumin Gefitinib and nanoparticles formulation. The nanoparticle formulation had almost 10% greater activity than Curcumin and Gefitinib. Hence, we conclude that Curcumin embedded in kafirin as nanoparticles are promising anticancer agents. This curcumin nanoparticles required less dose than standard drug so there is less side effect. It is also cost effective so more people afford this drug and there is improvement in health of cancerous patient.



Novel Formulation and Evaluation of Niosomal gel for ocular drug delivery.

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Abstract: Poor bioavailability of drugs from ocular dosage form is mainly due to tear production, nonproductive absorption, transient residence time, impermeability of corneal epithelium. These problems can be minimized by the use of niosomal vesicular system. After instillation of an eye drop, typically less than 5% of the applied drug penetrates the cornea and reaches intraocular tissues, while a major fraction of the instilled dose is absorbed and enters the systemic circulation. As ocular efficiency of topically applied drugs is influenced by the corneal contact time, most common method of improving ocular availability of drugs is to increase pre-corneal residence time by using vesicular system and hydrogel. One such approach to improve bioavailability of drug is the use of in-situ gelling system, which gets converted from sol-to-gel as a result of change in pH. Niosomes were formulated by using different ratios of surfactants (span 60, tween 80 and Tween 20) and cholesterol. They were evaluated for particle size, entrapment efficiency and *in vitro* drug release. The optimized formulation was incorporated in *nin situ* gels using Carbopol 940 (gelling agent) and poloxamer 188 and poloxamer 407 as viscosity modifiers in different ratios and evaluated for gelling capacity, pH, viscosity, *in vitro* drug release, drug content, antimicrobial activity and ocular irritation test. Bioadhesive polymers of acrylic acid crosslinked with divinyl glycol, divinyl benzene and 2,5 dimethyl-1,5 hexadiene were examined and synthesized as to their utility in ocular drug delivery. The polymer density and extent of hydration were determined. The effect of pH, time and ion on swelling of polymer was also determined.



Novel Herbal Polysaccharide Microspheres in Treatment of Peptic Ulcer

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Abstract: The rationale of present study is to escalate modified restricted discharge dosage form's therapeutic advantages with reduced unwanted impacts to improve management of diseased state. Novel galactomannans of *Caesalpinia pulcherrima* (GCP) was applied to prepare spray dried amoxicillin loaded anti-*H. pylori* mucoadhesive microspheres (A-GCP-A). Formulation was optimized using 2^3 factorial design for drug proportion, polymer strength and feed flow speed at two different levels and responses were investigated for % drug release, % yield and % DEE. Developed formulation was estimated for DSC, XRD, FTIR, swelling ratio, *in vitro* mucoadhesion, *in vitro* drug release, zeta potential, *in vitro* *H. pylori* growth inhibition studies. A-GCP-A microspheres were studied in Wistar rats for *in vivo* *H. pylori* growth inhibition studies using PCR amplification of isolated DNA, Rapid urease test. Developed A-GCP-A microspheres possessed drug release of 78–96 %, % yield of 25- 57 and DEE of 65-89% with mucoadhesion of 57-87%. *In vitro- in vivo* *H. pylori* growth inhibition studies offered complete *H. pylori* eradication. Current research interpreted that spray dried microspheres acquired high antibiotics strength at lower pH ascertain bactericidal activity that populate under gastric mucosa assuring drug delivery system for *H. pylori* eradication at lower dose, reduced adverse effect, enhanced bioavailability.



Novel Anticancer Potential of *Celosia argentea*: Proof-of-Concept

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Abstract: Background: *Celosia argentea* is a weed growing during rainy season traditionally claimed for treating several ailments. Objective: To isolate and characterize bioactive compounds of aerial parts of *Celosia argentea* and evaluate their anticancer potential. Materials and Methods: The methanolic aerial part extract was fractionated on column chromatography using chloroform: methanol mixture. The fractions were purified on MCI-HP20 HPLC column. Chromatographically pure compounds were concentrated, characterized spectroscopically and screened for anti-oxidant and cytotoxic potential. Results: Isolated compounds were confirmed as 1) Luteolin-7-O-glucoside and 2) phenolic, 1-(4-hydroxy-2-methoxybenzofuran-5-yl)-3-phenylpropane-1,3-dione. Both exhibited significant antioxidant potential for DPPH, ABTS and FRAP Assay (**p < 0.001) In MTT assay, Compound 1 and 2 showed potent cytotoxicity against SiHa, HCT, MCF-7 cancer cell lines at 20 µg/ml and 18 µg/ml (**P < 0.01) respectively without affecting the normal Vero cells. Both enabled maximum reduction in cell viability against HT-29 (**P < 0.001) and MCF-7 cell lines (**P < 0.01) in trypan blue viability assay. Apoptosis occurred at concentrations of 47.33 ± 0.8 µg/ml and 56.28 ± 1.2 µg/ml for compound 1 and 35.15 ± 0.4 µg/ml and 28.05 ± 0.3 µg/ml for compound 2 for HT-29 and MCF-7 respectively. Conclusion: A novel anticancer phenolic compound; {1-(4-hydroxy-2-methoxybenzofuran-5-yl)-3-phenylpropane-1,3-dione}, of *Celosia argentea* was a valuable outcome of the research.



‘Rish Technology’

(Rather an Intelligent System in Hydra)

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Abstract: “RISH Synapse Network” is a technology that is used as a management engine in all areas of work in our day to day life. From handling industry to a daily life, this technology deals with heterogeneous technology. The primary goal behind this project was to use bring different services, under a single platform that makes easy information sharing between cross platforms, protocols, hardware and many programming platform into a centralized control virtually.

In Rish Neural Network (RNN), we have introduced a new concept of ‘*stark routing and tunneling effect*’, this module helps to collect information from different protocols and tunnel those information to ‘RNN.’

Keywords: Artificial Intelligence (AI), Neural Network (NN), Routing and tunneling effect, R.I.S.H



Autonomous Oil Spill Absorbing Robot Using Natural Nano Particle

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Abstract: Using a cutting edge nanotechnology, we have created a robotic prototype that could autonomously navigate the surface of the ocean to collect surface oil and process it on site. Conventional techniques are not adequate to solve the problem of massive oil spills. In recent years, nanotechnology has emerged as a potential source of novel solutions to many of the problems.

Basically we are using nano tubes made by *Leucaena leucocephala L. Leaves Extract*, which work as capillary tube and based on capillary action phenomenon and surface tension difference between oil and water which will be used to make the oil rise in the capillary tube and can be stored in air sacs. This modified nano particle can absorb up to twenty times its own weight in oil while repelling water.

We also proposed a robotic model which gives the oil recovery up to 80% than the current method.

Conclusions: Project is totally eco friendly, with low manufacturing cost, which provides the 100 gm nano particle to adsorb up to 5 lit of oil which can be reusable with variable size and capacity and having unique structure.



Biosignal Processing For Heart Rate Measurement Using Non Invasive Technique

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Abstract: Heart Rate Monitoring systems have been widely used since the last two decades and the development of new Heart Rate Monitoring systems (HRMs) has evolved rapidly. Most of the current heart rate monitoring systems are expensive devices and some are invasive also. There is significantly high demand for new methods of easy, unobtrusive, and personal health care and monitoring technology. Most of the current technologies require direct physical contact with the patient in order to achieve proper measurement. The physical contact consists of electrodes on electrocardiogram (ECG) machines, or pressure sensors on major arteries such as a wrist band, watches, fingerclips, holder monitor, etc. These sensors may also be uncomfortable, expensive, and produce waste. The non-contact measuring of the heart rate is a comfortable method in comparison with conventional contact methods. The purpose of this project is to develop a non-invasive method for heart rate monitoring by using digital image processing techniques performed on video of the subject. A person's heart rate can be determined from simply a video of face or wrist.

This project deals with the implementation of non-invasive method of heart rate measurement by processing the video of the subject's face. The skin color variations as blood fills the face, which are not visible to naked eye, can be observed through a technique called Eulerian Video Magnification. It applies spatial decomposition followed by temporal filtering and amplification to the standard input video sequence. Heart rate can be extracted from this magnified video by considering small region of interest. Heart rate of 28 year old subject was measured as 70 bpm using conventional method and 68 bpm using webcam. This result gives accuracy about 97%. Heart rate of 4 year old subject was measured as 95 bpm using conventional method and 92 bpm using webcam. This result gives accuracy about 96%. This technique can run in real time to reveal hidden information in videos.



Design And Development Of Hybrid Drive Shaft

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Abstract: Propeller shaft or drive shaft is an important component in power transmission of an automobile. Conventional steel drive shafts have limitations of weight and low critical speed. To get the maximum efficiency for power transmission, weight reduction of the drive shaft is most important. Few researchers suggested the optimum stacking sequence of the composite layer for manufacturing of hybrid drive shaft, which results reduction in mass and increase in torque transmission capacity. Some researchers studied the effect of fibre orientation angles and stacking sequence on the natural frequency, failure modes of composite tubes and experimental testing is carried out on scaled model to investigate the torsional stiffness. This dissertation work represents the replacement of two piece conventional metallic drive shaft with the single piece hybrid drive shaft. Initially, design of shaft is done concentrating on natural frequency, buckling torque, and fibre orientation. Manufacturing of the hybrid drive shaft is made by using composite of carbon fibre/epoxy resin and aluminium. The hybrid drive shaft consists of eight layers stalked as [90/45/-45/20]_s composite and then hollow aluminium tube is wound on it with the help of adhesive bonding. Linear static analysis and modal analysis is done. Experiments are carried out to find the torsion behaviour, natural frequency and tensile strength of hybrid drive shaft. Analytical results of natural frequency are compared with the results of modal analysis and experimental results found satisfactory.



Development of Grease as Lubricant for Cane Mills of Sugar Industry

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Abstract: Traditionally, in sugar mills the lubricating oils having higher viscosities are used for journal bearing lubrication. Continuous pumping of lubricating oil is essential to reduce the wear of journal bearing due to heavy loads. If the oil is used as lubricant then wear is inevitable. The failure of split bearing of top roll of cane mills is common problem of sugar industry. Also the oil mixes with the cane juice and contaminates cane juice, so the cost for decontamination process of sugarcane juice adds to manufacturing cost of sugar. So it is necessary to search alternative lubricant for journal bearing operating in mixed/boundary lubrication regime. The purpose of this research is to identify a grease composition for boundary/mixed regime. Additives like Molybdenum disulphide and graphite are blended in conventional plain lithium based grease. Testing was conducted using a four-ball tester as per ASTM D2266 procedures for wear and ASTM D2596 for Extreme Pressure. Design of experiment (DOE) was done using the Taguchi approach. According to the analysis of signal-to-noise (S/N) ratio and analysis of variance (ANOVA), optimum combination of plain lithium based grease with additives are identified by considering the wear scar diameter and weld load point for lubrication of cane mills. The influence of antiwear (AW) and extreme pressure (EP) additives i.e Molybdenum Disulphide (MoS_2) and Graphite on plain lithium based grease for lubrication of journal bearings used in sugarcane mills is also identified.



Conversion of thermoplastic waste into liquid fuel by catalytic pyrolysis

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Abstract: Improper disposal of plastic waste causes environmental pollution. There is a need for recycling plastic waste. Pyrolysis is one of the promising recycling options as it generates diesel grade liquid fuel by using catalyst. In present research work, small pyrolysis reactor was designed and developed. By experimental method, parameters like temperature & reaction time were fixed. Different catalysts were used in the pyrolysis reaction to study their effect on percent liquid fuel. It was observed that by using 10 % Dolomite we can get maximum percent of liquid fuel at 450°C for mixed thermoplastic waste which includes HDPE, LDPE and PP waste. After characterization of oil samples for GC-MS and Calorific value it is concluded that we can obtain diesel grade fuel by using catalysts in pyrolysis process.



Linear Steadiness Motion Bench

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Abstract: This “Linear steadiness Motion Bench” invention relates generally to muscle exercise and rehabilitation apparatus, and more particularly, is directed with respect to work fitness and disability. People who are diagnosed with idiopathic Parkinson disease (PD) experience movement disorders that, if not managed, can lead to considerable disability. The premise of this perspective is that physical therapy for people with PD relies on clinicians having: (1) up-to-date knowledge of the pathogenesis of movement disorders, (2) the ability to recognize common movement disorders in people with PD, (3) the ability to implement a basic management plan according to a person's stage of disability, and (4) problem-solving skills that enable treatment plans to be tailored to individual needs. This innovation will present a model of physical therapy management for people with idiopathic PD. The model advocates a task-specific approach to training, with emphasis on treating people with PD-related movement disorders such as hypokinesia and postural instability within the context of functional tasks of everyday living such as walking, buttoning, cutting, writing, turning over in bed, and manipulating objects. A case history is used to illustrate how physical therapy treatment is regularly reviewed and adjusted according to the changing constellation of movement disorders that present as the disease progresses. Previously there were test includes like Alternate Hand Wall Toss Test and the upper extremity motor control testing Device Set up. This training bench is innovative and advantageous in many aspects, design using microcontroller Atmega 8, ultrasonic distance sensor and stainless steel rod with specially designed rings.



Multimodal Video Retrieval Systems Using Data Mining Approach

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Abstract: The investigations are based on multimodal approaches for video retrieval systems; by combining specific features extractable from multiple modalities that is text, image, audio and video. The proposed System retrieved the relevant videos based on text, image, audio or video clip by extracting low level as well as High Level Features. The similarity matching, indexing and retrieval performed by proposed methods. The performance of the proposed individual systems is compared with the existing individual systems of proposed by different authors and it shows comparable improvements in terms of precision and recall. In TBVR, achieved ~25% improvement by comparing the results of other authors in terms of precision and recall. Same as in IBVR, AVBR, CBVR, achieved ~20-40% improvement by comparing the results of other authors in terms of precision and recall. The performance analysis in terms of space and time also shows the improved performance of proposed systems

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A University students explaining the research project to BCUD Director, Hon'ble Vice-Chancellor and others in University level Avishkar 2012



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**Inauguration function of University level Avishkar 2015
UNISA Students participated in University level Avishkar 2015**