"Education through self-help is our motto." - **KARMAVEER**

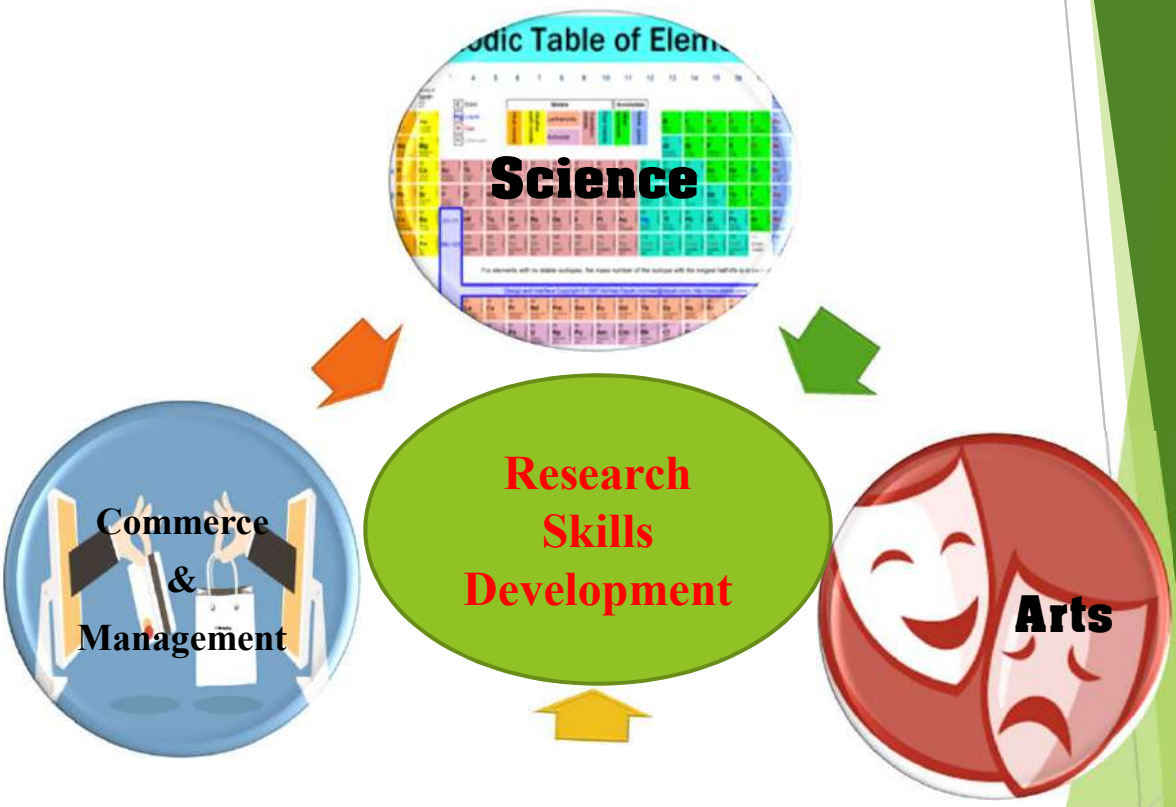
Rayat Shikshan Sanstha's

Dahiwadi College Dahiwadi

Tal. Man, Dist. Satara.

DCD JOURNAL OF INTERDISCIPLINARY RESEARCH

(Inhouse Publication)



Volume II
Issue I

Published by

Principal

Dahiwadi College Dahiwadi

Tal. Man, Dist. Satara

"*Education through self-help is our motto.*" - **KARMAVEER**

Rayat Shikshan Sanstha's

Dahiwadi College Dahiwadi

Tal. Man, Dist. Satara.

DCD JOURNAL OF INTERDISCIPLINARY RESEARCH

(Inhouse Publication)

Volume II

Issue I

Published by

Principal

Dahiwadi College Dahiwadi

Tal. Man, Dist. Satara

EDITORIAL BOARD

Avishkar Commitee and IQAC Committee

DCD Journal of Interdisciplinary Research

VOLUME II, ISSUE I

Contents

ISOLATION AND CHARACTERIZATION OF MICROORGANISMS FROM ROTTEN LIME FRUITS

Umape S.R

Department of Microbiology, Dahiwadi College, Dahiwadi, Tal- Man, Dist- Satara, India

Suvarnaumape@gmail.com

Abstract- Fruits are undoubtedly one of the most popular and favorite food among the children's & adults. It is also estimated that about 20% of all fruits and vegetables produced is lost each year due to spoilage. Fruit is rot because it is fully enriched with nutrients & organic matter required for growth of microorganisms. And rotting may refer to decomposition of this organic matter. Some bacterial contaminants are responsible for such rotting condition. Almost all people consume fruits so, it is required to be microbiologically safe. Therefore, aim of this study is to isolate and identify bacteria present in rotten fruits.

Key words- Fruit spoilage, rotting, bacterial contaminants.

Introduction- The growth of microorganisms in and on foods often is extensive enough to make the food unattractive in appearance and pigmented bacteria cause discoloration on the surface of food, films may cover the surface of liquids, growth may make surface slimy or growth through the liquids may result in undesirable cloudiness or sediment. The bacteriologist is concerned with the growth and activity of bacteria in foods and with accompanying chemical chances. The knowledge of the factors that factors that favor or inhibit the growth and activity of bacteria is essential to understanding the principle of food preservation and spoilage (Frazier and Westhoff, 2003).

Materials and Methods-

A. Collection of sample:- Samples of rotten lime fruits were collected from local market and stored in polythene bags at refrigeration temperature, till further processed.

B. Isolation of bacteria from rotten lime fruits:- Using four quadrant streak plate method the isolation of different bacteria from the sample was done using sterile nutrient agar plates and sterile Bennet's agar plates. And plates were incubated at 37^{o}c for 24 hour. The colonies of different morphologies were selected and suitably coded. The morphological characters of each colony were studied and recorded. All the isolates were preserved in refrigerator on nutrient agar slants.

C. Study of Biochemical characters of the isolates:-Various enzymatic tests and fermentation of various sugars were performed for all isolates.

Result and discussion-

Isolation of bacteria : From all samples total five isolates were obtained and were coded as LB1,SB1, OB1, SN1& LN1.

Characterization of isolates-Biochemical characteristics of isolates

All the isolates were studied for biochemical properties and results are cited in table

Hugh and Leifson's test

Sr. no.	Code of isolate	Growth in condition	
		Aerobic	Anaerobic
1	LB1	+	-
2	SB1	+	-
3	OB1	+	-
4	SN1	+	-
5	LN1	+	+

From above table it is seen that, isolate LB1, SB1, OB1, SN1, were aerobic. Whereas isolate LN1, were facultative.

Table -Sugar fermentation tests

Sr.no.	carbohydrates	Code of isolate				
		LB1	SB1	OB1	SN1	LN1
1	Glucose	⊕	-	+	+	+
2	Mannose	⊕	-	-	-	+
3	Galactose	-	-	-	-	-
4	Xylose	-	-	+	-	-
5	Maltose	+	+	+	+	+
6	Mannitol	-	-	+	-	+
7	Sucrose	+	+	-	+	+

From above table it is seen that all isolates were fermenting maltose. Isolate OB1, & LN1 were mannitol fermenting. Isolate LB1 was found to ferment glucose, mannose with acid gas production. All isolates were utilize sucrose except OB1.

Enzymatic tests

Sr.no.	Code of isolate	Enzyme Activity							
		Urease	Amylase	Caseinase	Oxidase	Catalase	Gelatinase	Arginine hydrolysis	Nitrate reduction
1	LB1	-	-	+	+	+	-	-	+
2	SB1	+	-	-	-	+	-	-	+
3	OB1	+	-	+	-	-	-	+	-
4	SN1	-	+	+	-	+	+	-	+
5	LN1	+	-	+	-	+	+	+	+

It can be seen from the table that all isolates showed nitrate reduction test & catalase test positive except OB1. The casein hydrolysis test was negative for isolate SB1. However the test was positive for remaining isolates. All the isolates showed urea hydrolysis test positive except LB1 & SN1. Amylase test was negative of all isolates except SN1. Isolate LB1shows oxidase test positive. However remaining isolates shows negative test. Isolates SN1 & LN1 showed gelatin hydrolysis test positive. The arginine hydrolysis test was positive for isolates LN1, OB1.

References

1. Atlas, M.M.(1993) "Handbook of microbiological media" CRC press London (Page no. 302-306)
2. BarthMargaret, Thomas R. Hankison, Hong Zhuane and Frederick Breidt, W. H. Sperber, M. P. Doyle (2009), Compendium of the microbiological spoilage of foods and Beverages, Food microbiology and food safely (Page no. 135)
3. Bergey's D.H. peter, H.A. Sheath, N.S. Mair, F. Share associate editors "Bergey's manual of systematic Bacteriology" volume.II 1st edition Williams and willkin Baltinove.
4. Cruickshank and R.J.P. Dugid and R.H.A.Swami (1968) Medical Microbiology A guide to the Laboratory diagnosis and control of infection 11th edition E and S llivinstone Ltd. (Page No. 88-180)
5. Fraizer we and Westhoff DC. Food microbiology 5th ed.2003 (Page no. 39-40)
6. M. R. Adams, M. O. Moss Food microbiology 1st edition. New Age international (P) Ltd. Publishers New Delhi. (Page no. 130-210)
7. ONIHA, MARGARET IKHIWILI(2012), isolation and characterization of microorganisms associated with rot diseases of fruit, stem, and leaf of Carica papaya L. (page no. 49-51)
8. William C. Frazier, Dennis C. Westhoff Food microbiology 4th ed. Tata Mc Graw Hill publishing company limited New Delhi. (Page no. 196-210)

Antimicrobial Activity Of Medicinal Plants Against Some Selected Pathogenic Microorganisms

Pawar poonam , Umape S.R .*

Department of Microbiology, Dahiwadi College, Dahiwadi

Tal- Man, Dist- Satara, India

Suvarnaumape@gmail.com

Abstract- the leaf extract of some medicinal plants were evaluated for activity against some medically important bacteria such as *Staphylococcus aureus , Klebsiella pneumonae , Proteus vulgaris, Pseudomonas aeruginosa* .the invitro antimicrobial activity was performed by agar well diffusion method. The use of plant extract with known antimicrobial activity can be great therapeutic significance in the treatment of various infectious disease.

Key words- Plant extract, Antimicrobial, Pathogens.

Introduction-

Plants are richest resource of drugs of traditional system of medicines, nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates and chemical entities for synthetic drugs (Hammer et. al., 1999). Since many years some plants were used as medicine to cure diseases due to their medicinal importance. It is Ayurveda the therapy involves the use of plant extract and their active constituents (Akerele, 1993).

Plants are rich in variety of phytochemicals including tannins, terpenoids, alkaloids and flavonoids which have been found *in vitro* to have antimicrobial properties. Global prevalence of infectious disease caused by bacteria is a major public health problem. The bacterial agents including *Staphylococcus aureus, Bacillus subtilis, and Proteus vulgaris* cause several human infections.

Materials and Methods-

Sub culturing of bacterial strains –

Nutrient broth was used for sub culturing of bacterial strains. The media was prepared. Bacterial cultures were inoculated in nutrient broth and incubated at 37˚C for 24 hrs.

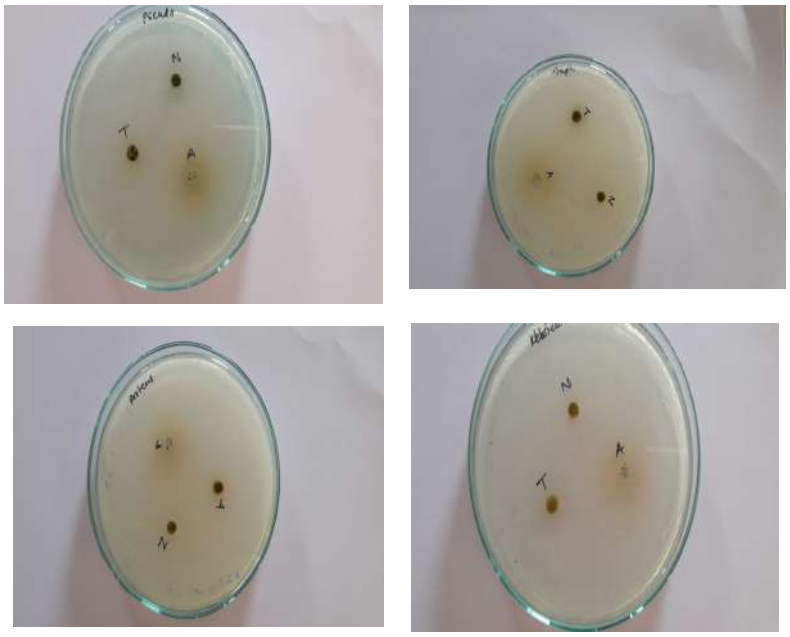
Collection of plant material and preparation of powder-

Plant materials from three plants including *Jastica adhatoda, Ocimum sanctum* and *Azadiracta indica* were obtained from botanical garden of college. The collected plant materials were dried under shade and then mashed with the mortar and pestle.

Extraction and antimicrobial activity of plant extract-

The powder of plants was processed for hot water extraction. For that, 10 g of dried powder was soaked in 100 ml distilled water and then heated at 60˚C in incubator for 24 hrs. The extract were sieved through a muslin cloth and then centrifuged at 4400 rpm for 7 min. The supernatant was collected and filtered. Following plant extraction, antibacterial activity of these extracts against *P. vulgaris, P. aeruginosa, K. pneumonae and S. aureus* was determined by agar well diffusion method. Hot water without plant extract was incorporated as negative control.

Result and discussion-



Antimicrobial Activity of plant extract

Table- Antimicrobial activity of plant extract against pathogenic bacteria-

Bacterial strains	***Justica adhatoda***	***Azadirachta indica***	***Ocimum sanctum***
P. vulgaris	+	++	++
P. aeruginosa	++	+	-

K. pneumonae	+	-	-
S. aureus	+++	++	++

Discussion:-

- From the present study it is concluded that *Ocimum sanctum(Tulasi)* shows no antibacterial activity against *P. aeruginosa* and *K. pneumonae*
- For all selected pathogens *Jastica adhatoda (Adulasa)* shows inhibitory action.
- *Azadiracta indica* (Neem) shows no antibacterial activity only against *K. pneumonae.*

Further study:-

- Measurement of antibacterial activity in terms of diameter of zone of inhibition.
- Comparison of antibacterial activity of medicinal plant with standard chemical antibiotics or drugs.
- Akerele O (1993). Summary of WHO Guidelines for the assessment of Herbal Medicines Herbal Gram.,22: 13-18.
- Alviano DS, Alviano CS: plant extracts: search for new alternatives to treat microbial diseases. Curr pharm Biotechnol 10, 106-121 (2009).
- Hammer KA, Carson CF, Riley TV (1999). Antimicrobial activity of essential oilsand other plant extracts. J. Appl. Microbiol.,86(6):985.
- Kumar MG, Jeyraaj IA, Jeyraaj R, Loganathan P: Antimicrobial activity of aqueous extract of leaf and stem extract of *Santalum album.* Ancient Sci Life 25(3&4), 6-9 (2006).

References-

1. Akerele O (1993). Summary of WHO Guidelines for the assessment of Herbal Medicines Herbal Gram.,22: 13-18.
2. Alviano DS, Alviano CS: plant extracts: search for new alternatives to treat microbial diseases. Curr pharm Biotechnol 10, 106-121 (2009).
3. Hammer KA, Carson CF, Riley TV (1999). Antimicrobial activity of essential oilsand other plant extracts. J. Appl. Microbiol.,86(6):985.
4. Kumar MG, Jeyraaj IA, Jeyraaj R, Loganathan P: Antimicrobial activity of aqueous extract of leaf and stem extract of *Santalum album.* Ancient Sci Life 25(3&4), 6-9 (2006).

ISOLATION AND CHARACTERIZATION OF STARCH DEGRADING MICROORGANISMS FROM GARDEN SOIL

Swapnali Ballal, Mali P.V.*

Department of Microbiology, Dahiwadi College, Dahiwadi

Tal- Man, Dist- Satara, India

Abstract- starch degrading bacteria are important for different industries such as food , fermentation textile ,and paper. The aim of this study is to isolate and characterize bacteria that are able to degrade starch. Amylase test is performed for identification of starch degrading microorganisms and isolates proceed for morphological and biochemical characteristics.

Key words- starch degrading**,** Amylase , *Bacillus*

Introduction- Microorganisms are most important as they produce industrially important enzymes. Starch degrading amylolytic enzymes are most important in biotechnology industries with huge application in food , fermentation , textile and paper (Pandey et al., 2000). Amylase can be obtained from several sources such as plant, animals and microbes (Kathiresan and Manivannan, 2006).

There are various reports on starch degrading microorganisms from different sources and respective amylase activity (Aiba et. al 1983; Tonkova et al., 1993; Kathiresan and Manivannan, 2006). Garden soil is one of the rich source of starch degrading microorganisms. The preset investigation deal with isolation of bacteria from soil sample collected from Dahiwadi college, Dahiwadi . In the present study, we report the isolation and characterization of bacteria.

Materials and Methods-

Sample collection : Soil sample were collected from garden area of college campus, Dahiwadi college, Dahiwadi , by sterile spatula depth of 9-10 inch near the plant and transferred to sterile bag.

Serial dilution and platting: Serial dilution of soil sample was made and 0.1 ml of sample was plated on sterile starch agar plate by spread plate technique. Then the plates were incubated at 37˚C for 24 hrs.

Screening for amylase activity : All incubated plates are supposed to the replica plating. Replica plates are incubated at 37˚C for 24 hrs. After incubation replica plates were flooded with iodine solution . colony showing clear zone of starch hydrolysis on replica plate was obtained from master plate .the colony was transferred on nutrient agar plate for isolation .

Result and discussion-

- **Colony character and gram nature-**

Isolate	**Size**	**Shape**	**colour**	**margine**	**elevation**	**opacity**	**consistency**	**Gram nature**
A1	1 mm	irregular	white	entire	raised	opaque	Moist	Gram positive rods
A2	1mm	irregular	white	entire	convex	opaque	moist	Gram positive rods

- **Biochemical characters-**

Tests	Isolate A1	Isolate A2
Urea hydrolysis	+	+
Nitrate reduction	+	+
Catalase	+	+
Utilization of carbohydrates-Glucose	+	+
Lactose	-	+

In the present study, the amylolytic bacteria were isolated from the garden soil of DCD. We have isolated two isolates namely Isolate A1 and Isolate A2.

- Both shows simillar colony characters except elevation.

- Both isolates are Gram positive rods.
- Urea hydrolysis, nitrate reduction, Catalase and utilization of glucose are positive for both isolates.
- Isolate A1 was not capable of utilizing lactose while Isolate A2 utilizes lactose.

REFFERENCES-

1. Aiba S, Kitai K, Imanaka T (1983). Cloning and Expression of Thermostable . α-amylase gene from Bacillus subtilis. Appl. Environ. Microbiol. 46: 1059-1065.

2. Kathiresan K, Manivannan S (2006) . α-amylase production by *Penicillium fellutanum* isolared from mangrove rhizosperic soil. Afr.J. Biotchnol. 5: 829-832.

3. Pandey A, Nigam P, Soccol CR, Soccol VT, Singh D, Mohan R (2000). Advance in microbial amylases. Biotechnol. Appl. Biochm. 31 : 135-152William C.

Frazier, Dennis C. Westhoff Food microbiology 4th ed. Tata Mc Graw Hill publishing company limited New Delhi. (Page no. 196-210)

AUTOMATIC PLANT IRRIGATION SYSTEM

Jagadale Manali Rajendra, Mane S.B.*

Department of Physics, Dahiwadi College Dahiwadi, Tal. Man, Dist. Satara

manujagdale508@gmail.com

Abstract: Farmer is the back bone of Indian economy. Agriculture in India has a significant history. India is well known for its agricultural work. The development of agriculture is considered to be necessary for the advancement of the countries from traditional to modern economy. Almost all the farmers are still depending on the traditional way of cultivation. Also day by day average rainfall is decreasing. In India average rainfall in 2005 was 1208.3 mm, now in 2018 it is 1085.5 mm. This year total 12 district from Maharashtra declared as drought prone area. In terms of water stock, Marathwada has only 28.44% water in its dams. The Jayakwadi dam, the lifeline of Marathawada region, situated at Paithan, has just 42.51% water stock. This year in our Man tahsil average rainfall was only about 400mm. In this situation there must be smart and proper way to use existing water source. As the farmer is facing a lot of difficulties while irrigating the fields. We are observing that the yield of crops and fruits are not at all being increasing. It has been implemented with the help of IC 555 timer and soil moisture sensor.

Keywords: IC 555, irrigation system, soil moisture sensor.

Introduction:

Water is one of nature's most important gifts to mankind. Because of the increase in population, food requirement for human being is also increasing. Different technology has been developed to efficient use of existing water source. For the implementation of agricultural technologies, low cost and real time remote monitoring is needed. Using IC 555 and soil moisture sensor provides the best alternative method for implementation of water irrigation system. An automated irrigation system is suggested to minimize the water input and human intervention, while satisfying the plants needs .A

brief cost analysis is performed to estimate the viability of such a project on the market. Finally, the design is criticized and suggestion are made for future improvements.

Objectives:

1. The objective of this research is to develop a low cost automatic water irrigation system using IC 555 timer in periods of rain water shortfalls.
2. To identify proper sensors and monitoring device required for the farming data like soil moisture in the irrigation system to monitor the proper drip of water.
3. To observe water satisfied of soil in real time.
4. To remove the need for workmanship for monitoring irrigation.
5. To achieve competitiveness in the market, the production cost must be kept as low as possible, so that all category farmers can afford it.
6. To decrease the use of pesticide as there is no growth of weed in the field, because water is given to the roots of plant only.

Literature Survey:

The objective of the paper [1] was to control the water motor automatically and select the direction of the flow of water in pipe with the help of soil moisture sensor. Finally send the information (operation of the motor and direction of water) of the farm field to the mobile message and g-mail account of the user. In [2] an automated irrigation system was developed to optimize water use for agricultural crops. An algorithm was developed with threshold values of temperature and soil moisture that was programmed into a microcontroller-based gateway to control water quantity. In [3] proposed the automatic and real time irrigation system based on detecting of water shortage information in crops with acoustic emission (AE) technology. In [4] presented an automatic irrigation system using solar power. Solar power is mainly used to supply the required power to pump set and humidity sensors are used to sense whether the sol is a wet or dry conditions.

Material and Methodology:

1. The plants die due to lack of water in the soil. Soil will have high resistance when it is dry and it will have low resistance when soil is wet. We use this simple logic to water the plants.

2. Two probes which are connected to the circuit are placed into the soil. The two probes conducts only when soil is wet and they cannot conducts when soil is dry to high resistance. The voltage is given to the probes to conduct is given from the battery connected to the circuit.
3. When the soil is dry it will produce large voltage drop due to high resistance
4. IC 555 have output at pin 3. The output timer will switch on the transistor which will switch on the transistor which will drive the relay. Relay which is connected to the input of electrical value and output value is given to the plant plots.
5. When transistor has turned on relay, it will open the value and water is poured on the plant plot. Then resistance get decreased. Resistor and capacitor are used to adjust the value when to we want to conduct the probes.

1. Soil moisture sensor

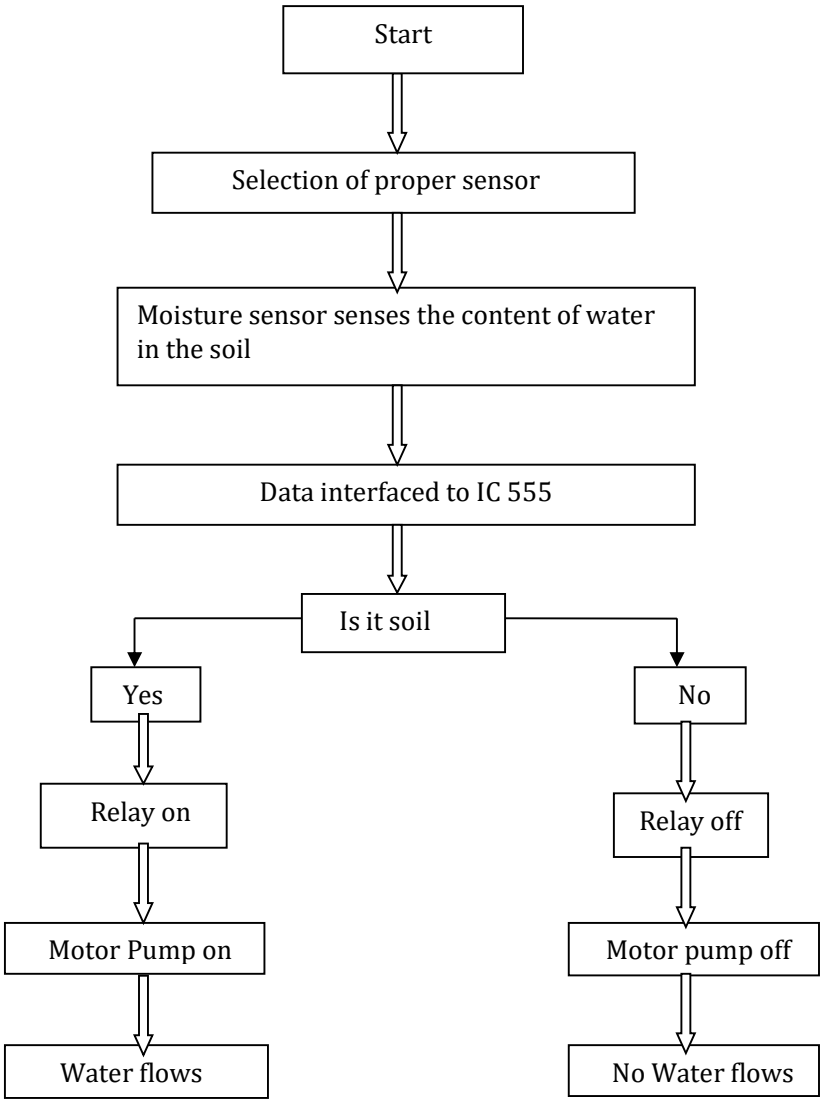
FC 28 soil moisture sensor is used in this project. It gives analog as well as digital data. The moisture level of the soil detected by the sensor. When the water level is low in the soil, the analog voltage will keeps increasing as the conductivity between the electrodes in the soil changes. This sensor can be used for watering a flower plant or any other plants requires automation.

Features:

1. Working voltage of 3.3v to 5v
2. Analog output more accurate.
3. VCC external 3.3 V to 5 V.

2. IC 555

The 555 timer IC is an integrated circuit used in a variety of timer, pulse generation and oscillator applications. The 555 can be used to provide time delays as an oscillator and as a flip-flop element. Monostable has one stable state and quasi stable state. It jumps into quasi stable state from stable state when trigger input is applied and comes back to stable state after pre determine time automatically. It is used in generating pulses, time delay etc.



Results:

1. Due to proper management of water in irrigation systems which are helpful for increasing the agricultural yield.
2. The use of IC 555 timer and soil moisture sensor plays an important role in the field of agriculture to increase the production as well as in to reduce the water scarcity related problems.
3. With the help of timer developed a low cost monitoring system affordable to all farmers to obtain measurements of current field conditions in real time**.**

4. Automatic irrigation system removes the need of workmanship for monitoring.
5. It decreases the use of pesticide as there is no growth of weed in the field, because water is given to the roots of plant only.

Beneficiaries:

1. Farmer and agricultural field.
2. All community with household garden
3. Person who have small field
4. Greenhouse

Conclusion:

Water irrigation system using IC555 is more cost effective method. The proposed water irrigation system for agricultural and garden purposes measures the soil moisture content and turn on or off the motor. If the moisture level is found to be below the desired level the resistance became low the sensor sends the signal to trigger the IC 555 to turn on the motor. Thus the Automatic plant irrigation system has been designed and tested successfully. It has been developed by integrated feature of all the hardware components used. It minimizes the manual interventions by the user to irrigate the farm.

References:

1. utierrez J, Villa-Media, J.F; Nieto- Garibay,A; Porta- Gandara;"Automated Irrigation System Using a Wireless Sensor Network and GPRS Module" IEEE transaction on Instrumentation and Measurement Year: 2014, Volume: 63, Issue: 1 Pages: 166 – 176.
2. R.Hussain, J.Sehgal, A.Gangwar, M.Riyag " Control of irrigation automatically by using wireless sensor network" International journal of soft computing and engineering, vol.3, issue 1, march 2013, pp.48t 324- 328.
3. Shi-fengYang, Jian-ying Guo, Xiu-Qing Wang, "Detecting Of Water Storage Information In Crops With Acoustic Emission Technology And Automatic Irrigation System" Symposium on Piezoelectricity, Acoustic waves and device applications, 2008, pp. 566-569.
4. Ameer S, Chaubey S.S, Joseph M., Rajeshirke P., ''Automatic Irrigaton System Through Solar Power", international Conference on Electrical, Electonics Signals, Communication And Optimization (EESCO) IEEE, Jan 2015,pp. 1-5.

FIRE ALARM SECURITY SYSTEM

Priyanka Jadhav, Sonali Bansode
Department of Physics, Dahiwadi College Dahiwadi, Tal. Man, Dist. Satara

pryankajadhavdcd@gmail.com

ABSTRACT

The primary purpose of Fire Alarm System is to provide and early warning of fire so that people can be evacuated and immediate action can be taken to stop or eliminate of the fire effect as soon as possible. Alarm can be triggered by using detectors or by manual call point. To alert evacuate the occupant siren are used with the intelligent building of the rapid development of technology applications, commercial fire alarm market demand growth, the key to use the bus system intelligent distributed computer system fire alarm system, although installation in the system much easier than the past, but still can not meet the modern needs, the installations costs of equipment costs about 33%~ 70. The suggested technique in fire alarm system used the addressable detectors units besides using the wireless connection between the detector in zones as slave units and the main control unit as the master unit. The system shall include a control panel , alarm initiating devices, notifications appliances, and the accessory equipment necessary for a complete functioning the alarm system. In the wireless fire alarm individual units are powered by primary and secondary batteries for the communication.

Keywords: thermistor, fire alarm, transistor

Introduction:

The fire system can also be integrated with AC supply, access control, fire fighting system, Building Management system to indicate the area of were fire exist fire indicating/ fire alarm panel are used. So far, cable were used to integrate all the device of fire alarm systems, this cable carried the power and communication. When we have unique address; therefore all the devices can be easily identifiable, controllable and networkable as required by the end users. The detector most suitable for the corresponding usage area in simply placed on the wireless base and wireless interface.

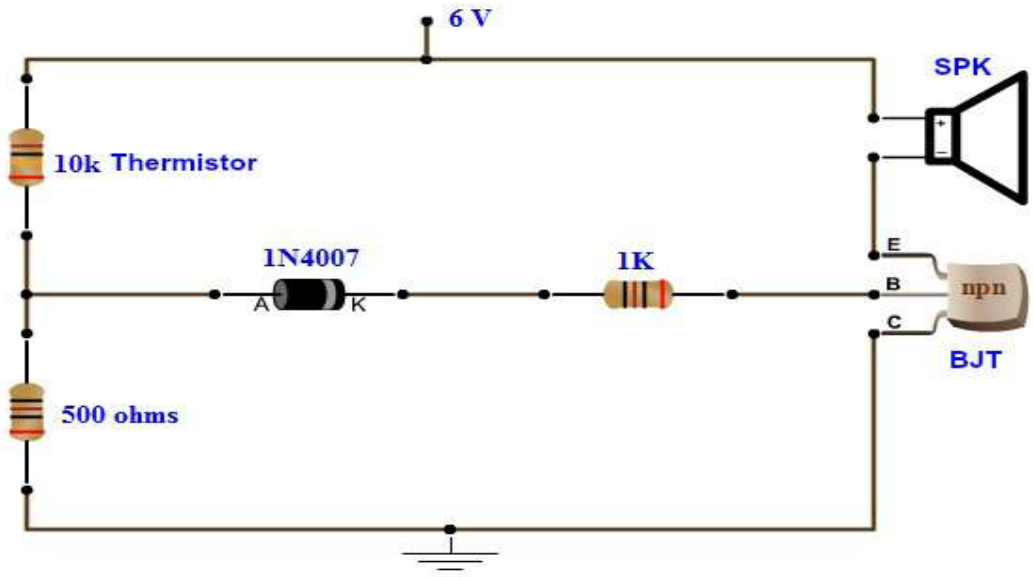
Review:

- Wireless sensor network provide a low cost solution with respect maintences and installation in particular building. [1]
- Then main purpose of our proposed system to safe peoples life and government property this paper will focus on the system that will detect and control the fire
-
- accident for on running train. [2]

Methodology:

The circuit consist of a 10 kilo ohm thermistor. This is an NTC thermistor. Which decreases its resistance with increases in the temperature. It had a resistance of 10 ohm another resistance is connected to the thermistor to form voltage divider circuit and this connected to the transistor through a diode. Buzzer switches on only when the transistor is grounded. As temperature increases the buzzer sound are also increases. The fire alarm control panel shall receive to 220 VAC power, 60 Hz. There will be converter circuit which converts the 220 VAC to regulated 12 v DC and 5 v DC . There will be rechargeable battery includes its regulated output voltages (12V dc and 5V dc) in case of the AC power is lost.

Circuit Diagram :



Conclusion :

Thus electronic can be designed for the fire based alarm and they provide very high efficiency and can be used for the security reason. Early fire detection is based achieved by in the installation of fire detection equipment in all rooms and area of the houses or buildings.

References

1] “Building fire emergency detection and response using wireless sensor network”

YUANYUAN ZENG.

2] “Avoidance of fire accident on running train using Zig Bee wireless sensor network”.

R. PITCHAI RAMASAMY.

Smart Physics using Smartphone Sensor

Shinde Shivani Tukaram, Kharade Rutuja Sanjay
Department of Physics, Dahiwadi College Dahiwadi, Tal. Man, Dist. Satara

shindestdcd@gmail.com

Abstract

To do physics experiments using Smartphone to redesign experiment smart phones and tablets have sensors that can be used to do redesign physics experiment by substituting laboratory equipments with those devices e.g. Accelerometer sensor .By using this sensor acceleration of moving body can be calculated

Keywords

Accelerometer, Sensor, MEMS

Introduction:

For doing physics experiment we face may problems and is also waste our time for a very small purpose. Many technologies are developed to do physics experiments Fast and accurate.Using accelerometer sensor in mobile phones we can calculate the acceleration in different planes and in different direction accelerometer is used to calculate acceleration with the help of MEMS. This is very convenient, easy and time consuming method used to acquire accurate result. It can improve the performance of doing physics experiments

Objective:

i) The objective of this device is to measure the acceleration using smart phones sensor

ii) To save time while doing experiments

iii) To make the experiment accurate.

Material and Methodology:

i) To measure the acceleration by using Smartphone sensors download the application accelerometer monitor version 1.5.0

ii) Accelerometer sensor consisting of MEMS. MEMS stands for Electro Mechanical System

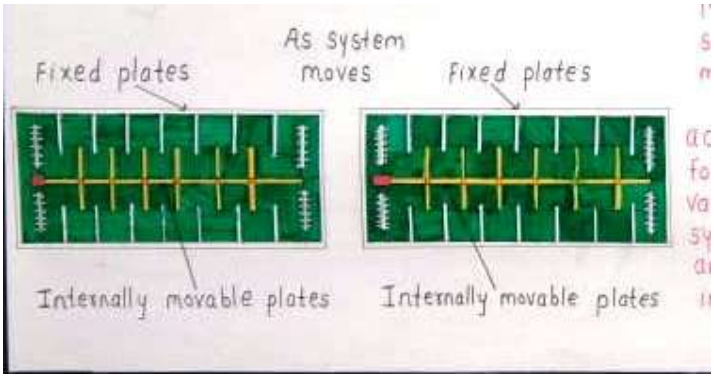
iii) This system containing both mechanical and electronic components but are fabricated at scale a micrometer.

iv) His MEMS are employed in the accelerometer IC which helps to keep its size small

v) Mass M connected to outer assembles by using spring contact and interval assembly forms multiple contacts.

iv) As the assemble moves due to acceleration movement in the internal assembly from value of changes du to displacement value of a is calculated from C.

vii) This multiple systems are placed at different axis at X, Y, Z and in Smartphone due to which acceleration in different plane is measured.



Conclusion:

Smartphone sensor is very useful tool that permit to do measurements in the laboratory and outside it the use of these devices can also increase the interest in physics Smartphone acceleration sensor which demonstrate the feasibility of using this sensor in physics techniques experiments, mostly in the topic of mechanics which is present in all introductory and general physics course.

References

1] J. A. Monsoriu, M. H. Giménez, J. Riera, and Ana Vidaurre, "Measuring coupled oscillations using an automated video analysis technique based on image recognition," European Journal of Physics, vol. 26, pp. 1149-1155, 2005.

[2] S. Shamim, W. Zia, and M. S. Anwar, "Investigating viscous damping using a webcam," American Journal of Physics, vol. 78, pp. 433-436, 2010.

[3] T. W. Ng and K. T. Ang, "The optical mouse for harmonic oscillator experimentation," American Journal of Physics, vol. 73, pp. 793-795, 2005.

Biogenic Synthesis of Silver Nanoparticles by Root Extract of*Argemone Mexicana*

S. S. Jagtap S.P. Jagadale, A. U. Chopade
P.G. Department of Chemistry, Dahiwadi College Dahiwadi Tal- Man Dist.Satara, India
Email:sudeshanajagtap1996@gmail.com

ABSTRACT:

Green synthesis of silver nanoparticles (AgNPs) has gained much interest from chemists andResearchers. We explored the application of aqueous solution derived from Argemone Mexicana root extract in the synthesis Ag nanoparticles. Uses of plants extracts are found to be more advantageous over chemical, physical and microbial (bacterial, fungal, algal) methods for silver nanoparticles (AgNPs) synthesis. Formation of silver nanoparticles was confirmed by UV–visible and FT IR spectroscopy. The presence of Ag nanoparticles was analyzed between the wavelengths of 350-450. There were also peaks that were corresponding to aromatic rings, geminal methyl's and ether linkages, indicating the presence of flavones and terpenoids responsible for the stabilization of the silver nanoparticles.

Keywords: - Argemone Mexicana, Uv-Visible, FTIR, SEM, XRD.

INTRODUCTION:

Nanotechnology is a rapidly growing science of producing and utilizing Nano-sized particles. Many of the nanoparticles synthesis methods of nanoparticles involve the use of toxic chemicals. So, a growing need to develop an environmentally friendly process for nanoparticles synthesis without using toxic chemicals is gaining importance.[1-4] Biosynthetic methods employing plant extracts have emerged as a simple and alternative to chemical synthetic and physical methods.[5-11]

METHOD AND MATERIAL: Green Argemone Mexicana roots were used to make the aqueous extract. Argemone Mexicana root weighing 15 gm. were thoroughly washed in double distilled water, cut into fine pieces and were boiled into 50 ml double distilled water heat 70^0Cfor 30 min and filtered through Whatman No.1 filter paper.

SYNTHESIS OF SILVER NANOPARTICLES

1mM aqueous solution of Silver nitrate ($AgNO_3$) was prepared and used for the synthesis of silver nanoparticles. 20 ml of *Agrimonies Mexicana root* extract was added into 80 ml

of aqueous solution of 1mM Silver nitrate for reduction into Ag+ ions and kept at room temperature for 6 hours.

RESULT AND DISCUSSION

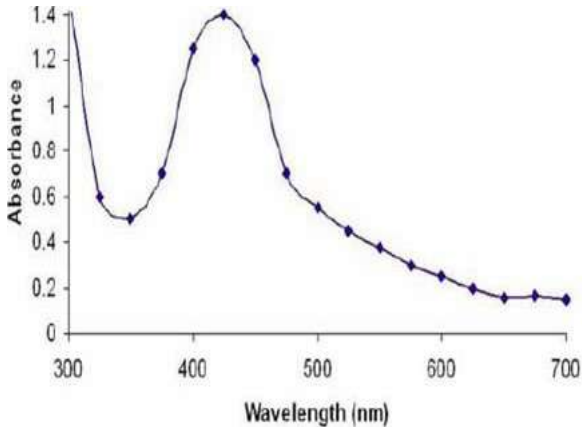
Analysis of silver nanoparticles in plant extract : Reduction of silver ions to silver nanoparticles was analyzed by observing the color change and UV-Vis spectroscopy.

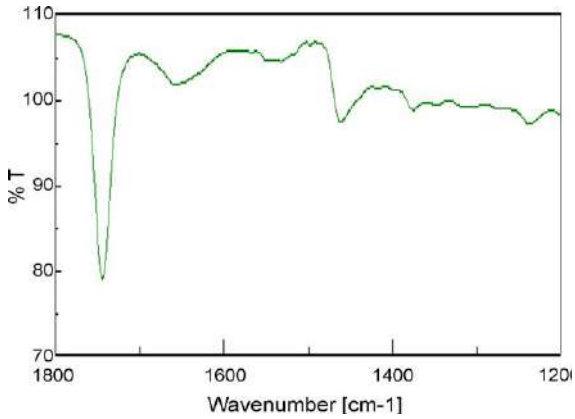
Color change : The synthesized Ag nanoparticles were confirmed by naked observation. Production of Ag nanoparticles takes place by the reduction of silver ions during exposure to the plant followed by color change. Within 6 hours the silver ions gets reduced and it exhibits colorless to reddish brown colour.

UV-VIS Spectra analysis:

The UV-Vis spectrum clearly showed the increase in intensity of silver solution. Wavelength between 350-450 nm the formation of silver nanoparticles reach the peak maxima. The UV-Visible spectrum shows the formation of silver nanoparticles of aqueous root extract as the peak maxima in 420 nm this is characteristic to silver nanoparticles and the broadening of peak indicated that the particles were synthesized.

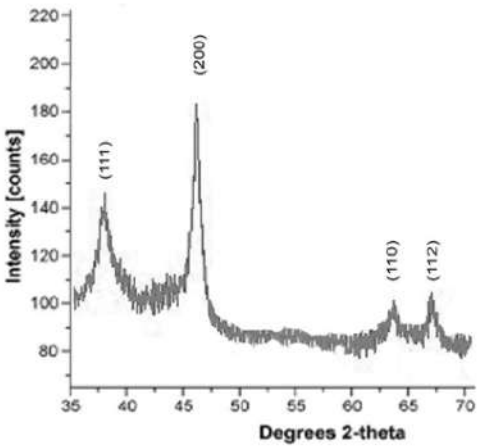
Fig: UV-Vis absorption spectrum of silver nanoparticles synthesized by treating 1mM aqueous AgNO3 solution with 20%*Argemone Mexicana* root extract after 6hrs.





FTIR ANALYSIS:FTIR analysis of the dried Ag NPs was carried out through the Lambda Scientific (FTIR)

XRD STUDY: The XRD patterns of silver nanoparticles synthesized from root extract of Argemone Mexicana. The XRD pattern thus clearly illustrates that the silver nanoparticles synthesized by the present green method are crystalline in nature.



XRD of silver nanoparticles byArgemone Mexicana root extract

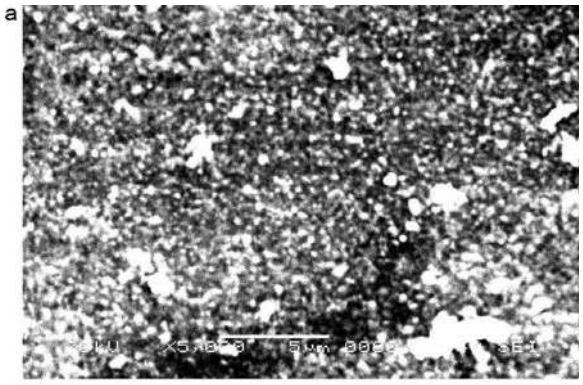


Fig .XRD of silver nanoparticlesbyArgemone Mexicana root extract.

SEM Analysis:SEM analysis was carried out to understand the topology and size of AgNPs, which showed synthesis of higher density polydispersed spherical AgNPS of various sizes.

Conclusions: Synthesis of silver nanoparticles has many advantages such as, ease with which the Process can be scaled up and economic viability. We have developed a fast, eco-friendly and convenient method for the synthesis of silver nanoparticles from Argemone Mexicana root extract. Synthesized silver nanoparticles were characterized by UV- Visible spectrum, FTIR, SEM and XRD. These silver nanoparticles may be used in drug delivery, food and pharmaceuticals industries.The work suggests that silver nanoparticles may provide potential applications as antibacterial,Antimicrobial, antifungal applications.

References:

1. Mukundhan KS, Elumalai EK, Trupti N patel, Rama Chandra Murty V, Catharanthus roseus: a natural source for the synthesis of silver nanoparticles. Asian Pacific Journal of Tropical Biomedicine. 11, 2011, 270-275.
2. Begum, N.A., Mondal, S., Basu, S., Laskar, R.A. and Mandal, D. ‘‘Biogenic synthesis of Au and Ag nanoparticles using aqueous solutions of black tea leaf extracts’’, Colloids Surf. B, 71(1), pp. 113–118 (2009).
3. Krishnaraj, C., Jagan, E.G., Rajasekar, S., Selvakumar, P., Kalaichelvan, P.T.and Mohan, N.‘‘Synthesis of silver nanoparticles using Acalypha indica leafextracts

and its antibacterialactivity water borne pathogens'', Colloids Surf.B, 76, pp. 50–56 (2010).

4. Jha, K.A. and Prasad, K. ''Green synthesis of silver nanoparticles using Cycasleaf'', Inter. J. Green
5. Nanotech., 1(2), pp. 110–117 (2010).
6. .Mukherjee, P., Ahmad, A., Mandal, D., Senapati, S., Sainkar, S.R., Khan, M.I., Parishcha,R., Ajaykumar, P.V., Alam, M., Kumar, R., Sastry, M., 2001. Fungus-mediated syn-thesis of silvernanoparticles and their immobilization in the mycelial matrix: anovel biological approach to nanoparticle synthesis. Nano Lett. 1, 515–529.
7. Chandran, S.P., Chaudhary, M., Pasricha, R., Ahmad, A. and Sastry, M.''Nanotriangles and silver nanoparticles using Aloe veraplant extract'',Biotechnol. Prog., 22, pp. 577–583 (2006).
8. Shankar, S.S., Ahmad, A. and Sastry, M.''Geranium leaf assisted biosynthesisof silver nanoparticles'', Biotechnol. Prog., 19, pp. 1627–1631 (2003).
9. .N. Duran, P.D. Marcato, G.I.H. De Souza, J. Biomed. Nanotechnol. 5 (2009) 247–253.
10. M. Sathishkumar, K. Sneha, S.W. Won, et al., Colloids Surf. B: Biointerfaces 73(2009) 332–338
11. .M. Rai, A Yadav, A Gade Biotechnol. Advances **27,** 76–83 (2009).

Preparation of Eco –Friendly Fertilizer from Urine and Agricultural waste

Shaila Mahanwar , Dr. S.M. khetre

P.G. Dept. of Chemistry, Dahiwadi College Dahiwadi, Tal. Man, Dist.Satara

shailamahanwar20696@gmail.com

Abstract:

Wet composting toilets including urine spraying on cubes of dry agricultural waste with flow of water discharge to agricultural crops can be an economical and practical sanitation option in a rural area. Particularly where sewerage system are not available under capacity. A high proportion of waste loads can be beneficial recycle to farmland and fertilizer can be saved. All without increasing energy consumption for sanitation and money saving for fertilizer. Vegetarian and non-vegetarian diet category students of Dahiwadi College Dahiwadi having age between 18-25 years. Dry leaves of various plants in succession for one year in the same field were taken. Experiment were conducted at the college laboratory. Analyses showed the excellent source of nitrogen, phosphorous, sulphate and potash.

Keywords: Dry leaves, Bagasse, Fertilizer, Human urine…

Introduction:

Wet composting toilets including urine spraying on cubes of dry agricultural waste with flow of water discharge to agricultural crops can be an economical and practical sanitation option in a rural area. Particularly where sewerage system are not available under capacity. A high proportion of waste loads can be beneficial recycle to farmland and fertilizer can be saved. All without increasing energy consumption for sanitation and money saving for fertilizer.

Urbanization is essential for social development but considered as a curse, when the wastes it generates is considered. One of the huge waste generated by high density population of rural centres is anthropogenic waste from through internal drainage system. It consists of boys and ladies urine, agricultural wastes, and large quantity of water. Scientifically the municipal wastes are classified as sewage. As the population density increases, this task would be more voluminous and challenging. But, due to high level of nutrients contained in these wastes, the best disposal mechanism is to use them productively for agricultural purposes. Such an attempt fulfils the twin objectives of their disposal and reduce the reliance on costly fertilizers used in crop production. It has

number of other benefits like improvement in soil fertility, reduction of pollution, besides offering eco-friendly and organic solutions to ever increasing problems of food contamination.

Methods and materials:

The research work consisted of laboratory, and field experiments both on farm and in farmer's field as detailed below:

Characterisation of boys and ladies urine:

Representative boy's urine samples from 10 persons each in the age group of less than 18, 18-25 and more than 25 years from vegetarian and non-vegetarian diet category was collected and analysed for nutrient composition and other quality parameters by following standard procedures.

On farm field experiments:

Three on farm field experiments were conducted at MKVK farm with 6 treatment combinations tried on, maize, tomato, brinjal and bhendi as test crops during first year (2009-10) to assess the fertilizer value of human urine. Cattle urine was also used for comparison. During second year (2016-17), the experiments were continued in the same experimental plots with finger millet, maize, cow pea, soybean and field bean as test crops to study the impact of repeated application of human urine on soil properties, growth and yield of crops. The quantity of boy's urine, cattle urine FYM and gypsum to be applied to different crops and for different treatments was worked out based on the N requirement of crops. The balance of P and K was applied through single super phosphate and of potash respectively. The experiments were conducted during 2017-18, with maize and cluster beans as test crops in two plots where experiments were conducted with onion and as test crop during 2016 -2017and 17-18, to assess the impact of boys and cattle urine on yield of crops and properties of soil.

Experiments on farmers' fields:

Experiment was conducted in a farmer's field at Pachwad village near Dahiwadi, with 10 different treatments. Maize, onion, Bringle and Tomato were grown as

test crops in the same plot without disturbing the treatments. The quantity of boy's urine, cattle urine,

Results and Discussion:

The results obtained from these experiments are discussed in the following pages. Characterization of boys and ladies urine:

. Characterization of human urine:

Slight variation in the pH and EC values of urine collected from persons of vegetarian diet and of different age group was observed (Table-1). The human urine was found to be slightly acidic to neutral in reaction. The pH ranged from 4.97 to 6.51, 4.79 to 6.65 and 4.26 to 6.for samples of < 18, 18 to 25 and >25 years age group respectively indicating that it has appreciable amount of salts.

The human urine has appreciably higher concentration of all the nutrients elements required by crops. The concentration of nitrogen varied from 0.21 to 0.41, 0.25 to 0.43 and 0.26 to 0.43 per cent, phosphorus concentration varied from 0.17 to 0.22, 0.11 to 0.26 and 0.13 to 0.24 per cent and the potassium content varied from 0.12 to 0.23, 0.14 to 0.20 and 0.17 to 0.22 per cent for samples of < 18, 18 to 25 and >25 years age group respectively. In addition, the urine has substantial quantities of calcium, magnesium, sulphur and micronutrient elements.

Conclusion:

1) Eco-friendly fertilizer.
2) Easy method.
3) No artificial chemicals.
4) Utilisation of urine.
5) Utilisation of agricultural waste.

References

1. Meher .M Lusting_Dr-T(2002) sustainable__water cycle Design for rural Australian water association Emiro (2002) convention melbarne paper E21019a.

2. Mitchell .G. Gray .S. Shipton B .woolley R.Erbacher J.Egerton G and Mcknoulty j. (2002).

Preparation of Natural Dye

Mane Pragati S.,Katakar Pranali N.& Phadatare Ankita S., Miss. Hulwan A.R.*
Department of Chemistry,Dahiwadi College Dahiwadi. Tal. Man Dist. Satara
ashwinihulvan2010@gmail.com

Abstract :-

To prepare natural dye from beetroot, turmeric, pomegranate, and carrot. In these paper we require four vessels, crusher, beaker, glass rod, burner, distilled water. Mordants which used are acetic acid and baking powder. Dyeing is a process of applying coloring matter directly on fiber.As the name suggest, natural dyes are derived from natural resourses.In these paper the natural dyes are extracted and fabric dyeing is analyzed by applying dye on 100% pure cotton.At first stage we extract dye from material. This dye was extracted with the help of boiling method.The fabric dyed with extracted dye by using acetic acid and baking powder as a mordants.

Keywords:

Introduction :-

Natural dyes are dyes or colorants derived from plants, vegetables and minerals. The majority of natural dyes are vegetable dyes from plants sources like roots, berries, bark, leaves and wood and other biological sources such as fungi and lichens. Many natural dyes require the use of mordants to bind the dye to the textile fibers, tannin from oak galls, salt, natural alum, vinegar and ammonia are used.Many mordants and some dyes themselves, produce strong odours, and large scale dye works ever were often isolated in their own districts.

Material and Methods:-

Four vessels, Crusher, Beaker, Glass rod, Burner, Distilled warer, Beetroot, Turmeric, Carrot, Pomegranate, Acetic acid and Beaking powder as mordants.

Procedure:-

1.Firstly take fresh beetroot, turmeric, pomgranate and carrot.

2.Then crush them into four different clean vessels

3.In these crushed beetroot, turmeric, carrot & pomegranate add about 500 ml distilled water which are taken in the vessels.

4.Now heat these extract until half the extract is get evaporated.

5.Then remove the burner and cool the extract for some time and filter it.

6.Take cotten clothes, mordants and dye in another beaker.

7.Leave for one hour.

8.Dry it.

9. Dry clothes is ready.

Observation Table :-

Name Of Sample	Mordants	Colour
Beet Root	**Acetic acid**	**Brown**
	Baking Powder	**Faint Pink**
Turmeric	**Acetic Acid**	**Faint Yellow**
	Baking Powder	**Yellow**
Pomegranate	**Acetic Acid**	**Grey**
	Baking Powder	**Faint Blue**

Conclusion :-

This sources are easily available and drying it is useful in many ways. This natural dye does not have any effect on human body. From our research we came to know that natural dye along with mordants are giving better result.

References :-

1. Aminoddin and Hagi functional dyeing of cotton fabric with natural dye.

2. Wool dyeing with extracted dyeing from pomegranate peel. World applied science journal.

ELEMENTAL ANALYSIS OF SCORPION VENOM

Kokare A. P., Rokade S. M., Jarag D. S., Chopade A. U.
P.G. Department of Chemistry, Dahiwadi College Dahiwadi Tal- Man Dist. Satara, India
somnathrokade29@gmail.com

Abstract

Scorpion venom is an important aspect of environment .The global elemental compositon of crude venom obtained from Androctonous Bicolour, Androctonus Crassicauda were estimated by using IPC-MS analyser . The study catalogued several chemical elements present in the scorpion venom using ICP-MS total quant analysis quantitation of nine elements exclusively using approximate standards.

Introduction

Scorpion venom is rich source ofbiomolecules which can perturb physiological activity of host 0n envenomation andmany have therapeutic potential. Scorpion is oldest venomous species and studied extensively for venom

Constituents of crude scorpion venom

Water Mucosa , Oligopeptides , Nucleoides ,amino acids, ions ,neurotransmitters salts, histamine, biogenic, amines, and many others.

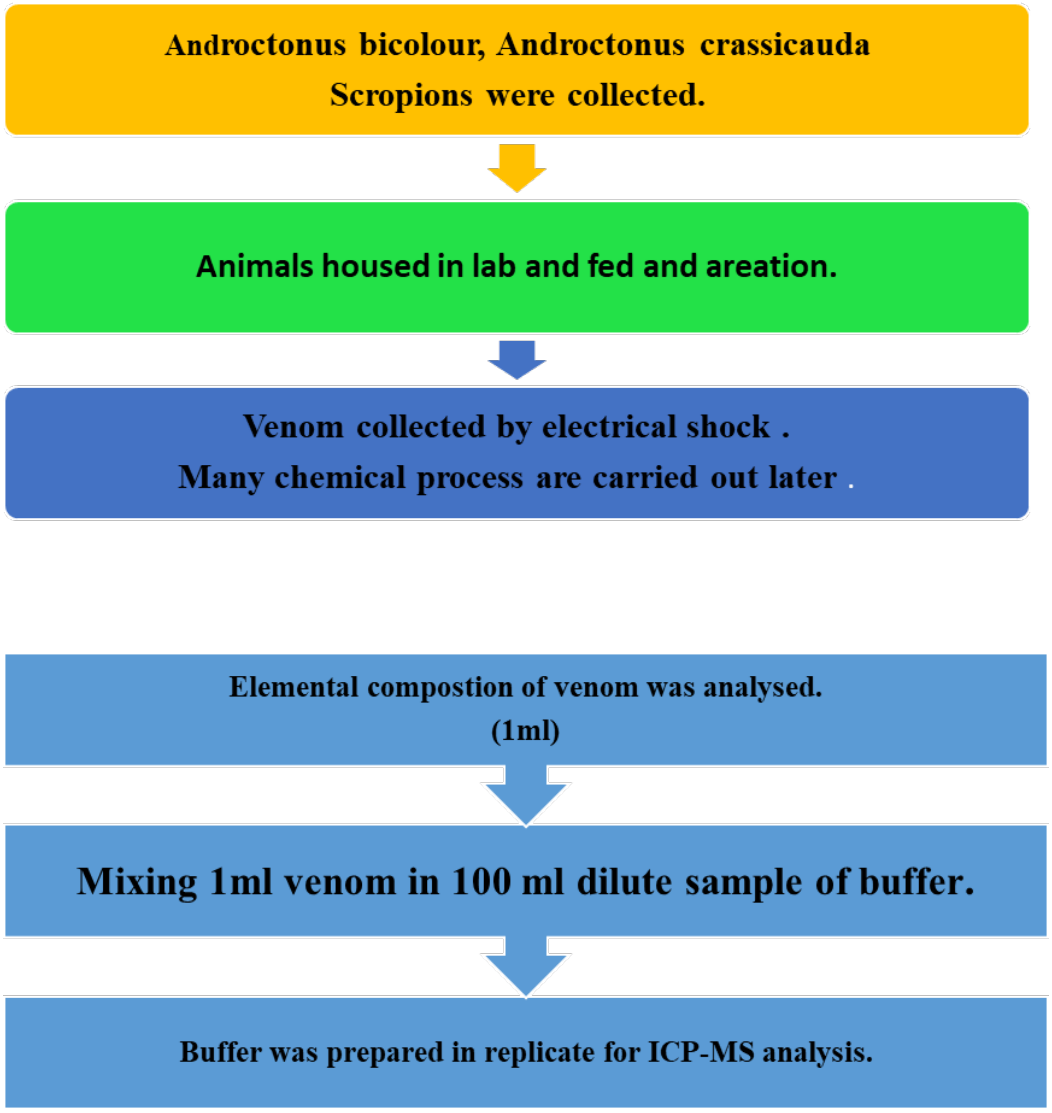
Scanning and quantitative multi element analysis of venom is performed using NexION 350D replicates of venomare considered by Mg, Pb ,and Rh.

Analyte used

Cu, Zn, Ca ,Pb , Mg,As ,Mn,Fe cdSe Ni Y (Internal standard).

Result :- Total of 51 chemicals elements were found to be present in the scorpion venom in different concentration which included 15 elements in ppm & 36 elements in ppb .

Concentration	**Androctonus bicolor**	**Androctonus crassicauda**
>/ 100ppm (µgm)(ml)	Na,K, Ca ,Cu	Na,K,Ca
0.1 -100 ppm (µgm)(ml)	Mg ,P,Fe ,Si Br ,Al, Zn ,Sr ,V ,Ba ,Ti	Cu ,Mg P, Fe ,Si ,Br ,Zn ,Sr ,V,Ba ,Ti



ICP _MS Analysis

Conclusion :- To best of our knowledge this the 1st study reporting chemical elemental mapping of scorpion venom .

Reference :

1. Al-Asmari AK, Islam M, Al-Zahrani AM. In vitro analysis of anti-cancer properties of scorpion venoms in colorectal and breast cancer cell lines. Oncol lett. 2015;11:1256–1262. [PMC free article][PubMed]

2.Ding J, Chua PJ, Bay BH, et al. Scorpion venoms as a potential source of novel cancer therapeutic compounds. Exp Biol Med (Maywood) 2014;239:387–393. [PubMed]

Detection of Elements in Honey

Khande Mahesh.S ,Deokar Santosh.M Miss.Shingare .U.M*
Department of Chemistry, Dahiwadi College Dahiwadi
ushakiranshingare12@gmail.com

Abstract:-

To analyze the available honey for presence of different minerals and carbohydrates. Honey, thick, sweet, super saturated sugar solution manufactured by bees to feed their larvae and for the subsistence during winter. Bee honey is composed of fructose, glucose and water, in varying proportions. It also contains several enzymes and oils. The color & flavor depends on the age of the honey and the sources of the nectar .It colored honeys are usually of higher quality than dark colored honeys. Other high grade honeys are made by bees from orange blossoms, clover and Alfalfa. A well-known, poorer grade honey is produced from buckwheat. Honey has a fuel value of about 3307 cal/kg [1520 cal/ lbs]. It readily picks up moisture from the air and is consequently used as a moistening agent for Tobacco and in baking. Glucose crystallizes out of honey on standing at room temperature, leaving on uncrystallized layer of dissolved fructose. Honey to be marketed is usually heated by a special process to about 66oC [150.01 F] to dissolve the crystals and is sealed to prevent crystallization. The fructose in crystallized honey ferments readily at about 160C.

Introduction-

Generally,the sugar spectrum of honey depends upon the sugars present in the nectar and the enzymes present in the honeybee. Fructose and glucose constitutes the primary sugar in all honey sample and in honey of good quality the fructose content should exceed that of glucose . To analyse the available honey for the presence of different minerals and carbohydrates. Honey is thick, sweet,supersaturated sugar solution manufactured by honeybees to feed their larvae.

Chemicals:-

Fehling solution A, Fehling solution B, Ammonium chloride solution, Ammonium oxalate

solution, Ammonium phosphate, Conc. Nitric acid, Potassium sulphocyanide solution.

Procedure:-

Takan 2ml of honey is taken in a test tube and picric acid solution is added. Yellow precipitate indicates the presence of potassium.2ml of honey is taken in a test tube and NH_4Cl solution and NH_4OH solution are added to it.The solution is filtere and to the filtrate 2ml of ammonium oxalate solution is added. Whiteppt. or milkiness indicates the presence of Calcium ions.2 ml of honey is taken in a test tube and NH_4Cl solution is added to it and then excess ofAmmonium phosphate solution is added. The side of the test-tube is scratched with a glass rod.White precipitate indicates the presence of Magnesium ions.2ml of honey is taken in a test tube and a drop of conc. HNO_3 is added and it is heated. It is Cooled and 2-3 drops of Potassium sulphocyanide solution is added to it. Blood red colourShows the presence of iron.

TEST FOR CARBOHYDRATES

*Fehling`s test: 2ml of honey is taken in a test tube and 1ml each of Fehling`s solution A and Fehling`s solution B are added to it and boiled. Red precipitate indicates the presence of reducing sugars.

*Tollen`s test: 2-3 ml of aqueous solution of honey is taken in a test tube. 2-3ml of Tollen`s reagent is added. The test tube is kept in a boiling water bath for about ten minutes. A shining silver mirror indicates the presence of reducing

carbohydrates.

SL. NO	TESTS	OBSERVATION	INFERENCE
1.	**Test for Potassium:-** Honey + Picric acid solution	Yellow ppt.is observed	Potassium is present.
2.	**Test for Calcium:-** Honey + NH 4 Cl soln. + NH 4 OH soln. filtered + (NH 4) 2 C 2 O 4	White ppt.or milkiness is not observed	Calcium is absent.
3.	**Test for Magnesium:-** Honey+ NH 4 OH (till solution becomes alkaline) + (NH 4) 3 Po 4	White ppt.is not observed	Magnesium is absent.
4.	**Test for Iron:-** Honey+ conc.HNO **3** , heated and cooled, + potassium sulphocyanide	Blood red colour is observed	Iron is present.
5.	**Fehling`s test:-** Honey + 1mL each of Fehling`s solution A and Fehling`s solution B	Red ppt. is observed	Reducing sugar is present.
6.	**Tollen's test:-** Honey + 2-3mL Tollen`s reagent, test tube in water bath for 10 minutes	Shining silver mirror is observed	Reducing carbohydrate is present

Result & Discussion:-

From above observation table test for potassium gives yellow precipitate which indicates presence of potassium in honey.Iron ,Reducing sugar and Reducing carbohydrate also present in given honey sample .test for calcium and magnesium are absents.

Conclusion: In the given honey sample potassium, iron, reducing sugar & reducing carbohydrates are present in high content & magnesium ,calcium are present in low content.

Reference: - *En.Wikipedia.Org/wiki/honey.

Article.scientific.indiatimes.com

Study the presence of insecticides and pesticides in various fruits and vegetables

Mulik P.Y, Dahiwade S.R.*
Department of Chemistry, Dahiwadi College Dahiwadi
dahiwadesarita@gmail.com

ABSTRACT:-

The intensive development of agriculture means that more and more toxic organic and inorganic compounds are entering the environment It is therefore crucial to monitor pesticide residues in fruit and vegetables using all available analytical methods.

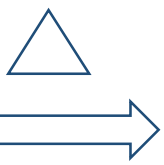
Introduction:

These are chemicals that are sprayed over crop to protect form pests. For example DDT, HC, Zinc phosphate, mercuric chloride, Dinitrophenol etc. All pesticides are poisonous chemical and are used in small quantities with care. Pesticides are proven to be effective against to variety of insects, weeds and fungi and are respectively called as inscticides; herbicides and fungicides. Most of the pesticides are non biodegradable and remain penetrate as such into plants they transfer to animals , birds and human being.

Sodium fusion test

Lassaligne's Test:-

Nitrogen present in organic compound is detected by "Lassaligne's Test "The elements present in the compound are converted from covalent form into ionic form by fusing the compound with sodium metal.



Na + C+ N NaCN

Observation:

Sr.No	Name of the fruit or vegetable	Test for Presence of nitrogen (positive or negative)	Presence of insecticides and pesticides
1	Apple	Negative	No
2	Grapes	Positive	Yes
3	Brinjal	Positive	Yes
4	Tomato	Positive	Yes
5	Banana	Positive	Yes
6	Green pea	Positive	Yes
7	Cucumber	Positive	Yes
8	Potato	Negative	No
9	Carrot	Negative	No
10	Spinach	Positive	Yes

Result & Discussion:-

From the above observation table , we can say that the fruits and vegetables that consume especially banana, Grapes, Brinjal, Tomato,Greenpea,Cocumber,Spinach containing nitrogen insecticides and pesticides but Apple, Potato, Carrot do not contain nitrogen insecticides and pesticides

Conclusion:-

From the above observations it is concluded that each fruit or vegetable contain nitrogenous insecticide or pesticide present or not.

Bibliography:-

- **Website**:- www.icbse.com
- Comprehensive Practical chemistry- XII Class
- Website:- www.scribd.com

Green synthesis of AgNps

Sushen S Raut, Sushant B. Patil, A. U. Chopade
P.G. Department of Chemistry, Dahiwadi College Dahiwadi Tal- Man Dist.Satara, India
sushenraut30@gmail.com

Abstract:

This study aimed to develop an environmentally friendly and cost-effective approach to synthesize green silver nanoparticles (AgNPs) from silver precursors. After 24 h of reaction, the yellow color of extract was changed to dark brown-reddish due to the reduction of silver ions to AgNPs. AgNPs were characterized using UV-vis spectroscopy, Fourier transform infrared spectroscopy,
transmission electron microscopy (TEM), and energy dispersive X-ray spectroscopy (EDS). The maximum absorbance of UV-vis spectra was at 432 nm. TEM analysis reveals that the shape of the most biosynthesized AgNPs was in spherical forms and the average of particle size was 18 ± 0.5 nm. EDS analysis exhibits strong signals of silver element.

Introduction

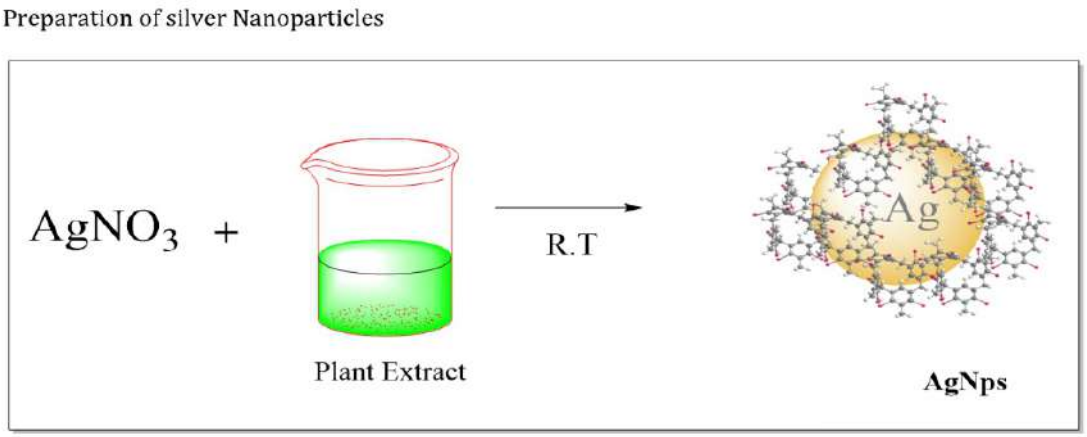
Nanotechnology is an emerging field that involves a wide range of applications, including food packaging materials, personal care products, and delivery systems of therapeutic agents to improve medical treatments.

Preparations of the plant extract :-

To prepare the aqueous extract of turmeric powder (AETP), 6.8 g of organic turmeric or curcumin powder were weighed and mixed with 100 mL of Milli-Q water (18.2 MΩ cm). After that, the mixture was boiled for 12 min and cooled down at room temperature for 15 min. The extract was then filtered using Whitman filter paper and centrifuged at 6764 G-force for 10 min at 25ºC before it was used to synthesize AgNPs.

Biosynthesis of silver nanoparticles:-

The green synthesis of AgNPs was achieved according to a reported procedure with some modifications. Briefly, 2 mL of AETP was mixed with 8 mL of 1 mM $AgNO_3$ aqueous solution under moderate stirring at room temperature for reduction of Ag ions. The solution was kept under stirring overnight until the complete synthesis of AgNPs. At the beginning, the mixture had a light yellow color when the extract was added. The color of the solution changed to a dark brown-reddish color after moderate overnight stirring.



(fig no:1 Synthesis of Silver nanoparticles)

Highlights:-

- AgNPs were synthesized using aqueous extracts of turmeric powders
- Plant biomaterials in the extract worked as reducing and capping agents
- AgNPs showed strong antibacterial activity against *E. coli* O157:H7
- AgNPs showed strong antibacterial activity against *L. monocytogenes*
- AgNPs caused significant shrinkage and damage to the bacterial cell membranes

Result:-

The color of the mixture of AETP and the aqueous solution of AgNO3 was yellow (Fig. 1A a). However, after 24 h of moderate stirring at room temperature, the color of the mixture first turned to light brown, brown, and finally brown-reddish (Fig. 1A b). This color change was considered an indication of successful synthesis of AgNPs.

Conclusions:-

This study established a low cost, facile, and environmentally friendly method to synthesize AgNPs using organic components of AETP as a reducing and capping agent and avoided using any hazardous or toxic materials.

References:-

D. Arumai Selvan, D. Mahendiran, R. Senthil Kumar, A. Kalilur Rahiman, Garlic, green tea and turmeric extracts-mediated green synthesis of silver nanoparticles: Phytochemical, antioxidant and in vitro cytotoxicity studies, J. Photochem. Photobiol. B, 180 (2018) 243-252.

(Green Synthesis of Silver Nanoparticles Using TurmericExtracts and Investigation of Their Antibacterial Activities)

Plastic eating bacteria –A great thing in biodegradation

Jadhav P.D., A. U. Chopade*

P.G. Department of Chemistry, Dahiwadi College Dahiwadi Tal- Man Dist.Satara, India

anilchopade987@gmail.com

ABSTRACT

This study determind the degradation of plastic material by three different species of microorganism under both laboratory and field condition using standard techniques. Microorganism such as bacteria and fungi are involved in the degradation both natural and synthetic plastic. The bioderadation of plastic proceed actively under different soil condition according to their proprties because the microorganism responcible for the degradation differ from each other and they have their own optimum growth conditions in the soil .It can thus be concluded based on our research findings that the studied microorganism process bio degradability properties to varying degrees of efficiency.

INTRODUCTION

The plastic also puls a big chemical burden on the environment. plastic are very stable and stay in the environment for a long time after they are discarded. few species of fungus having properly growing on plastice were isolated but that fungus can not be easily grown like bacteria. Biodegradation is the process in which microorganisms like fungi and bacteria degradation the natural polymer and synthetics polymer.

Aspergillus niger is a fungus and one of the most common species of the genum *Aspergillus*. they are found on lemon and vegitable. It is also called as “black mold”. *Rhizopus* is a genus of common saprophytic fungi on plants. they are found on food material like bread.

MATERIAL AND METHOD

MATERIAL :

Plastice material ,microorganism,nutrient broth medium.

METHOD :

Microbial Degradation of Plastic under laboratory Conditions:

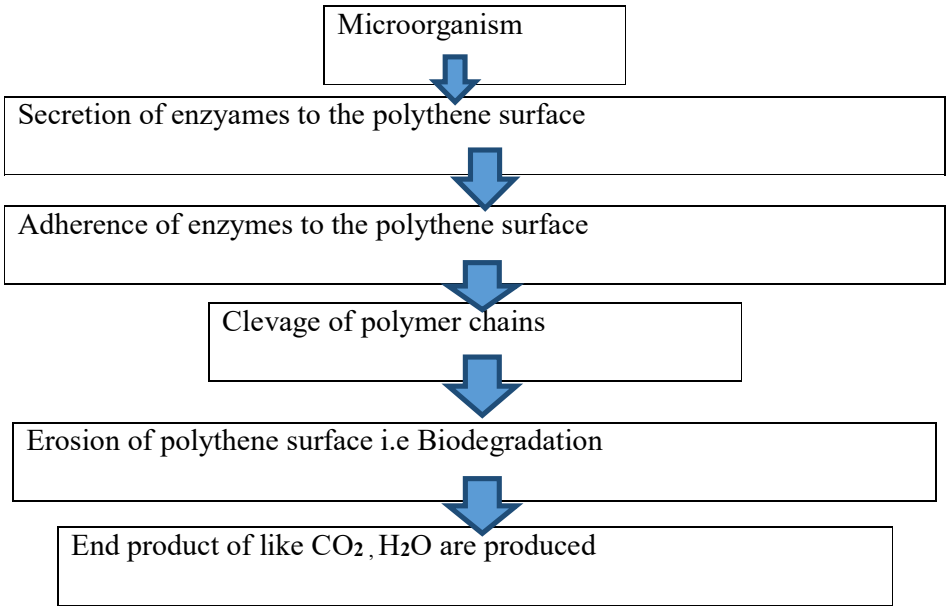
The pre-weighed discs of 1cm dimeter prepared from polythene bags and disposable plastic cups were aseptically transferred to conical flask contaning 50ml of culture broth mediam , inoculated with different bacterial and fungal species seperately. Nutrient broth medium was used for bacteria for fungi. Control was mantained with plastic disc in the microbe-free medium. This flask kept in shaker. After one week of shaking , the plastic discs were collected washed thoroughly using distilled water shade- dried and then weight

for final weight. After degradation process take a small piece of plastic and observed in electron microscope.

Type of microorganism reported for degredation of plastic :

Sr.N	Synthetic plastics	Microorganism
1	Polylactic acid	*Rhizopus delemer*
2	Polyethylene	*Aspergillus niger*

MODE OF DEGRADATION:



RESULTS:

The biodegradation of the studied plastics are depicted.Biodegradation of polythene takes lesser time campared to platic degradation. The evalution of visible changes in pollythene can be performed in almost all test. Effect used to discribe degradation includes roughening of the surface formation of holes or cracks defragmantation or formation of bio film on the surface.

DISCUSSION AND CONCLUSION:

Polythene is one of the majer threats to the environment. Research has been initiated to find out the solution for effective degradation of some plastics. Microorganisoms play a significant role in biological decomposition of material including synthetic polymers in natural environments. Hige density and low density polyethylenes are most commonly used synthetic plastic and they are slow in degradability in natural environments, causing serious envirnmental problems.

REFERENCE:

1. Usha. R. S (Screening of polythene degrading microorganisms)
2. Shah, A. A. and H. (biological degradation of plastic

WHITE CANE SUGAR PRODUCTION

Katkar Aishwarya Mahadev, M.P.Dhone*

Department of Chemistry Dahiwadi College Dahiwadi, Tal:-Man ,Dist:-

Satarameeradhone@rediffmail.com

Abstract :

The options and prospects for the direct production of white sugar in a cane sugar mill are reviewed. Plantation white sugar has been made for many years in some countries but cannot meet the requirements for refined sugars. These low colour sugars are now a popular quality raw sugar for the increasing number of destination refineries. Attainment of refined sugar standards needs the application of some or all of the new separation technologies such as membrane separation, the use of adsorbents, and chromatographic separation. Only one of the new processes being proposed is close to commercialization, namely the WSM process developed by Tongaat Hulett Sugar. A new process for the production of white sugar in a cane sugar mill developed at the Audubon Sugar Institute is described in some detail. It does not require membrane separation and involves adsorption of colour and other impurities using granular activated carbon and ion exchange resins. Chemical regeneration of the carbon is utilized, which enhances the attractiveness of the process. Preliminary information is given on a possible full-scale installation in a raw sugar mill.

Introduction :

Some significant trends are evident in the world sugar market. In the 1980s the proportion of white sugar traded on the world markets, both beet and cane showed a clear increase relative to the raw sugar (Clarke 1986). More recently, the trend has changed, since a number of new large refineries have been built and white sugar exports from producing countries, particularly from the EU, have reduced. Another trend evident is the swing to VHP or better raw sugar supply to refineries, and in particular an increase in deliveries of very low colour raws exemplified by Brazilian “cristal”.

Todd (1997) has shown that the average cost of production of refining in attached refineries is about 55 % of the cost in stand-alone refineries. In order to compete,

autonomous refineries have to be larger to achieve economies of scale and lower unit production costs. A further trend evident in the US has been the increase in vertical integration from field to white sugar output. All beet sugar factories in the US are now owned by the growers, and many large raw cane sugar producers have invested in refining, both white-end refineries and in existing or new refinery capacity.

The first new stand-alone refinery to be build for 25 years was constructed in 1990 in Dubai. Since that time, over a dozen new refineries have been built and existing refineries have been expanded. Currently a number of new refineries are being built or are planned in areas such as Bangladesh, Egypt, Syria, India, Louisiana and Israel among others

Table1 : Composition of clarified juice before and after treatment.

	Brix	Colour (IU)	Turbidity (NTU)	P^H	Ash (g/100g DS)
Clarified juice	14.3	9070	212	7.7	3.5
Juice after 1st GAC column	14.3	6870	191	5.9	3.7
Juice after 2nd GAC column	14.1	2220	187	5.6	3.9
Juice after ion exchange	13.9	1680	165	6.0	4.0
Reduction (%)		81.5	22.2		

Conclusions:

Considerable attention is being given to the direct production of white sugar in a cane sugar mill. Improvements in separation technologies are making some approaches look viable and will probably be used to produce better quality sugar if not sugar of refined quality. Combined with the advantages of higher sugar recovery, better molasses quality and the elimination of evaporator scaling, prospects for direct white sugar production are good. The step from small scale proving of a process to full scale viability is a difficult

one to take and further work is still necessary to establish optimal design criteria and financial viability.

References:

Bennett M.C; Ross B.G. (1988): Blanco Directo production, in Raw Sugar Quality and White Sugar Quality. Ed Clarke M.A. Verlag Dr A. Bartens, Berlin, 89-100.

Bento L.S.M. (2004): Decolourization of sugar solutions with oxidants and ion exchange resins. Proc. Sug. Ind. Technol. 63, 265-269.

Bento L.S.M. (2006): Activated carbons: adsorption of sugar colorants and chemical regeneration. Proc. Sug. Ind. Technol. 65.

Broadhurst H.A.; Rein P.W. (2003): Modeling adsorption of cane-sugar solution colorant in packed-bed ion exchangers. AIChE Journal. 49, 2519-2532.

Todd M. (1997): Prospects for the world white sugar market. Proc. Sugar Ind. Technol. 56, 1-14.

Clarke M.A. (1986): Cane sugar production systems: current and future. Proc. S. Afr. Sugar Technol. Ass. 60, 1-4.

Standard EMF of an electrochemical cell

Khade Megha..M, Misal S.S.*
Department of Chemistry, Dahiwadi College Dahiwadi
Misalshilpa20@gmail.com

Abstract:-

Electrochemical cell:

Whenever redox reaction is allowed to take place directly in singal beaker, it is found that the solution become hot. For eg. When a zinc is placed in copper solution ,the solution found to be warmer as the reaction proceed according to the equation.

$Zn_{(s)} + CuSO_4 \rightarrow ZnSO_{4\,(aq)} + Cu_{(s)}$

Similar result observed when arod of copper is placed in silver solution.The reaction is taking as follows

$Cu_{(s)} + 2AgNO_3 \rightarrow CuNO_{3(aq)} + Ag_{(s)}$

THUS CONCLUDED THAT REDOX REACTION TAKE PLACE DIRECTLY IN SINGLE BEAKER.CHEMICAL ENERGYIN THE FORMOF HEAT PRODUCED.BY SUITABLE MEANS IT IS POSSIBLE TO BRING REDOX REACTION IS INDIRECTLY SO AS TO CONVERT THE CHEMICAL ENERGY INTO ELECTRICAL ENERGY.

REPRESENTATION OF AN ELECTROCHEMICAL CELL

An electrochemical cell is represented in a manner as illustrated below.

Zn / Zn2+ || Cu2+ / Cu

i.e. by convention, the electrode on which oxidation takes place is written on the left-hand side and the other electrode on which reduction takes place is written on the right-hand side. The electrode of the left-hand side is written by writing the symbol of the metal first followed by the symbol of the ion with its concentration in brackets. The electrode on the right-hand side is written by first writing the ion along with its concentration in brackets followed by the symbol of the metal.

Experimental Setup

A zinc rod is placed in the zinc sulphate solution taken in a beaker. A copper rod is placed in the copper sulphate solution taken in another beaker. The two rods are connected by a wire and two solutions are connected by a salt bridge.

Method and material :

Take two clean beakers. In one beaker take 0.5 M copper sulphate solution and in the other take 0.5 M zinc sulphate solution.Take a copper strip and clean it using a sand paper.

Dip the copper strip into the beaker containing the 1 M copper sulphate solution. Similarly, take a zinc strip and clean it using a sand paper.Then dip it into the beaker containing 1 M zinc sulphate solution. Take a salt bridge and connect the two solutions using the salt bridge.

Take a voltmeter and connect the copper strip to the positive terminal and the zinc strip to the negative terminal using connecting wires. Note the position of the pointer in the voltmeter and record the reading. Repeat the experiment by taking different concentrations of zinc sulphate and copper sulphate solutions.

Observation:

Sr.no.	**$CuSO_4$**	**$ZnSO_4$**	**EMF**
1	0.5 M	0.5 M	0.98V
2.	0.5 M	0.25 M	0.81V
3.	0.25 M	0.25 M	0.90V

Conclusion:

we concluded that EMF of the cell increases with decrease in the concentration of the electrolyte around the anode and with increase in concentration of electrolyte around cathode.

References :

1.Introduction of electrochemistry –S.Glasstone ,page no.950 -952

2. En.Wikipedia.Org/wiki/Daniel cell

3.Electrochemistry by Bokaris and Reddy

Enumeration of medicinal plants from Phaltan region of Satara district.

Borate D R, Satre T.S.*
Department of Botany, Dahiwadi College Dahiwadi
Satrets93@gmail.com

Introduction

The use of plants with pharmaceutical properties has received increased interest nowadays from both homeopathic and allopathic branches. Medicinal plants play an important role in public health, especially in developing countries, where it is believed that the intense utilization of plants with therapeutic action does not lead to intoxication (Mossi *et. al.*, 2009). In ethno-botany, information collection regarding medicinal and economic importance of plants from local people is of great importance. These days, ethno-botany has become a crucial area of research for development in resource management and biodiversity conservation. Ethno-botany provides us profound understanding and appreciation of the richness and intimacy of relationship between nature and hum

Methodology:

Study Area: Satara is a district of Maharashtra state in Western India and falls within the Deccan traps area. It lies between 17° 97' N and 74° 42' E. Phaltan is one of the dry tahsil of Satara district acquires an area 1,171.79 sq.km Tahesil experiences extreme dry conditions with 500 to 550 mm average annual rain fall and 29 to 35^0 average temperatures. Due to unpredictable monsoon, underdeveloped irrigation facilities and seasonal rivers, average economic status is low and many people cannot afford expensive medicinal facilities. In this situation herbal healers, contribute a crucial role in the health of this rural area.

The survey was carried out during 2016 to 2018 to collect information of medicinal plants used by villagers of Dhaval, Sakharwadi, Badekhan , Surawadi , Nimbhore , Tadawale and Phaltan , some villages of Phaltan Tahsil. Extensive field visits were conducted during study period for recording information related to medicinally important plants from study area with local participation. Data presented here is based on personal observations and interviews with old villagers, herbal healers, and knowledgeable persons. The information was recorded on questionnaire and in the field note book

Table No. 1 Enumeration of medicinal plants from Phaltan region

Sr. No.	Botanical Name	Family	Local Name	Part Used	Medicinal Uses
1.	*Acacia nilotica* (L.) Willd.	Mimosaceae	Babhul	Stem	Tender shoots chewed after scorpion sting.
2.	*Acalypha indica* L.	Euphorbiaceae	Chuda	Shoot	Leaf juice on earache and cough
					Roots crushed in water given in scorpion sting
3.	*Achyranthus aspera* L.	Amaranthaceae	Aghada	Root, leaves	and dog bite, leaves with milk of goat in
					asthma.
4.	*Aegle marmelos* (L.) Corr.	Rutaceae	Bel	Leaves , fruit	Chewing of leaves in piles, Ripened fruit in anemic dysentery.
5.	*Aloe vera* (L.) Burm.f.	Liliaceae	Korpad	Leaves	Fleshy part of leaf after baking with sugar given in fever and cough, fleshy part with jaggery in menstrual problems.
6.	*Argemone mexicana* L.	Papaveraceae	Bilinga	Stem latex	Latex employed on viral infection of eyes: Conjunctivitis
7.	*Azadiracta indica* Juss.	Meliaceae	Kadulimb	Bark, Leaves and seeds	Bark in gynecological problems, Leaf juice in acidity, seed oil applied on wounds
8.	*Bambusa arundinacea*	Poaceae	Kalak	Leaves	Leaves in animal dysentery, Leaf ash in

	(Retz.) Willd.				coconut oil applied on scabies.
9.	*Boerhavia diffusa* L.	Nyctaginaceae	Vasu/	Shoot	Leaf juice on jaundice, gas trouble and
			Punarnava		constipation.
10.	*Calotropis procera* (Ait.) R. Br.	Asclepiadaceae	Rui	Stem and	Latex on joint swelling and carbuncles and
				flower	removal of spines from legs. Dried powder of
					petals with honey in whooping cough.
11.	*Caralluma adscendens*	Asclepiadaceae	Shenguli	Teder fleshy	Fresh stem in diabetes to
	var. fimbriata			stem	reduce blood sugar.
12.	*Cardiospermum helicacabum L.*	Sapindaceae	Kapalphodi	Leaves	Leaf decoction in rheumatism and piles
13.	*Carica papaya* L.	Caricaceae	Papai	Unripe	Fruit latex applied on piles.
				fruit latex	
14.	*Cassia auriculata* L.	Caesalpiniaceae	Tarwad	Leaves	Decoction for 8-10 days early in the morning
					for rheumatism.
15.	*Celosia argentea* L.	Amaranthaceae	Kurdu	Root	Root powder in asthma.
16.	*Chrozophora rottleri*	Euphorbiaceae	Shahdevi	Leaves	Dried leaf powder applied on wounds of
	(Geis.) Juss				animals and human.
17.	*Citrulus colocynthis* (L.)	Cucurbitaceae	Kadu-	Leaves,	Leaf juice applied on swellings in animals, root

Results : In the present investigation 17 plants were recognized for their Enumeration medicinal uses, belonging 13 families. (Table 1). Traditional healers are using these plants to cure various diseases like gynecological problems, cold, cough,

fever, toothache, earache, skin diseases, scorpion sting, asthma, jaundice, piles, rheumatism, dysentery, joint pains and wound healing. Data available from actual field visits, discussion with people, questionary including, botanical name , family , local name , part used , medicinal uses is shown in the table. Similar uses about some of these plants were observed by Heda (2011); Gupta *et al.* (2009).

References

1. Cooke T (1967) (Rpr.).The Flora of Presidency of Bombay.Vol. II.
    a. Botanical Survey of India. Calcutta.
2. Dwivedi S N, Shrivastava Satyaendra, Dwivedi Sangeeta, Dwivedi Abhishek, Dwivedi Sumeet and Kaul Shefali (2007) "Relevance of medicinal herbs used in traditional system of medicine", *Farmavita. Net,*.
3. Ekka R N and Dixit V K (2007)"Ethno-pharmacognostical studies of medicinal plants of Jaspur District, Chattisgaeh", *Int. Jour. Of Green Phar.* 1(1): 2-4.
4. Gupta R, Vairale M G, Deshmukh RR, Chaudhari PR, Wate SR (2010) " Ethnomedicinal uses of some plants by Gond tribe of Bhandara district, Maharashtra". *India Journal of Traditional Knowledge*, 9 (4):713-717.
5. Heda N K (2012) Folk conservation practices of the Gond tribe of Mendha (Lekha) village of centera India. *India Journal of Traditional Knowledge*, 11 (4),: 727-732.
6. Hooker J D (1872-1977) The flora of British India.Vol.I – VII. London.
7. Mossi A J, Mazutti Paroul M, Corazza N Dariva ML, Cansian C and Oliveira RL (2009)
8. Chemical variation of tannins and triterpenes in Brazilian populations of *Maytenus ilicifolia*
9. Mart. Ex Reiss *Brazilian Journal of Biology*, 69 (2): 339-345.
10. Naik VN (1998) *Flora of Marathwada.* Vol. I & II, Amurt Prakashan, Aurangabad.
11. Parrotta John A (2001) Healing Plants of Peninsular India. CABI Publishing USA.
12. Patil H S and Yadav SR (1991) Preliminary Survey of Khatav *Tahsil.* M.Phil. Theses, Shivaji Uni. Kolhapur
13. Sebastian M K and Bhandari MM (1984) "Medico-ethno botany of Mount Abu Rajasthan, India". *J. Ethnopharmacol.* 12 (2): 223-30.
14. Siber S S, and Albuquerque U P (2010) "Metods participativos na pesquisa etnobiologica". in. Albuquerque UP, Lucena RFP,
15. Cunha LVFC (Eds) Metodos e Tecnicas na pesquisa Etnobiologica (Vol 1, Estudos), NUPEEFA, Recife, pp 85-106 Sieber S S, Medeiros PM, Albuquerque UP (2010) "Local perception of environmental change in a semi-arid area of northeast Brazil: a new approach for the use of participatory methods at the level of family units". *Journal of*
16. *Agricultural and Environmental Ethics* in press.
17. Singh N P and Karthikeyan S (2000) Flora of Maharashtra state Vol. 1-3. Botanical Survey of India. Calcutta.
18. Trivedi P C (2002). Ethno-medical Plants of Rajasthan State, India. In:
19. Ethnobotany, Trivedi, P.C. (Ed.). Aavishkar Publishers, Jaipur.
20. Yadav S R and Sardesai M M (2002) Flora of Kolhapur District. Shivaji University Press, Kolhapur.
21. Zingare A K (2012) Ethnomedicinal uses of plants among the Halba tribe of Gondia District of Maharashtra, India. *Bionano Frontier*. Special Issue, pp 121-125.

FLORISTIC DIVERSITY OF THE MAN TAHESIL, MAHARASHTRA, INDIA

V.V. KAMBLE, YELE R.B & DALVI A.V.

Department of Botany, Dahiwadi College Dahiwadi,
Taluka- Man, dist-Satara, Maharashtra (INDIA)
vvkamble70@gmail.com

Abstract: For the conservation and sustainable management of any locality, it requires a good knowledge of its biodiversity. The present study was conducted in Man Tahesil of Maharashtra (India) to find out its floristic diversity. The study area is composed of 11 families, 22 genera and 36 species. Endemic and exotic elements, threatened and endangered taxa and medicinal plants of the study area are also discussed in this paper.

Key Words : Floristic diversity, Conservation, Sustainable management, Biodiversity, Man Tahesil

Introduction: Knowledge of floristics are necessary for the study of Diversity dynamics, plant animal interactions and nutrient cycling. As life support system forests are the most important component on the earth. Biodiversity is essential for human survival and economic well-being and for the ecosystem function and stability. During last few decades, for one or the other reasons the biodiversity of these forests are disappearing at alarming rate. To satisfy the needs and greed of the people, many important plants are threatened and becoming rare, even some are on the verge of extinction. The problem with the chronic form

of forest disturbance is that plants or ecosystem often do not get time to recover adequately because the human onslaught never stops. Therefore it is very urgent to stop exploitation and develop an appropriate strategy for conservation and sustainable utilization of plant resources.

A sound understanding of the richness of species is necessary for appropriate conservation and restoration of the biological diversity.

Detailed assessment of floristic diversity at all the three levels i.e. genetic, species and ecosystem (community and habitat) diversity is essential, without which it is difficult to plan or launch any policies and programmes for conservation purpose.

Besides the detailed assessment of floristic diversity of area of conservation, endemic, endangered and medicinally important plant species and cause of forest destruction are equally important in assigning conservation values.

Aim and Objective: The present study site falls within the Western Ghats, of India.

Methodology: The study area Man Tahesil is situated in the Satara district of Maharashtra, India.

Entire area of Man Tahesil was periodically visited and an extensive floristic survey was carried out. During the study plant species

belonging to various life forms were collected and identified taxonomically with the help of available related literature and the identification is verified by comparing them with the authenticated herbarium specimens from herbarium of forest flora of Man Tahesil district at Department of Botany, Dahiwadi college Dahiwadi; Shivaji University Kolhapur The

list of endangered, threatened and Endemic plants found in study area were prepared with the help of published works of and medicinally important taxa are identified with the help of available related literatures.

RESULTS AND DISCUSSION:

With a view to bring out a comprehensive floristic account, the study area has been intensively explored. Results presented in the **Table 1** reveals that the study area is composed of 11 families, 22 genera and 36 species. It also shows that about 40 families are represented by solitary genus of these 34 genera are represented by only one species each.

Dicots					
S/N	**Family**	**Genus**	**Species**	**Sub - Species**	**Varieties**
1	Ranunculaceae	1	1	----	----
2	Annonaceae	2	2	----	----
3	Capparaceae	1	3	----	1
4	Menispermaceae	3	3	----	1
5	Papaveraceae	1	1	----	----
6	Brassicaceae	1	2	----	----
7	Capparidaceae	1	1	----	----
8	Caryophyllaceae	1	1	----	----
9	Portulacaceae	1	2	----	----
10	Malvaceae	8	17	1	----
11	Sterculiaceae	3	3	----	----

REFERENCES

1. Cooke T (1967) (Rpr.).The Flora of Presidency of Bombay.Vol. II.
    a. Botanical Survey of India. Calcutta.
2. Dwivedi S N, Shrivastava Satyaendra, Dwivedi Sangeeta, Dwivedi Abhishek, Dwivedi Sumeet and Kaul Shefali (2007) "Relevance of medicinal herbs used in traditional system of medicine", *Farmavita. Net,*.
3. Ekka R N and Dixit V K (2007)"Ethno-pharmacognostical studies of medicinal plants of Jaspur District, Chattisgaeh", *Int. Jour. Of Green Phar.* 1(1): 2-4.
4. Gupta R, Vairale M G, Deshmukh RR, Chaudhari PR, Wate SR (2010) " Ethnomedicinal uses of some plants by Gond tribe of Bhandara district, Maharashtra". *India Journal of Traditional Knowledge*, 9 (4):713-717.
5. Heda N K (2012) Folk conservation practices of the Gond tribe of Mendha (Lekha) village of centera India. *India Journal of Traditional Knowledge*, 11 (4),: 727-732.
6. Hooker J D (1872-1977) The flora of British India.Vol.I – VII. London.

7. Mossi A J, Mazutti Paroul M, Corazza N Dariva ML, Cansian C and Oliveira RL (2009)
8. Chemical variation of tannins and triterpenes in Brazilian populations of *Maytenus ilicifolia*
9. Mart. Ex Reiss *Brazilian Journal of Biology*, 69 (2): 339-345.
10. Naik VN (1998) *Flora of Marathwada.* Vol. I & II, Amurt Prakashan, Aurangabad.
11. Parrotta John A (2001) Healing Plants of Peninsular India. CABI Publishing USA.
12. Patil H S and Yadav SR (1991) Preliminary Survey of Khatav *Tahsil.* M.Phil. Theses, Shivaji Uni. Kolhapur
13. Sebastian M K and Bhandari MM (1984) "Medico-ethno botany of Mount Abu Rajasthan, India". *J. Ethnopharmacol.* 12 (2): 223-30.
14. Siber S S, and Albuquerque U P (2010) "Metods participativos na pesquisa etnobiologica". in. Albuquerque UP, Lucena RFP,
15. Cunha LVFC (Eds) Metodos e Tecnicas na pesquisa Etnobiologica (Vol 1, Estudos),

    NUPEEFA, Recife, pp 85-106 Sieber S S, Medeiros PM, Albuquerque UP (2010) "Local perception of environmental change in a semi-arid area of northeast Brazil: a new approach for the use of participatory methods at the level of family units". *Journal of*
16. *Agricultural and Environmental Ethics* in press.
17. Singh N P and Karthikeyan S (2000) Flora of Maharashtra state Vol. 1-3. Botanical Survey of India. Calcutta.
18. Trivedi P C (2002). Ethno-medical Plants of Rajasthan State, India. In:
19. Ethnobotany, Trivedi, P.C. (Ed.). Aavishkar Publishers, Jaipur.
20. Yadav S R and Sardesai M M (2002) Flora of Kolhapur District. Shivaji University Press, Kolhapur.
21. Zingare A K (2012) Ethnomedicinal uses of plants among the Halba tribe of Gondia District of Maharashtra, India. *Bionano Frontier*. Special Issue, pp 121-125.

Enumeration of Medicinal Plants from Dahiwadi Region of Satara District

Mane Sayali Nagesh, Miss. Satre T.S.

Dept. of Botany, Dahiwadi College Dahiwadi.

Taluka- Man, Dist- Satara

Satrets93@gmail.com

Abstract: India is rich in biodiversity and considered to be a storehouse of medicinal plants. Local herbal healers (Vaidu) does not share their experiences with others, hence this valuable knowledge is eroding gradually under trends of modernization and due to rapid socioeconomic changes. A periodic survey was carried out with villagers of Dahiwadi, and adjoining villages to record medicinal utilities of plants. These places belong to Man tahsil (District Satara). The rural people from this region use various plants to treat different ailments and diseases. Total 52 plants were identified and enlisted for their medicinal values to cure diseases like gynecological problems, asthma, cold, cough, dysentery, jaundice, piles, and skin diseases. Plants mostly used by local knowledgeable persons for medicinal purposes are *Acacia nilotica (L.) Willd., Aegle marmelos (L.) Corr., Argemone mexicana Linn., Boerhavia diffusa Linn., Caralluma adscendens var. fimbriata (Wall.) Grav. & Mayur, Chrozophora rottleri (Geis.) Juss, Citrulus colocynthis (L.) Schrad., Datura metel Linn., Ficus religiosa Linn., Glossocardia bosvallea (L. f.) DC., Macrotyloma uniflora (Lam.) Verdc., Nyctanthes arbor-tristis Linn., Sesamum laciniatum Klein ex Willd., Vernonia anthelmintica (L.) Willd., Withania somnifera (L.) Dunal.* This is participatory effort towards creating awareness about medicinal utilities of plants and need of conservation.

Keywords: Man tahshil,herbal healers, vaidu, medicinal plants.

Introduction

The use of plants with pharmaceutical properties has received increased interest nowadays from both homeopathic and allopathic branches. Medicinal plants play an important role in public health, especially in developing countries, where it is believed that the intense utilization of plants with therapeutic action does not lead to intoxication (Mossi *et. al.*, 2009). In ethno-botany, information collection regarding medicinal and economic importance of plants from local people is of great importance. These days, ethno-botany has become a crucial area of research for development in resource management and biodiversity conservation. Ethno-botany provides us profound understanding and appreciation of the richness and intimacy of relationship between nature and human.

Indigenous people, who live in harmony with nature, maintain a close link between man and environment. There has been rapid extension of allopathic system of medicinal treatment in our country during the past country (Dwivedi *et. al*. 2007). However allopathic drugs have side effects and people are going back to the nature with hope of safety and security. Herbal traditional methods have been developed through many experiences of many generations (Zingare, 2012). Herbal medicines are easily available, safe, cheaper, and with no fear of any side effect. Many valuable herbal drugs have been discovered by knowing that particular plant was used by ancient folk healers for the treatment of some kind of ailment (Ekka & Dixit, 2007). More than 21,000 plants, are used for many medicinal purposes around the world has been listed by the World Health Organization (Kathe, 2005). The information of indigenous plants used by the tribal for various diseases in Maharashtra has particularly studied (Sebastian and Bhandari, 1984: and Trivedi, 2002). The use of participatory methods in ethnobiological studies has grown overtime and become an important tool in these studies (Sieber *et al.* 2010; Sieber and Albuquerque 2010).

In the present investigation attempts were made to collect valuable information of medicinal plants used by people of some villages man Tahsil. Human actions that directly affect the environment cannot be seen only as negative actions because people are part of the system and establish relationships with the environment (Araujo *et al.* 2007), so efforts have also made for awareness among the people regarding need of conservation of local useful flora.

Material and Methods:

Study Area:

Satara is a district of Maharashtra state in Western India and falls within the Deccan traps area. It lies between 17° 42' N and 74° 32' E. Dahiwadi is one of the dry tahsil of Satara district acquires an area 556 square miles (1,440 km^2). Tahsil experiences extreme dry conditions with 500 to 550 mm average annual rain fall and 29 to 350 average temperatures. Due to unpredictable monsoon, underdeveloped irrigation facilities and seasonal rivers, average economic status is low and many people cannot afford expensive medicinal facilities. In this situation herbal healers, contribute a crucial role in the health of this rural area.

The survey was carried out during 2016 to 2018 to collect information of medicinal plants used by villagers of Mograle, Malawadii, Bidal , Andhali , Takewadi , Pandharwadi and Dahiwadi , some villages of Man Tahsil. Extensive field visits were

conducted during study period for recording information related to medicinally important plants from study area with local participation. Data presented here is based on personal observations and interviews with old villagers, herbal healers, and knowledgeable persons. The information was recorded on questionnaire and in the field note books.

Results : In the present investigation 52 plants were recognized for their Enumeration medicinal uses, belonging 34 families. (Table 1). Traditional healers are using these plants to cure various ailments like asthma, jaundice, piles, rheumatism, dysentery, gynecological problems, cold, cough, fever, toothache, earache, skin diseases, scorpion sting, joint pains and wound healing. Data available from actual field visits, discussion with people, questionary including, botanical name , family , local name , part used , medicinal uses is shown in the table. Similar uses about some of these plants were observed by Gupta *et al.* (2010); Heda (2012).

Table 1: Enumeration medicinal observations from villages of Satara District .

Sr. No.	Botanical Name	Family	Local Name	Part Used	Medicinal Uses
1.	*Acacia nilotica* (L.) Willd.	Mimosaceae	Babhul	Stem	Tender shoots chewed after scorpion sting.
2.	*Acalypha indica* L.	Euphorbiaceae	Chuda	Shoot	Leaf juice on earache and cough
3.	*Achyranthus aspera* L.	Amaranthaceae	Aghada	Root, leaves	Roots crushed in water given in scorpion sting and dog bite, leaves with milk of goat in asthma.
4.	*Aegle marmelos* (L.) Corr.	Rutaceae	Bel	Leaves , fruit	Chewing of leaves in piles, Ripened fruit in anemic dysentery.
5.	*Aloe vera* (L.) Burm.f.	Liliaceae	Korpad	Leaves	Fleshy part of leaf after baking with sugar given in fever and cough, fleshy part with jaggery in menstrual

					problems.
6.	*Argemone mexicana* L.	Papaveraceae	Bilinga	Stem latex	Latex employed on viral infection of eyes: Conjunctivitis
7.	*Azadiracta indica* Juss.	Meliaceae	Kadulimb	Bark, Leaves and seeds	Bark in gynecological problems, Leaf juice in acidity, seed oil applied on wounds
8.	*Bambusa arundinacea* (Retz.) Willd.	Poaceae	Kalak	Leaves	Leaves in animal dysentery, Leaf ash in coconut oil applied on scabies.
9.	*Boerhavia diffusa* L.	Nyctaginaceae	Vasu/ Punarnava	Shoot	Leaf juice on jaundice, gas trouble and constipation.
10.	*Calotropis procera* (Ait.) R. Br.	Asclepiadaceae	Rui	Stem and flower	Latex on joint swelling and carbuncles and removal of spines from legs. Dried powder of petals with honey in whooping cough.
11.	*Caralluma adscendens var. fimbriata* (Wall.) Grav. & Mayur	Asclepiadaceae	Shengulli	Teder fleshy stem	Fresh stem in diabetes to reduce blood sugar.
12.	*Cardiospermum helicacabum* L.	Sapindaceae	Kapalphodi	Leaves	Leaf decoction in rheumatism and piles

References:

1. Cooke T (1967) (Rpr.).The Flora of Presidency of Bombay.Vol. II.
    a. Botanical Survey of India. Calcutta.

2. Dwivedi S N, Shrivastava Satyaendra, Dwivedi Sangeeta, Dwivedi Abhishek, Dwivedi Sumeet and Kaul Shefali (2007) "Relevance of medicinal herbs used in traditional system of medicine", *Farmavita. Net,*.
3. Ekka R N and Dixit V K (2007)"Ethno-pharmacognostical studies of medicinal plants of Jaspur District, Chattisgaeh", *Int. Jour. Of Green Phar.* 1(1): 2-4.
4. Gupta R, Vairale M G, Deshmukh RR, Chaudhari PR, Wate SR (2010) " Ethnomedicinal uses of some plants by Gond tribe of Bhandara district, Maharashtra". *India Journal of Traditional Knowledge*, 9 (4):713-717.
5. Heda N K (2012) Folk conservation practices of the Gond tribe of Mendha (Lekha) village of centera India. *India Journal of Traditional Knowledge*, 11 (4),: 727-732.
6. Hooker J D (1872-1977) The flora of British India.Vol.I – VII. London.
7. Mossi A J, Mazutti Paroul M, Corazza N Dariva ML, Cansian C and Oliveira RL (2009)
8. Chemical variation of tannins and triterpenes in Brazilian populations of *Maytenus ilicifolia*
9. Mart. Ex Reiss *Brazilian Journal of Biology*, 69 (2): 339-345.
10. Naik VN (1998) *Flora of Marathwada.* Vol. I & II, Amurt Prakashan, Aurangabad.
11. Parrotta John A (2001) Healing Plants of Peninsular India. CABI Publishing USA.
12. Patil H S and Yadav SR (1991) Preliminary Survey of Khatav *Tahsil.* M.Phil. Theses, Shivaji Uni. Kolhapur
13. Sebastian M K and Bhandari MM (1984) "Medico-ethno botany of Mount Abu Rajasthan, India". *J. Ethnopharmacol.* 12 (2): 223-30.
14. Siber S S, and Albuquerque U P (2010) "Metods participativos na pesquisa etnobiologica". in. Albuquerque UP, Lucena RFP,
15. Cunha LVFC (Eds) Metodos e Tecnicas na pesquisa Etnobiologica (Vol 1, Estudos),

    NUPEEFA, Recife, pp 85-106 Sieber S S, Medeiros PM, Albuquerque UP (2010) "Local perception of environmental change in a semi-arid area of northeast Brazil: a new approach for the use of participatory methods at the level of family units". *Journal of*
16. *Agricultural and Environmental Ethics* in press.
17. Singh N P and Karthikeyan S (2000) Flora of Maharashtra state Vol. 1-3. Botanical Survey of India. Calcutta.
18. Trivedi P C (2002). Ethno-medical Plants of Rajasthan State, India. In:
19. Ethnobotany, Trivedi, P.C. (Ed.). Aavishkar Publishers, Jaipur.
20. Yadav S R and Sardesai M M (2002) Flora of Kolhapur District. Shivaji University Press, Kolhapur.
21. Zingare A K (2012) Ethnomedicinal uses of plants among the Halba tribe of Gondia District of Maharashtra, India. *Bionano Frontier*. Special Issue, pp 121-125.

STUDY OF PHYSICOCHEMICAL CHARACTERISTICS OF PINGALI LAKE, OF MAN TAHESIL

Patil Pooja P. ,Dalvi Atul Vilas*

Department of Botany, Dahiwadi College Dahiwadi

1993atuldalvi@gmail.com

ABSTRACT: The seasonal variations in the physic-chemical parameters of Pingali lake located near Dahiwadi .was studied from Nov. 2016 to Oct.2018 .Maximum pH was obtained during summer. Highest temperature i.e. 39 ^{0}c noticed during post monsoon .Alkalinity found to be 150-205 mg/l. Water remain hard (200 mg/l) up to post monsoon season .However, dissolved oxygen was found to be maximum during winter season. Biological oxygen demand was higher in summer while total nitrogen increases sequentially for all the sites and peak values were obtained in the month of September .Similar trend of ammonia was observed from summer to monsoon. The physicochemical characters of this lake fluctuates season wise may be due to various adjoining activities.

Key words: Seasonal, Physicochemical, Man, Pingali.

INTRODUCTION

Several lakes from Man tahesil were famous for religious and cultural significance. Some of these lakes are already on the verge of disappearance due to eutrophication . These lakes therefore demand concerted attention towards a clear understanding of their ecosystem in order to mitigate further deterioration (Abdar, 2013) Hence the purpose of this study was to understand the present status of Pingali lake in terms of its status as it is second largest water body of Man.

The physic-chemical characteristics of the aquatic environment directly influence the life inhibiting it. Fluctuations in these constituents often creates an adverse environment to organism ,limiting their growth and interfering in the physiological processes, which reduce their ability to compete with other populations within the environment, ultimately changing the community structure (Kedar and Patil, 2011).

The lake has ethno cultural and religious and irrigation importance. The water body is surrounded by farmland and there are few flowering and thorny trees. The water

body is with several macrophytes *Achyranthus aspera, Leucas microphylla, Rotala rotundifolia* and *Hygrophila sclulli* Local inhabitants use water for various purpose like bathing, washing clothes, washing animals, swimming, cleaning utensils and also irrigation purpose .Thus ,the present attempt has been made to know the present status of water quality of this lake.

MATERIALS AND METHODS

The water samples were collected from four different sites of Take lake .The water samples were collected in dried plastic cans of 2 Lt. capacity and brought to the laboratory and immediately analyzed. The sample collection was made during morning hours between 8.30 am to 10.30 am. The samples were collected every month from November 2012 to October 2013. The recorded data was yearly segregated in three seasons, Winter (Nov. to Feb.), Summer(Mar. to Jun.) Monsoon (July to Oct.).

Parameters like pH, temperature were directly analyzed in the field. The preserved and unpreserved samples were transported to the laboratory. For chemical and biological examination, different methods of collection and handling were adopted following the standard procedures of APHA, 1992 . The instruments were used for precise accuracy and chemicals used were of AR grade. The parameters and methods selected for the above examination of water are detailed in Table No.1

RESULT AND DISCUSSION

pH is a term used universally to express the intensity of acid OR alkaline condition of a solution .The pH values of water samples varied between 6 to 8.60 shown in the table1. Highest value of pH has been recorded in summer season. Harney et.al (2013) has observed the pH between 6.12 to 8.03 in Pindavani pond .Kamat et.al (2006) have reported pH values between 6.7 to 8.1 in Hosali tank in shimoga district of Karnataka. In present investigation the maximum pH was reported during summer season and minimum during monsoon. Jakher and Rawat (2003) observe the maximum pH during summer and explained this by correlating rise of temperature increases in rate of photosynthesis which result higher consumption of Co_2 .

Cold water is generally more potable than warm water. High water temperature enhances the growth of micro-organisms and increase taste, odour ,colour problems **(WHO)** The temperature was found to be in the range between 21^0c to 29^0c.The higher values of temperature are noticed especially for post summer measurements. Water temperature is important for calculating the solubility of oxygen and Co_2, bicarbonates, carbonates equilibrium. Hutchinson (1957).

Electric conductivity is a measure of water's capacity to convey an electric current. This property is related to the total concentration of ionized substances in water. The more dissolved salts in water , the stronger is current flow and higher the EC. In short, EC of water increases with salts . In present study Ec values were found within the range of 40.19µmhos/cm in winter and highest conductance in summer 86.41µmhos/cm .Higher dry seasonal conductivity value obtained could be attributed to concentration effect as a result of reduced water volume Ovie and Adeniji (1993)as well as ,Kolo and Oladimeji (2004) observed similar trend.

As far as alkalinity values are concerned winter season showed minimum value of 115 mg/l (Nov).Where as post summer had maximum value of 215mg/l. The remaining values are in between 130-200 mg/l .The lower value of winter season may be due to the acidic impurities which may drained in along with rain water or effluent .Bhalerao and Khan (2000) reported the range of total alkalinity between 140mg/l to 280mg/l from the lakes of the tribal areas of Marathwada.Abdar (2013) recorded total alkalinity 178.25 mg/l in winter ,188.5 mg/l in summer and 150.05mg/l in rainy season from Pingali lake of Man .The present values are within the range.

Total hardness in water is the sum of the concentration of alkaline earth metals cations . During present study hardness of water was maximum during post summer 180mg/l and gradually decreased during rainy season 120mg/l and its lowest value during winter season 110mg/l. highest values in summer may be due to higher temperature which increases concentration of total hardness. (Khan and Chowdhury 1994, Bhatt et. al 1999) Sunkad and patil (2004) recoded value between 59.8 mg/l to 217.4mg/l in Fort lakes Belgam. Abdar (2013) recoded 200mg/l in summer 187.5 in rainy and 148.75 in winter from Pingali lake of Man.The values may fluctuates as per the anthropogenic activities.

Oxygen content is important for direct need of many organisms and affects the solubility and availability of many nutrients and therefore productivity of aquatic ecosystem (Wetcel1983) Dissolved oxygen concentration more than 5.00 mg/l favors good growth of flora and fauna (Das 2000) .During present study lowest average value 2.11 mg/l was obtained during rainy season which reached highest during winter season 5.7mg/l .The dissolved oxygen ranged from 2.70 to 3.50 mg/l in Pindavani Pond (Harney ,Dhamani, Andrew 2013) from 5.8 to 6.3 mg/l in lakes at Lodra and Soja (Patel A.C. and Patel R.S. 2013).

In present study maximum biochemical oxygen demand value is recorded during summer (2.00mg/l) and minimum during monsoon season (0.29mg/l) .Abdar (2013) from Morna lake recorded maximum BOD value in summer 28.5 mg/l and lowest 5.5mg/l in winter . Patel (1999) stated that higher biochemical oxygen demand value in summer may be due to higher microbial activity. Bhatt et.al, Devaraju et.al (2005) Garge et.al (2010) has obtained similar result .In present study ,the maximum biochemical oxygen demand value in summer is probably due to high microbial activities during summer.

Nitrogen ammonia is present in the aquatic system mainly as the dissolved ions of NH_4 .The values of ammonia ranges from 0.28 mg/l in summer and highest values 18.20 mg/l in post monsoon .

Nitrogen often concentration with the other naturally occurring element. The common forms of nitrogen of importance in aquatic environment are dissolved particulate nitrogenhere

Over all there are increasing activities in and around the lake .The results are suggestive of the steps towards conservation of this lake. Though the status of lake is oligotrophic to mesotrophic will definitely turns to eutrophic. Therefore immediate attention is needed to conserve this second largest water body of Man.

Table. No. 1 ,

Sr.No.	**Parameters of Water analysis**	**Methods**
1	pH	pH meter
2	Water Temperature	Mercury Thermometer
3	Electric coductivity	Conductivity meter
4	Air Temperature	Mercury Thermometer
5	Total Alkalinity	Acid Titration method
6	Total Hardness	Titration method
7	Dissolved Oxygen	Winkler's Iodometric Method

8	BOD	Oxygen difference Method
9	Ammonia	Volumetric Method
10	Total Nitrogen	Kjeldahal digestion Method

REFERENCES

1. Abdar,M.R.,(2013)physic chemical characteristics and phytoplankton of morna lake, shirala(M.S.) India. Biolife 1 (2) :-1-7,2013
2. APHA: Standard method for the examination of water and waste water, 19th Edn.American Public Health Association ,Washington, D C (1995).
3. Bhatt, L.R.,P., H.D. Lekhak and P.K.Jha: Physicochemical characteristics and phytoplanlktons of Taudaha lake, Kathmandu .Poll Res. 18 (4), 353-358 (1999)
4. Das A. K.;Limno-chemistry odsome Andhra Pradesh Reserviors ,J,Inland fish.soc.India,32,37-44(2000).
5. Das,A.K.: Limno-chemistry of some Andhra Pradesh Reserviors. J.Inland Fish.Soc.India .32 ,37-44 (2000)
6. Garg, R.K., R.J.Rao, D. Uchchariya , G.Shukala and D.N. Saksena : Seasonal variation in water quality and major threats to Ramsagar reservoir ,India.African Journal of Environ.Sci. and Tech., 4(2) ,061-076 (2010)
7. Harney,N.V.,Dhamani,A.A. and Andrew,R.J.:Seasonal variations in the physio-chemical parameters of Pindavani Pond of central India-Science weekly 1.6(2013).
8. Jakher ,G.R. and Rawat ,M.(2003) Studies on physic-chemical parametesof a tropical lake , Jodhpur ,Rajasthan, India. J.Aqua.Biol.18 (2):79-83
9. Kedar ,G.T., Patil, G.P. and Ykole ,S.M. (2007) Rotifer biodiversity of Yedshi Maharashtra J.Aqua Biol.22(1) :8-12.
10. Khan, M.A.G. and S.H. Chowdhary : Physical and chemical limnology of lake Kaptai, Bangladseh.Trop. Ecol.,35(1) ,35-51 (1994)
11. Ovie, S. I. And Adeniji,H.A. (1993) .Zooplankton and environmental characteristics of Shiroro Lake at the extrems of its hydrological cycle. Hydrobiologia 286: 175-182
12. Patel ,A.C. and Patel, R.S. : Comparison of the Physicochemical Parameters of Two Lakes at Lodra and Nardipur under Biotic Stress .International Journal of scientific and Research Publications ,Volume2 Issue 9,September 2012
13. Sunkad , B.N., and Patil, H.S. (2004) Water quality assessment of fort lake of Belgaum (Karnataka) with special reference to zooplankton. J.Environ,Biol.25(1) :99-102.
14. Trivedy, R.K.and P.K.Goel :Chemical and biological methods for water pollution studies. Environmental Publication , Karad, India. (1984).
15. Wetzel, R.G. : Limnology second edition Saunders college publishing USA, 767 (1983)
16. Wetzel, R.G.: Limnology second edition saunders college publishing USA. 767(1983).
17. WHO, (1990), Guidelines for drinking water quality, Health criteria and other supporting information, Genera; WHO, 2.

Automatic Paper Generation System

Pranoti Bhosale, Sadhana Pol, Nangare K. M.*

Department of Computer Science, Dahiwadi College, Dahiwadi

nan.kaiyanill@gmail.com

Abstract

The current generation is very competitive in nature. Exams are used to test the quality of knowledge and expertise in particular field. Conduct exams more frequently which is difficult with manually question setting. The propose system provide feature to automatically generate a paper with random question in few minute. System denies any possibility of paper leakage.

Key words- Randomization Technique, Data redundancy

Key features-

1. Complete and automatic paper generation.
2. Very large question bank.
3. Built in backup and restore facilities.

Introduction:

This is special and unique software. System is useful for those who have huge database of questions for frequent generation of question. Software generates paper anytime within a minute. This software assures no data redundancy. Automatic paper generation system will enable collage authorities to automatically generate a question paper out of existing question bank in the database. The system will have capacity to process different unique sets of paper very automatically. This software can be implemented in various medical, engineering and coaching institutes for theory paper. You can create random question paper with these software anytime within seconds. You can enter unlimited units and chapter depending upon the system storage, capacity and as

per the requirement. For entering questions you have to first specify the subject and you can enter unlimited questions in a chapter.

Objective

1. To reduce paper work.
2. To generate question paper with random questions.
3. To prevent repetition of question.

Methodology:

Modules

1. Admin
2. Faculty
3. Students

Admin:-

In this module the admin privileges will be invoked and the user logged in as admin will be able to add or remove questions to his will.

He can also generate a paper in this mode.

The admin will add questions according to his needs i.e. the difficulty level.

Question paper is analysed by the admin.

Faculty:-

Faculties are made to enter questions into the database along with their respective difficulty level & priorities.

Student:-

Examination process is an important activity of educational institution to evaluate student performance.

Advantages

1. Save time in preparing paper for the examination.

2. Data redundancy can be avoided by randomization technique.

3. The question can be added to the bank at any time.

4. Wide portion coverage and efficient question paper generation.

5. No chance of paper leaks.

6. No need of transporting papers through police/security vans to all colleges.

7. The system provides an unbiased result.

8. Thus the system excludes human efforts and saves time and resources.

Conclusion:

The main purpose of this paper is to describe an Automatic Paper Generation system using randomization technique.

This system is desktop-based system with several features mainly producing unduplicated sets of exam paper.

Question insertion, modification, deletion are also possible in this system which makes it dynamic.

With this system the question paper can be generated on the day of examination, so it eliminates the chance of paper leakage.

References

[1] Pratik Gadge, Divya Gandhi, Ravikant Vishwakarma "Automated Question Paper Generator System using fuzzy logic", International Journal for Innovative Research in Science and Technology, (LJIRST). Mar 2017.

[2] Suraj Kamya, Madhuri Sachdeva, Navdeep Dhaliwal and Sonit Singh, "Automated Question Paper Generator System using Apriori Algorithm and Fuzzy logic". International Journal for Innovative Reasearch in Science and Technology. (IJIRST) 2016.

Study of latest Andriod Version

Pranoti Bhosale, Sadhana Pol, Nangare K. M.*

Department of Computer Science, Dahiwadi College, Dahiwadi

nan.kaiyanill@gmail.com

Abstract:

World is contracting with the growth of mobile phone technology. As the number of users is increasing day by day, facilities are also increasing. Starting with simple regular handsets which were used just for making phone calls, mobiles have changed our lives and have become part of it. Now they are not used just for making calls but they have innumerable uses and can be used as a Camera , Music player, Tablet PC, T.V. , Web browser etc . And with the new technologies, new software and operating systems are required.

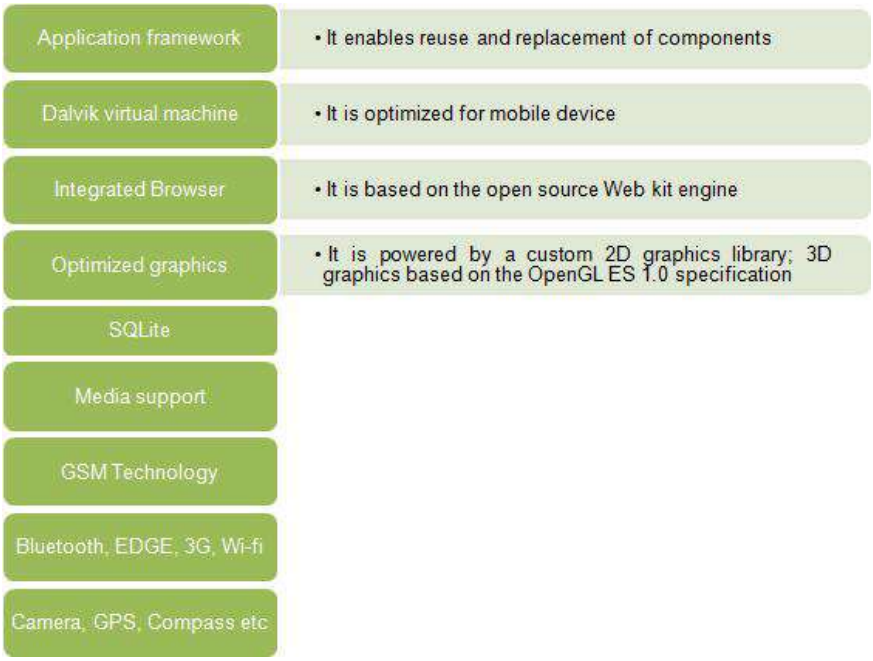
What is Android

Operating Systems have developed a lot in last 15 years. Starting from black and white phones to recent smart phones or mini computers, mobile OS has come far away. Especially for smart phones, Mobile OS has greatly evolved from Palm OS in 1996 to Windows pocket PC in 2000 then to Blackberry OS and Android.

One of the most widely used mobile OS these days is ANDROID. Android is a software bunch comprising not only operating system but also middleware and key applications. Android Inc was founded in Palo Alto of California, U.S. by Andy Rubin, Rich miner, Nick sears and Chris White in 2003. Later Android Inc. was acquired by Google in 2005. After original release there have been number of updates in the original version of Android.

Features & Specifications

Android is a powerful Operating System supporting a large number of applications in Smart Phones. These applications make life more comfortable and advanced for the users. Hardwares that support Android are mainly based on ARM architecture platform. Some of the current features and specifications of android are:



Android comes with an Android market which is an online software store. It was developed by Google. It allows Android users to select, and download applications developed by third party developers

Fig. 3: Features And Specifications Of Android

and use them. There are around 2.0 lack+ games, application and widgets available on the market for users.

Android applications are written in java programming language. Android is available as open source for developers to develop applications which can be further used for selling in android market. There are around 200000 applications developed for android with over 3 billion+ downloads. Android relies on Linux version 2.6 for core system services such as security, memory management, process management, network stack, and driver model. For software development, Android provides Android SDK (Software development kit). Read more about open source software.

Applications

These are the basics of Android applications:

- Android applications are composed of one or more application components (activities, services, content providers, and broadcast receivers)
- Each component performs a different role in the overall application behavior, and each one can be activated individually (even by other applications)
- The manifest file must declare all components in the application and should also declare all application requirements, such as the minimum version of Android required and any hardware configurations required
- Non-code application resources (images, strings, layout files, etc.) should include alternatives for different device configurations (such as different strings for different languag

Feature of android version :-

Picture-in-picture in Android 8.0.

Android 8.0 (API level 26) allows activities to launch in picture-in-picture (PIP) mode. PIP is a special type of multi-window mode mostly used for video playback. PIP mode was originally available for Android TV only; Android 8.0 makes the feature available on other Android devices.

Notifications

In Android 8.0 (API level 26), we've redesigned notifications to provide an easier and more consistent way to manage notification behavior and settings. These changes include:

Notifications

In Android 8.0 (API level 26), we've redesigned notifications to provide an easier and more consistent way to manage notification behavior and settings. These changes include:

Users can long-press on app launcher icons to view notifications in Android 8.0.

Notification channels: Android 8.0 introduces notification channels that allow you to create a user-customizable channel for each type of notification you want to display. The user interface refers to notification channels as notification categories. To learn how to implement notification channels, see Managing notification channels.

Notification dots: Android 8.0 introduces support for displaying dots, or badges, on app launcher icons. Notification dots reflect the presence of notifications that the user has not yet dismissed or acted on. To learn how to work with notification dots, see Notification badges.

Fonts in XML:-

Android 8.0 (API level 26) introduces a new feature, Fonts in XML, which lets you use fonts as resources. This means, there is no need to bundle fonts as assets. Fonts are compiled in R file and are automatically available in the system as a resource. You can then access these fonts with the help of a new resource type, font.

Multi-display support:-

Beginning with Android 8.0 (API level 26), the platform offers enhanced support for multiple displays. If an activity supports multi-window mode and is running on a device with multiple displays, users can move the activity from one display to another. When an app launches an activity, the app can specify which display the activity should run on.

App categories

Android 8.0 (API level 26) allows each app to declare a category that it fits into, when relevant. These categories are used to cluster together apps of similar purpose or function when presenting them to users, such as in Data Usage, Battery Usage, or Storage Usage. You can define a category for your app by setting the android:appCategory attribute in your <application> manifest tag.

Security & Privacy

Permissions

Android 8.0 (API level 26) introduces several new permissions related to telephony:

The ANSWER_PHONE_CALLS permission allows your app to answer incoming phone calls programmatically. To handle an incoming phone call in your app, you can use the acceptRingingCall() method.

The READ_PHONE_NUMBERS permission grants your app read access to the phone numbers stored in a device.

These permission are both classified as dangerous and are both part of the PHONE permission group.

Features of version 9.0:-

1. Indoor navigation with Wi-Fi RTT

Android P now supports IEEE 802.11mc WiFi protocol which is also known as Wi-Fi Round-Trip-Time (RTT). It's one of the best features that Android fans are waiting for. This new feature enables indoor GPS style tracking by determining your location within a building and facilitating turn-by-turn directions to help you navigate indoors.

It means you can now find your way across short distances within malls and large buildings.

2. Gesture Navigation

Google has redesigned the way you navigate the OS by introducing Gesture Navigation in Android P similar to iPhone X.

Instead of three buttons set on the home screen, there is an option to use a new single home button that allows you to swipe up to view recent apps along with a UI that suggests apps you might use. Sliding too far left and right across the device would showcase recent apps and lets you quickly switch between them

Objective

How to speed of android version.

What are the performance of android version.

Android version is user friendly or not.

Conclusion:-

I've learned through my research that Android is a much more diverse operating system than iOS and Windows Phone Mobile. Android has grown rapidly over the past 4 years becoming the most used smartphone operating system in the world. It's because Android doesn't release 1 phone from 1 company with 1 new OS every year, but countless phones from numerous companies, adding their own twist, throughout the year, developing gradually day-by-day. Android's ability to customize is unparalleled compared to Apple's and Microsoft's software allowing the user to change and customize nearly every aspect of Android which most iPhone and Windows 7 users wouldn't dream possible. I am not one to say that Android is better or worse than one OS, but is unique and incomparable to other mobile operating systems.

News Channels In India

Jadhav S. M.

Department of Computer Science, Dahiwadi College, Dahiwadi

Jshraddha07@gmail.com

Introduction:

The Indian entertainment and media industry has outperformed the Indian economy and is one of the fastest growing sectors in India. It is riding on the back of economic growth and escalating income levels that India has been experiencing in the past years. This is significantly benefitting the entertainment and media industry in India as this is a cyclically sensitive industry and it grows faster when the economy is expanding..According to research conducted by Britain's media regulator office of communication television was by far the most important source for news. Television news is as important as a provider of public information, what is happening to television news, globally becomes one of the key areas of concern, not only for those who study, consume or produce television news but for society as a whole. News is not merely a media product but a vehicle for engagement in the democratic process, feeding off and into domestic politics and international relations.

Research Methodology:

Research design: The research design used for this study is both exploratory and descriptive in nature.

Sample design:

Sampling frame: Sample frame is taken from the population of Hyderabad who usually watch Hindi news channels

Sampling method: Non-probability sampling (convenience sampling)

Sample size: A sample of 150 viewers will be targeted for collecting primary data

Sample units: Sample units will be taken from those respondents who watch Hindi news. The sampling method adopted is convenient sampling. This involved the respondents who are interested to answer the questionnaire and the people who watch TV and news channels in particular will be approached.

Objectives of the Study:

1. To study the various Hindi news channels.
2. To analyze the viewer's satisfaction of the news channels.

3. To determine the various factors influencing the viewer's satisfaction.

4. To analyze the impact of the factors on the satisfaction of the viewers.

5. To find the areas of excellence and the areas of improvement for the Hindi news channels.

Data Analysis:

Table1: Distribution of respondents as per demographic variables:

Gender	**No.**	**%**
Male	112	74.7
Female	38	25.3

Interpretation:

The data was collected from total of 150 respondents. Out of which 112 are males and 38 are females.

Table 2: AGE

Age	**No**	**%**
20-30	35	23.3
31-40	55	36.7
41-50	40	26.7
41-50	20	13.3

Table 3: Preferences for News Channel

Interpretation: Viewer‟s watch news channel regularly especially Aaj Tak for updating themselves on various factors like education, current affairs and social security.

Aaj Tak	37%
Star News	14%
India TV	3%
Zee News	15%
NDTV	18%
IBN7	4%
Others	9%

Table 4: Time Spent on Watching News Channel

Time Spent	**% of Time**
<1hr	66%
1-2 hr	24%
2-3 hrs	6%
>3 hrs	4%

Table 5: Frequency of Watching News Channel

Frequency	**Levels of**	**% Of Frequency**

	Frequency	
Regularly	73	48.67%
Occasionally	39	26.00%
Rarely	37	24.67%
Never	1	0.67%
Grand Total	150	100.00%

Findings:

• Aaj Tak is the most familiar channel and also the preferred channel out of the sample size.

• Viewers depend mostly on the channel for the current affairs and also because of the reliability factor.

• The major contribution for the popularity of the channel among the viewer‟s is also because of the anchoring and presentation styles

. • Viewer‟s watch news channel for updating themselves in the areas of education, business and current affairs.

• Majority of the viewer‟s watch the news channels less than a hour.

• Quality of news and news content are also the reasons for the TRP results of Aaj Tak.

• Overall viewer‟s satisfaction is high in the news channel Aaj Tak when compared to other news channels in Hindi.

Conclusion:

The paramount significance of media in today‟s society can hardly be over -emphasized. The role of media has become so all pervasive that it has become an integral part of the fabric of society and whether we acknowledge it or not, it plays a very influential role in shaping our thought processes and attitudinal patterns. In the past twenty years of the media revolution, the identity of news based television channels has undergone a metamorphosis of sorts.

References:

[1] Hena Naqvi (2007). Journalism And Mass Communication. Upkar Prakashan. pp. 42–. ISBN 978-81-7482-108-9.

[2] Chatterjee, Mrinal. "History of Hindi Journalism". Press Institute of India. Retrieved 27 June 2014. [3] http://www.pressreference.com/GuKu/India.html

[4] S. B. Bhattacherjee (2009). Encyclopaedia of Indian Events & Dates. Sterling Publishers Pvt. Ltd. pp. A119. ISBN 978-81-207-4074-7

Social Media

Mohite J.T

Department of Computer Science, Dahiwadi College, Dahiwadi

Mohitejyoti62@gmail.com

Abstract:

The Social Media is Minitrack highlights the increasing importance of social media and networks in society. It is expected to provide an invaluable opportunity for researchers to share their findings in this new area.

Social networks, which have almost become part of our daily lives, have established new communication structures and behaviors in society. While citizens and businesses have already extensively used social networks for years, governments continuously increase their interest in the new communication technologies. Sites such as Facebook, Twitter, and LinkedIn provide a mechanism for individuals to come together based on a variety of factors such as existing friendships, common interests, or work.

Keywords:Social media, Social media analytics, Framework, Political communication

Introduction

In the past few years, social media have shown a rapid growth of user counts and have been object of scientific analysis .For example,more than 800 million people worldwide are members of the Facebook network (Facebook 2011) while Twitter countsmore than 200 million accounts in total (HuffPost Tech2011).

Social media is a web-based technology to facilitate social interaction between a large group of people through some type of network. In common widely used network is the Internet. But social media platforms are also for local networks as well.

Social media is growing rapidly and becoming a vital part of everyday life, because of the latest technological revolution. This stunning growth is due to the increasing usage of smart phones like BlackBerrys, Androids and iPhones. These Smart phones make it easy to access any

social media platform from anywhere virtually. The mobile versions of these social media sites are so easy to access made it user friendly. As well as the Map services made a remarkable usage through mobile to find direction and places easily.

Social media platforms enable you to create and engage communities online. Growing by attraction, these communities connect ever greater numbers of like-minded people who share opinions, ideas, and information of interest with one another. The networks that evolve on social media platforms like Facebook, Twitter,whatsapp,Youtube,Instagram.

Objectives:

- Heighten brand awareness
- Increase social community size
- Accurately target audiences
- Strengthen engagement strategies for increased brand loyalty
- Increase customer satisfaction and positive brand perception
- Convert social followers into qualified leads and new business

Advantages of social media -

1.Connectivity-

The first & main advantage of the social media is connectivity. People from anywhere can connect with anyone. Regardless of the location & religion. The beauty of social media is that you can connect with anyone to learn & share your thoughts.

2.Education-

Social media has a lot of benefits for the students & teachers. It is very easy to educate from others who are experts & professionals via the social media. You can follow anyone to learn from him/her & enhance your knowledge about any field. Regardless of your location & education background you can educate yourself, without paying for it.

3.Help-

You can share your issues with the community to get help & guidance. Whether it is helping in term of money or in term of advice, you can get it from the community you are connected with.

4.Information & Updates-

The main advantages of the social media is that you update yourself from the latest happenings around in the world. Most of the time, Television & print media these days are biased & does not convey the true message. With the help of social media you can get the facts & true information by doing some research.

5.Improves Business Reputation-

Just like it can run any business reputation. Positive comments & sharing about a company can help them with sales & goodwill. Since people are free to share whatever they want on the social media, it can impact positively when good words are shared.

Disadvantages of social media-

1Hacking-

Personal data & privacy can easily be hacked & shared on the Internet. Which can make financial losses & loss to personal life. Similarly, identity theft is another issue that can give financial losses to anyone by hacking their personal twitter & Facebook accounts have been hacked in the past & the hackers had posted material that have affected the individuals personal lives.

2.Security Issues-

Now a day's security agencies have access to people personal accounts. Which makes the privacy almost compromised. You never know when you are visited by any investigation officer regarding any issue that you mistakenly discussed over the internet.

3.Cheating & Relationship Issues-

Most of the people have used the social media platform to propose & marry each other. However, after some time they turn to be wrong in their decision & part ways. Similarly, couples have cheated each other by showing the fake feelings & incorrect information.

4.Health Issues-

The excess usage of social media can also have a negative impact on the health. Since exercise is the key to lose weight, most of the people get lazy because of the excessive use of social networking sites.

Strength of Social Media

100 million of videos viewed daily

60 million active social network site users

Discussion:

social media is good for everyone by the social media we can share our thoughts and also know the thoughts of other we can get in touch with our love one but everyone knows that the excess of everything is bad if we use social media in a proper way so it a great source of growing knowledge.

A) Positive Impact of Social Media:

1. Learning : The most significant thing that I see is the learning facilitation that it provides. Even a small child who starts using these channels at an early stage of their lives develops communication skills.

Marketing : Almost all age groups are available on social media so instead of wasting money on ads, campaigns, they become more consumer centric via social media. On the other hand, people also get informed and learned about the products more frequently and easily in this mode.

2. Interaction : As the most common and most widespread use of social media is getting connected to others and interacting with the world using the various social networking websites. So, people sitting far far away can connect within seconds and interact on a more intimate level so effortlessly.

3. Mass Awareness: One of the significant impacts of social media is the tremendously increased awareness of the masses in context of the news and happenings going all around the world because internet spreads news and reviews more rapidly than any other mode and social media makes them do so. So people have become more aware and updated now.

(B) Negative Impact of Social Media:

1. Hampers Privacy: It has been witnessed that people become more public and open about their personal lives on social networks which really hampers their privacy. Photos uploaded may be misused. So this is a major cause of concern.

2. Cyber-Bullying : This is really a serious issue when many of the people unintentionally fall prey to terrorist activities, false claims and cyber crime tending to the extent of even provoking kids and teenagers to commit suicides.

3. Deteriorated Productivity: As people spend most of their productive and working times interacting on the social media, it obviously hampers the productivity of individuals. People get distracted a lot due to these social media sites. It has been reported by Nucleus Research that Facebook adds to 1.5% of the total off office productivity world-over.

4. Addiction : One of the most fatal consequences of social media is people getting addicted to it and using it timelessly irrespective of thinking upon the fact that they have only 24 hours in a day. This addiction leads to insomnia, mental stress, time killing and many health adversities in people, specially teenagers who are the future of the nation.

Methodology -

Questions –

1.Que.- Is social media keeps you in touch with friends and family members which are far Away?

- Yes
- No

2.Que. –Are you edictable social media?

- Yes
- No

3.Que. – Did social media increased you knowledge ?

- Yes
- No

4.Que. – Do you use social media for business purposes?

- Yes
- No

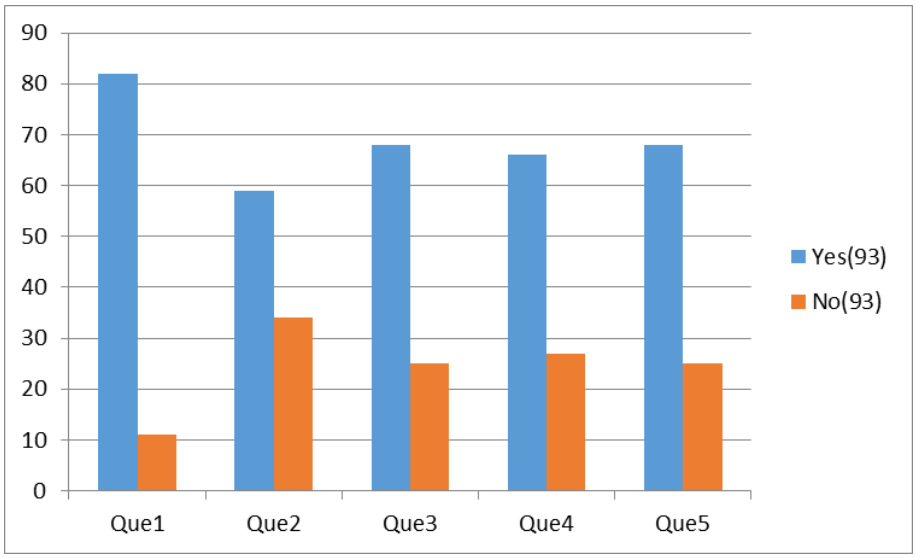
5.Que-Do you reuse social media ?

- Yes
- No

Observation Table

No.of Questions	Yes(93)	No(93)
Que1	82	11
Que2	59	34
Que3	68	25
Que4	66	27
Que5	68	25

Graphical Representation



Conclusion –

To be fair and honest we need to mention that social media has its positive outcomes and has it drawbacks as well. As it have been relived in this article at the end it is your choice to either use social media in a positive way and benefit from it in your social and academic life, or fall as victim of social media negative impacts.

References:

https://en.wikipedia.org

https://www.investopedia.com

http://www.care2.com

http://www.transparency.org

http://www.schoolnet.com

http://tahrirdiaries.wordpress.com

BLATTODEA FAUNA OF DROUGHT-STRICKEN REGION OF SATARA DISTRICT OF MAHARASHTRA.

Kajal Malve, Jadhav G. S., Raut G. A.*

Dahiwadi College Dahiwadi, Tal. Man, Dist. Satara

rautgopal189@gmail.com

Abstract: Cockroaches have medical importance as they transmit pathogens which born diseases and as they are omnivorous insects at as manipulators. In all over study 7 species observed in which the heavy infestation observed by *Blattella germanica* in domestic as well as in agriculture lands followed by *Periplaneta Americana*. *Blattella humbertiana*, in agricultural lands and *Supella* (*Supella*) *longipalpa* in domestic region found in satisfactory number. *Pycnoscelus surinamensis, Blatta orientalis, Neostylopyaga rhombifolia* found in very less number. The record of 7 identified and 2 unidentified species from the drought prone region of Satara district proven that the dry region of Satara district also have a satisfactory diversity.

Keywards: Blattodea, Drought stricken region, Pests, Diversity.

Introduction

Cockroaches are commonly found around human habitation as they get there food and shelter. They are with various sizes small to medium, cursorial, omnivorous insects and some species are serious pest of agriculture. They are generally nocturnal, but some species related to the tree and bush which are diurnal in habit. Body is dorsoventrally flattened; head is somewhat triangular, enlarged triangular plate like pronotum, body not much elongated and broad abdomen. These insects have medical importance as they transmit pathogens which born diseases and as they are omnivorous insects they act as manipulator of forest and domestic wrests by supplying decomposing bacteria through fecal matter. The comprehensive work to enhance the knowledge on Indian Blattodea by Kirby (1904), Shelford (1906), Hanitsch (1915), Bruüning (1948), Rehn (1951), Princis (1966, 1971), Mukherjee (1989, 1993), Roth (1996), Mandal (1995, 2006, 2007), Mandal et al. (2000) and Prabakaran et al. (2009), Jadhav & Sharma (2012), Gaikwad et al. (2014) and (Gaikwad et al. 2015).

From the worldwide 4,000 known species belongs to the 6 families (Roth 1999, 2003) under 445 genera. From the India 156 species reported under 57 genera in 5 families (Mandal 1995, 2000). The blatted fauna of Maharashtra (Jadhav & Sharma 2012)

represents 12 species belonging to 10 genera under 4 families. However, earlier *Rhicnoda natrix* and *Rhicnoda rugosa* (Nesemann et al. 2010), *Supella* (*Supella*) *longipalpa* (Gaikwad et al. 2014) and *Hemithyrsocera palliata* (Gaikwad et al. 2015) was recorded Maharashtra which are not included in the fauna of Maharashtra (Jadhav & Sharma 2012). The total 16 species belonging to 13 genera of Blattodea has recorded from Maharashtra till now.

The specimens of Blattodea as they are mostly nocturnal were collected during evening hours 4 pm to 6 pm using insect sweeping net and in night hrs (7 pm to 11 pm) during June 2018- October 2018) with the help of the torch and at light sources by hand picking method. They were killed and preserved as wet preservation method. They were identified with the help of literature of Prabhakaran (2010), Jadhav and Sharma(2012) and Gaikwad et al. (2014).

In the present study, 7 species in all are reported representing 6 genera under 3 families and 4 subfamilies, reported from the some parts of Satara districts. In these three familie, the Blattellidae and Blatidae family comprises three species each and family Blaberidae comprises one family. All over four subfamilies reported, subfamily Blattinae is the dominant with 3 species followed by subfamily Blattellinae represents 2 species, while subfamily Pseudophyllodromiinae and Epilamprinae are represented by 1 species, respectively. The species reported in this region are briefly diagnosed. The information on taxonomy and distribution of these species is scanty; hence the species reported from this region are described with photographs and distribution records.

Systematic checklist Family: Blattellidae Subfamily: Blattellinae

1. *Blattella germanica* (Linnaeus, 1767)

2. *Blatella humbertiana* (Saussure, 1863)

Subfamily: Pseudophyllodromiinae

3. *Supella* (*Supella*) *longipalpa* (Fabricius, 1798)

Family: Blaberidae

Subfamily: Epilamprinae

4. *Pycnoscelus surinamensis* (Linnaeus, 1758)

Family: Blattidae

Subfamily: Blattinae

5. *Blatta orientalis* Linnaeus, 1758

6. *Neostylopyaga rhombifolia* (Stål, 1813)

7. *Periplaneta americana* (Linnaeus, 1758)

Systematic account

Order: Blatiodea

Family: Blatiellidae

Subfamily: Blatiellinae

Genus: *Blattella* Caudal, 1903

1. *Blattella germanica* (Linnaeus, 1767) (Image 1)

1767. *Blatta germanica* Linnaeus, Syst. Naturae 1(2) (ed.12) : 688.

Material examined: 2 ♂,3♀, Mardi, Satara Dist. 01. viii. 2018; 3♀, Jashi, Satara Dist. 16. viii. 2018.

Diagnosis: Small in size. Head with vertex exposed. Pronotum transeverse, gradually rounded laterally. Tegmen relatively elongated, the subcosta is shorter than anal field, discoidal vein forked before median point. 2 to7 abdominal tergites with latero-caudal portion produced as lobes, 7 and 8 tergites narrowly visible. Supra anal plate semi circular or subtriangular, with lateral margin moderately convergent, weakly convex at the posterior region. Subgenital plate with posterior margin forming a large broad rounded lobe.

Distribution: This species widely distributed species in the India.

Remark: Common medium to large sized species found in all type grassy vegetation, agricultural lands and human vegetation.

2. *Blattella humbertiana* (Saussure, 1863) (Image 2)

1863. *Polyzosteria humbertiana* Saussure, Mem. Soc. Geneve, 17: 131.

Material Examined: 1♂, 2♀, Dahiwadi, Satara Dist. 04.viii.2018; 1♀, , Mardi, Satara Dist., 12. viii.2018.

Diagnosis: Brown in colour, head yellow, frontal region yellowish brown. Small in size. Head with vertex exposed. Cerci slender. Supra anal plate strongly transverse, with distal margin broadly convex. Subgenital plate symmetrical. Female plate simple, free margin broadly convex but suddenly and distinctly concave below cerci.

Distribution: India: Karnataka, Meghalaya, West Bengal, Tripura and Arunachal Pradesh.

Remark: Common medium sized species, mostly found in live green grassy vegetation and eventually seen around the light source.

Subfamily: Pseudophyllodromiinae

Genus: *Supella* Shelford, 1911

3. *Supella* (*Supella*) *longipalpa* (Fabricius, 1798) (Image 3)

1798. *Blatta longipalpa* Fabricius, Suppl. Ent. Syst. Rafniae., 185.

Material Examined: 1♀, Dahiwadi Satara Dist, 18.viii.2018; 2♂, 2♀, Jashi,Satara Dist, 19.viii.2018.

Diagnosis: Pronotum blackish brown with broad yellowish lateral margin; tegmina yellow with a large reddish brown basal spot and also a small oblique paler band. It is winged of a brown colour with varied dark markings. Generally colour light brown. Sexes are dissimilar. Near the apex of the anal fields a broad pale coloured band crosses the tegmina. Based on the colour pattern it is commonly called as brown banded cockroaches. Because of its light body it flies rapidly.

Distribution: India: Karnataka, West Bengal, Maharashtra and Tamilnadu

Remark: Quite uncommon, medium sized species, mostly found in domestic area. Earlier reported from Maharashtra state (Gaikwad et al. 2014).

Family: Blaberidae

Subfamily: Epilamprinae

Genus *Pycnoscelus* Scudder, 1862

4. *Pycnoscelus surinamensis* (Linnaeus, 1758) (Image 4)

1758. *Blatta surinamensis* Linnaeus, Syst. Naturae. 10th Ed. 1: 424.

Material Examined: 1♀, Jashi. Satara Dist, 11. viii. 2018, 2♂,Mardi, Satara Dist, 10. viii. 2018.

Diagnosis: Pronotum shiny blackish brown with yellowish margin anteriorly; tegmina dark brwn in colour. Medium size, head with vertex exposed, ocelli large, approximate to the eye. Pronotum laterally rounded, posterior margin convex. Tegmina and wings extending scarecely up to the apex of the abdomen; subgenital plate with unequally rounded at apex; antero-ventral margin of front femur with row of slender piliform spinules and terminates in one large spines.

Distribution: India: West Bengal, Tamil Nadu, Maharashtra and Karnataka.

Remark: This species generally occurred in decaying vegetation, in day time it hides under dumped vegetation and comes out at night.

Family: Blattidae

Subfamily: Blattinae

Genus *Blatta* Linnaeus, 1758

5. *Blatta orientalis* Linnaeus, 1758 (Image 5)

1758. *Blatta orientalis* Linnaeus, Systema natuae, 1 (lOth ed.) Rolmiae: 424.

Material Examined: 1♀ Dahiwadi, Satara Dist.,17.viii.2018, 1♂, 1♀, Mardi, Satara Dist , 13.viii.2015.

Diagnosis: The oriental cockroach is a large species of cockroach. It is dark brown to black in colour and has a glossy body. Male head with vertex exposed. Tegmina and wings reduced, covering only about two third of abdominal terga. Anteroventral margin of front. Subgenital plate obtusely rounded at apex. In female cockroach antero-ventral margin of front femur with strongly spined. Tegmina short. Hind wings absent. Supra anal plate with mediolongitudinal ridge, posterior margin angulate emerginate. Subgenital plate triangular, lateral margin a little concave. It has a wider body than the male.

Distribution: This species widely distributed throughout the India.

Remark: This species is common in oriental region, generally occurred in domestic area and very less found in natural vegetation, in day time it hides under dumped vegetation and comes out at night.

Genus *Neostylopyga* Shelford, 1911

6. *Neostylopyaga rhombifolia* (Stål, 1813) (Image 6)

1813. *Blatta rhombifolia* Stoll, Repreents. Exact. Coloree d'apres nature d. Specters etc., 2: 5

Material Examined: 2♀ Dahiwadi, Satara Dist.,17.viii.2018, 1♀ Dahiwadi, Satara Dist.,10.ix.2018,

Diagnosis: Male - Size medim. Vertex little exposed. Pronotum with anterior margin a little convex or entire, posterior margin straight, lateral margin rounded, and maximum width just at the posterior margin. Tegmina reduced. Wings absent. Postero-lateral tergite a little indented. Supra anal plate with deeply notched medially. Subgenital plate compressed with obtuse apex. Style thin and slender. In female, anterior margin of pronotum a little concave medially. Posterior margin with maximum width. Tegmina with posterior margin obtusely rounded. Supra anal plate slightly depressed medially.

Distribution: India: Karnataka, Meghalaya, Andaman and Nicobar Islands, Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Utter Pradesh and West Bengal.

Remark: This species is easily identified by tegminal rudiments with variegated markings. Generally found hided under barks and other suitable part at certain height, and comes out at night.

Genus *Periplaneta* Burmeister, 1838

7. *Periplaneta americana* (Linnaeus, 1758) (Image 7)

1758. *Blatta americana* Linnaeus, Syst. Naturae, (lOth Ed.). 1: 424.

Material Examined: 3♀, Dahiwadi Satara Dist, 18.viii.2018; 2♂, 2♀, Jashi,Satara Dist, 19.viii.2018.

Distribution: All over India.

Remark: This is cosmopolitan species and one of the most important domestic cockroach pest and thrives in tropical and subtropical climates all over the world.

In all over study 7 species observed in which the heavy infestation observed by *Blattella germanica* in domestic as well as in agriculture lands followed by *Periplaneta Americana*. *Blattella humbertiana*, in agricultural lands and *Supella* (*Supella*) *longipalpa* in domestic region found in satisfactory number. *Pycnoscelus surinamensis, Blatta orientalis, Neostylopyaga rhombifolia* found in very less number. Along with these 7 species 2 unidentified species also observed. The record of 7 identified and 2 unidentified species from the drought prone region of Satara district proven that the dry region of Satara district also have a satisfactory diversity. Earlier from the region Blattodea diversity has been never studied therefore this study provides a baseline data for further research.

Acknowledgments: We thank the Principal, Dahiwadi College, Dahiwadi, Head, Department of Zoology, Dahiwadi College, Dahiwadi and Rayat Shikshan Sanstha, Satara for providing necessary facilities.

References:

Bruijning, C. F. A. (1948). Studies on Malayan Blattidae. Zool. Meded. R. Mus. Nat. Hist. Leiden 29: 1-174.

Gaikwad S. M., Koli Y. J. and Bhawane G. P. (2015). A first record of Hemithyrsocera palliata Fabricius, 1798 (Blattodea: Blattellidae: Blattellinae): an addition to the fauna of Maharashtra, India. Journal of Threatened Taxa. 7(8): 7487-7489. DOI: 10.11609/jott.2120.7487-7489.

Gaikwad, S.M., Y.J. Koli & G.P. Bhawane (2014). Blatodea of Kolhapur District with the First Record of Supella (Supella) longipalpa (Blatodea: Blatellidae) for the state of Maharashtra, India. Florida Entomologist 97(1): 80–84.

Hanitsch, R. (1915). Malayan Blattidae. J. Straits British R. Asiatic Soc. 69: 17-178.

Jadhav, S. S., and Sharma, R. M. (2012). Insecta: Blattodea, Zoological Survey of India: Fauna of Maharashtra. State Fauna Series, Zool. Survey India 20(2): 447-448.

Kirby, W. F. (1904). A synonymic catalogue of Orthoptera. British Mus. Nat. Hist. 1: 1-501.

Mandal, S. K. (1995). Insecta: Blattariae, Zoological Survey of India, Fauna of Meghalaya. State Fauna Series 4(3): 353-384.

Mandal, S. K. (2003). Insecta: Blattariae. The Zoological Survey of India, Fauna of Sikkim. State Fauna Series 9(2): 175-190.

Mandal, S. K. (2007). Insecta: Blattaria (Dictyoptera), Zoological Survey of India, Fauna of andhra Pradesh, State fauna Series 5(3): 235-247.

Mandal, S. K., Shishodia, M. S., and Bhatta, K. L. (2000). Insecta: Dictyoptera: Blattariae, Zoological Survey of India, Fauna of Tripura State. State Fauna Series 7(2): 285-294.

Mukherjee, K. P. (1989). Insecta: Dictyoptera: Blattaria, Zoological Survey of India, Fauna of Orissa. State Fauna Series 1(1): 171-179.

Mukherjee, K. P. (1993). Insecta: Dictyoptera: Blattaria. Zoological Survey of India, Fauna of West Bengal. State Fauna Series 3(4): 461-473.

Nesemann, H., Shah, R. D. T., Shah, D. N., and Sharma, S. (2010). First records of *Rhicnoda natatrix* and *Rhicnoda rugosa* (Blattodea: Blaberidae) from Nepal and India (Maharashtra) with notes on habitat quality. J. Threatened Taxa: 2(1): 648-652.

Prabakaran, S. (2009). Insecta: Orthoptera, Zoological Survey of India, Fauna of Tamil Nadu. State Fauna Series 17: 45-54.

Prabakaran, S. (2010). Studies on the cockroach fauna of Karnataka (Insecta: Blattodea). Record. Zoological Survey of India 110(2): 109-119.

Princis, K. (1966). Blattariae subordo Blattoidea In M. Beier [ed.], Orthopterorum Catalogus. Pars 8: 402- 614.

Princis, K. (1971). Blattariae: Suborder Blattoidea In M. Beier [ed.], Orthopteran Catalogus 13: 711-1038.

Rehn, J. W. H. (1951). Classifcation of the Blattaria as indicated by their wings. Mem. Entomol. Soc. America 14: 1-134.

Roth, L. M. (1996). The cockroach genera Anaplecta, Anaplectella and Malaccina (Blattaria: Blattellidae: Anaplectinae: Blattellinae). Oriental Insects 30: 301-372.

Roth, L. M. (1999). Description of New Taxa, redescription and records of Cockroaches, mostly from Malaysia and Indonesia (Dictyoptera:Blatteria). Oriental Insects 33: 109-185.

Roth, L. M. (2003). Systematics and Phylogeny of Cockroaches (Dictyoptera: Blattaria). Oriental Insects 37(1): 1-186.

Shelford, R. (1906). Studies of the Blattidae. Trans. Entomol. Soc. London II: 231-279.

Image1. *Blattella germanica* (Linnaeus, 1767)

Image 2. *Blatella humbertiana* (Saussure, 1863)

Image 3. *Supella* (*Supella*) *longipalpa* (Fabricius, 1798)

Image 4. *Pycnoscelus surinamensis* (Linnaeus, 1758)

Image 5. *Blatta orientalis* Linnaeus, 1758

Image 6. *Neostylopyaga rhombifolia* (Stål, 1813)

Image 7. *Periplaneta americana* (Linnaeus, 1758)

DIVERSITY OF SHORT-HORNED GRASSHOPPERS (ORTHOPTERA: CAELIFERA) FROM DROUGHT PRONE REGION OF SATARA DISTRICT, WITH THE FIRST RECORD OF *ACRIDA GIGANTEAN* AND *ACRIDA TURRITA* FROM THE STATE MAHARASHTRA

Rutuja Kumbhar, Shubhangi Shinde, Raut G. A. *
Dahiwadi College, Dahiwadi, Tal. Man, Dist. Satara
rautgopal189@gmail.com

Abstract: Grasshoppers are important producer component of the invertebrate and vertebrate diversity; these are also act as indicator of diversity and healthy ecosystem. In the present study 21 species representing 19 genera belonging to two families and 08 subfamilies have been recorded from various regions of Dahiwadi tehsil, Satara district of Maharashtra. The present exploration is the primary study of orthopteran insects from agricultural lands of Dahiwadi tehsil, Satara district of Maharashtra. *Acrida gigantean* and *Acrida turrita* these two species were new report from the state Maharashtra.
Key Wards: Short horned Grasshoppers, *Acrida gigantean* , *Acrida turrita,* Diversity.

Introduction: Order Orthoptera is one of the order of insects which are directly associated with human habitation and includes short horned and long horned grasshoppers, crickets and grouse locusts, ranging from size of 5 mm to 115 mm. Many species of the order produce sound (known as stridulation) by rubbing their wings on wings or wings on legs against each other, the wings or legs contain rows of corrugated tubercles or elevated markings, by rubbing those produce a sound which is mostly unique with respect to species. Grasshoppers are important producer component of the invertebrate and vertebrate diversity; these are also act as indicator of diversity and healthy ecosystem.

A notable taxonomical work on Acrididae was made by Kirby (1914) in the series 'Fauna of British India', Uvarov (1921, 1924, 1927, 1942) studied in detail the Indian Acrididae. Agarwala (1952) give contribution on female copulatory structures in relation to oviposition sites while Roonwal (1956) contributed some studies on the nymphal structures and ecology on Acrididae. Dirsh (1965, 1975), Tandon (1975, 1976), Bhowmik (1985), Shishodia (1987, 1997, 1999), Mandal et. al. 2007. Shishodia et al. (2010), Nayeem & Usmani (2011, 2012), Chandra and Gupta (2012) have worked on the taxonomy as well as on the ecology of this group.

Material and Methods: About 157 specimens of grasshoppers were collected from various agricultural areas of Dahiwadi tehsil of Maharashtra. Detailed surveys carried out in various agricultural areas of Dahiwadi tehsil, Satara district of Maharashtra during the period July 2018- October 2018 for the collection of grasshoppers. As they were caught by hand, by forceps, and by the ordinary aerial insect net. The net was used for catching insects individually or by sweeping on grasses, bushes and other vegetables. Collected specimens were preserved dry as well as wet (in 70% Ethanol), phographed. Identification done with the help of Kirby (1914), Mandal et. al. 2007, Shishodia et al. (2010) and Nayeem & Usmani (2011, 2012).

Results: In the present study 21 species representing 19 genera belonging to two families and 08 subfamilies have been recorded from various regions of Dahiwadi tehsil, Satara district of Maharashtra.

Order: ORTHOPTERA
Suborder: CAELIFERA

Super family: ACRIDOIDEA
Family: ACRIDIDAE
Subfamily: TRUXALINAE

1. *Truxalis indica* (Bolivar, 1902)
Material Examined: 2 ♂,3♀, Mardi, Satara Dist. 01. viii. 2018; 3♀, Jashi, Satara Dist. 16. viii. 2018.
Distribution: India: Andhra Pradesh, Bihar Chhattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Orissa, Karnataka and Tamil Nadu. **Elsewhere:** Myanmar and Sri Lanka.
Remark: Common medium to large sized species found in all type grassy vegetation, colour morphs observed.

Subfamily: ACRIDINAE
Genus: *Acrida* Linnaeus, 1758

2. *Acrida exaltata* (Walker, 1859)
Material Examined: 1♂, 2♀,Dahiwadi, Satara Dist. 04.viii.2018; 1♀, , Mardi, Satara Dist., 12. viii.2018.
Distribution: India: (Widely distributed). **Elsewhere:** Afghanistan, Arabia, Bangladesh, Iran, Nepal, Pakistan, Saudi Arabia, Sri Lanka, Tibet, Yemen & West Eden.
Remark: Common medium to large sized species, mostly found in live green grassy vegetation.

3. *Acrida gigantea* (Herbst, 1786)
Material Examined: 1♂, 1♀,Dahiwadi, Satara Dist. 04.viii.2018.
Distribution: India: Himachal Pradesh, Madhya Pradesh, Tamil Nadu and Utlarakhand. **Elsewhere:** Africa and Nepal and Pakistan.
Remark: Quite rare medium sized species, mostly found in agricultural lands vegetation. First report from Maharashtra state.

4. *Acrida turrita* (Linnaeus, 1758)
Material Examined: 1♀, Dahiwadi Satara Dist, 18.viii.2018; 2♂, 2♀, Jashi,Satara Dist, 19.viii.2018.
Distribution: India: Himachal Pradesh. **Elsewhere:** Africa, Asia, Pakistan, South Europe.
Remark: Quite rare medium to large sized species, mostly found in agricultural lands vegetation. First report from Maharashtra state.

Genus: *Phlaeoba* Stal, 1860

5. *Phlaeoba antennata* Brunner, 1893
Material Examined: 1♀, , Jashi. Satara Dist, 11. viii. 2018, 2♂,Mardi, Satara Dist, 10. viii. 2018.
Distribution: India: Arunachal Pradesh, Assam, Kerala, Maharashtra, Orissa, Rajasthan and West Bengal. **Elsewhere:** Bangladesh, Borneo, Myanmar, China, Malaysia, Tonking and Sumatra.
Remark: This species generally occurred in thick vegetation.

Subfamily OEDIPODINAE
Genus *Gastrimargus* Saussure, 1884

6. *Gastrimargus africanus africanus* Saussure, 1888
Material Examined: 1♂, 2♀ Dahiwadi,Satara Dist.,17.viii.2018, 2♂, 2♀, Mardi, Satara Dist , 13.viii.2015.
Distribution: All over India **Elsewhere:** Africa, Myanmar, Nepal, Pakistan, Saudi Arabia, Sri Lanka, Thailand, Tibet and Yemen.
Remark: This species generally occurred in barren lands, and behind agricultural lands.

Genus *Trilophidia* Stal, 1873

7. *Trilophidia annulata* Thunberg, 1815

Material Examined: 1♀, Dahiwadi Satara Dist, 18.viii.2018; 2♂, 2♀, Jashi,Satara Dist, 19.viii.2018.

Distribution: All over India **Elsewhere:** Afghanistan, Bangladesh, Borneo, China, Hong Kong, Japan, Java, Korea, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Sarawak, Singapore, Sri Lanka, Sumatra, Taiwan, Thailand and Vietnam.

Remark: This species generally occurred in barren lands.

Genus *Dittopternis* Saussure, 1884

8. *Dittopternis venusta* (Walker 1870)

Material Examined: 1 ♂, 2♀, Mardi, Satara, Dist, 07.viii.2018; 2♀, Dahiwadi, Satara Dist, 15.viii.2018.

Distribution: India: Andhra Pradesh, Chhattisgarh, Karnataka, Madhya Pradesh, Manipur, Meghalaya, Maharashtra, Orissa, Tamil Nadu, Tripura and West Bengal. **Elsewhere:** Sri Lanka

Remark: It is associated with small grasses.

Genus *Aiolopus* Fieber, 1853

9. *Aiolopus thalassinus tamulus* (Fabricius, 1798)

Material Examined: 2 ♂, 1 ♀, Mardi, Satara, Dist.19.viii.2018, 1♂, Jashi, Satara Dist. 20. viii. 2018.

Distribution: All over India **Elsewhere:** Australia, Bangladesh, Borneo, Brunei, Celebes, China, Hong Kong, Japan, Java, Malaysia, Myanmar, New Guinea, Pakistan, Papua, Philippines, Singapore, Sri Lanka, Sumatra, Taiwan, Thailand and Timor.

Remark: This species is associated grass and attached on cultivated field.

Genus *Oedaleus* Fieber, 1853

10. *Oedaleus senegalensis* (Krauss, 1877)

Material Examined: 1♂, 1♀, Dahiwadi, Satara Dist, 20. viii. 2018.

Distribution: India: Andhra Pradesh, Bihar, Delhi, Jammu and Kashmir, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, Uttarakhand & West Bengal. **Elsewhere:** Afghanistan, North Africa, Pakistan & Western U.S.S.R.

Remark: This species is associated with barren lands and agricultural lands.

Genus *Morphacris* Walker, 1870

11. *Morphacris spp.*

Material Examined: 2 ♂, 1♀, Jashi, Satara, Dist. 24. viii. 2018.

Remark: This species is associated with barren lands and agricultural lands.

Subfamily OXYINAE

Genus *Oxya*, Serville, 1831

12. *Oxya spp.*

Material examined: 2 ♂, 1♀, Jashi, Satara, Dist. 24. viii. 2018.

Remark: This species is found on small grass and bushy zone adjoining water ponds. It damages the seedlings of growing crops.

Subfamily CYRTACANTHACRIDINAE

Genus *Cyrtacanthacris* Walker, 1870

13. *Cyrtacanthacris tatarica tatarica* (Linnaeus, 1758)

Material Examined: 2♂, Mardi,Satara, Dist, 26. viii. 2018; 1 ♀, Mardi,Satara Dist, 23. viii. 2018.

Distribution: Most parts of India **Elsewhere:** Africa, Bangladesh, Central America, Hainan, Indonesia, Madagascar, Mediterranean Region, Myanmar, Nepal, Pakistan, Philippines, Red-Sea, Sahara, Saudi Arabia, Seychelles, Sri Lanka, South West Asia, Sumatra and Thailand.
Remark: It is found feeding on wild and cultivated plants. This species occurs in plains as well as in hilly regions.

Genus *Patanga* Uvarov, 1923

14. *Patanga succincta* Johansson 1763
Material Examined: 1♂, Jashi, Satara, Dist, 20. viii. 2018; 1 ♀,3♂ Mardi, Satara, Dist, 30.viii. 2018.
Distribution: Most of India **Elsewhere:** Australia, Borneo, China, Hainan Island, Japan, Malaysia, Myanmar, Pakistan, Philippines, South Arabia, Sri Lanka, South East Asia, Sumatra and Taiwan.
Remark: It is commonly called as Bombay locust. Adults and Nymph feed on a variety of plants and found in plains as well as in agricultural lands.

Genus *Xenocatantops* Dirsh & Uvarov, 1953

15. *Xenocatantops humilis humilis* (Serville 1838)
Material Examined: 2♂, Dahiwadi, Satara, Dist, 30.viii.2018; 1♀, Jashi, Satara, Dist, 22.viii. 2018.
Distribution: Most parts of India **Elsewhere:** Bangladesh, Borneo, Indo-China, Java, Lombok, Malaysia, Myanmar, Nepal, New Guinea, Philippines, Sumatra, Sri Lanka, Thailand, Tibet, Vietnam and Yunnan.
Remark: This species is generally found in agricultural lands, a heavy infestation of this species is found in new cultivated fields.

Subfamily GOMPHOCERINAE Genus *Chorthippus* Fieber, 1852

16. *Chorthippus spp.*
Material Examined: 2 ♂,1 ♀, Mardi, Satara Dist, 06. ix. 2018.
Remark: This species is generally found in agricultural lands but in very few in number.

Genus *Choroedocus* Bolivar, 1914

17. *Choroedocus robustus* (Serville, 1839)
Material Examined: 1♂, Dahiwadi, satara Dist, 09. ix. 2018.
Distribution: India: Arunachal Pradesh, Andhra Pradesh, Maharashtra and Assam. **Elsewhere :** Bangladesh.
Remark: This species occurs amongst mixed vegetation zone and found on the agricultural area. Both Nymphs and adults are abundant from the months April to August.

Subfamily TROPIDOPOLINAE Genus *Tristria* Stal, 1873

18.*Tristria pulvinata* Uvarov, 1921
Material Examined: 3 ♂ , Mardi, Satara Dist, 13. ix. 2018.
Distribution: India: Andhra Pradesh, Assam, Bihar, Delhi, Haryana, Karnataka, Kerala, Maharashtra, Meghalaya, Orissa, Punjab, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal. **Elsewhere:** Sri Lanka.
Remark: This species found on various grasses.

Superfamily: PYRGOMORPOIDEA Family: PYRGOMORPHIDAE
Subfamily: PYRGOMORPHINAE Genus *Atractomorpha* Saussure, 1862

19. *Atractomorpha crenulata* Fabricius, 1793
Material Examined: 2 ♂, 2♀, Dahiwadi, Satara Dist, 16. ix. 2018; 2 ♀, Jashi, Satara Dist, 08. ix. 2018.

Distribution: All India **Elsewhere:** Bangladesh, Cambodia, Lasso, Maldives Island Malaya, Myanmar, Nepal, Pakistan, Sri Lanka, Sumatra, South Vietnam and Thailand.
Remark: This species associated with a small grasses in the agricultural lands.

Genus *Chrotogonus* Serville, 1838

20. *Chrotogonus (Chrotogonus) trachypterus trachypterus* Blanchard 1836
Material examined: 2 ♂, 2♀, Dahiwadi, Satara Dist, 29. ix. 2018; 2 ♀, Mardi, Satara Dist, 03. ix. 2018.
Distribution: Most parts of India.
Remark: This species is found on low grass and shrub and associated with a good deal of bare ground.

Genus: *Coptotettix* Bolivar, 1887

21. *Coptotettix conspersus* Hancock, 1915
Material Examined: 2♂, 2♀, Mardi, Satara Dist, 30.ix.2018; Jashi, Satara Dist, 18. x. 2018.
Distribution: India: Arunachal Pradesh, Assam, Chhattisgarh, Himachal Pradesh, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Orissa, Tripura, Uttarakahand, Uttar Pradesh and West Bengal.
Remark: This species is found on barren lands and also in agricultural lands.

The present exploration is the primary study of Orthopteran insects from agricultural lands of Dahiwadi tehsil, Satara district of Maharashtra. In the short period enlisting 21 species under 19 genera of short horn grasshoppers is significant and indicates continuous drought prone region is also having a significant diversity. *Acrida gigantean* and *Acrida turrita*, these two species were new report from the state Maharashtra, this indicates that in the study region there is possibilities of different diversity is present which is till not recorded from the region.

Acknowledgment: We thank the Principal, Dahiwadi College, Dahiwadi, Head, Department of Zoology, Dahiwadi College, Dahiwadi and Rayat Shikshan Sanstha, Satara for providing necessary facilities.

References:

Agarwala, S.B.d. (1952).A comparative study of the ovipositor in the Acrididae - I. Indian Journal of Entomology, II 14: 61–75.

Bhowmik, H.K. (1985). Outline of distribution with an indexCatalogue of Indian grasshoppers (Orth.: Acrididae). Part I. Acridinae, Truxalinae, Gomphocerinae and Oedipodinae. Records of Zoological Survey of India Miscellaneous Publication Occasional Paper 78: 1–51.

Chandra K. and S.K. (2012), Gupta Fauna of Maharashtra, State Fauna Series, 20(Part-2) : 429-436.

Dirsh, V.M. (1965). The African Genera of Acridoidea. AntiLocust Research Centre and Cambridge University Press, London, 579pp.

Dirsh, V.M. (1975). Classifcation of Acridomorphoid Insects. Faringdon, Oxon, E.W. Classey, 171pp.

Kirby, W.F. (1914). The Fauna of British India, Including Ceylon and Burma. Orthoptera (Acrididae). Taylor and Francis, London, ix+276pp.

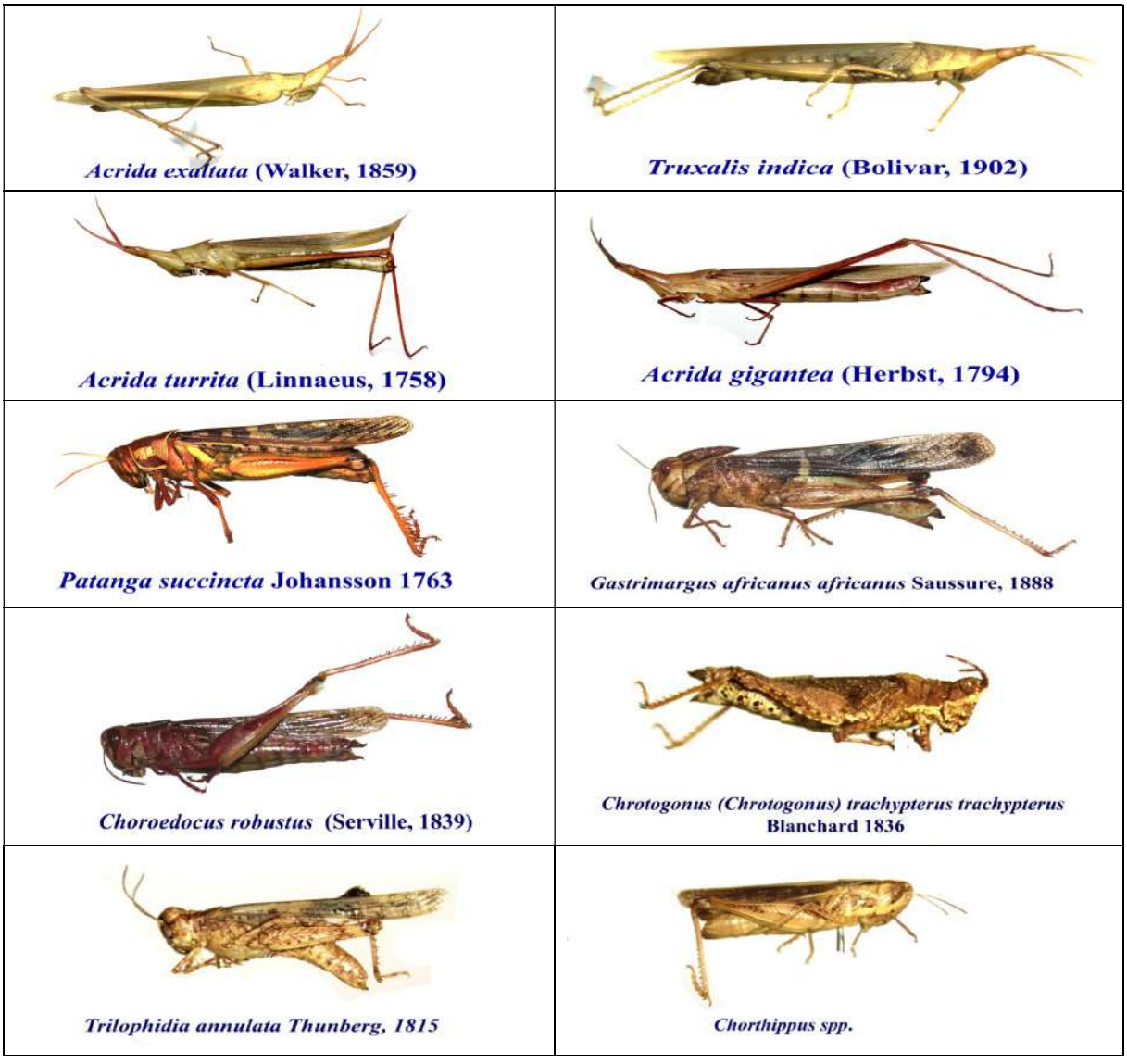
Mandal, S.K., Dey, A. and Hazra, A.K. (2007). Pictorial Handbook on Indian Short-homed Grasshopper Pests (Acridoidea : Orthoptera) : 1-57.

Nayeem, M.r. & M.K. usmani (2011). Diversity of Acridoidea (Orthoptera) from southern and southwestern region of Bihar, India. Folia Heyrovskyana 19(1–4): 5–12.

Nayeem, M.r. & M.K. usmani (2012). Taxonomy and Field Observations of Grasshopper and Locust Fauna (Orthoptera: Acridoidea) of Jharkhand, India. Munis Entomology & Zoology 7(1): 391–417.

Roonwal, M.L. (1956). Bibliographica Acrididorum. Records of Indian Museum 56: 1–611.

Shishodia, M.S. (1987). Orthoptera Fauna of Assam. State Fauna Series (1): 91-102.
Shishodia, M.S. (1997). Orthoptera Fauna of Delhi. State Fauna Series: Zoological Survey of India 173–176pp.
Shishodia, M.S. (1999). Orthoptera fauna of Patalkot, Chhindwara, Madhya Pradesh, India. Records of Zoological Survey of India 97 (4): 33–43.
Shishodia, M.S., K. Chandra & S.K. Gupta (2010). An annotated Checklist of Orthoptera (Insecta) from India. Records of Zoological Survey of India, Occasional Paper No. 314: 1–366.
Tandon, S.K. (1976). A Check-list of the Acridoidea (Orthoptera) of India Part I Acrididae. Records of Zoological Survey of India. Occasional Paper No. 3: 1–48.
Uvarov, B.P. (1927). Distributional records of Indian Acrididae. Records of Indian Museum 29: 233–239.
Uvarov, B.P. (1942). Differentiating characters of Oedipodinae and Acridinae. Transactions of American Entomological Society 67: 303–361.
Uvarov, B.P. (1966). Grasshoppers and Locusts. A Hand book of General Acridology.



FAUNAL ASSESMENT OF LONG HORNRD GRASSHOPPERS FROM AGRICUTURAL LANDS OF ARID REGION OF SATARA DISTRICT OF MAHARASHTRA

[1]Varsha Pawar, [2]Jadhav G. S. and [3]Raut G. A.*

[1,2,3,]Dahiwadi College, Dahiwadi

*Address for correspondence: rautgopal189@gmail.com

Abstract: The Orthopteran insects are mostly well known, as their inhabitants in our surroundings, gardens, farms, grasslands forests etc. and they directly and indirectly impacts on society, biology, ecology, flora, and fauna. The Tettigoniids or long-horned grasshopper belongs to family Tettigoniidae of order Orthoptera. In the present investigation 7 species of Tettigoniidae were recorded under 7 genera belongs to two sub families. The record of 7species is highlights the importance of the study. If long term study carried out many other unexplored species will come to know.

Key Wards: Orthoptera, Tettigoniidae, Fauna, Arid region.

The order Orthoptera are the group of insects which are mostly well known, as their inhabitants in our surroundings, gardens, farms, grasslands and forests. They directly and indirectly impacts on society, biology, ecology, flora, and fauna. They also playing role as a biological indicator of Environmental changes, habitat destruction, pollution. Also their presence give an idea of present biota which depend on them and on which they depend. Their diversity and distribution study will give an idea to put local biota, flora and fauna in the specific frame. Earlier Orthepteran diversity workers Kirby (1914) and Chopard (1969) estimate the satisfactory diversity in Indian subcontinent while latter some workers Bhowmik (1985a, 1986), Shishodia and Hazra (1986), Mandal et al. (1999, 2007), Shishodia (1991, 1997, 2000a, b), Hazra et al. (1993, 1995), Vasanth (1993), Barman (1993, 1995, 2000, 2003), Shishodia & Tandon (2000), Sigfrid and Shsihodia (2000), Dey & Hazra (2003), Shishodia et al. (2003), Mandal & Yadav (2007), Gupta et al. (2008) gives their contribution to exploration of diversity. While capacious contribution given to the Orthoptera fauna of Maharashtra has been given by Nadkerny (1965), Vasanth (1980), Shishodia (1991), Sharma et al. (1999), Kulkarni & Sharma (2004) and Kulkarni & Shishodia (2004, 2005),Gaikwad et al. (2016) etc.

The Tettigoniids or long-horned grasshopper belongs to family Tettigoniidae of order Orthoptera. From the Maharashtra state 18 species of Tettigoniidae recorded (Chandra and Gupta 2012) belongs to 14 genera in the Fauna of Maharashtra, State Fauna Series. Gaikwad et al. (2016) recorded 17 species under 16 genera of Tettigoniidae reported from Radhanagari Wildlife Sanctuary in which six species were first time reported from Maharashtra totals 24 species.

The specimens of Tettigoniidae as they are mostly nocturnal were collected during evening hours 4 pm to 6 pm using insect sweeping net and in night hrs (7 pm to 11 pm) during June 2018- October 2018) with the help of the torch and at light sources by hand picking method. They were killed and preserved as wet preservation method. They were identified with the help of literature of Srinivasan (2012), http://Orthoptera.SpeciesFile.org, and Gaikwad et al. (2016).

In the present investigation 7 species of Tettigoniidae were recorded under 7 genera belongs to two sub families. Earlier from the Satara district diversity of Tettigoniidae was never been done therefore present study provides a baseline data for further research.

Order: Orthoptera Suborder: Ensifera Infraorder: Tettigoniidea

Superfamily: Tettigonioidea Family: Tettigoniidae Subfamily: Phaneropterinae

Genus *Ducetia* Stal, 1874

1. *Ducetia japonica* Thunberg, 1815

1815 *Locusta japonica* Thunberg. Mem. Acad. Imp. Sci. St. Peterburg 5:282

Material Examined: 1♀, Jashi, Satara Dist, 18. x. 2018.

Distribution: India: Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Bihar, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Rajasthan, Sikkim, Tamil Nadu, Uttarakhand, Uttar Pradesh and West Bengal;

Remark: This species is associated with grass. It is found in plains as well as agricultural lands. Adults are common during the months of December and January.

Genus *Elimaea* Stal, 1874 Genus *Letana* Walker, 1869

2. *Letana megastridula* Ingrisch, 1990

1990 *Letana megastridula* Ingrisch. Entomologica Scandinavica 21(3):258.

Material Examined: 1♂, Mardi, Satara Dist, 10. viii. 2018.

Distribution: India: Bihar, Chhattisgarh, Himachal Pradesh, Maharashtra and Tamil Nadu. **Remarks:** This species is generally found on grass. Adults are prevalent in the months of October and November. It is easily recognized by black or reddish dots on body and legs.

Genus: *Trigonocorypha*, Stal, 1874

3. *Trigonocorypha unicolor* Stoll, 1787

1787 *Gryllus (Tettigonia) unicolor* Stoll. Représentation exactement colorée d'après nature des spectres ou phasmes, des mantes, des sauterelles, des grillons, des criquets et des blattes 13.

Material Examined: 1♂, Dahiwadi, Satara Dist.,17.viii.2018.

Distribution: India: Andaman & Nicobar Islands, Karnataka, Maharashtra, Meghalaya, Odisha, Rajasthan, Tamil Nadu and West Bengal; Java and Sri Lanka.

Remark: Large species, easily identified by notable green coloured wings with yellow veins.

Subfamily: Pseudophyllinae

Genus *Sathrophyllia* Stal, 1874

4. *Sathrophyllia rugosa* (Linnaeus, 1758)

1758 *Gryllus (Tettigonia) rugosus* Linnaeus. Systema Naturae per Regna tria naturae (10th ed.) 1:430.

Material Examined: 1♂, 1♀, Mardi, Satara, Dist, 07.viii.2018; 1♂, Jashi, Satara Dist, 15.viii.2018.

Distribution: India: Karnataka, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Sikkim, Tamil Nadu & West Bengal; Java, Sri Lanka and Sumatra.

Remarks: This species is associated with tall grass and trees. Maximum population observed in the month of October.

Genus *Paramorsimus* Beier, 1954

5. *Paramorsimus oleifolius* Fabricius, 1793

1793 *Locusta oleifolia* Fabricius. Supplementum Entomologiae Systematicae 2:35.

Material Examined: 1♂, 1♀, Mardi, Satara, Dist, 07.viii.2018; 1♂, Jashi, Satara Dist, 15.viii.2018.

Distribution: India: Maharashtra, Odisha and Tamil Nadu.

Remark: This species id reported from only above three states which states that the distribution of this species is not very well known. There fore the report of this species from the region is important.

Subfamily Conocephalinae

Genus *Conocephalus* Thunberg, 1815

6. *Conocephalus (Anisoptera) maculatus* (Le Guillou 1841)

1841 *Xiphidion maculatus* Le Guillou. Revue et Magasin de Zoologie 294.

Material Examined: 2 ♂, 1 ♀, Mardi, Satara, Dist.19.viii.2018, 1♂, Jashi, Satara Dist. 20. viii. 2018.

Distribution: India: Andaman & Nicobar Islands, Arunachal Pradesh, Chhattisgarh, Himachal Pradesh, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Manipur, Mizoram, Nagaland, Odisha, Sikkim, Tamil Nadu, Tripura, Uttarakhand and West Bengal.

Remarks: Maximum population observed in the month of November. This species can easily be recognized by large dark spots on tegmina. This species is carnivorous.

Genus *Euconocephalus* Karny, 1907

7. *Euconocephalus incertus* (Walker, 1869)

1869 *Conocephalus incertus* Walker, F. Catalogue of the Specimens of Dermaptera Saltatoria in the Collection of the British Museum 2:320.

Material Examined: 1 ♂, Mardi, Satara, Dist.19.viii.2018.

Distribution: Andaman and Nicobar Islands, Chhattisgarh, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Orissa, Pondicherry, Rajasthan, Sikkim and West Bengal.

Remark: The maximum population observed in the month of December and January. This species is associated with hilly region among dry long grasses.

Earlier from the Satara district diversity of Tettigoniidae was never been done therefore present study provides a baseline data for further research. The present exploration 7 species from the region is satisfactory as compared to 18 species from Maharashtra (Chandra and Gupta 2012) and 11 species from Radhanagari Wildlife Sanctuary which highlights the importance of the study. If long term study carried out many other unexplored species will come to know.

Acknowledgments: We thank the Principal, Dahiwadi College, Dahiwadi, Head, Department of Zoology, Dahiwadi College, Dahiwadi and Rayat Shikshan Sanstha, Satara for providing necessary facilities.

References:

Barman, R. S. and Srivastava G. K. 1976. On a collection of Tettigoniidae (Insecta) from Arunachal Pradesh, India. *Zoological Survey of Newsletter,* 2(3) : 93-94.

Barman, R. S. 1993. Insecta : Orthoptera : Tettigoniidae. *State Fauna Series 3: Fauna of West Bengal, Zoological Survey of India*, (4) : 355-367.

Barman, R. S. 1995. Tettigoniidae : Orthoptera. *State Fauna Series 4 : Fauna of Meghalaya, Zoological Survey of India*, (3) : 279-290.

Barman, R. S. 2000. Insecta : Orthoptera : Tettigoniidae. *State Fauna Series 7 : Fauna of Tripura, Zoological Survey of India*, (2) : 263-267.

Barman, R. S. 2003. Insecta : Orthoptera : Tettigoniidae. *State Fauna Series 9 : Fauna of Sikkim, Zoological Survey of India*, (2) : 193-201.

Bhowmick, H. K. 1986. Grasshopper fauna of West Bengal, India (Orthoptera : Acrididae). *Zoological Survey of India, Technical Monographs*, 14 : 1-180.

Bhowmik, H. K. 1985. Out line of distribution with an index-catalogue of Indian grasshoppers (Orthoptera : Acrididae). *Records of Zoological Survey of India, Occasional Paper*, 78 : 1-51.

Chandra, K and Gupta S. K (2012): Insecta: Orthoptera. *Fauna of Maharashtra, State Fauna Series*, 20(2): 429-436.

Chopard, L. 1969. The Fauna of India and adjacent countries. : Orthoptera, 2 Grylloidea. *Zoological Survey of India*, 2 : 1-421.

Dey, A. and Hazra, A.K. 2003. Diversity and distribution of grasshopper fauna of Greater

Senthilkumar, N. 2010. Orthopteroids in Kaziranga National Park, Assam, India. *Journal of Threatened Taxa*, 12(10): 1227- 1231.

Sharma, R. M., Kulkarni, P. P. and Kamble, R. H. 1999. Population outburst of *Mecopoda elongata* Linn. (Orthoptera : Tettigoniidae) around Pune, Maharashtra. *Zoos' Print Journal*, 1-14(3-12) : 174.

Shishodia, M. S. 1991. On a collection of Grouse-Locusts (Orthoptera : Tetrigidae) from Maharashtra, India, with some new distributional records. *Records of Zoological Survey of India*, 88(1) : 29-36.

Shishodia, M. S. 1997. Orthoptera. *Fauna of Conservation Areas 9, Fauna of Nanda Devi Biosphere Reserve, Zoological Survey of India*, 49-53.

Shishodia, M. S. 2000a. Short and long horned grasshoppers and crickets of Bastar district, Madhya Pradesh, India. *Records of Zoological Survey of India*, 98(1) : 27-80.

Shishodia, M. S. 2000b. Insecta : Orthoptera : Grylloidea and Tridactyloidea. *State Fauna Series 7, Fauna of Tripura, Zoological Survey of India*, (2) : 247-262.

Shishodia, M.S . and Hazra, A. K. 1986. Orthopteran Fauna of Silent Valley, Kerala. *Records of Zoological Survey of India*, 84(1&4) : 191-228.

Shishodia, M. S. and Tandon, S. K. 2000. Insecta : Orthoptera : Acridoidea and Eumastacoidea. *State Fauna Series 7, Fauna of Tripura, Part 2, Zoological Survey of India*, 197-230.

Shishodia, M. S., Dey, A. and Tandon, S.K. 2003. Insecta : Orthoptera : Acridoidea and Eumastacoidea. *State Fauna Series 9, Fauna of Sikkim, Zoological Survey of India*, (2) : 165-192.

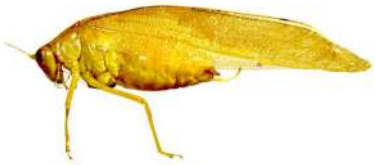
Srinivasan, G. and Prabakar, D. 2012. Additional records of Tettigoniidae from Arunachal Pradesh, India. *Journal of Threatened Taxa.* 4(14): 3255-3268.

Vasanth, M. 1980. Two new species of crickets of the genus Turanogryllus Tarbinskii (Orthoptera : Gryllidae) from Maharashtra. *Biovigyanam*, 6 : 115-119.

Vasanth, M. 1993. Studies on crickets (Insecta : Orthoptera : Gryllidae) of North-east India. *Records of Zoological Survey of India, Occasional Paper*, 132 : i-vi, 1-178.

1. *Ducetia japonica* Thunberg, 1815

2. *Letana megastridula* Ingrisch, 1990



3. *Trigonocorypha unicolor* Stoll, 1787

4. *Sathrophyllia rugosa* (Linnaeus, 1758)

5. *Paramorsimus oleifolius* Fabricius, 1793

6. *Conocephalus* (*Anisoptera*) *maculatus* (Le Guillou 1841)

7. *Euconocephalus incertus* (Walker, 1869)

Insecticidal activity of ethanol leaf extract of *Lantana camara* against *Sitophilus oryzae*

G. S. Jadhav* and S. R. Shinde

Department of Zoology, Dahiwadi College, Dahiwadi

E-mail: ganeshjadhav2230@gmail.com

Abstract:

In the present study, ethanol leaf extract of *Lantana camara* (Verbanaceae) was evaluated efficacy on the mortality of rice weevil, *Sitophilus oryzae* L. (Coleoptera: Curculionidae). Adult insects were exposed with five different concentrations (5000 ppm, 10,000 ppm, 15,000 ppm, 20,000 ppm, 25,000 ppm) of extract treated with Jawar and mortality was recorded after 7, 14 and 21 days. Results indicated that the extract of *L. camara* effective against adult of *Sitophilus oryzae*. The mortality at higher concentration (25,000 ppm) after 7, 14 and 21 days are 36%, 60% and 80% respectively.

Keywords: *Lantana camara*, *Sitophilus oryzae*, Mortality

Introduction:

In India, post-harvest losses caused by unscientific storage, insects, rodents, micro organisms etc., account for about 10% of total food grains. The major economic loss of grain is not only by the grain infesting insects but also damage by their excreta which makes unhealthy for human. About 500 species of insects have been associated with stored grain products. Nearly 100 species of insect pests of stored products cause economic losses

Rice weevil, *Sitophilus oryzae* (Curculionidae: Coleoptera) Distributed world-wide and is found practically throughout India. It is the most destructive pest of stored grain. The host plant of these rice weevils are rice, sorghum, wheat, barley, maize etc. For the controlling of stored grain insects pests are the excess use of synthetic insecticide at the time of storage, but it is harmful to human health and environment. *S. oryzae* has been reported to developed resistance against synthetic insecticides (Benhalima *et al.,* 2004). The promising sources of plant based insecticides have found major families like *Meliaceae, Rutaceae, Asteraceae, Labiateae, Piperaceae, Verbenaceae* and *Annonaceae* (Jacobson, 1989; Isman 1995).

The sorghum crop (Jawar) is used for food, feed, fodder and bio-ethanol. It is the main source of calories and protein in some regions of Africa and Asia. The weevil

infestation is encountered on-farm storage where it causes high loss in grain weight. Therefore, the present day study was conducted to analyze the effect of leaf extract of plant *L. camara* on mortality of rice weevil.

Materials & Methods:

Insect Culture:

One of the major insect pests *Sitophilus oryzae* were collected from Jawar grains of local godowns. These insects were rare on clean and un-infected variety of jawar. They are maintained in laboratory at 28±2°C temperature and related humidity at 70±5%. Adults of *S. oryzae* were used for the experiment. (S.R.Yankanchi, A. H. Gadache 2010).

Preparation of plant extract:

The leaves of local plants, *Lantana camara* L. (Family: Verbenaceae) was collected from field. Collected leaves were washed by water and shade dried for 8-10 days in at room temperature in the laboratory and then makes it in powdered form using domestic grinder.

The leaf powder of *Lantana camara* was extracted with ethanol solvent by the Soxhlet extraction method according to Pavela *et al.* (2008). Then the extract was filtered through Whatman (No. 1) filter paper and solvent is removed by rotary vacuum evaporator. The dark green residue was obtained and stored in refrigerator at 4^0C temperature until further use to experiment.

Insecticidal Activity:

The insecticidal activity of the leaf extract of *Lantana camera* against the adults of *S. oryzae* was studied by direct contact application method (Kumar *et al* 2016). Five different concentrations (5000 ppm, 10,000 ppm, 15000 ppm, 20,000 ppm, 25000 ppm) were prepared for analytical grade in Acetone. The extract was mixed with Jawar grains separately (0.5ml/20gm) and air dried for 10 min. The ten unsexed adults of *Sitophilus oryzae* was released in treated Jawar grains. Three replications were maintained for each concentration of extract. Same volume of Acetone treated to grains was served as control. Insect mortality was recorded after 7, 14 and 21 days exposure respectively.

Result and Discussion-

The excess use of synthetic insecticide for controlling the stored grain pests causes many serious effects on human health and environment. To reduce the use of chemical insecticidal, there is need for developing pest management technologies in stored

products. The natural insecticides are used for the control of stored products because of their relatively high efficacy against stored grain insect pests (Tunc. *et al*. 2000, Akhtar et.al. 2008). The use of plant products to protect stored grain from insect pest damage is an age old practice (Ukeh 2008). Essential oils, extracts and the chemical ingredients have been used greatly in grain protection in many laboratory and field trials (Isman 2006). Many studies have reported bioactive compounds from plant extracts with repellent/antifeedant/insecticidal activity against stored-product insect pests (Upasani et al. 2003; Akhtar et al. 2008; Yao et al. 2008).

In treatment of plant *L. camara* leaf extract the *S. oryzae* revealed high mortality at 21 days exposure when compared to the control. Maximum mortality caused by 25000 ppm concentration of *L. camara* treatment. In general the rate of mortality was increased with increasing the concentration of plant extracts. Results demonstrated that, high concentration dose of extracts shows more mortality than low concentration dose. As mortality of *S. oryzae* after 7 days exposure is high in grains treated with 25000 ppm *L. camara* is 36% and at the same time grains treated with 5000 ppm *L. camara* is 20%. Similarly mortality after 14 days exposure is more in grains treated with 25000 ppm *L. camara* is 59% and grains treated with 5000 ppm *L. camara* is 43% and exposure after 21 days shows mortality more grains treated with 25000 ppm *L. camara* is 79% and grains treated with 5000 ppm *L. camara* is 63%.

Table No. 1: Insecticidal activity of ethanol leaf extract of *Lantana camara* against *Sitophilus oryzae*

Sr. No.	**Concentration of extract (ppm)**	**Percent mortality (7-21) days post treatment (Mean ± SE)**		
		7 days	**14 days**	**21 days**
1	**5000**	16 ± 1.45	41 ± 2.65	60 ± 2.60
2	**10,000**	21 ± 2.08	51 ± 2.65	72 ± 2.65
3	**15000**	30 ± 1.76	56 ± 2.89	75 ± 2.33

4	**20,000**	36 ± 1.73	60 ± 2.33	80 ± 1.73
5	**25,000**	36 ± 2.31	60 ± 2.60	80 ± 2.03
6	**Acetone control**	0.00	0.00	0.00
7	**Absolute control**	0.00	0.00	0.00

The seeds of *Azadirachta indica* were reported to show insecticidal activity against a variety of insect species and, azadirachtin, the active principle, exhibited insect antifeedant, moult inhibiting and anti-gonadotropic effects in insects. However, its bitter taste and lack of contact toxicity restricts its use and unsuited on stored products meant for human consumption.

Plant products and essential oils have been used for grain protection in small scale in different parts of the world, particularly India, China and Africa. The ethanol extracts of *Cassia tora* and *Clerodendrum inerme* (5 %) were used as grain protectants against *S. oryzae* (Yankanchi and Gadache, 2010). Volatile compounds of many plant extracts are composed of many bioactive molecules, which exhibit fumigant/contact activity. The methanol extract of *L. camara* was most toxic against *S. oryzae,* followed by ethyl acetate, hexane and acetone. (Rajashekhar, *et al.* 2014).

These results suggest that there may be different bioactive compounds in this extract.

Conclusion:

In the present study indicated that ethanol leaf extract of *Lantana camara* was toxic to *Sitophilus oryzae*. It is good source of botanical pesticide for eco friendly pest control strategies against stored grain pests.

References:

Akhtar, Y., Isman, M. B., Niehaus, L. A., Lee, C. H. and Lee, H. S. 2012. Antifeedant and toxic effects of naturally occurring and synthetic quinones to the cabbage looper, *Trichoplusia ni*. *Crop Protection*, **31:** 8-14.

Benhalima, H., Choudhary, M. Q., Millis, K. A. and Price, N. 2004. Phosphine resistance in stored-product insect collected from various grain storage facilities. Journal of Stored Product Research, **40**(3): 241-249.

Isman M. B. 1995. Leads and prospects for the development of new botanical insecticides. In: Reviews in Pesticide Toxicology (Roe, R. M. and Khur, R. J. eds.), Vol. 3. Toxicology Communications Inc., Raleigh, NC., 1-20 PP.

Jacobson, M. 1989. Botanical insecticides: Past, present and future. In: Insecticides of Plant origin. American Chemical Society, Symposium Series No. 387 Washington, D. C., 1-10 **pp.**

Kumar, P., Soujanava, L.P. and Sekhar, J. C. 2016. Efficacy of plant extracts against Rice weevil *Sitophilus oryzae* in stored maize. *Indian Journal of Entomology*, **78**(4): 342-345.

Pavela, R., Sajfrtova, M., Sovova, H. and Barnet, M. 2008. The insecticidal activity of *Satureja hortensis* L. extracts obtained by supercritical fluid extraction and traditional extraction techniques. *Applied Entomology and Zoology*, **43**(3): 377-382.

Ukeh, D. A. 2008. Bioactivities of essential oils of *Aframomum melegueta* and *Zingiber officinale* both (Zingiberaceae) against *Rhyzopertha dominica* (Fabricius). *Journal of Entomology,* **5**(3): 193-199.

Unc I, Berger B. M., Erler F., Dagli F. 2000. Ovicidal activity of essential oils from five plants against two stored-product insects. *Journal of Stored Product Research,* **36:** 161-168.

Upasani, S. M., Kotkar, H. M., Mendki, P. S., Maheshwari V. L. 2003. Partial characterization and insecticidal properties of *Ricinus communis* L foliage flavanoids. *Pest Management Science*, **59:**1349–1354.

Yankanchi, S. R. and Gadache, A. H. 2010. Grain protectant efficacy of certain plant extracts against rice weevil, *Sitophilus oryzae* L. (Coleoptera: Curculionidae). *Journal of Biopesticides,* **3**(2): 511-513.

Yao, Y. Cai, W., Yang, C., Xue, D. and Huang, Y. 2008. Isolation and characterization of insecticidal activity of asarone from *Acorus calamus*. *Insect Science,* **15**(3): 229-236.

Efficacy of *Lantana camara* leaf powder against dengue vector mosquito, *Aedes aegypti*

G. S. Jadhav* and S. R. Desai

Department of Zoology, Dahiwadi College, Dahiwadi

E-mail: ganeshjadhav2230@gmail.com

Abstract:

In the present study, leaf powder of *Lantana camara* (Verbanaceae) was evaluated the effect on fourth instar larvae of dengue vector mosquito, *Aedes aegypti*. A bioassay was conducted in glass beakers of 250 ml of water with different concentrations of leaf powder from 100 to 200 mg/100 ml of water with four replicates under laboratory condition. Twenty early 4thinstar larvae were introduced into each test solution and without powder were served as control. Mortality results were observed in larvae, pupae, and adult stages.

Keywords: *Lantana camara*, *Aedes ageypti*, Dengue

Introduction:

Mosquitoes are responsible for transmitting various infectious diseases; hence the mosquito has been declared as 'Public Enemy Number One' (WHO, 1996). *Aedes aegypti* is on focus world wide because of it's role as vector of major diseases like dengue haemorrhagic fever and yellow fever. For controlling the transmission of these mosquito born diseases continuously use of synthetic insecticides may lead to the development of resistance and permanent residual effect on the biological system, which can be harmful to animals, including humans (Harshan *et al,* 1992). When applied carelessly, they may also cause undesirable, acute and long- term side effects. Hence it is an important to search for easily degradable alternatives insecticides to control vector mosquitoes.

The insecticidal properties of plants have been recognized in many parts of the world, especially in India, where plant materials are easily available and their use in human health and agriculture practice is a tradition. Available sources of indigenous plant material can possibly be used to control mosquitoes in and around human habitation after screening them in the laboratory. Biologically active components in plants are known to be alkaloids, terpenoids, flavonoids, phenolic compounds, saponin, organic acids or lipids (Harborne, 1998). Many of the defensive components of plants are biodegradable with non-residual effects on the biological system. The leaf extract of the plant have been

shown to contain insecticidal properties against mosquitoes. Review of literature revealed that various solvent extracts of plant materials have been tested against mosquitoes. Therefore, to investigate the effect of shade dried leaf powder of *Lantana camara* against fourth instar larvae of *Aedes aegypti.*

Materials & Methods:

- **Plant material:** The leaves of *Lantana camara*, were collected from Dahiwadi region. These plants were selected on the basis of their availability, aromatic smell, and resistance to damage by insect pests. The collected plant materials were placed in polyethylene bags and brought to laboratory. The leaves were washed, shade dried and powdered using a domestic mixer and stored in plastic containers separately.

- **Bioassay:** The larvae of *Aedes aegypti* collected from field were maintained in laboratory at 70-75% relative humidity, and 28±2°C temperature. The larvae fed on a powdered mixture of dog biscuits with yeast. A bioassay was conducted in glass beakers of 250 ml of water with different concentrations of leaf powder from 100 to 200 mg/100 ml of water with four replicates under laboratory condition. Twenty early 4^{th}instar larvae were introduced into each test solution and without powder were served as control. Mortality results were observed in larvae, pupae, and adults' stages.

Result & Discussion

It was observed that the most larvae were died in between larval-pupal stage and the pupae failed to emerge as adults and died in the pupal case itself. The sluggish movement and peculiar coiling of treated larvae may be due to some neuronal or muscular disturbance by some active principle or toxic substance released in the water by the powder, might cause the lethal effect. These results are more or less similar to those reported by Md.Ekramul Islam *et.al., (2003) in Culex quinquefasciatus.* The delayed lethal effect of the compound is more likely to disturb the endocrine mechanisms that regulate moulting and metamorphosis. This mechanism of action has been already postulated previously for neem by (Zebitz, 1986). The larvae which survived in the larval

and pupal stages and emerged as adults also faced some difficulty in the flight and died within an hour of emergence.

Effect of *Lantana camara* powder on larva, pupa and adult mosquito, *Aedes ageypti*

Conc. in mg/100 ml	Percent Mortality (Mean ± SE)			
	Larva	Pupa	Adult	Total
100	23 ± 1.6	08 ± 0.4	04 ± 0.2	35 ± 3.2
120	40 ± 2.1	10 ± 1.0	04 ± 0.8	54 ± 4.7
140	48 ± 2.2	14 ± 0.8	06 ± 0.2	68 ± 4.8
160	54 ± 2.8	16 ± 1.4	08 ± 0.4	78 ± 3.9
180	56 ± 3.6	16 ± 1.6	08 ± 0.2	78 ± 4.2
200	58 ± 3.2	16 ± 1.8	10 ± 0.8	84 ± 4.8

Conclusion

The plants are ecofriendly and easily available in nature. The leaf powder of *Lantana camara* could be useful as a larvicidal agent against dengue vector mosquito, *Aedes aegypti*. This plant may serve as a suitable alternative to synthetic insecticides.

References:

Report of the WHO Informal Consultation on the evaluation and testing of insecticides. Geneva, World Health Organization, 1996 (CTD/WHOPES/IC/96.1).

Harshan V., Saxena R. C. and Dixit O. P. (1992): Insecticidal action of *Lantana camara* against *Callosobruchus chinensis*, Coleoptera, Bruchidae. Journal of Stored Product Research, 28(4): 279-289.

Harborne, J. B. 1998. Phytochemical Methods, A guide to modern techniques of plant analysis, Chapman and Hall: New York, pp. 1–150

Muthu, C., Reegan, A. D., Kingsley, S. and Ignacimuthu, S. 2012. Larvicidal activity of pectolinaringenin from *Clerodendrumphlomidis* L. against *Culex quinquefasciatus* Say and *Aedes aegypti* L. (Diptera: Culicidae). *Parasitology Research,* 111: 1059-1065.

दहिवडी गावातील वस्तू खरेदीबाबत ग्राहकाकांच्या वर्तणुकीचा अभ्यास

प्रा. म्हेत्रे एन. एम.* कु. नलावडे दीप्ती संतोष

वाणिज्य विभाग, दहिवडी कॉलेज, दहिवडी, त.माण. जि. सातारा.

प्रस्तावना:

जागतिकीकरणामुळे भारतीय अर्थव्यवस्थेत वेगवेगळ्या वस्तू व सेवा निर्माण झाल्या आहेत. त्या वेगवेगळ्या प्रकारच्या वस्तू आणि सेवा आपल्या दैनंदिन जीवनातील गरजा पूर्ण करण्यासाठी खरेदी करतो. त्यासाठी आपण किंमत देत असतो. त्या वस्तूचा उपभोग घेतल्यामुळे आणि वापर केल्यामुळे त्यापासून आपल्याला समाधान मिळते. परंतु काही वेळा आपण ज्या वस्तू खरेदी केलेल्या असतात. त्यापासून आपण समाधानी होत नाही. हे घडण्याचे कारण म्हणजे वस्तू कनिष्ट प्रतीची असणे, दुकानदाराने वस्तूची किमत जास्त आकाराने, वस्तूमध्ये घटकांचे प्रमाण कमी असणे, चुकीच्या पद्धतीने केलेली जाहिरात इ. परंतु उपभोक्ता वस्तुची खरेदी करत असताना कशा प्रकारे वर्तणूक करतो हे देखील महत्वाचे असते. उपभोकत्यांची वागणूक विवेकशील असेल तर उपभोकत्यास जास्त समाधान मिळते. उपभोकत्यांची वागणूक अभ्यासण्यासाठी दहिवडी गावातील वस्तू खरेदीबाबत ग्राहकांच्या वागणुकीचा अभ्यास संशोधनासाठी निवडला आहे.

उपभोक्त्याचा अर्थ :-

उपभोक्ता म्हणजे अशी व्यक्ती की, जी वस्तू व सेवांचा उपभोग व वापर करते. वस्तू या उपभोगण्यास असतात. उदा. गव्हाचे पीठ, मीठ, साखर, फळे इत्यादी. तसेच काही वस्तू या टिकाऊ असतात. उदा . टेलिव्हिजन, मिक्सर, सायकल, फ्रीज इ. तसेच सेवांच्या वस्तूंमध्ये वीज, स्वयंपाक ग्यास, टेलीफोन, वाहतूक इ. वस्तू व सेवांचा उपभोग व वापर व्यक्तीकडून घेतला जातो. म्हणून त्यास उपभोक्ता असे म्हणतात.

उद्दिष्ट्ये :

१) वस्तू खरेदीबाबत उप्भोक्त्यांच्या वर्तणूकीचा अभ्यास करणे.

परिकल्पना:

२) वस्तू खरेदी करताना उपभोकत्यांची वागणुक विवेकशील आहे .

संशोधन पद्धती:

दहिवडी गावातील वस्तू खरेदीबाबत ग्राहकांच्या वर्तणुकीचा अभ्यास करण्यासाठी प्राथमिक व दित्तियक सामग्रीचा उपयोग केला आहे. हा अभ्यास दहिवडी गावातील उपभोक्त्यांच्या वर्तुणुकीशी संबंधित आहे. यामध्ये वस्तूची किंमत, वस्तूचे वजन, वस्तूची गुणवत्ता इ. बाबतीत केला आहे.

माहिती संकलन:

दहिवडी गावातील वस्तू खरेदीबाबत ग्राहकांच्या वर्तणुकीचा अभ्यास हा प्राथमिक माहितीवर अवलंबून आहे. ही प्राथमिक माहिती गोळा करण्यासाठी प्रस्तावलीचा वापर केला आहे.

महितीचे विश्लेषण: गोळा केलेल्या माहितीचे विश्लेषण खालील तक्त्याच्या आधारे केले आहे.

उपभोकत्यांचे शिक्षण :

तक्ता क्र.१

प्राथमिक	माध्यमिक	पदवीधर	पदव्युत्तर	निरक्षर
०१	०८	०६	०५	००

वरील तक्त्यावरून असे स्पष्ठ होते कि, उपभोकत्यांचे माध्यमिक शिक्षणाचे प्रमाण सर्वात जास्त असून ते ४०% आहे. सर्वात कमी प्रमाण प्राथमिक शिक्षणाचे असून ते ५% आहे.

उपभोकत्यांचे मासिक उत्पन्न:

तक्ता क्र.२

२५०००	२५०००-५००००	५००००-७५०००	७५००० पेक्षा जास्त
०७	०६	०६	०१

वरील कोष्टकावरून असे स्पष्ट होते कि, ७ उपभोक्त्यांचे मासिक उत्पन्न २५००० रु. आहेत. तर ७५००० पेक्षा जास्त मासिक उत्पन्न असणारा ०१ उपभोक्ता आहे.

वस्तू खरेदीबाबत माहिती :-

तक्ता क्र. ३

ब्रांडेड	अनब्रांडेड
१८	०२

वरील कोष्टकावरून असे दिसून येते की, ब्रांडेड वस्तू खरेदी करणाऱ्या उपभोक्त्याचे प्रमाण ९०% आहे. तर अनब्रांडेड वस्तू खरेदी करणाऱ्या उपभोक्त्याचे प्रमाण १०% आहे.

वस्तूबद्दल माहिती मिळवण्याचे माध्यम :-

तक्ता क्र -४

टीव्ही	वर्तमानपत्र	रेडिओ	सिनेमागृह	विक्री प्रतिनिधी	इतर
०३	००	००	००	१०	०७

वरील तक्त्यावरून स्पष्ट होते की, वर्तमानपत्र, रेडीओ, सिनेमागृह या तीन माध्यमातून वस्तूबद्दल माहिती मिळण्याचे प्रमाण कमी आहे. वस्तूबद्दल सर्वात जास्त माहिती विक्री प्रतिनिधीद्वारे मिळते. हे प्रमाण ५०% आहे.

वस्तूवरील समाप्ती दिनांक तपासणे :

तक्ता क्रमांक.५

होय	**नाही**
१३	**०७**

वरील तक्त्यावरून असे दिसून येते की, वस्तूवरील समाप्ती दिनांक तपासणी १३ उपभोक्ते असून ते प्रमाण ६५% आहे.

वस्तूची MRP पाहणे :

तक्ता क्रमांक.६

होय	**नाही**
१८	**०२**

वरील कोष्टकातूनलक्षात येते की,वस्तूवरील समाप्ती पाहणारे १८ उपभोक्ते असून ते प्रमाण ९०% आहे.

वस्तूवरील वजन व इतर घटक पाहणे:

तक्ता क्रमांक७.

होय	नाही
१२	०८

वस्तूवरील वजन व इतर घटक पाहणाऱ्या उपभोक्त्याचे प्रमाण ६०% आहे तर वजन व इतर घटक न तपासणाऱ्या उपभोक्त्याचे प्रमाण ४०% आहे.

नकली वस्तुबाबतची तक्रार नोंद :

तक्ता क्र.८

विक्री प्रतिनिधी	दुकानदार	ग्राहक तक्रार केंद्र	इतर
१०	०८	०२	००

जर उपभोकात्याना नकली वस्तू मिळाली तर त्याबाबत तक्रार करणाऱ्या उपभोक्त्यांचे प्रमाण १००% आहे. ही तक्रार मुख्य पुरवठादार, दुकानदार, ग्राहक तक्रार केंद्र इ. केली जाते.

१९८६ चा उपभोक्ता संरक्षण कायदा:

तक्ता क्र.९

होय	नाही
०५	१५

वरील तक्त्यावरून असे दिसून येती कि, ७५% उपभोक्त्यांना १९८६ चा उपभोक्ता संरक्षण कायदा माहित नाही.

निष्कर्ष:

१) ब्रांडेड वस्तू खरेदी करणाऱ्या लोकांचे प्रमाण ९०% आहे.

२) उपभोकत्यांना वस्तूबद्दल माहिती मिळण्याचे माध्यम विक्री प्रतिनिधी ५०% तर इतर माध्यमातून माहिती मिळण्याचे प्रमाण ३५% आहे.

३) वस्तूवरील समाप्ती दिनांक तपासणाऱ्या लोकांचे प्रमाण ६५% आहे . त्याचप्रमाणे वस्तूवरील वजन व इतर घटक तपासण्याचे प्रमाण ६५% आहे.

४) वस्तूवरील MRP तपासणाऱ्याचे प्रमाण ९०% आहे.

५) जर उपभोक्त्याला नकली वस्तू प्राप्त झाली असेल तर तक्रार करणाऱ्या व्यक्तीचे प्रमाण १००% आहे.

६) १९८६ चा उपभोक्ता संरक्षण कायदा माहित नसणाऱ्या उप्भोक्त्यांचे प्रमाण ७५% आहे.

परिकल्पनेचे परीक्षण:

परिकल्पनेचे परीक्षण करण्यासाठी वरील तक्ता क्र. ३,४,५,६,७,८,९ यावरून असे सिध्द होते की, उपभोक्ता वस्तूची खरेदी करताना विवेकशील वागतो.

सारांश:

आधुनिक काळात उपभोक्ता मोठया प्रमाणात उपभोग्य वस्तू , अनेक टिकाऊ वस्तूचा मोठया प्रमाणात उपभोग घेत आहेत. या वस्तूची खरेदी करण्यासाठी उपभोक्ता वेगवेगळ्या ऑफर्सला बळी पडतो. त्यामुळे उपभोक्त्याच्या समाधानाची पातळी कमी होते. परंतु वरील संशोधनाच्या आधारे असे सिद्ध होते की, उपभोक्ता वस्तूची खरेदी करताना ब्रान्डडेड वस्तूची खरेदी करताना दिसून येते तसेच तो वस्तूची किंमत, वजन, गुणवत्ता, वेस्टन व त्या वस्तूमध्ये समाविष्ट असलेले घटक तपासून पाहतो. म्हणजेच उपभोक्ता वस्तूची खरेदी विवेकशीलपणे करतो.

कॉलेज कॅन्टीनमधील अन्नपदार्थ खरेदीबाबत विद्यार्थ्यांच्या पसंतीचा अभ्यास

प्रा. म्हेत्रे.एन.एम.*, कु. डाके मयुरी हनमंत
वाणिज्य विभाग, दहिवडी कॉलेज, दहिवडी. ता. माण, जि. सातारा
nilesh.mehtre@rediffmail.com

प्रस्तावना:

कॉलेजच्या आवारात किंवा कॉलेजच्या कॅन्टीनमध्ये अनेक अन्नपदार्थ विकण्याचे प्रमाण वाढलेले आहे. हे अनेक अन्नपदार्थ विकण्याचे प्रमाण विद्यार्थ्यांच्या खरेदीमुळे वाढलेले आहे. ते आरोग्यास किती अपायकारक आहेत किंवा किती हितकारक आहेत हे तपासून पाहत नाहीत.विद्यार्थी वेगवेगळ्या अन्नपदार्थची कॅन्टीनमध्ये दिवसेंदिवस खरेदी करतो. त्या अन्नपदार्थाचा उपभोग आणि वापर केल्याने त्याला समाधान मिळत असते. परंतु काही वेळा विद्यार्थ्यांनी खरेदी केलेल्या अन्नपदार्थापासून त्यांना समाधान मिळत नाही. कारण त्या वस्तूची गुणवत्ता कमी असणे, किंमत जास्त असणे, त्या अन्नपदार्थात घटकाचे प्रमाण कमी असणे इ. म्हणून विदयार्थी कोणत्या वस्तूला पसंती देतात हे तपासणे गरजेचे आहे.

उद्दिष्टे:

१) विद्यार्थी कोणत्या अन्नपदार्थाला पसंती देतात ते शोधून काढणे.

२) कॅन्टीन मधील अन्नपदार्थापासून विद्यार्थ्याना मिळणाऱ्या समाधानाचा अभ्यास करणे.

परिकल्पना:

१) विद्यार्थी पैष्टिक अन्नपदार्थास पसंती देतात.

२) कॅन्टीन मधील अन्नपदार्थापासून विद्यार्थ्यास समाधान मिळत नाही.

संशोधन पद्धती:

कॉलेज कॅन्टीनमधील अन्नपदार्थ खरेदीबाबत विद्यार्थ्यांच्या पसंतीचा अभ्यास करण्यासाठी प्राथमिक व द्वितीय सामग्रीचा उपयोग केला आहे. हा अभ्यास दहिवडी कॉलेजच्या कॅन्टिनमधील विकल्या जाणाऱ्या अन्नपदार्थांशी संबंधीत आहे. या अन्नपदार्थामध्ये जॅंकफूड आणि पौष्टिक अन्नपदार्थ आहेत.

माहिती संकलन:

हा अभ्यास प्रामुख्याने प्राथमिक माहितीवर अवलंबून आहे. प्राथमिक माहिती गोळा करण्यासाठी प्रश्नावलीचा वापर केला आहे.

निवड पद्धती:

कॉलेज कॅन्टीनमधील अन्नपदार्थ खरेदीबाबत विद्यार्थ्यांच्या पसंतीचा अभ्यास करण्यासाठी दहवाडी कॉलेजच्या सिनियर महाविद्यालयातील ४ शंखाची निवड केली आहे. त्यामध्ये कला, वाणिज्य, विज्ञान आणि बी.सी.ए शाखा घेतल्या आहेत. प्रत्येक शाखेतून ५ विद्यार्थ्यांची निवड केली आहे. अशा पद्धतीने २० विद्यार्थ्यांची प्रश्नावली बघून घेतली आहे.

सांख्यिकीय पद्धती:

गोळा केलेल्या माहितीचे विश्लेषण करण्यासाठी टक्केवारी, स्तंभालेख आणि पायचार्टचा वापर केला आहे.

अभ्यासाचा कालावधी:

कॉलेज कॅन्टीनमधील अन्नपदार्थ खरेदीबाबत विद्यार्थ्यांच्या पसंतीचा अभ्यास करण्यासाठी १/८/२०१८ ते ५/१२/२०१८ या कालावधीमध्ये विद्यार्थ्यांकडून प्रश्नावली भरून घेतली आहे. त्यामुळे आभासाचा कालावधी १/८/२०१८ ते ५/१२/२०१८ पुरता मर्यादित आहे.

अभ्यासाची मर्यादा: संशोधनासाठी निवडलेला अभ्यास दहिवडी कॉलेज मधील कॅन्टिनपुरता आणि २० विद्यार्थ्यांपुरता मर्यादित आहे.

माहितीचे विश्लेषण:

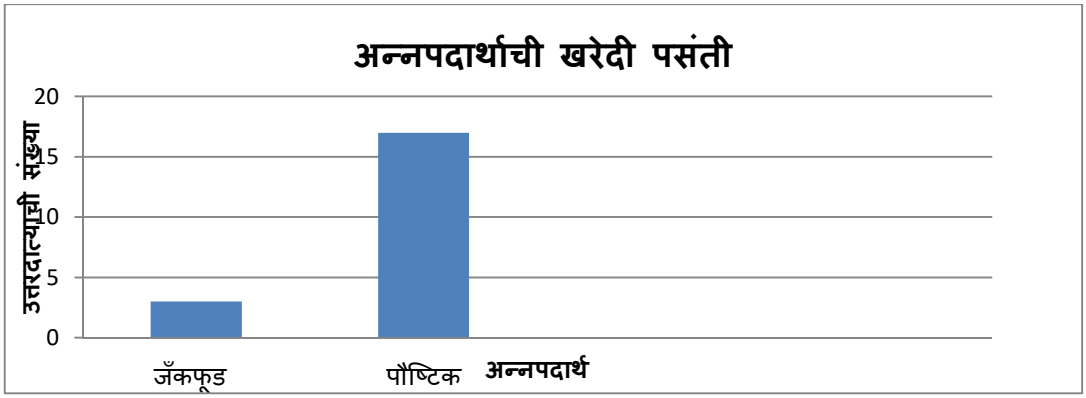
अन्नपदार्थ खरेदी:

टेबल क्रमांक : १

जँकफूड	पौष्टिक
3	17

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, २० उत्तरदात्यापैकी १७ विद्यार्थी पौष्टिक पदार्थाला पसंती देतात तर ३ विद्यार्थी जँकफूडला पसंती देतात. म्हणजेच पौष्टिक अन्नपदार्थाला पसंती देण्याचे प्रमाण ६५% आहे.



वरील स्तंभलेखावरून असे दिसून येते कि, पौष्टिक पदार्थाला जास्त पसंती दर्शवली आहे.

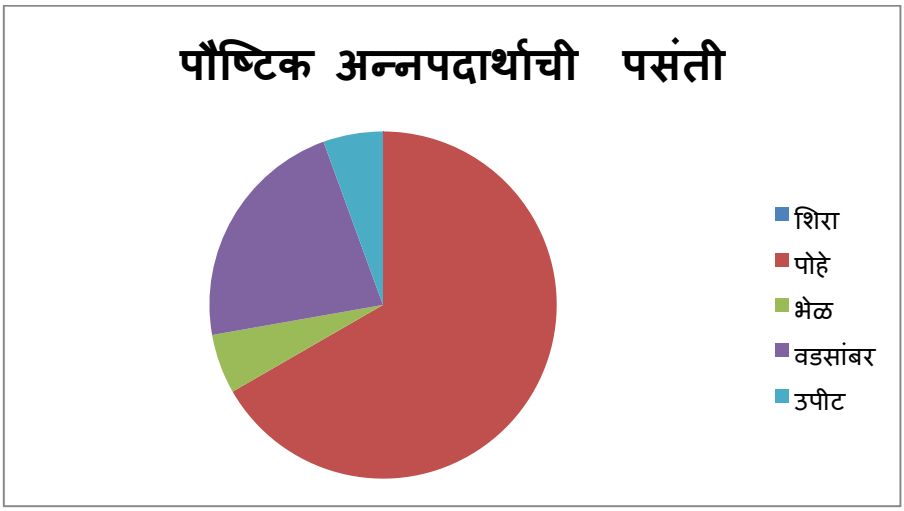
पौष्टिक पदार्थाच्या खरेदीबाबत माहिती:

टेबल क्रमांक : २

पौष्टिक अन्नपदार्थ	शिरा	पोहे	भेळ	वडसांबर	उपीट	इतर
पसंती	००	१२	१	४	१	२

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

पौष्टिकपदार्थाची पसंती या तक्त्यावरून असे स्पष्ट होते कि १२ विद्यार्थी पोहे या पौष्टिक अन्नपदार्थाला सर्वात जास्त पसंती दिली आहे, तर शिरा या पौष्टिक अन्नपदार्थास एकही विद्यार्थ्याने पसंती दिली नाही.



वरील पायचार्टवरून असे दिसून येति कि, सर्वात जास्त विद्यार्थी पोहे या पौष्टिक अन्नपदार्थाला सर्वात जास्त पसंती दिली आहे.

जँकपदार्थाविषयी विद्यार्थ्यांची माहिती :

टेबल क्रमांक : ३

होय	नाही
१३	७

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, १३ विद्यार्थ्यांना जंक पदार्थाची माहिती आहे. तर ७ विद्यार्थ्यांना जंक पदार्थाची माहिती नाही. म्हणजेच ३५% विद्यार्थ्यांना जंक पदार्थाची माहिती नाही. हि बाब विदयार्थ्यांच्या आरोग्यास हानिकारक आहे.

जंकपदार्थाविषयी विद्यार्थ्यांची पसंती :

टेबल क्रमांक : ४

जंकपदार्थ	पिज्जा	कॅण्डी	मिठाई	बेकरी पदार्थ	आईस्क्रिम	इतर
पसंती	००	१	२	००	१३	४

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, १३ विद्यार्थी आईस्क्रीमला पसंती देतात तर सर्वात कमी पसंती चांदीला दिली जाते. म्हणजेच ६५% पसंती आईस्क्रीम या जंक अन्नपदार्थास दिली आहे.

अन्नपदार्थाची गुणवत्ता: टेबल क्रमांक :५

जंकपदार्थ	पौष्टिक अन्नपदार्थ
६	१४

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, १४ विद्यार्थ्यांनी पौष्टिक अन्नपदार्थाची गुणवत्ता चांगली आहे असे म्हटले आहे. म्हणजेच हे प्रमाण ७०% आहे. तर ६ विद्यार्थ्यांनी जंकपदार्थाची गुणवत्ता चांगली आहे असे म्हटले आहे. ही बाब त्यांच्या आरोग्यास हानिकारक आहे.

अन्नपदार्थांवर विद्यार्थ्यांचा होणारा खर्च:

टेबल क्रमांक: ६

१० रु	१५ रु	२० रु	२० रु पेक्षा जास्त
१०	०१	०१	०८

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, दररोज अन्नपदार्थांवर विद्यार्थी १० रु खर्चकरण्याचे प्रमाण ५०% आहे तर २० रु पेक्षा जास्त खर्च करण्याचे प्रमाण ४०% आहे.

कॅन्टिनमधील अन्नपदार्थपासून विद्यार्थ्यांना मिळणारे समाधान:

टेबल क्रमांक: ७

होय	नाही
५	१५

प्रश्नावली १/८/२०१८ ते ५/१२/२०१८

वरील तक्त्यावरून असे दिसून येति कि, कॅन्टिनमधील अन्नपदार्थपासून ७५% विद्यार्थी असमाधान आहेत तर २५% विद्यार्थ्यांना समाधान मिळते.

परिकल्पनेचे परीक्षण:

परिकल्पनेचे परीक्षण करण्यासाठी वरील कटकट क्रमांक १, २ आणि ५ वरून सिद्ध होते कि, विद्यार्थी पौष्टिक अन्नपदार्थास पसंती देतात. तसेच तक्ता क्रमांक ७ वरून असे सिद्ध होते कि, कॅन्टिनमधील अन्नपदार्थापासून विद्यार्थ्यांना समाधान मिळत नाही.

निष्कर्ष:

१) पौष्टिक अन्नपदार्थ खरेदी करण्याचे प्रमाण ८५% आहे.

२) ६५% विद्यार्थ्यांना जँकपदार्थाविषयी माहिती आहे.

३)जंकपदार्थामध्ये आईस्क्रिम या पदार्थाला सर्वात जास्त पसंती आहे.

४) ६०% विद्यार्थ्यांच्या मते पौष्टिक अन्नपदार्थ महाग आहेत.

५) ५०% विद्यार्थी दररोज १० रु खर्करतात.

६) कॅन्टिनमधील अन्नपदार्थपासून ७५% विद्यार्थ्यांना समाधान मिळत नाही.

सारांश:

कॉलेजच्या कॅन्टीनमध्ये अनेक अन्नपदार्थ विकण्याचे प्रमाण वाढलेले आहे. परंतु हे अन्नपदार्थ विद्यार्थ्यांच्या आरोग्यास कितपत योग्य आहेत हे पाहणे गरजेचे आहे. वरील संशोधनावरून असे स्पष्ट होते कि, विद्यार्थ्यांना पौष्टिक अन्नपदार्थाची जाणीव असून पौष्टिक अन्नपदार्थ खरेदी करण्याचे प्रमाण जास्त आहे. तसेच विद्यार्थ्यांना जंकफूडचे सेवन केल्यास ते आरोग्यास किती घटक आहे हे माहित आहे. परंतु विद्यार्थी कॅन्टीन मधून मिळणाऱ्या अन्नपदार्थापासून असमाधानी आहेत.

ऊस तोड कामगारांच्या सामाजिक व आर्थिक समस्यांचा अभ्यास

बागडे ए एम,जगदाळे सौरभ ,जगदाळे कोमल
वाणिज्य विभाग दहिवडी कॉलेज दहिवडी . ता-माण,जि*सातारा

प्रस्तावना:

उसतोड कामगार म्हणून स्थलातंर करण्या कुटुंबातील तीन ते पाच लाख मुलांचे शिक्षण दरवषी खंडित होते. शासनाने कारखान्याना पुरेसे योगदान दिल्यास ही आबाळरोखू शकते. रोजगारासाठी स्थलातंर हा महाराष्ट्रतील गंभीर आणि दुलशीत प्रश्न आहे. जिरायत भागात एकच पिक निगते.ते काढल्यावर दिवाळीनंतर किमान २५ लाखाहून अधिक कामगार दरवषी हंगामी स्थलातंर करतात. त्यापेकी १२ लाख उसतोड कामगार करतात. मराठवाडा हा दुष्काळी भाग असल्याने तेथील लोक स्थालारीत होवून उस तोडीचे पर्याय निवडतात.

अभ्साचे उद्देश: उस तोड कामगारंच्या सामाजिक व आर्थिक परिस्थिती मागासलेली आहे यांचा अभ्यास केला.

गुहीतके: उस तोड कामगारंची आर्थिक व सामाजिक परिस्थिती मागासलेली आहे.

निवड पद्धती: माण तालुक्यातील दहिवडी व शेवटी येथे कार्यरत असणाये उस तोड कामगारंची साध्या नमुना पद्धतीने निवड करण्यात आली.

माहिती मिळवण्याची पद्धती: प्राथमिक माहिती मिळविण्यासाठी प्रश्नावलीचा वापर करण्यात आला याशिवाय मुलाखत व प्रत्यक्ष भेटीद्वारे उस तोडी कामगारांची प्राथमिक माहिती मिळवली.

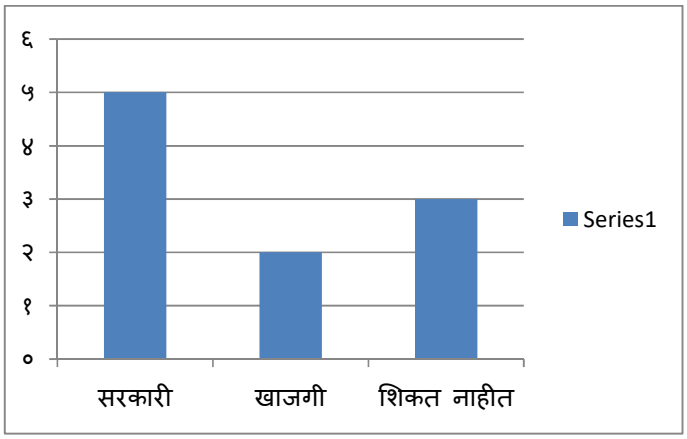
विश्लेषण पद्धती: संशोधनासाठी संख्याशास्त्रीय पदधतीचा वापर करण्यात आला .

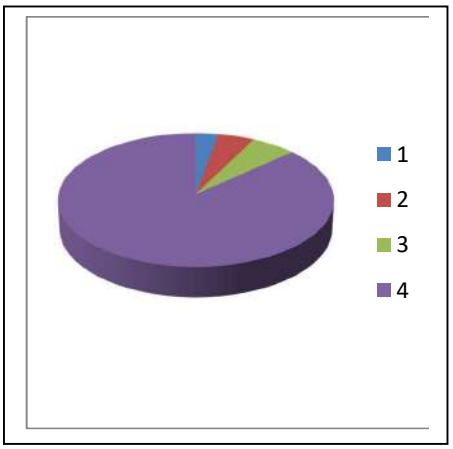
अभ्यासाची मार्यादा :माण तालुक्यातील दोन गावात कार्यात असणारया उसतोड कामगारांची अभ्यासाठी निवड करण्यात आल.

अभ्यासाचे महत्त्व :उस तोडणी कामगारंची आर्थिक व सामाजिक परिस्थिती का मागासलेली आहे हे स्पष्ट होईल व त्यांचा समस्यावर उपाय योजना करण्यात येतील.

अभ्यासाचे विश्लेषण : कोणत्या शाळेमध्ये तुमची मुळे शिक्षण घेतात ?

सरकारी	खाजगी	शिकत नाहीत
५	२	३



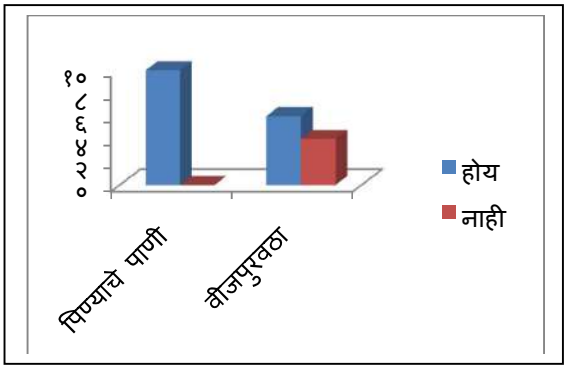


1. तुमच्या कुटुबांचे एका महिन्याचे उत्पन्न किती ?

५०००	८०००	१००००	१५००००
५	१	२	२

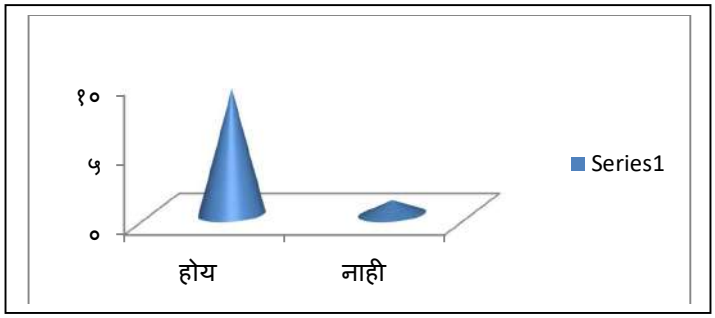
2. इतर सुविधा

	पिण्याचे पाणी	वीजपुरवठा
होय	१०	६
नाही	०	४



3. तुमचे बँक खाते आहे का ?

होय	नाही
९	१



समस्या:

1. उस तोड कामगारंनी केलेल्या कामाच्या प्रमाणात पुरेपूर मोबदला दिला जात नाही
2. शासनच्या सोई-सुविधा उसतोड कामगारापर्यत पोहचत नाही
3. उस तोड कामगाराना बागाजीदार वाहन मालक यांच्या दबावाखाली काम करावे लागते.
4. उसतोड कामगारांची राहण्याची असुविधा असते. व त्यांच्या कामात अनियमितता दिसते

शिफारशी :

१ उस तोडी कामगाराच्या जिल्हा पातळीवर शासकीय यंत्रणेद्वारे करण्यात यावे

२ उस तोड कामगांसाठी स्थलातंर झाल्यानंतर त्यांना कायमस्वरूपी वसतिगृहे उपलब्ध असवीत.

३ राहण्याची योग्य सोय व कामाचे योग्य तास ठरवून दिले पाहिजेत.

संदभ: १ www.loksatta.com

2 प्रश्नावली

वीटभट्टी कामगारांवरील आर्थिक व सामाजिक समस्यांचा अभ्यास.

बागडे ए .एम ,गीता चव्हाण ,शिवानी तोडकर

वाणिज्य विभाग ,दहिवडी कॉलेज दहिवडी ,ता- माण जि सातारा

ashwinikamble300690@gmail.com

प्रस्तावना :

वीट भट्ट्यासाठी महाराष्ट्रातील वातावरण अत्यंत पोषक आहे. त्यामुळे महाराष्ट्रातील प्रत्येक जिल्यामधील वीट भट्टीउद्योग मोठ्याप्रमाणात उभारण्यात आले. या उद्योगांवर काम कारण्यासाठी सहजासहजी कामगार उपलब्ध होत नाहीत. त्यामुळे बहुतांश वीट भट्ट्यावरील स्थलांतरीत कामगार राबत आहेत . या वीट भट्टी कामगारांकडे सातत्याने दुर्लक्ष झाले आहेत. पारंपारिक व्यवसाय, भटकंती, कौटुंबिक समस्या, दारिद्र्य आणि स्थलांतर अशा कारणांमुळे अनेक मुले शिक्षणापासून वंचित राहतात. वीट भट्टीवर कामकरण्यासाठी संपूर्ण कुटुंब स्थालंतरीत होत असल्याने संपूर्ण कुटुंबाचीच फरफट होऊन त्यांना समस्यामध्ये होरपळावे लागते.

समर्थनाचे शीर्षक-

सदर अभ्यासाचे शीर्षक "वीट भट्टी कामगारंचा आर्थिक व सामाजिक समस्यांचा अभ्यास" केला.

उद्धिष्टये -

१) वीट भट्टी कामगारांचा आर्थिक व सामाजिक परिस्थितीचा अभ्यास करणे.
२) वीट भट्टी कामगारांच्या समस्यांवर उपाययोजना सुचवणे.
३) वीट भट्टीवर काम का करता या कारणांचा अभ्यास करणे.

गृहीतके-

१) वीट भट्टी कामगारांची आर्थिक व सामाजिक परीस्थिती खालावलेली आहे.
२) शैक्षणिक मागासलेपण व गरिबीमुळे वीट भट्टीवर काम करतात.

व्याप्ती -

दुसर्यांचे घर उभारण्यासाठी मजबूत वीट निर्माण करण्यात आपले आयुष्य खर्ची घालवणारे राज्यातील वीट भट्टी कामगार समस्यांच्या विळख्यात राबत आहेत. आर्थिक दृष्ट्या मागासलेल्या वीट भट्टी कामगारांसाठी शासनाने सुरु केलेल्या असंख्य योजना त्यांच्या पासून कोसो दूर आहेत. स्थलांतरीत वीट भट्टी कामगारांचे आरोग्य, शिक्षण, सुरक्षा, व्यसनाधीनता आदी गंभीर प्रश्न असून त्यातच त्यांचे आयुष्य उध्वस्त होत असल्याचे चित्र आहे. सदर अभ्यासामुळे वीट भट्टी कामगारांचे ज्वलंत प्रश्न समोर येतील.

अभ्याची मर्यादा -

१) माण तालुक्यातील ६ वीट भट्ट्याची निवड करण्यात आली

संशोधन पद्धती -

माण तालुक्यातील दोन गावांची साधी नमुना पध्दतीने निवड करण्यात आली.

१) प्राथमिक माहिती मिळवण्यासाठी प्रश्नावालीचा वापर करण्यात आला. याशिवाय मुलाखत व प्रत्यक्ष भेटी द्वारे प्राथमिक माहिती मिळवली.

२) दुय्यम माहिती वर्तमान पत्राद्वारे मिळवली .

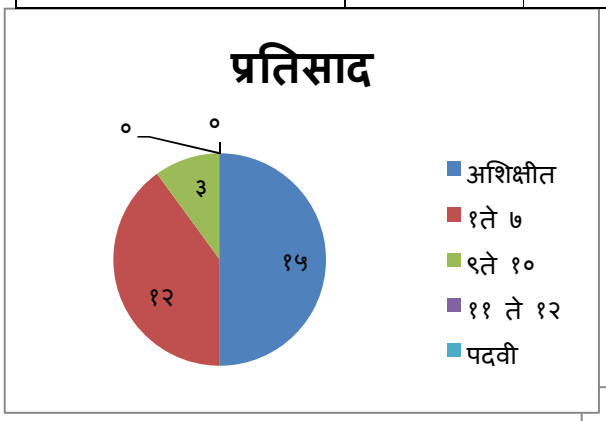
संशोधनासाठी संख्याशास्त्रीय पद्धतीचा वापर करण्यात आला. उदा.स्तंभालेक,पाय चार्ट,टेबल इ.

विश्लेषण -

१) शिक्षण :

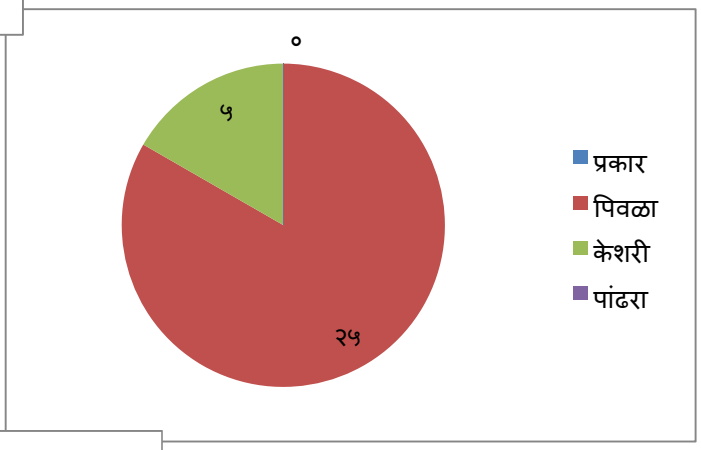
	प्रतिसाद	**टक्के**	**डिग्री**
अशिक्षीत	१५	५०	१८०
१ते ७	१२	३६	१३०
९ते १०	३	०३	५०
११ ते १२	०	०	०
पदवी	०	०	०

एकूण	३०	१००	३६०



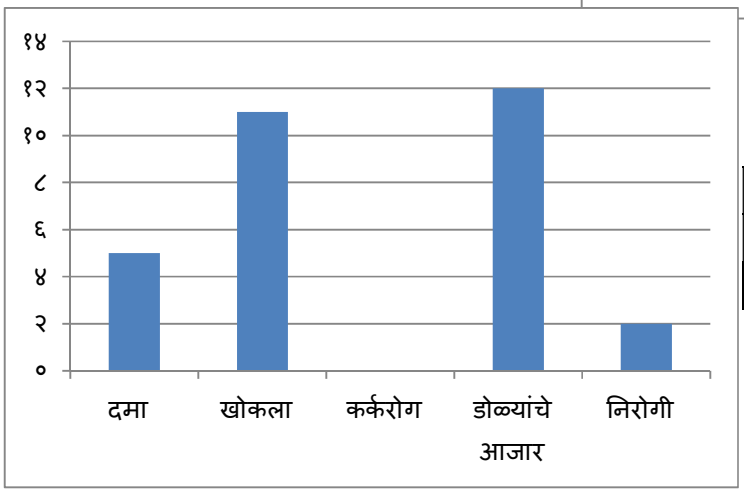
२) शिधापत्रिका :

प्रकार	
पिवळा	२५
केशरी	५
पांढरा	०



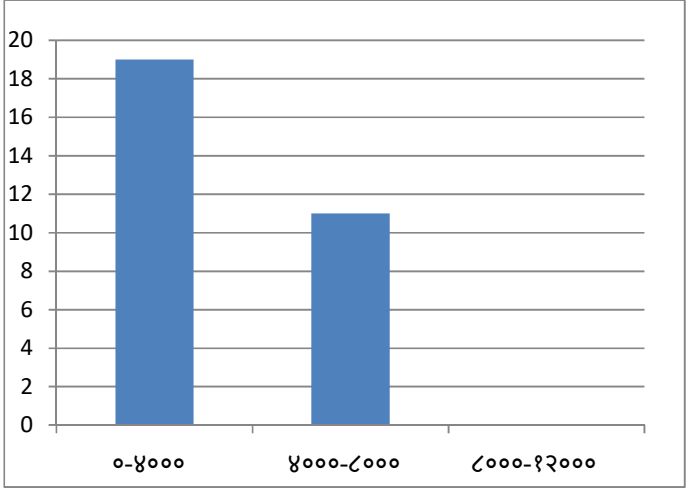
होणारे आजार

दमा	५
खोकला	११
कर्करोग	०
डोळ्यांचे आजार	१२
निरोगी	०



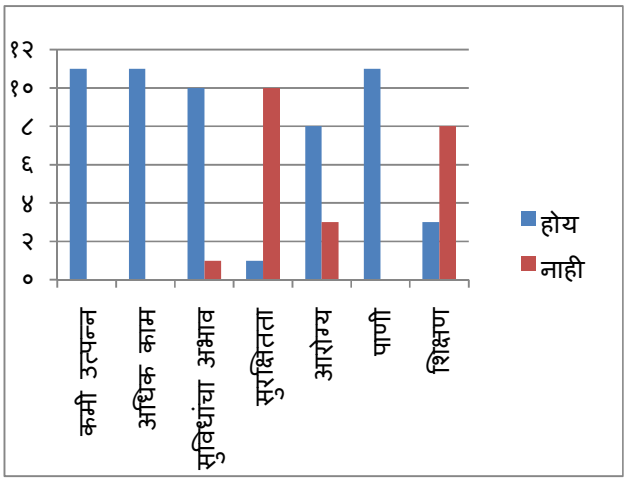
३) उत्पन्न :

० ४०००-	१९
४००० ८०००-	११
८००० १२०००-	०



	होय	नाही
कमी उत्पन्न	३०	०
अधिक काम	२९	१
सुविधांचा अभाव	२७	३
सुरक्षितता	४	२६
आरोग्य	२८	२
पाणी	२६	४
शिक्षण	८	२२

.इतर समस्या



निष्कर्ष :

१) कामगारांना प्राथमिक आरोग्याच्या सुविधा उपलब्ध होत नाहीत.

२) कामगारांची मुलांला उच्च व माध्यमिक शिक्षण मिळत नाही.

३) वीट भट्टी कामगारांच्या मुलांना बालमजुरीला सामोरे जावे लागते.

४) स्थलांतरीत वीट भट्टी कामगारांचे आरोग्य, शिक्षण, सुरक्षा, व्यसनाधीनता आदी गंभीर प्रश्न असून त्यातच त्यांचे आयुष्य उध्वस्त होत असल्याचे दिसत आहे.

शिफारशी :

१) मुलांसाठी आश्रम शाळेमध्ये किवा निवासी शाळेत सहा महिन्याची प्रवेश देण्याची प्रवेश मिळावा.

२] वीट भट्टी मालकाने कामगारांसाठी स्वच्छ पाणी, शोचालय आरोग्य सुविधा पुरवण्यात याव्यात.

३] वीट भट्टी कामगारांना विमा संरक्षण मिळाव.

संदर्भ सूची -

१] www.loksatta.com.

2]https;//www.loksatta.com/Maharashtra.news/vitbhatti-labor-issue-in-maharashtra-state-1242184/?

3] प्रश्नावली

४] मुलाखत

ग्रामीण भागातील लोकांच्या बँकिग सवयीचा अभ्यास

जोशी एस.एस.,खाडे रेश्मा,जगदाळे कोमल

वाणिज्य विभाग ,दहिवडी कॉलेज दहिवडी ,ता.माण,जि.सातारा

प्रस्तावना:

मानवाच्या नित्याच्या आयुष्यात बँकेच्या अस्तित्व आणि कार्यास विशेष महत्व प्राप्त झाले आहे. समाजातील सर्व थरातील लोकांचा बँकेशी संबंध येतो.आपल्या नित्याच्या आर्थिक मूल्ये निर्माण करण्याच्या कार्यावर बँका प्रभाव टाकीत असतात.आणि आपल्या आर्थिक औद्योगिक,सामाजिक,संस्कृतिक,आणि अन्य स्वरूपाच्या प्रगतीत बँका सामील होत असतात.बँका सामील होत असतात.बँका देत असलेल्या कार्य आणि सेवा प्रभाव प्रत्यक्ष आणि अप्रत्यक्ष आपल्या व्यवसाय आणि उद्योगावर पडत असतो.परंतु त्यांची आपणास कल्पना नसते .

अभ्यासाचे उद्देश:

१)ग्रामीण भागातील बँकिग सवयीचा आभ्यास करणे.

२)बँकिग ग्राहकांना येणाऱ्या समस्येचा आभ्यास करणे.

३)बँकिग ग्राहकांच्या जागरुकता जाणून घेणे.

गृहीतके:

१)ग्रामीण भागातील सर्व लोकांचे बँकेत खाते आहेत.

२)ग्रामीण भागामध्ये ATMची सुविधा जास्त चांगली वाटते.

निवड पद्धती:

माण तालुक्यातील ३ गावांमधील २० व्यक्तींची निवड करण्यात आली.

माहिती मिळवण्याची पद्धत:

माहिती मिळवण्यासाठी प्रशानावालीचा वापर करण्यात आला.याद्वारे प्रत्यक्ष भेटीव्दारे माहिती मिळवली.

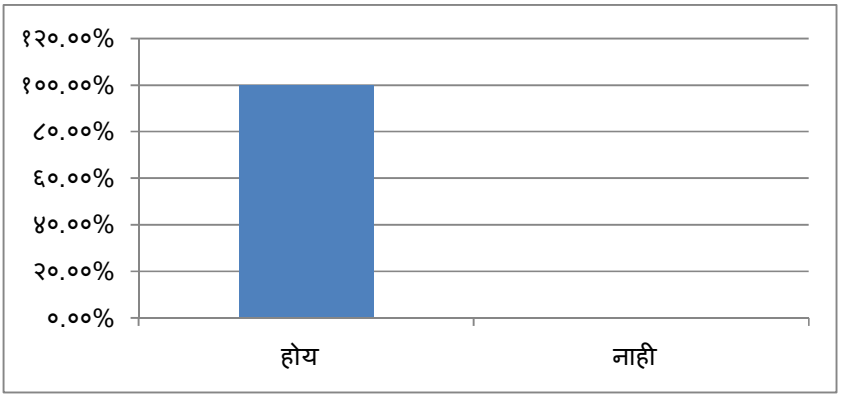
विश्लेषण पद्धती: संशोधनासाठी संख्याशास्त्रीय पद्धतीचा वापर करण्यात आला.

अभ्यासाची मर्यादा: माण तालुक्यातील २० व्यक्तींची आभ्यासाठी निवड करण्यात आली.

अभ्यासाचे महत्व: ग्रामीण भागातील लोकांमध्ये बँकेतील जागरुकतेची माहिती होय.

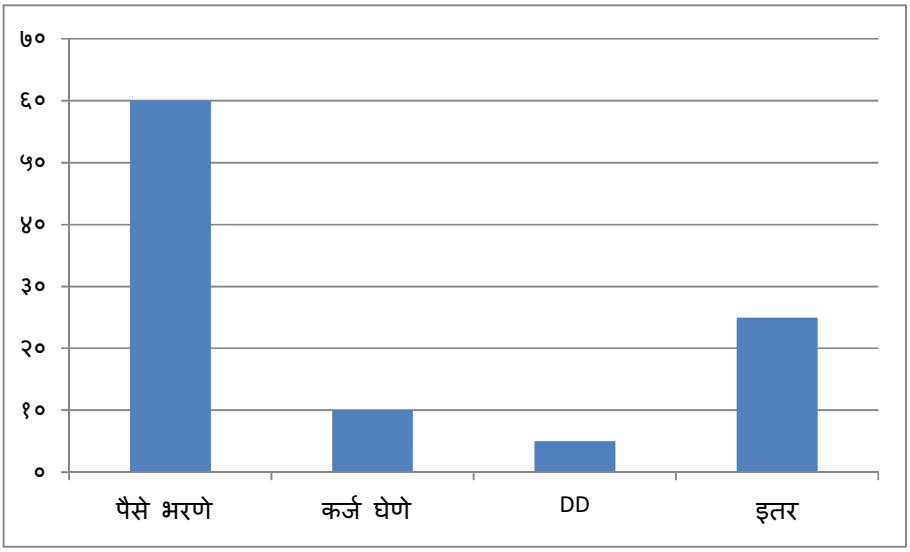
आभासाचे विश्लेषण:

१)बँकेत खाते आहे का?

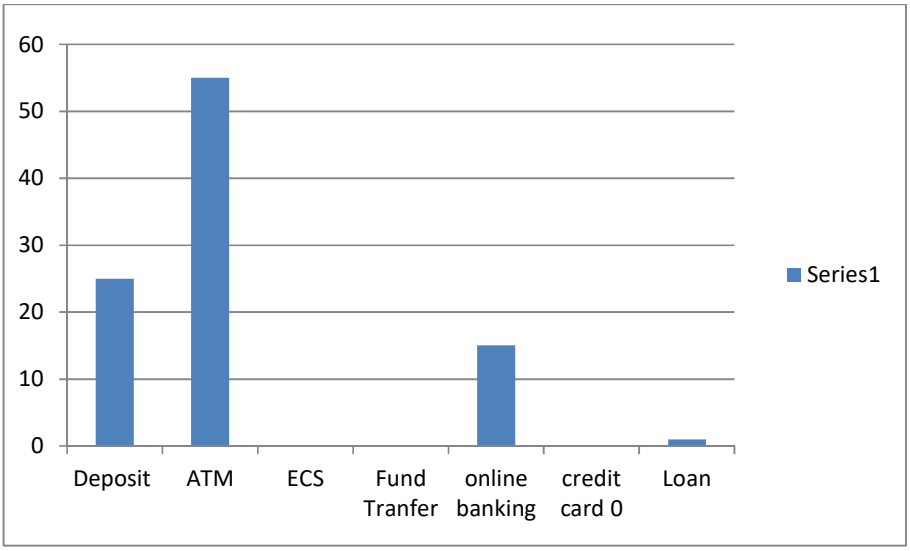


ग्रामीण भागातील १००% लोकांचे बँकेत खाते आहे.

२)बँकेत जाण्याचे कारण:



३)कोणती सुविधा चांगली वाटते



वरील तक्त्यावरून असे दिसून येते की, ATMसुविधा ग्रामीण भागातील लोकांना जास्त चांगली वाटते.पण ECS Fund Transfer बदल यांना काहीही माहिती नाही.

समस्या :

१)जागरुकतेचा अभाव

२)उपलब्धतेचा इशारा

३)बँकेतील असहकारी वृत्ती.

४)मार्गदर्शानेचा आभाव.

५)अप्रशिक्षित कामगार.

६) नेटवर्किंगचा आभाव .

७) हुकुमशाही.

८)वेळेचा अभाव .

९)ग्राहकांचा आभाव.

सारांश: वरील अभ्यासावरून ग्रामीण भागातील लोकांमध्ये बंकेविषयी जास्त जागरुकता नाही.त्याचप्रमाणे वेळेचा आभाव,प्रशिक्षित कर्मचारी,सुविधांचा आभाव.आढळून येतो.

संदर्भ: पैसा वित्तीय रचना पुस्तक,शोध गंगा,वेबसाईट,इंटरनेट.

महाविद्यालयातील विद्यार्थ्यांच्या ई-बँकिग सेवेविषयी जागरूकतेचा अभ्यास

जोशी एस.एस.,जगदाळे शुभम,एकल ज्योती,

वाणिज्य विभाग ,दहिवडी कॉलेज दहिवडी ,ता.माण,जि.सातारा

प्रस्तावना : बँक हि एक आर्थिक संस्था असून ती ग्राहकांना वेगवेगळ्या सुविधा पुरवतात. बँक समाजाच्या विकासामध्ये महत्वाचा घटक आहे.बँक लोकांकडून ठेवी व गुंतवणूक स्वीकारून गरजू लोकांना व व्यवसायाला कर्ज पुरवितात.स्पर्ध्येच्या युगात बँका अत्याधुनिक सेवा पुरवतात त्यातलाच महत्वाचा घटक म्हणजे ई-बँकिग असून ग्राहकांना त्यांच्या घरी व्यवसायात,प्रवासात,कोणत्याही ठिकाणी ई-बँकिग सेवा म्हणजे कोठेही व कधीही असे म्हणता येईल.याला कोणतीही वेळेची मर्यादा नाही.

व्याख्या : इ- बँकिंग म्हणजे इलेक्ट्रोनिक बँकिग होय.

इलेक्ट्रोनिक माध्यमांचा **वापर करून केला जाणारा बँक व्यवसाय म्हणजे इ- बँकिंग होय.**

ई-बँकिंग चे फायदे:

१)२४ तास सेवा दिली जाते.

२)प्रत्येक ठिकाणी याचा उपयोग होतो

३)इ-बंकिंग मुळे वेळेची व पैशाची बचत होते.

अभ्यासाचेउद्देश :

१) महाविद्यालयातील विद्यार्थ्यांच्या ई - बँकिंग विषयी जागरूकतेचा अभ्यास करणे.

२) विद्यार्थी ई-बँकिंग सेवा वापरतात कं माहित करून घेणे.

३) विद्यार्थी ई-बँकिंग वर विश्वास ठेवतात.

गृहीतके

१)विद्यार्थ्यांना ई- बँकिंग सेवेविषयी माहिती आहे.

२)हि सर्वात प्रसिद्ध सेवा आहे.

३)ज्यादातर विद्यार्थीसेवा वापरतात.

४)महाविद्यालयातील विद्यार्थी ई- बँकिंग बद्दल समाधानी आहेत.

निवड पद्धती: दहिवडी महाविद्यालयातील चारही विद्यार्थ्यांची निवड करण्यत आली आहे.

माहिती मिळवण्याची पद्धती : प्राथमिक माहिती मिळवण्यासाठी प्रश्नावलीचा वापर करण्यात आला.

विश्लेषण पद्धती: संशोधनासाठी संख्याशास्त्रीय पद्धतीचा वापर करण्यात आला.

अभ्यासाची मर्यादा:

१)विद्यार्थ्यांच्या माहितीवर हे संशोधन अवलंबून आहे.

२)संशोधन दहिवडी महाविद्यालयातील विद्यार्थ्यांकरिता मर्यादित आहे.

३)हे संशोधन ठराविक वेळेपुरते मर्यादित आहे.

अभ्यासाचे विश्लेषण:

प्रश्न	आर्टस	कॉमर्स	सायन्स	बीसीए
बँकेत खाते आहे कं? मुले मुली	 १००% १००%	 १००% १००%	 १००% १००%	 १००% ८०%
नेट बँकिग कसे वापरतात माहित आहे कं? मुले मुली	 ८०% ४०%	 १००% ६०%	 ८०% ४०%	 ६०% ६०%
ATM चा वापर करता कं? मुले मुली	 १००% ६०%	 १००% १००%	 ६०% ८०%	 १००% ४०%
बँकिग सुविधा विषयी माहिती आहे कां? मुले	 १००% १००%	 १००% १००%	 ४०% १००%	 १००% ६०%

मुली				

निष्कर्ष :१)सर्व मुलांचे बँकेत खाते आहे.पण बीसीए मधील काही मुलींचे बँकेत खाते आहे.

२)जादातर कॉमर्स मधील विद्यार्थ्यांना नेट बँकिंग बद्दल माहिती आहे.

३)कॉमर्स मधीलमुले मुली जास्त ATM चा वापर करतात.

४)महाविद्यालयातील विद्यार्थी BHIM APP चा वापर करतात.

कोणत्या प्रकराचे खाते आहे.

शाखा	सेव्हिग	करंट	जोइंट	यापैकी नाही
आर्टस	१००%	-	-	-
कॉमर्स	९०%	१०%	-	-
सायन्स	१००%	--	-	-
बीसीए	९०%	-	-	१०%

निष्कर्ष : ज्यादातर विद्याथ्यांचे सेव्हिग अकौंट आहे.

बँकेची कोणती सुविधा वापरतात

शाखा	Credit Card	Net Banking	M-Banking	Debit Card	None of these
आर्टस	20%	0%	0	80%	0%
कॉमर्स	0%	0%	10%	90%	0%
सायन्स	0%	10%	0%	60%	30%
बीसीए	0%	0%	10%	50%	40%

निष्कर्ष: वरील तक्यात ७०% विद्यार्थी ATM/Debit Card चा वापर करतात पण १०% विद्यार्थी नेट बँकिंग चा वापर करतात .

सारांश वरील अभ्यासावरून महाविद्यालयातील आर्टसकॉमर्ससायन्सबीसीए मधील सर्व विद्यार्थ्यांमध्ये कमी जास्त प्रमाणात जागरुकता आहे.पण ई-बँकिग चा वापर करत असताना त्यामध्ये ATM वापरण्यात जास्त प्राधान्य दिले जाते.

संदर्भग्रंथ : पैसा वित्तीय रचना पुस्तक,शोध गंगा वेबसाईट.

ड्रॅगन फ्रुटशेती - दुष्काळी भागासाठी वरदान

जोशी एस.एस.,जगदाळे शुभम,एकल ज्योती,
वाणिज्य विभाग ,दहिवडी कॉलेज दहिवडी ,ता.माण,जि.सातारा

प्रस्तावना

दुष्काळी भागात नेहमीच पाण्याची कमतरता जाणवते. त्यामुळे फायदेशीर शेती करणे कठीण आहे. परंतु कमी पाण्यामध्ये जास्त उत्पन्न मिळवून देणारे पीक घेतल्यास शेती फायदेशीर ठरू शकते. ड्रॅगन फ्रूट कमी पाण्यामध्ये जास्त उत्पन्न मिळवून देणारे फळ आहे. मान तालुक्यासारख्या दुष्काळी भागात ड्रॅगन फ्रूट हि फळशेती यशस्वीरित्या करता येते. परंतु या फळंशेतीविषयी शेतकऱ्यांना माहितीचा अभाव असल्याने सदरचा विषय संशोधनासाठी निवडण्यात आला आहे.

अभ्यासाचे उद्देश

१. ड्रॅगन फ्रूट फळशेती विषयी माहिती मिळविणे.

२. ड्रॅगन फ्रूट फळशेतीच्या जमा खर्चाचा अभ्यास करणे.

३. ड्रॅगन फ्रूट फळशेती विषयी शेतकऱ्यांना माहिती देणे.

गृहीतके

ड्रॅगन फ्रूट दुष्काळी भागात वरदान ठरणारी फळशेती आहे.

निवड पद्धती

माण तालुक्यातील ड्रॅगन फ्रूट फळशेती घेणाऱ्या शेतकऱ्यांची निवड अभ्यासासाठी केली.

माहिती मिळवण्याची पद्धती

मुलाखत व प्रत्येक्ष भेटी द्वारे प्राथमिक माहिती मिळवली.

विश्लेषण पद्धती

संशोधनासाठी संख्याशात्रीय पद्धतीचा वापर करण्यात आला. उदा: टेबल आणि वर्गवारी

अभ्यासाची मर्यादा

सदर अभ्यास हा ड्रॅगन फ्रूट फळशेती पुरता मर्यादित आहे.

अभ्यासाचे महत्व

माण तालुका हा कायमस्वरूपी दुष्काळी असणारा तालुका आहे. अशा या दुष्काळी भागात कमी पाण्यावर जास्त उत्पन्न मिळवून देणारे ड्रॅगन फ्रूट हि फळशेती आहे. या फळासाठी देशांतर्गत व आंतरराष्ट्रीय मोठी बाजारपेठ उपलब्ध आहे. तसेच या फळाला बाजारपेठेमध्ये दर हि चांगला मिळतो. लागवडीपासून हे फळ शेतकऱ्यांना साधारणपणे १८ ते २० वर्ष नियमित उत्पन्न मिळवून देते.

ड्रॅगन फ्रूट शेतीविषयी:

ड्रॅगन फ्रूट हि निवडुंग प्रकारातील वेल वनस्पती आहे. ड्रॅगन फ्रूट ला पिताहाय किंवा पिताया या नावाने संबोधले जाते. ड्रॅगन फ्रूट हे मूळचे मॅक्सिकॉचे फळ आहे. तसेच या फळाची शेती कंबोडिया, थायलंड, तैवान आणि मलेशिया या देशात मोठ्या प्रमाणात केली जाते. तसेच हे फळ पीक भारत देशात व्यापारी पीक म्हणून केले जाते. कमी पाण्यात आणि कोणत्याही प्रकारच्या जमिनीत घेतले जाणारे हे फळ आहे.

लागवड पद्धती:

१. जमीन- हलक्या व मध्यम प्रतीची सामू ६.१ ते ७.५

२. हवामान - कोरडे व आद्रयुक्त हवामान

३. तापमान - २५ अंश ते ४० अंश से.

४. पाणी व्यवस्थापन - ठिबक सिंचन पद्धतीचा वापर

५. रोपांची लागवड - १२ बाय ७ फुटावर लागवड करता येते.

जमा- खर्चाचा तपशील

खर्चाचा तपशील (प्रति एकरी)	**रुपये**
जमीन मशागत	१०,०००
रोपे (२०००@ ३५)	७०,०००
सिमेंट खांब	१,८०,०००
ठिबक सिंचन	३०,०००
सेंद्रिय खत	१२,०००
कीड व्यवस्थापन	३,०००
मजुरी	२५,०००
वाहतूक खर्च	५०००
प्रति वर्षी येणार खर्च (५०,०००@ १९)	९,५०,०००
२० वर्षात येणारा एकूण खर्च	**१२,८५,०००**

मिळणारे उत्पन्न प्रति (एकरी)	**रुपये**
सध्याचा बाजारभाव	१५० ते २००
जर १ किलो साठी पुढील प्रमाणे भाव मिळाला तर	प्रति किलो १५०
प्रति एकरी मिळणारे उत्पन्न	५००० किलो
प्रति एकरी मिळणारे एकूण उत्पन्न	७,५०,०००
पुढील १९ वर्षात मिळणारे उत्पन्न	१,४२,५०,०००
२० वर्षात मिळणारे एकूण उत्पन्न	**१,५०,०००,००**

समस्या

१. कर्ज सुविधा उपलबध नाही.

२. स्थानिक बाजारपेठ उपलब्ध नाही.

३. शेतकऱ्यांना माहितीचा अभाव.

४. वाहतूक सुविधेचा अभाव.

शिफारशी

१. बँकांनी कर्ज पुरवठा करावा.

२. दुष्काळी भागातील शेतकऱ्यांना ड्रॅगन फ्रूट शेतीविषयी जनजागृती करणे.

स्थानिक बाजारपेठ मिळविण्यासाठी लोकांना

3D Password

Kanase V.V.*Suryawanshi Rupali , Thorat Mayuri.
Department of Computer Application. Dahiwadi College,Dahiwadi

kanase.varsha88@gmail.com

ABSTRACT

3d password technology stand for Three-dimensional technology. Users at present use 3d password for secure authentication and today be provide with most major password stereotype such as textual passwords , biometric scanning, token or cards(such as an ATM, or visa)etc . The 3D password scheme is base on a combination of various sets of factors. Existing systems of substantiation are weighed down by many weaknesses. Commonly, textual passwords are used to protected statistics or client accounts. Textual password is combination of alphabets and numbers so that password easily breaks by unauthenticated person .Graphical password is advanced Version of password. Various graphical passwords contain a Secret word break to is less than or different in the direction of the textual password break. Biometric password is a complete attribute of graphical passwords. Biometric passwords are consisting of face identification, thumb idea, look at retina and heartbeats pulses and special type of helpful in sound signature.

Keywords — 3-D password, authentication, biometric, virtual environment

INTRODUCTION

Generally the authentication scheme the user undergoes is mostly very light or very strict. 3 D password is one of the most important security make sure provide to method by the unusual authentication schemes or algorithms but 3D password scheme very unique for users and provide many types of authentications scheme. 3D password types such as textual passwords, graphical passwords, biometric, token, cards (such as an ATM, visa etc) though present are many weaknesses in existing. But before a scheme a person uses textual passwords is mixture of alphabets and numbers so People carry on textual password as name of their desired things, textual passwords are commonly used when password easily cracked by other person . Passwords might come since that consumer can recall and recognize pictures other than expressions. Users tend to choose their nick names, which can be cracked easily

•Knowledge based: means what you recognize Textual password is the best example of this Authentication scheme.

•Token based: means what did you say? This includes Credit cards, ATM cards, Visa etc

•Biometrics: means what you are. Includes Thumb impression, etc example. •Recognition Based: means what did you say? Includes graphical password, iris recognition, Face recognition

3D Password scheme

The 3D password scheme is a new authentication scheme which is based on a collection of multiple sets of factors that combine recognition, recall, tokens and biometric in single authentication scheme. The scheme of authentication presents a 3D virtual environment. The 3D password type crack is put together going on the source of the design of the 3D virtual environment and the environment of the matter selected. This scheme contains a number of objects or objects through which the user can interact. 3D password authentication scheme has the following requirements: [1]

1) The scheme is not only based going on recall or recognition. It is a arrangement of recall, recognition, biometrics with token based authentication schemes.

2) Users should have the option to choose the condition of the 3D password, whether it will be completely recall, biometric or token based, a mixture of contain two or more schemes, etc. This is essential as special user contain unlike requirements, they may not want to carry cards, or to present biometric data while others may have strong reminiscences. Here rotate, these assure better suitability.

3) The method should control secrets, ones to facilitate are easy used for the planned user to memorize and difficult for intruders to estimate. These should be difficult for instance, hard to crack winning keen on a series of steps and proof on a section of piece.

Architecture of 3D password system:

This communication could be, a textual password being entered on a method in 3D environment, or maybe still the walking sample of the user, all this is the alternative of developer. Create a 3D Password: 3D Password is multi-factor s therefore several

password schemes such as textual password, graphical password, biometrics, token or cards (such as an ATM, or visa) based passwords simultaneously can be used as a part of user 3D Password scheme. Different users have different needs so users be required to be given the independence of selection and verdict to choose which authentication schemes will be part of users 3D Password. The figure is representing state diagram for creating a 3D Password application

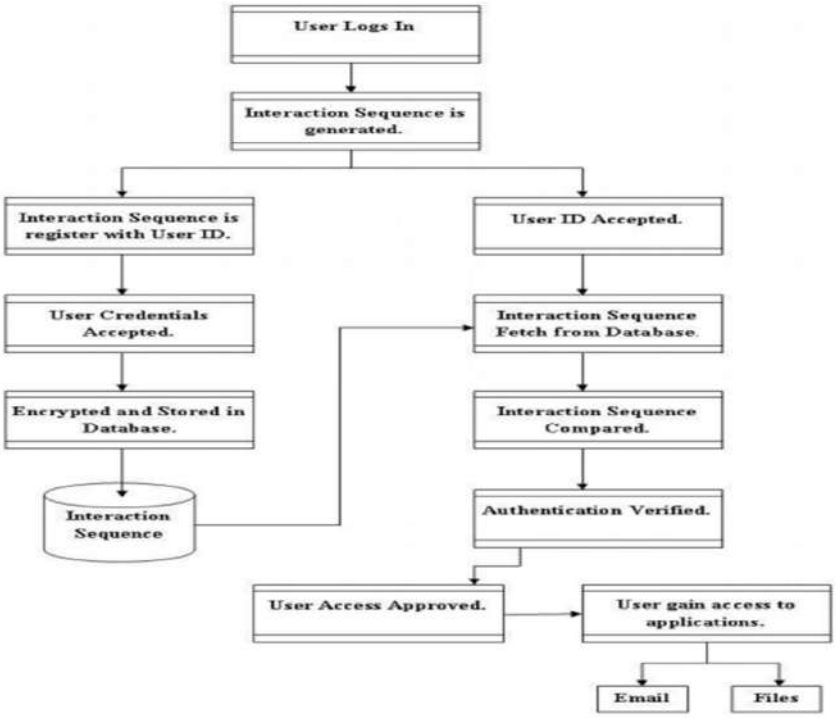


Figure 1: Diagram of 3D password scheme

Advantages & Disadvantages

Advantages -

- 3D Password is multi-factor and many-password authentication scheme.
- Great key space.
- Extra safe authentication scheme because compared to accessible one.

Disadvantages -

- Large moment and recall requirements.
- Accept difficulty attack is still useful and can involve this system.
- Exclusive as compared to earlier ones

PROBLEM ISSUES WITH 3D PASSWORD SCHEME

Textual Password: Textual Passwords is easily cracked by any person and that should be easy to remember at the similar time solid to guess. However condition a textual protected authentication: 3D password 243 code word is solid to guess after that it is very not easy to remember too. complete password freedom for 8 characters consisting of together records and characters is 2 *1014.starting a research 25% of the passwords out of 15,000 users can guessed properly by using person force vocabulary.

Graphical Password: Graphical passwords came because users know how to recall and recognize pictures added than terms. But mainly graphical passwords are subject for accept surfing attacks, where an attacker can watch or proof the suitable user graphical password via camera.

CONCLUSION

The 3D Password scheme is multi-feature and multifactors authentication scheme so as to combine all the profit of accessible authentication scheme interested in particular 3D virtual environment. The total of recollection to be compulsory to store a 3D key is great once compared to a textual password. This term paper presents two environments in which the freedom essential to store the 3D password is complete. This system is exist of many authentication scheme textual password, graphical passwords, biometrics, token based, cards (credit card or visa) etc. The main goal of paper is to include a system which have a great password freedom and which is a mixture of accessible, or original, authentication scheme into single method. Although using 3D password, users have the choice to choose whether the 3D password will be recognition, recall, biometrics or token based, or an arrangement of two or more schemes with sound signature

REFERENCES

1] The survey paper: 3d password KalpanaRathi, NidhiSharma ,Urmila Jangid.
2]. TejalKognule and YugandharaThumbre and SnehalKognule, “3D password”, International Journal of Computer Applications(IJCA),2012.
3] http://www.123rf.com/photo_10326797_3d-man-secure-loginwith-administrator-id-and-password.html
4] DuhanPooja, Gupta Shilpi , SangwanSujata, &Gulati Vinita Department of Computer Science and Engineering, Dronacharya College Of Engineering, Gurgaon” SECURED AUTHENTICATION: 3D PASSWORD”.
5] Fawaz A. Alsulaiman and Abdulmotaleb El Saddik, Senior Member, IEEE,” Three-Dimensional Password for More Secure Authentication”.

E-Commerce Website

Prof. Rupnawar V.S.*, Mr.Bagade A. J., Mr. Jagadale G.A.

Department of Computer Application ,Dahiwadi College Dahiwadi

Email- vitthalrupnawar.smile@gmail.com

ABSTRACT

In this day and age, with the growing popularity of the Internet and technological advancement, is it much quicker and easier to buy and sell online now than ever. Internet users are no longer limited to sitting at desktop computers in order to do research or send emails. People are now using their laptops, tablets and even mobile phones to do more things including making purchases and even selling products via the Internet. People can now enjoy shopping and even running their own business from the comfort of their own homes. As a seller with an E-commerce Website, you can tell your customers about your company, showcase your products and take payments online. To overcome the product overload of online shoppers, a variety of recommendation methods have been developed. Recommender systems are being utilized by an ever-increasing number of E-commerce sites to help consumers discover products to buy Thispaper focuses on what is E-commerce, E-commerce Website, and what is the objective of the E-commerce Website.

Keywords: Product, Business, E-commerce, E-commerce Website.

INTRODUCTION

E-commerce is the activity of buying or selling of products on online services or over the Internet. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems.

Modern electronic commerce typically uses the World Wide Web for at least one part of the transaction's life cycle although it may also use other technologies such as e-mail.

E-commerce Website Systems make it possible for users to navigate through large product assortments, make decisions in e-commerce scenarios and overcome information overload. These systems take the behavior, opinions and tastes of a large community of users into account and thus constitutes a social or collaborative recommendation

approach, whereas in content-based approaches, product features and textual item information's are considered. Knowledge-based approaches the knowledge about how a particular item meets a specific consumer need. But with the rapid growth of e-business the web provided an excellent platform for consumer and manufacturer. Consumer shopping behavior may be experiential or goal-oriented .Goal-oriented shopping is efficient and purposeful, with a preplanned purchase in mind.

WHAT IS AN ECOMMERCE WEBSITE?

E-Commerce websites are online portals that facilitate online transactions of goods and services through means of the transfer of information and funds over the Internet. In the early days, e-Commerce was done partially through emails and phone calls. Now, with a single website, anything and everything that a transaction needs, can be executed online.

There are different e-Commerce websites for every field. The most common type is retail selling, but there are many others too, like auction websites, business-to-business services, music portals, consultancy websites, finance management websites, and the like.

Different Types of E-Commerce Websites

Different e-commerce websites are labeled or referred to differently, based on the function they fulfill.

- Business-to-Business (B2B): Electronic transactions of goods and services between companies.
- Business-to-Consumer (B2C): Electronic transactions of goods and services between companies and consumers.
- Consumer-to-Consumer (C2C): Electronic transactions of goods and services between consumers, mostly through a third party.
- Consumer-to-Business (C2B): Electronic transactions of goods and services where individuals offer products or services to companies.
- Business-to-Administration (B2A): Electronic transactions of goods and services between companies and public administrations.
- Consumer-to-Administration (C2A): Electronic transactions of goods and services between individuals and public administrations.

Objectives

- High reachability - The main objective and at the same time need is traction on your web store. Of,course if you are selling products online what you require are customers. If you are getting good reachability then your business will definitely grow. Therefore one of the objective is high reachability.

- High Conversions- if people are coming on your web store and purchasing something then it will calculate as conversions and from the number of people who are buying stuff from your web store we can calculate the conversion rate.

- Customer satisfaction - Customer is the main part of any E-commerce business so its very important to make your customer happy and satisfied. By providing quality and desirable products, on time delivery, 24*7 customer support, and timely sale & best deal offers you can make your customer happy. It is one of the main objectives of E-commerce.

- Social popularity - Unless and until you are not famous and popular among people you cannot establish your brand. social presence with Omni channel & Digital marketing is essential for any E-commerce business.

Advantages of Ecommerce-Website

- Faster buying/selling procedure, as well as easy to find products.
- Buying/selling 24/7.
- More reach to customers, there is no theoretical geographic limitations.
- Low operational costs and better quality of services.
- No need of physical company set-ups.
- Easy to start and manage a business.
- Customers can easily select products from different providers without moving around physically

Disadvantages of Ecommerce-Website

- Any one, good or bad, can easily start a business. And there are many bad sites which eat up customers' money.
- There is no guarantee of product quality.

- Mechanical failures can cause unpredictable effects on the total processes.
- As there is minimum chance of direct customer to company interactions, customer loyalty is always on a check.
- There are many hackers who look for opportunities, and thus an ecommerce site, service, payment gateways, all are always prone to attack.

CONCLUSION

In general, today's businesses must always strive to create the next best thing that consumers will want because consumers continue to desire their products, services etc. to continuously be better, faster, and cheaper. In this world of new technology, businesses need to accommodate to the new types of consumer needs and trends because it will prove to be vital to their business' success and survival. E-commerce is continuously progressing and is becoming more and more important to businesses as technology continues to advance and is something that In general, today's businesses must always strive to create the next best thing that consumers will want because consumers continue to desire their products, services etc. to continuously be better, faster, and cheaper. In this world of new technology, businesses need to accommodate to the new types of consumer needs and trends because it will prove to be vital to their business' success and survival. E-commerce is continuously progressing and is becoming more and more important to businesses as technology continues to advance and is something that should be taken advantage of and implemented.while we use the technology then we have to take its disadvantages under consideration.

REFERENCE

[1] Babin, Barry J., William R. Darden, and Mitch Griffin. "Work and/or fun: measuring hedonic and utilitarian shopping value." *Journal of consumer research* (1994): 644-656.

[2] Hoffman, Donna L., and Thomas P. Novak. "Marketing in hypermedia computer-mediated environments: conceptual foundations."*The Journal of Marketing* (1996): 50-68.

[3] Hoffman, Donna L., Thomas P. Novak, and Ann Schlosser. "Consumer control in online environments."*Elab.vanderbilt. edu*(2000).

[4] Apeh, Edward Tersoo, BogdanGabrys, and Amanda Schierz. "Customer profile classification using transactional data." *Nature and Biologically Inspired Computing (NaBIC), 2011 Third World Congress on*.IEEE, 2011.

[5] MohammadDaoud Centre for Education Technology , New Delhi, India "Recommendation System on E-Commerce Website"

[6] http://www.esalestrack.com/blog/2008/09/advantages-and-disadvantages-of.html

[7] https://cyberchimps.com/e-commerce-websites/#E-Commerce_Website_Definition

CYBER CRIME, CYBER LAW AND CYBER SECURITY

JadhavVasundhara R., Nikam Ramesh P., Rupnawar V.S.*
Department of Computer Application, Dahiwadi College Dahiwadi
vitthalrupnawar.smile@gmail.com,

Abstract

Cyber law is the law which governs the cyberspace. It is also referred to as ICT law or Information and Communications Technology Law which covers Electronic Commerce, Electronic Governance, Intellectual Property, Cyber Crimes, Telecommunications, Data Protection and Privacy, etc.Cybercrime is defined as criminal activities carried out by means of computer or internet. Cybercriminals may use computer technology to access private or sensitive information, financial gain or malicious purposes. Criminals can also use computers for information storage and communication purpose. Cyber security means to protect computers, networks, information from unauthorized access or from cyber-attacks. This paper illustrates and focuses on cybercrime, its types, Cyber Law and cyber security.it also brings out how peoples are unaware about cybercrime, cyber law, cyber security and which precautions should be taken to prevent victim fromcybercrime.

Keywords:

Cyber Crime, Cyber Law, Cyber Security, Awareness, Precautions, victims

1) INTRODUCTION

What is cyber Crime?

Cyber-crime means unlawful activities (criminal activities) carried out by means of computer, internet or communication technology.Cybercrime is a crime where the computer is used as a means or tool to commit a crime or is a crime in which the computer is the target.

Reasons behind cyber crime

There are three key reasons why:

- **Financial gain**: Financial gain is the prime purpose of cyber criminals makescybercrime for the purpose of financial gain.
- **Hacking corporate world information**: Cyber crimes are committed for hacking important information of company for financial gain.

- **Egotistical**: cyber crimes are not committed merely for financial gain but they are also committed for breaking the security of company.cyber criminals not make attack for financial gain but he gives challenge to break the security by using its own knowledge and skills.

2) Types of Cyber Crime

Currently man is using the information technology for his convenience. As the use of information technology has increased, the amount of cybercrime has also increased.

Some common cybercrimes are:

1) Hacking:

Hacking means to gainillegalaccess of computer system to steal information, financial gain, illegal purpose etc. Hacker is the person who hacks the computer system to find out the weakness in the computer system or to show his skill and knowledge to others.

2) Cyber - Stalking:

Cyber stalking is cybercrime where cyber criminals harass the victim by using email, text messagingetc. It is online harassment and online abuse.

3) Virus Dissemination:

Virus is the programs which attach themselves to the computer or infect the system or file and then circulate themselves to other files and to other components on a network. Virus is a program which disturbs the operations of computer system.

4) CyberPornography:

Cyber pornography means to configure, circulate, and distribute explicit material or profane material over web utilizing the internet as medium. This pornographic material may cause harm to the minds of victims and tend to corrupt their minds.

5) Cyber Terrorism:

The use of computer technology and cyber-dependent attack is becoming a more prominent threat by terrorist groups.This emerging threat defines itself as cyber terrorism.

6) Cyber Defamation:

It means utilizing the web as an instrument to criticize and insult someone else. Thiscan be done through emails, websites, messaging or broadcasting services etc.

7) Credit card or debit card fraud:

Credit card or debit card fraud meanstaking credit card /debit card from someone else or its number for the purpose of fraud or to purchase something and make payment from that credit card /debit card.

8) Phishing:

Phishing means to steal private information like login details, credit card details, bank details by using deceptive emails and websites, by utilizing telephone calls, instant text messaging etc.

9) E – Mail Spoofing:

Email Spoofing is the process of sending an email message from a fake or duplicate source, but looks like original authentic source.

10) Forgery:

It means makes any false report or false electronic record with aim to influence harm or damage, to general society or to any individual, or to help any guarantee or title, or to make any individual part with property utilizing refined PC, printers and scanners.

11) E-Mail Bombing:

It includes sending large number of emails to a victim, which can be an individual or anorganization, which ultimately results in crashing.

12) Data Diddling:

Data Diddling is the process of altering the information before or after it is entered into the system, generating a faulty output.

13) Trojan Horse:

Trojan horse is a type of malicious code or program that appears to be something safe but can take control of your PC or sending personal information to other PC.

14) Software Piracy:

Software piracy is the unlawful use, duplicating and distribution of computer software without ownership or legitimate rights.

15) Identity Theft:

In general identity theft is the act of stealing personal, private, or financial information with the intent of using it to assume another person's identity.

3) What is Cyber Law?

Cyber law (also referred to as internet law) is a term used to describe the legal issues related to use of communications technology, particularly "cyberspace", i.e. the Internet. The development of

information technology continues to give rise to novel and complex legitimate issuesand in this way new laws are required to be instituted and furthermore the current laws should be reinforced to keep pace with technology.

- **IT ACT 2000**

The cyber law in India is the information technology act, 2000 (IT Act).

The main objective of the Information Technology Act, 2000 is to provide legal recognition to electronic commerce and to facilitate filing of electronic records with government. Information Technology Act consists of 94 sections segregated into 13 chapters. Four schedules form part of the Act.

- **IT Amendment Act, 2008**

ITA 2008, as the new form of information Technology Act 2000 has frequently alluded, has given an extra spotlight on information security. It has included a few new areas of offences including Cyber Terrorism and Data Protection.

The Information Technology Amendment Act, 2008 (IT Act 2008) has been passed by the parliament on 23rd December 2008 and came into power from October 27, 2009 onwards. The following table shows the offence and penalties against all the mentioned sections of the I.T. Act

Section	**Offence**	**Punishment**	Bailability and Congizability
65	Tampering with Computer Source Code	Detainment up to 3 years or fine up to Rs 2 lakhs or with both	Offense is Bailable, Cognizable and triable by Court of JMFC.
66	Computer Related Offences	Detainment up to 3 years or fine up to Rs5 lakhs or with both	Offence is Bailable, Cognizable and triable by Court of JMFC
66-A	Sending hostile messages through Communication service, and so on...	Detainment up to 3 years and fine	Offence is Bailable, Cognizable and triable by Court of JMFC

66-B	Dishonestly receiving stolen computer resource or communication device	Imprisonment up to 3 years and/or fine up to Rs. 1 lakh or with both	Offence is Bailable, Cognizable and triable by Court of JMFC
66-C	Discipline for Identity Theft	Detainment of either portrayal up to 3 years as well as fine up to Rs. 1 lakh	Offence is Bailable, Cognizable and triable by Court of JMFC
66-D	Cheating by Personation by using computer resource	Detainment of either portrayal up to 3 years as well as fine up to Rs. 1 lakh	Offence is Bailable, Cognizable and triable by Court of JMFC
66-E	Infringement of Privacy	Imprisonment up to 3 years and /or fine up to Rs. 2 lakh or with both	Offence is Bailable, Cognizable and triable by Court of JMFC
66-F	Cyber Terrorism	Imprisonment extend to imprisonment for Life	Offence is Non-Bailable, Cognizable and triable by Court of Sessions
67	Publishing or transmitting obscene material in electronic form	On first Conviction, detainment up to 3 years and additionally fine up to Rs. 5 lakh On Subsequent Conviction detainment up to 5 years or potentially fine up to Rs. 10 lakh	Offence is Bailable, Cognizable and triable by Court of JMFC
67-A	Distributing or transmitting of material containing explicitly sexually act, and so on in the electronic form	On first Conviction detainment up to 5 years as well as fine up to Rs. 10 lakh On Subsequent Conviction detainment up to 7 years or potentially fine up to Rs. 10 lakh	Offence is Non-Bailable, Cognizable and triable by Court of JMFC
67-B	Distributing or transmitting of material portraying kids in explicitly unequivocal act	On first Conviction detainment of either depiction up to 5 years and additionally fine up to Rs. 10	Offence is Non Bailable, Cognizable and

	and so forth., in electronic form	lakh On Subsequent Conviction detainment of either portrayal up to 7 years as well as fine up to Rs. 10 lakh	triable by Court of JMFC
67-C	Intermediary intentionally or knowingly contravening the directions about Preservation and retention of information	Detainment up to 3 years and fine	Offence is Bailable, Cognizable.
68	Failure to comply with the directions given by Controller	Detainment up to 2 years or potentially fine up to Rs. 1 lakh	Offence is Bailable, Non-Cognizable.
69	Failure to assist the agency referred to in sub section (3) in regard interception or monitoring or decryption of any information through any computer resource	Detainment up to 7 years and fine	Offence is Non-Bailable, Cognizable.
69-A	Failure of the intermediary to comply with the direction issued for blocking for public access of any information through any computer resource	Detainment up to 7 years and fine	Offence is Non-Bailable, Cognizable.
69-B	Intermediary who intentionally or knowingly contravenes the provisions of sub-section (2) in regard monitor and collect traffic data or information through any computer resource for cyber security	Detainment up to 3 years and fine	Offence is Bailable, Cognizable.

70	Any person who secures access or attempts to secure access to the protected system in contravention of provision of Sec. 70	Detainment of either depiction up to 10 years and fine	Offence is Non-Bailable, Cognizable.
70-B	Indian Computer Emergency Response Team to fill in as national organization for occurrence reaction. Any specialist organization, mediators, server farms, and so on., who neglects to demonstrate the data called for or agree to the bearing issued by the ICERT.	Detainment up to 1 year as well as fine up to Rs. 1 lakh	Offence is Bailable, Non-Cognizable
71	Deception to the Controller to the Certifying Authority	Detainment up to 2 years as well as fine up to Rs. 1 lakh.	Offence is Bailable, Non-Cognizable.
72	Break of Confidentiality and security	Detainment up to 2 years as well as fine up to Rs. 1 lakh.	Offence is Bailable, Non-Cognizable.
72-A	Divulgence of data in rupture of legal contract	Detainment up to 3 years or potentially fine up to Rs. 5 lakh.	Offence is Cognizable, Bailable
73	Distributing electronic Signature Certificate false in specific points of interest	Detainment up to 2 years or potentially fine up to Rs. 1 lakh	Offence is Bailable, Non-Cognizable.
74	Publication for fraudulent purpose	Detainment up to 2 years or potentially fine up to Rs. 1 lakh	Offence is Bailable, Non-Cognizable.

4) Cyber Security

Cyber security means toprotect computers, networks, programs and data from unauthorized access or attacks that are aimed for exploitation.

Undertaking some basic insurance can enable us to remain safe from these cyber-attacks.

- Make sure you've unique and strong password.
- Use different password for differentaccounts.
- Enable two-factor confirmation.
- Always keep your system up to date.
- Make sure an Antivirusis installed on your computer.
- Carefully read the permissions or authorizations before installing apps.
- Enter personal information when website is secure or URL start from https:\\.
- Don't send personal data via email.
- Do not click any links in messages to get to your bank's site.
- Always check external devices for the virus infection.
- Do not provide your own or sensitive information like login details, credit or debit card details, bank details etc. on phone or email.
- Never share your own information on public social media sites and Internet.
- Always keep backup of essential information.
- Never download document or file from untrusted source.
- Try to utilize virtual keyboard while performing money relatedtransaction.

5) Objectives

- To find out how much time spent on the internet by students and citizens in the rural area of Dahiwadi village in Satara district of Maharashtra.
- To understand the awareness of cybercrime, cyber law, cyber security among the students and citizens in the rural area of Dahiwadi village in Satara district of Maharashtra.
- To understand which precautions are taken by the students or citizens in the rural area to prevent the victim of cybercrime?
- To find out victims of cybercrime in the rural area.

6) Research Methodology

We use random sampling method to understand the objectives of this paper. For that we have taken the survey by using questionnaire and personal interview of total 150 students of college and citizens in Dahiwadi village in Satara district of Maharashtra.
The student age group is between 18-23 and villager's age group between 25-50 years. In which 90 participants are male and 60 participants are female.

7) FINDINGS

To find out how much time is spent on internet for surfing, social media, educational purpose, entertainment etc.

30% students and citizens use 1-2 hours, 53.33% students and citizens use 3-5 hours,16.66 % students and citizens use 6 hours and above on internet for different purposes like surfing, social media, entertainment, educational purpose etc.

To understand the awareness of cybercrime, cyber law, cyber security among the students and citizens in rural area.

Out of 150 students and citizens there are 90 students in which there are 50 male and 40 female student candidates and in 60 citizens there are 38 male and 22 female candidates.

Out of 90 student 58.88% (60 % male and 57.5 % female) students have the knowledge of cybercrime, cyber law and cyber security. 41.11 % (40% male and 42.5 % female) students don't have knowledge about cybercrime, cyber law and cyber security.

Out of 60 citizens 40% (36.84 % male and 45.45 % female) citizens have the knowledge of cybercrime, cyber law and cyber security. 60 % (66.66% male and 54.54 % female) students don't have knowledge about cybercrime, cyber law and cyber security.

Overall 51.33 % (58.88 % student and 40 % citizens) students and citizens have the knowledge of cybercrime, cyber law and cyber security.

Overall 48.66 % (41.11 % student and 60 % citizens) students and citizens do not have the knowledge of cybercrime, cyber law and cyber security.

Finding the victim of cybercrime.

10.67% (4.44% student, 20% citizens) have been victim of cybercrime, while remaining 89.33 %(95.55% student, 80% citizens) have never been victim of cybercrime.

To understand which precautions are taken by student or citizens in rural area to prevent the victim of cybercrime?

56.66% of total respondents (61.11% student and 50% citizens) use antivirus for their own mobiles and computer.
78.66% of total respondents (87.77% student and 65% citizens) use antivirus for their own mobiles and computer.
56.66%of total respondents (66.66% student and 41.66 % citizens) do not open unknown mails and messages.
73.33% of total respondents (88.88% student and 50 % citizens) keep system up to date.
80.66% of total respondents (87.77% student and 70% citizens) never response to fake calls.
60% of total respondents (62.22% student and 56.66% citizens) verify security while sharing information online.

7) Conclusion

As the usage of internet has increased, crime rates have increased considerably. Criminals are doing crime for financial benefit using modern technology. The law has been enacted to cover Cyber-crime, but it must be strictly enforced. It must be revised every once in a while. The law should be repaired according to the nature of crime differently.In rural areas students and citizens, there is some degree of cybercrime, cyber law, cyber security. In order to reduce the level of cybercrime, we need to create awareness among the rural students and citizens, and explain the law of

cybercrime. Similarly, guidelines should be given to students and citizens in rural areas as to what care should be taken while using the internet.

The above research shows that students in rural areas are aware of cybercrime, cyber law and cyber security than citizens. This paper focus on whatis cybercrime, cyber law and cyber security, what should be the action taken for cyber security and to preventcybercrime and find outstudents and citizens in rural area are aware about cybercrime, cyber law and cyber security, how much time spend on internet, what safety actions taken while using internet, they are victim of cybercrime etc.

References

[1]www.tigweb.org/actiontools/projects/download/4926.doc

[2]https://www.tutorialspoint.com/information_security_cyber_law/introduction.htm

[3]https://www.slideshare.net/bharadwajchetan/anintroduction-to-cyber-law-it-act-2000-india

[4]http://www.academia.edu/7781826/impact_of_social_media_on_society_and_cyber_law

[5]https://cybercrime.org.za/definition

[6]http://vikaspedia.in/education/Digital%20Litercy/information-security/cyber-laws

[7]https://www.ijarcsse.com/docs/papers/Volume_3/5_May2013/V3I5-0374.pdf

[8]http://searchsecurity.techtarget.com/definition/emailspoofing

[9]http://www.helplinelaw.com/employment-criminaland-labour/CDII/cyber-defamation-in-india.html

[10]http://ccasociety.com/what-is-irc-crime/

[11]http://searchsecurity.techtarget.com/definition/denialof-service

[12]http://niiconsulting.com/checkmate/2014/06/it-act2000-penalties-offences-with-case-studies/

[13]http://www.cyberlawsindia.net/cyber-india.html

[14] A study of awareness of cybercrime among college students with special reference to kochi-Sreehari A, K.J.Abinath, SujitB,Unnikuttan P.S, Mrs. Jayashree

[14]https://en.wikipedia.org/wiki/Information_Technology_Act,_2000

[15]https://www.ijarcsse.com/docs/papers/Volume_5/8_ August2015/V5I8-0156.pdf

[16]Research paper of Studies Report on Cyber Law in India &Cybercrime Security -Anuraj Singh

[17] https://www.tutorialspoint.com/information_security_cyber_law/offences_and_penalties.htm

कास पठाराचे आर्थिक व पर्यटनदृष्टिकोनातुन एक अभ्यास

शिंदे रोहित रा., शिंदे* के. स.

इतिहास विभाग, दहिवडी कॉलेज दहिवडी

प्रस्तावना

सातारा जिल्हा देशात व महाराष्ट्रात ज्या प्रमाणे शुरवीरांचा जिल्हा म्हणुन ओळखला जातो. तसेच हा जिल्हा पर्यटनाच्या दृष्टीने ही महत्वाचा आहे. सातारा जिल्हात महाबळेश्वर,वाई,पाचगणी,ही ज्याप्रमाणे ऐतिहासिक व पर्यटनाच्या दृष्टीने महत्वाची स्थळे आहेत. तसेच या जिल्हात कास पठार हे पर्यटनाच्या दृष्टीने महत्वचाचे स्थळ आहे. कास पठाराचे मुख्य आकर्षण म्हणजे इथे जुन ते सप्टेबंर या मौसमी काळात विविध प्रकारचे फुले येतात. ही विविध रंगी फुले अत्यंत आकर्षक असुन ही विविध प्रकाराच्या वनस्पतीची नैसर्गिक रित्या लागवड पाहण्यासाठी देशभरातुन हजारो पर्यटक पहाणी करतात. म्हणुन कास पठार हे वारसा हक्काच्या स्थळ म्हणुन नुकतेच समोर आले आहे. जागतिक वारसा यादीत कास पठार हे नाव आलेले आहे. वर्ल्ड हेरिटेजमध्ये कास पठाराचे नाव असुन यांचा अस्तित्व काळात एक मोठे पर्यटन स्थळ म्हणुन सर्वांनी या पठाराचे संरक्षण करणे व आपल्या जिल्हाचा नावलौकिक वाढवून पर्यटनाच्या दृष्टीने सरकारला ही उत्पन्नाचे साधन म्हणुन उपयोग होईल यातुन एक पर्यटन वेग वाढीस लागेल.यामुळे सरकारसह सर्व पर्यटकाने या कास पठाराचे रक्षण करून पर्यटन व्यवसायात वाढ करावी व त्यांचे संरक्षण करावे. हा या संशोधनाचा उद्देदश आहे.

संशोधन प्रश्न —

१. सातारा जिल्हातील पर्यटन स्थळांना राज्याच्या पर्यटन क्षेत्रात महत्वाचे स्थान आहे.

२. सातारा जिल्हातील पर्यटन स्थळांमुळे सातारा जिल्हाच्या आर्थिक विकासाला चालना मिळते का?

संशोधन विषयाचे महत्व —

१.सातारा जिल्हायातील पर्यटन स्थळांचा आढावा घेतला गेला आहे.तसेच सातारा जिल्हातील कास पठार या पर्यटन स्थळांची माहिती राज्य स्तरांवर उपलब्ध करून देणे दृ

२. कास पठार या पर्यटन स्थळांची माहिती लोकांपर्यत पोहचवणे दृ

संशोघनाची उद्रिदष्टे –

१. कास पठारावरील फुले,वनस्पती व दूर्मिळ प्राणी यांचा शोध घेणे.
२. या फुलांची प्राण्यांची माहिती लोकांपर्यत पोहचवणे

संशोधनाच्या पदधती –

कास पठाराविषयी माहिती घेत असताना दवितीय सांधनांचा आधार घेतला असून प्रत्यक्ष स्थळांना भेटी देवून मुलाखतीदवारे याची माहिती मिळवली

संशोधनाची व्याप्ती –

या संशोधनामध्ये फक्त कास पठाराची माहिती घेतली आहे. तसेच संशोधन करत असताना प्रत्यक्ष लोकांना भेट देवून माहिती घेतली गेली आहे.

दळणवळणाची साधणे –

ट्रेन – पर्यटक जर ट्रेनने येणार असल्यास त्याने सातारा रेल्वेस्थानकावर उतरून येथुन सातारा बसस्थानकावर यावे आणि तेथून बसने कास पठारावर यावे.

बस – पर्यटक जर बसने येणार असल्यास त्याने सातारा बसस्थानकावर यावे आणि तेथुन बसनेच कास पठारावर यावे

विमान – विमानसेवा उपलब्ध नाही

निवास व्यवस्था –

कास पठारावर राहण्याची सोय नसल्ल्याने पर्यटकांनी सातारा शहरातील हॉटेल मध्ये राहावे.

जेवण्याची सोय – कास पठारापासून ४ ते ५ कि. मी. आंतरावर जेवण्यासाठी हॉटेल उपलव्ध आहेतध त्याचप्रमाणे जवळच सातारा शहरात जेवण्यासाठी हॉटेल उपलब्ध आहेत.

पर्यटन स्थळे:

फूले— कास पठारावर २८० प्रकारची फूले आढळतातध

तलाव — कास पठारावर कास तलाव आहे. तरी हा तलाव १०० वर्षांपूर्वीचा आहे.

धबधबा— कास तलावाजवळच 'वजराई ' धबधबा आहे.

धरण — कास तलावाच्या दक्षिणेला ३० किमी. अंतरावर कोयना प्रकल्प आहे.

प्राणी — कास पठारावर ५९ जातीचे सरीटप प्राणी आढळतात.

वाटणांसाठी पार्किंग सुविधा —

कास पठारावर वाहनांची पार्किंग सुविधा करण्यात आली आहे.यासाठी प्रत्येक वाहनाला प्रति १० रूपये शुल्क आकारले जाते.

पर्यटक मर्यादा —

कास पठारास पर्यटकांचा उपद्रव वाढला आहे. या कारणाने प्रशासनाने प्रतिदिन ३००० पर्यटक अशी मर्यादा ठेवली आहे याचे विभागणी ४ टप्यात केली गेली आहे.

निष्कर्ष —

सातारा जिल्हा हा पर्यटनांच्या दुष्टीने खूप महत्त्वाचा असून यामुळे येथील आर्थिक ,सामाजिक दृष्टया मोठया प्रमाणात बदल आले आहेत

कास पठारास लाखो पर्यटक भेट देतात .या जिल्हायातील या पर्यटन स्थळामुळे सातारा जिल्हाची पर्यटन स्थळाचे संरक्षण करण्याचे काम केले आहे

संदर्भ सुची —

१ .इंटरनेट दवारे

२ .http-valley//WWW.sahyadri flowervalley

3.महाराष्ट्रातील आच्यर्याची घोषणा

४ .http;//W.W.W.kas .ind .in.

वस्तूसंग्रहालयाचे महत्व — एक अभ्यास

बनसोडे के. बी., बी. व्हि. मोरे*

इतिहास विभाग, दहिवडी कॉलेज दहिवडी

प्रस्तावना

आपणास वस्तुसंग्रहालयाविषयी व त्यांच्या उपयुक्ते संबंधी दयावयाचे आहे. भारतीय समाजामध्ये आजतागायत वस्तुसंग्रहालयाविषीय फारसी जाणीव असल्याचे दिसत नाही. आपल्या समाजात वस्तुसंग्रहालय म्हणजे मंनोरंजनासाठी व त्यातुन मिळणाऱ्या आनंदासाठी पहावयाची वास्तु किंवा ठिकाण होय. ज्यात संग्रहीत केलेल्या विविध प्रकारच्या,विविध काळातील,विविध वैशिष्टे असणाऱ्या वस्तुचा संग्रह पाहणे एवढाच हेतु होता. आधुनिक काळात वस्तुसंग्रहालयाचा उपयोग मनोरंजन करणे,आनंद मिळविणे,ज्ञान मिळविणे,संशोधन करणे.संशोधनास साहय करणे,भुतकाळातील राजकीय,सामाजिक,आर्थिक,सांस्कृतिक व शैक्षणिक वारसा समाजावुन घेणे,त्यांच्या प्रगतीचा आढावा घेणे. तो वारसा अभ्यासणे,इ. ठिकाण,किंवा वास्तु म्हणजे वस्तुसंग्रहालय होय.वस्तु संग्राहालयचा शास्त्र शुद्ध अभ्यास करणारे शास्त्र विकसित झाले. त्यालाच वस्तुसंग्रहालय शास्त्र म्हणतात. या वस्तुसंग्रहालयशास्त्रानुसार वस्तुसंग्रहालय म्हणजे अनेक वस्तु फक्त एकत्र ठेवण्याची वास्तु नव्हे तर संग्रहालयामध्ये ठेवणे होय.त्या वस्तुची शास्त्रशुद्ध व कलात्मक मांडणी करणे होय,संग्रहालयातील वस्तु जास्तीत जास्त चांगल्या प्रकारे प्रदर्शित करणे इ. बाबीकडे बारकाईने लक्ष दयावे लागते. कारण या संग्रहालयातील विविध वस्तु समाजाचे मनोरंजन करतात. त्यांना आनंद देतात. पण त्याचबरोबरच त्यांच्या ज्ञानात भर टाकतात. लोकांना आपला वारसा,परपंरा,इतिहास,संस्कृती इ.संवर्धन,संस्कृतीचे उदात्तीकरण व आपला प्राचीन वारसा त्यांचे जतन करणारे शिक्षण देणारे ज्ञान मंदिर आहे. असे म्हणावे लागते.

संशोधन प्रश्न. —

१. पर्यटनाच्या दृष्टीने ऐतिहासिक ठेवा म्हणुन पर्यटनाच्या दृष्टीने वस्तुसंग्रहालयाला महत्वाचे स्थान आहे.

२. महाराष्ट्राच्या ऐतिहासिक वस्तुसंग्रहालयामुळे महाराष्ट्राचा आर्थिक,धार्मिक परंपरेचा व पर्यटानाच्या विकासाला चालना मिळते का?

वस्तु संग्रहालयाचे महत्व

वस्तुसंग्रहालय राष्ट्राची व समाजाची परंपरा व संस्कृती जतन करून ठेवण्याचे महत्वाचे काम करतात.आपणास असणाऱ्या कुतूहलाचे उत्तरे शोधण्याचे,स्थानिक इतिहास समजून घेण्यास वस्तूसंग्रहालयाचा उपयोग होतो. वस्तू संग्रहालय व्यक्तीच्या विकासाबरोबरच समाजात स्थिरता,एकात्मकता ठेवण्यास मदत होते. भारतीय संस्कृती एकमेव अशी संस्कृती आहे. जी जे अस्तित्व व सातत्य काम स्वरूपी टिकवून राहिले आहे. हे संस्कृतीचे सातत्य कायम स्वरूपी टिकवून ठेवण्यासाठी वस्तूसंग्रहालयाचा उपयोग होतो.

वस्तुसंग्रहालयाचे उद्दि्द्ये –

१. इतिहास संशोधनकांना पुरात्ववीय संबंधी वस्तूचे अभ्यासासाठी उपब्लध करणे
२. वस्तुसंग्रहालयातील वस्तुचे काय महत्व आहे. ती छापुन ग्रंथ रूपाने प्रकाशित करणे

संशोधन पद्धती –

१. वस्तुसंग्रहालयामुळे त्या भागातील एक ऐतिहासिक ठेवा जतन केला जातो.
२. वस्तुसंग्रहालय व्याप्तीमध्ये अनेक वस्तुचा संग्रह करून त्यांच्या भागातील विविध ऐतिहासिक ठेवा हा भविष्य काळाबाबत महत्वाचे मानले जाते.
३. सर्व प्रथम जिथे कला वस्तुचे कोणत्याही प्रकारचे काम करायची ती जागा पुर्णपणे स्वच्छ करून ठेवली पाहिजे.

वस्तुसंग्रहालयाचे स्वरूप –

विविध प्रकारच्या वस्तु जमविणे,गोळा करणे,किंवा त्यांचे संकलन करणे हा मानव प्राण्यांचा उपजत गुण आहे. लहान पणापासुन एखादया व्यक्तीस हौस म्हणुन किंवा छंद म्हणुन अनेक प्रकारच्या वस्तु जमवून त्या एकत्रित करण्याची आवड असते व त्यातुनच वस्तुसंग्रहालयाची निर्मिती होते. आपल्या आजूबाजूस असणाऱ्या कला व कौशल्य युक्त वस्तू विविध प्रकारचे मौल्यवान दगड तांबे पितळ शिसे चांदी,सोने,इ.वस्तु तसेच अगदी वैशिष्टपुर्ण अशी प्राचीनतेची साक्ष देण्याची मातीची भांडी इ. गोळा करून त्यांची मांडणी करणे. त्यांची देखभाल करणे,जपून ठेवणे त्याची आकर्षक मांडणी करणे. ही मानवाची नैसिर्गिक आवड आहे. यातूनच प्राचीन काळापासून विविध प्रकारची वस्तू संग्रहालय आकार घेवू लागली परंपरेने वारसाहाने आलेल्या अनेक वस्तूच्या ठिकाणी मानवाच्या मनात श्रद्धा असते. त्या श्रद्धेपोटी सुदधा वस्तूचा संग्रह केला जातो. पूर्वजांची हत्यारे काळानुसार त्यात होत गेलेल्या सुधारणांना व बदल मध्ये युगातील शस्त्राशस्त्रे चिलखते वस्तू,वस्त्रे व धार्मिक वस्तू इ. जपून ठेवण्यांची इच्छा ही श्रदधेतून निर्माण होते. व वस्तूसंग्रहालयाची निर्मिती होते. आधूनिक काळात वस्तूसंग्रहालय शास्त्र निर्माण झाले. त्यामध्ये वस्तू कशा जमाव्यात त्याचे वर्गीकरण कसे करावे,वस्तू संग्रहालयाची इमारत त्यातील प्रकाश योजना,वस्तूचे सरंक्षण व

त्यासाठी लागणारा व त्यासाठी लागणारा सेवक वर्ग अशा विविध गोष्टीचा समावेश वस्तूसंग्रहालयात होतो. वस्तू फक्त जमविणे,गोळा करणे,एवढेच पुरेसे नसते. त्या वस्तूची आकर्षक मांडणी आवश्यक तेथे त्या वस्तूचे स्पष्टीकरण इ. बाबींचा या शास्त्रात अंतर्भाव असते. वस्तूसंग्रहालयाचे त्यांचे विविध टप्पे पडतात त्याचे प्राचीन,मध्ययुगीन व आधूनिक कालखंड असे पडतात.

वस्तुसंग्रहालयाचे प्रकार —

आतापर्यत वस्तूसंग्रहालय म्हणजे काय?हे समजावून घेण्यासाठी वस्तुसंग्रहालयाच्या विविध व्याख्यांचा अभ्यास केला. या क्षेत्रातील विद्वान व अनुभवी व्यक्तींनी वस्तुसंग्रहालयाची व्याख्या आपआपल्या परीने केले आहेत. त्यांचा आढावा घेतला. कालानुरूप वस्तुसंग्रहालयाचा जस— जस विकास होत गेला तस— तसे वस्तुसंग्रहालयाचे स्वरूप बदलत गेले. प्राचीन काळातील वस्तुसंग्रहालयाचे स्वरूप मध्ययुगीन वस्तुसंग्रहालयाचे स्वरूप व आधुनिक काळातील वस्तुसंग्रहालयाचे स्वरूप विकास यांचीही माहिती घेतली. कालानुरूप वस्तूसंग्रहालयाचा जस — जसा विकास होत गेला तसे वस्तुसंग्रहालयाचे स्वरूप बदलत गेले. तस — तसे वस्तू संग्रहालयातील या प्रकारात सतत बदल होत गेले.

१. ऐतिहासिक वस्तुसंग्रहालय २.पुरात्ववीय वस्तूसंग्रहालय ३. कला संग्रहालय ४. प्राणिशास्त्र संग्रहालय ५. वनस्पतीशास्त्र संग्रहालय ६ शस्त्राशस्त्र संग्रहालय ७. वस्त्र संग्रहालय ८. हस्तकला संग्रहालय ९. विज्ञान संग्रहालय १०.मानव वंश शास्त्रीय संग्रहालय ११. व्यक्तीविशेष संग्रहालय १२. ग्रंथ संग्रहालय

निष्कर्ष —

वस्तुसंग्रहालय हे शास्त्र असून ऐतिहासिक,धार्मिक,आर्थिक गोष्टीचा वारसा जतन,

२. विविध वस्तुच्या संग्रहामुळे आपल्या देशाचा ऐतिहासिक ठेवा भविष्याचा मार्गदर्शक करण्यासाठी उपयोगी पडतो.

३. वस्तूसंग्रहालयामुळे मानवी जीवनाचे विविध टप्पे उदा.राजा,वंश,हत्यारे,वस्तु,इ.ची आठवण म्हणून वस्तुसंग्रहालय असणे काळाची गरज आहे.

संदर्भ ग्रंथ —

१. इंटरनेट

२. एन.डी.पाटील — इतिहासाचे उपयोजना ॥ आवृत्ती २०१७,फडके प्रकाशन,कोल्हापूर

3- अमरवाल ओप.पी.कला वस्तू आणि गंथालय साहित्यांचे जतन,नॅशनल बूक ट्रस्ट इंया

दिल्ली चौथी आवृत्ती २०१३.

ekckbyPkk okij dkGkph xjt

lrk'k "kGd, vkdkj txnkG, ,l- ch- ok?kekM*

ejkBh foHkkx, nfgoMh dkyt nfgoMh rk- ek.k ft-lkrkjk

sulochananarute @ redffimail.com

ikLrkfod

21 o "krd g foKku vkf.k r=Kkukp ;x Eg.ku ?kkf'kr dy xy vkg- foKkuku lop {k=kr [ki mph xkByh vkg- ixrh] mph gk ekuokpk vfoHkkT; Hkkx vkg- foKkuku uoh&uoh r=Kku fuek.k dyh ekckby gk R;kpkp ,d Hkkx vkg- ;k ek/;ekp lekt thoukrhy egRRo ;kpk "kk/k ?k.k-

vH;klkpk mí"k

r=KkukeG tx toG vky vkg- bVjuVeG tx [kMÓki;r ikgpy vkg- ekckbypk okij gk vko";d vkg- i.k R;kpk okij d"kklkBh vkf.k fdrh dyk tkrk- R;kpk ekuoh thouk ifj.kke dk; gkrk ;kpk "kk/k ?k.;kP;k mnn"kku gk fo'k; fuoMyk vkg-

xfgrd

1 ekckbdM r#.kkb vf/kd vkdf'kr gkr vkg dk\

2 dk.kR;k vipk okij vf/kd dyk vkg-

l[;k"kL=h; i/nrh

;k l"kk/kuklkBh i"ukoyh r;kj d:u lo{k.k d:u VDdokjh dk<u fu'd'kki;r tk.;kpk i;Ru ;k i/nrhpk mi;kx gkrk-

l"kk/kukpk fo'k;

ekckbypk okij d"kk i/nrhu dyk tkrk- ;kpk vH;kl i"ukoyhP;k vk/kkj dyk R;ke/; ekckby okij gk ekBÓk iek.kkr dyk tkrk- Qlcd] okVl vi] ;VÓc] elt] ;kpk okij e;knr fnlu ;rk- opkfjd ekfgrhlkBh ekBÓk iek.kkr okij dyk tkrk- vH;klklkBh vkf.k beylkBh ux.; okij dyk tkrk-

fu'd'k %&

1½ ekckbypk okij ekBÓk iek.kkr dyk- tkrk-

2½egkfo|ky;hu fo|kF;ku ekckbykpk okij vH;klklkBh vkf.k beylkBh dj.k vf/kd mfpr gkby ek= g iek.k ux.; vkg-

^Ukdk"kh* e/khy L=h fp=.k % ,d "kk/k

d- lkukyh ,dukFk eku d- ifr{kk vd"k f"kyor, Mk- ,l- ch- ok?ekM *

ejkBh foHkkx nfgoMh dkyt nfgoMh rk- ek.k ft-lkrkjk

sulochananarute @ redffimail.com

ikLrkfod %&

vk/kfud lkfgR;kr L=h fp=.k vud y[kd vkf.k yf[kdkuh dy vkg- lektkr i#'k vkf.k L=h g ?kVd ,dedkl ijd vkgr- ijr iR;{kkr ek= Hkn fnlrk- vxnh vkfn dkGkiklu fL=;kdM ikg.;kpk nf'Vdku n¸;e vlY;kp fnlr- rh ncy vlr Eg.ku tUeYkk vkY;kurj oMhy] irh vkf.k vk;';kP;k v[kjhyk i=koj voycu vlr- fdok frp j{k.k oxoxGÓk VII;koj i#'k lj{k.k djrk- gk vkiyk bfrgkl vkg- ijr vkrk ;ke/; ifjoru fnlu ;r vkg- iR;d {k=kr rh >i ?kr vlrkuk fnlr- okpu djhr vlrkuk ^udk"kh* gk ek/koh nlkb ;kpk dFkk lxg okpyk vkf.k udk"kh "kCnkpk fopkj [kkyoj tkÅu "kk/k.;kpk i;Ru dyk vkg- udk ;k fØ;kokpd "kCnkiklu udk"kh gk "kCn cuyk vlkok- ;kpk vFk ^^bPNk vkoM bR;kfndkpk vHkko n"kfo.kkj fØ;kokpd :Ik vlk "kCndk"kkr vFk vkg** ijr udk"kh dFkklxg vkLoknY;kurj udk"kh "kCnkr ipM lkeF; vkg- e[ki'B vkf.k R;krhy dFkk "kh'kdkpk fopkj djr xy- vkEgh l/nk R;krhy ipdGÓkiek.k vkgkr- ;k dFklxgkru lekt okLro "kk/k.;kpk i;Ru djhr vkg-

l"kk/ku i/nrh %&

;k l"kk/kuklkBh vkLokn l"kk/ku in/krhpk] lkekftd ,R;kgkfld i/nrhpk okij dyk vkg-

xfgrd

1 lkfgR;kr L=h fp=.k dl dy vkg- vktP;k lekt okLrokpk "kk/k ?k.k-
2 L=h ncy vkg dk\;kpk vH;kl dj.k
3 lkfgR;kr fo"o0;kid fopkjkp n"ku vky vkg dk\

mfnn'Vî %&

1 L=h thoukp lcyrk vk/kkjf[kr dj.k

2 fL=;kP;k fofo/k :ikpk "kk/k ?kÅu ikIr fu'd'k ekM.k-

3 lLÑrhp n"ku dl vky vkg\;kpk vH;kl dj.k-

Lk"kk/kukpk e[; fo'k; %&

Ukdk"kh dFkklxgk vk/kkj fL=;kp thou] R;kP;k n%[k onuk] ;kru frph fofo/k :i ;kru rh lcy dh ncy ;kpk fp=.k dl dy vkg ;kpk "kk/k ?k.k gk l"kk/kukpk e[; fo'k; vkg-

Ukdk"kh gk dFkklxg ek/koh nlkb ;kpk vkg- ;ke/; ,d.k pknk dFkk vkgr- ;k dFkk ukf;dki/kku vkgr- iR;d dFkrhy L=h Lofopkjku l{ke vlyyh fnlu ;r- rh fdrhgh n%[k ldV vkyh rjh [kpu tkr ukgh- leFki.k ;.kkU;k ldVkyk lkekj tkrkuk fnlr-

^**udk"kh*** ;k dFke/; d#i vlY;k oMhy fryk ukdkjrkr] d#ireG fctojk"kh yXu gkÅu R;kP;k eykp ikyu ik'kuklkBh yXu dyh ckdh vi{kk /kjk;ph ukgh g irhp yXukP;k ifgY;k fno"khpk vkn"k- R;kyk ukf;dk udkj nÅu thou txr ;kp ân;nkod fp=.k dy vkg-

^**cUljh*** ;k dFke/; n"kkfHkekuh L=hp fp=.k dy vkg- n"k lj{ke/;n[khy L=h i#'kkiek.kp lØh; vlrkuk fnlr-

^**jk/kkDdk*** ;k dFkr Hkkjrh; L=h vkiY;k dVckBh vkiyk dk.krkgh fopkj u djrk vgkjk= d'V djhr vlrkuk fnlr- rjhgh frpk fopkj dyk tkr ukgh- g rhoru tk.kor-

^fHkok ikVykph yd* ;k dFke/; f"k{k.kkeG vud ldVkru ekXk dk<.;kph {kerk ikIr gkr g nk[kou n.;kpk i;Ru dyk vkg-

^nodhpk fu.k;* ;k dFkr vktph L=h gh py vkf.k ey ,o<Ókijrh e;kfnr jkfgyyh ukgh- ;kp mRre fp=.k dy vkg-

^ipdGÓk* ;k dFkr fL=;kph ekufldrk vfHk0;Dr dyh vkg- L=hp L=hP;k n%[kkyk] onuyk] vU;k;kyk] NGkyk dkj.khHkr vlr- ;kp dkj.k L=hpk vlyyk LokFk fnlu ;rk-rhp HknHkko djhr vlrkuk fnlr-

^**fHkxjh*** e/ku egkjk'Vh; L=hp n"ku ?kMfoy vkg- rh ufrdk vlyh rjh egkjk'Vh;hu lLÑrhPkk Blk frP;k iR;d Ñrhru fnlu ;rk- ;kp mRÑ'V fp=.k dy vkg-

^**udk"kh*** **e/khy** ^**fnyoky nYgfu;k***] ^**xUMek!**]* ^**Hkkyk*** **o le"kjcgkíj** dFkke/ku i#'k ik=kp fp=.k dy vkg- ;krhy i#'kik= L=h&i#'k Hkn dj.kkj ukgh-

;ke/; dFkkph “kh’kd ukf;dki/kku vkgr ;kyk viokn rhu dFkk vkgr-

leL;k vkf.k mik;ktuk %&

fL=;kdM ikg.;kpk nf’Vdku cnyk rj udk”kh “kCnkpk vFk fuf”pri.k cnyy rh ,d ekuo vkg l{ke vkg gp fun”kukl ;by- L=hp L=hpk “k= vlr- fL=;kuh vkiyh ekufldrk cnyk;yk goh- ;k dFkke/ku tk.kho tkxrh gkby- lekt ick/ku gk.k egRRokp vkg- R;klkBh mPPk fopkjkp if”k{k.k n.k egRRokp vkg-

fu’d’k %&

1 iR;d dFkr ukf;dP;k okVÓkyk n%[k vky vkg- ;k n%[kku <klGr ukgh- thoukyk udkj nr ukgh- lLÑrh tir uoh okV “kk/kr vlr-

2 fL=;kP;k n%[kkyk cgrk”kh L=hp vlr- gh ekufldrk cnyk;yk goh-

3 L=h Eg.kt py vkf.k ey gk fopkj cnyyk vkg rh n[khy nj n’Vhu fopkj d: “kdr- ?kjk brdp n”kkfo’k;h LokfHkeku vlrk- g fl/n gkr-

4½ udk”kh dFkklxgkr cgrk”k L=h thoukp vfr”k; mRÑ’V fp=.k dy vkg- ;ke/khy iR;d L=h vkiY;k drRoku lcy vkgr gp nk[kou n.;kpk i;Ru dyk vkg-

5½ ;k dFkkru Hkkjrh; L=hp n”ku ?kMr-

6½ ;k dFkk eukjtuklkBh ukgh rj fL=;kp n%[k onuk 0;Dr dj.;kph yf[kdph Hkfedk Li’V gkr-

7½ Lokjkpkjkyk bFk LFkku ukgh-

Lkekjki %&

dk.kR;kgh ok³e; idkjkpk fopkj dyk rj gh fuferh 0;Drh eukph vlyh rjh rh tx.;kru vkf.k lkekftd] lkLÑfrd lk;koj.kru fu’iUu gkr vlr- ;k dFkklxgkru Lo vuHko o lHkkorkyP;k lektkrhy vuHko vfr”k; ekfedi.k fpf=r dy vkgr- ;k ;kru lkekftd] lkLÑfrd okLrokp n”ku ?kMr-

lnHk lph %&

1½ vkn”k ejkBh “kCndk”k & i- u- tk”kh] fonHk ejkBokMk c diuh i.k] i- 594

2½ udk”kh & ek/koh nlkb id”ku iFke vkoRrh

Student Research Activity