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• मालवणीतल्या वाटा
(मालवणी बोली)
डॉ. गोविंद काजरेकर
प्रा. वसंत भोसले
डॉ. सतीश कामत

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मालवणीतल्या वाटा

(मालवणी बोली)

संकलन, संपादन, लेखन

डॉ. गोविंद काजरेकर
प्रा. वसंत भोसले
डॉ. सतीश कामत

CORRELATION STUDY ON PHYSICOCHEMICAL PARAMETER OF GROUND WATER IN AND AROUND COASTAL AREA, DEVGAD TALUKA IN SINDHUDURG DISTRICT

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Abstract: *The inter element correlation of different physico-chemical parameters was carried out in and around costal area of Devgad, Sindhudurg District, Maharashtra, India, with an attempt to determine the characteristics of ground water status and public health in this region. Thirty ground water samples were collected from different open wells in the study area and were analyzed for pH, electrical conductance (EC), total hardness (TDS), calcium (Ca), magnesium (Mg), sodium (Na), potassium (K), and nitrate (NO_3), sulphate (SO_4), chloride (Cl), iron (Fe). The present study clearly highlight that the physico-chemical parameters like pH, Fe, and Mn all of samples exceeds permissible limits due to sea water intrusion and edaphic condition... There is also a possibility of more Cl, SO_4^{2-}, of Ca, Mg and Na to seep into the soil to reach the ground water in and around costal area of Devgad Taluka. Hence it is desirable to prevent ground water contamination at the earliest in the area and save the human health.*

Key words: *Devgad Taluka coastal area, water quality parameter, Inter element, Correlation, Sea water intrusion.*

Introduction:

Global consumption of water is doubling every 20 years. According to United Nations, more than one billion people already lack access to fresh water. The water problem is global. More than 1.6 million children annually from disease that are largely (more than 80 %) preventable with clean water. In India, ground water has a major role to satisfy the needs of domestic and agriculture purpose. India has enough long coastline of about 5000 km. Off shore waters of oceans have a salt concentration of 30,000 to 36,000 mg/L of dissolved solids including 19,000 mg/L of chloride, 10,500 mg/L of sodium and 1270 mg/L of magnesium. Devgad receives high rainfall in the range of 2300-3200 mm/year, it has coastal Lateritic and alluvial soils are recent deposits found along the coastal tracts and constitute deep loam.

The proposed physico-chemical study has been carried out in and around coastal area of Devgad Taluka with an attempt to determine the characteristics of ground water status and public health in this region. Physico-chemical parameters such as pH, alkalinity, EC, TDS, TH Ca, Mg, , Cl, NO_3 trace metal like Fe and Mn are to be analyzed. The results have been observed in each sample and compared with standards WHO, and IS. The study area, Devgad taluka in Sidhudurg district bounded to in the north by sindhudurg distract west by Arabic sea and east by Kolhapur district and in the south by Goa.

Geographical location of the district is between North latitudes 16°23□ and 73°21□ east longitudes

Experimental:

In this investigation, 30 ground water sample were collected from various parts of Devgad taluka coastal area, S1S2,S3,S4,S5,S6,S7,S8,S9,S10,S11,S12, S13,S14,S15,S16,S17,S18,S19,S20,S21,S22,S23,S24,S 25,S26,S27,S28,S29,S30 in Devgad Taluka (i.e.) 1km and less than 1km away from the seashore. Acids and alkalis, indicators etc., used in the analysis were of analytical grade. The instruments used were calibrated before use for observing readings. The water samples were analyzed for EC,Cl,SO_4^{2-}, Ca, Mg, Na and K in the laboratory. Conductivity was measured with a digital conductivity meter. Na and K were measured with a flame photometer. Chlorides SO_4^{2-}, Ca and Mg were estimated using titration techniques.

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ECONOMIC ANALYSIS OF WATER RESOURCES IN SINDHUDURG DISTRICT OF MAHARASHTRA

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Abstract:

Water resources are sources of water that are useful or potentially useful. Uses of water include agricultural, industrial, household, recreational and environmental activities. The majority of human uses require fresh water. 97 percent of the water on the Earth is salt water and only three percent is fresh water; slightly over two thirds of this is frozen in glaciers and polar ice caps. The remaining unfrozen fresh water is found mainly as groundwater, with only a small fraction present above ground or in the air.

India, with a geographical area of about 329 Million Hectares (M.ha), is a land of many mountains and rivers. Some of them figuring amongst the mightiest rivers of the world. Physio-graphically, India may be divided into seven well defined regions. These are: the Northern Mountains comprising the mighty Himalayan ranges; the Great Plains traversed by the Indus, Ganga and Brahmaputra river systems; the Central Highlands, consisting of a wide belt of hills running east-west between the Great Plains and the Deccan plateau; the Peninsular Plateaus; the East Coast, a belt of land of about 100-130 km wide, bordering the Bay of Bengal; the West Coast, a narrow belt of land of about 10-25 km wide, bordering the Arabian Sea; and the islands, comprising the coral islands of Lakshadweep in Arabian Sea and Andaman and Nicobar groups of islands in the Bay of Bengal.

The land of Culture and Natural beauty, Sindhudurg is famous for its natural beauty like Beaches, Backwater, Waterfalls and Pilgrimage centers. The major attraction here is the long and narrow stretch of beaches. On clear day, you can see the sea-bead through a depth of 20 feet. Than if course, the there are the forts, Sindhudurg one of the Maharashtra's more popular and important sea forts built in 17th century and the famous Padmagarh fort. The name of the fort is given to the Sindhudurg district. Tourist from all over the world visits throughout the year to see this Maratha glory.

Sindhudurg is the Konkan area of Maharashtra having stretch of

Study of Environmental Natural Gamma Radiation Dose and Activity of Uranium-238, Thorium-232using NaI (Tl) Scintillation Detector

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Exposure to ionizing radiation from natural sources is a continuous and unavoidable feature of life on earth on the earth. The environmental effective gamma radiation dose from terrestrial and cosmic radiation at height one feet above the earth's surface in open atmosphere has been measured at twenty different places in Sindhudurg district of Maharashtra state by using 2×2 NaI (Tl) scintillation detector. The activity of ^{238}U and ^{232}Th has been measured using gamma ray spectroscopy. The effective gamma radiation dose at different locations varies between 0.286 to 0.804 mSv/y, with an average value 0.512mSv/y. The ^{238}U activity varies from 0.466 KBq/m^3 to 1.133 KBq/m^3 with mean value of 0.684 KBq/m^3. The ^{232}Th activity varies from 0.532 KBq/m^3 to 1.267 KBq/m^3 with mean 0.8682 KBq/m^3. The ^{238}U to ^{232}Th activity ratio varies from 0.494 to 1.47 with mean 0.698.

Introduction

The major sources responsible for radiation exposure is due to the presence of naturally occurring radioactive nuclei in the earth's crust such as ^{238}U, ^{235}U, ^{232}Th and their decay chain, up to one of the stable isotope of Pb. The distribution of naturally occurring radioactive elements uranium, thorium, potassium, actinium ^{40}K ^{87}Rb & others are different at different locations on the earth. In most places on the earth, the natural radioactivity varies within narrow limit, with world annual effective average dose from terrestrial gammarays and cosmic rays is 0.9 mSv/y. In some places wide deviation from normal levels is observed because of presence of high levels of radioactive minerals. The estimation of natural background radiation level at place to place on the earth becomes the part of national and international survey [6]. Gamma radiation spectroscopy is widely used for the detection and measurement of radioactivity [1,3]

We have recorded background gamma radiation spectrum using single channel NaI (Tl) detector at 20 different places in Sindhudurg district of Maharashtra state and from it obtained effective dose from terrestrial mamma radiation and cosmic rays and ^{238}U and ^{232}Th activities at the places of observation. The results obtained are presented in the paper.

Experimental details and data collection

Single channel, 2×2 NaI (Tl) gamma radiation detector is used in the present study [7]. The efficiency corresponding to different energies were used from the manufacturer datasheet [7]. The energy calibration with baseline voltage was obtained using standard source of Cs-137 and Co-60. From calibration data we get conversion relation as, a baseline voltage of 0.1 volts equals to energy of 14.943 KeV.

Study Area: Observations were carried out at twenty different places of Sindhudurg district of Maharashtra state (India) (15°22 - 16°24 N; 73°12'- 74°12' E).

Data Collection: The background spectra at each place (Twenty places) have been obtained by two ways, one in which the detector has been operated in threshold mode and by changing the baseline voltage every time by 0.5 volts and number of counts for 90 second were observed. The difference between the successive readings gives total number of observed counts in the baseline interval of 0.5 volts that is energy interval of 74.72 KeV. We have used this data for the calculation of gamma radiation dose at each place of observation. In the second part of observations the detector was operated in window mode with window of 0.25 volt and the spectrum was scanned from 0 to 10 volts baseline voltage, every time changing the baseline voltage by 0.1 volts. In this part energy resolution becomes 14.943 KeV.

Data Analysis

The data obtained in the first part have been used for the calculation of the average effective external dose from terrestrial and cosmic radiation at each place of observation. The observed counts in the interval of each 0.5 volt baseline were taken. The counts were corrected for the counting efficiency of detector at respective energies. Using planner geometry for the detector, the fluence corresponding to each energy interval has been calculated. To calculate the effective dose, the fluence is multiplied by conversion factor taken from ICRP publication [8]. The effective average gamma radiation dose from terrestrial and cosmic rays were calculated [8].

When monochromatic beam of gamma radiation of energy E enters the detector then, not all of them are counted at energy E. Along with the peak at energy E, counts at energy less then Compton edge are observed in the detector. The background spectra contain specific peaks corresponding to radiation from different gamma emitters on the background of Compton scattered photons. We have plotted average number of observed counts for 90 second with the baseline voltage for each place of observation (In this part baseline voltage was changed by 0.1 V that is energy resolution of 14.943 KeV). An exponential line passing through the lowest

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MEASUREMENT OF ENVIRONMENTAL RADIATION LEVEL AT DIFFERENT PLACES IN SINDHUDURG DISTRICT OF MAHARASHTRA STATE

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ABSTRACT

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Keywords: [illegible]

1. INTRODUCTION

[illegible]

2. MATERIALS AND METHODS

[illegible]

Study of background radiation and environmental radioactivity using high purity germanium detector

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Introduction

Radioactive nuclei are present all over the earth, in soil, water and atmosphere. Most of them have natural origin, such as primordial radionuclide U-238, U-235, Th-232 and their decay chain up to one of the stable isotope of Pb. K-40 and Rb-87 are intense primordial radionuclide. Many other light and moderately heavy radionuclides of natural and cosmogenic origin are present in soil, water, atmosphere and in materials. The major equilibrium concentration of background radiation in the Earth's atmosphere contains gamma ray flux. The distribution of naturally occurring radioactive elements vary from place to place, depending on the types of rocks and soil. Therefore, the level of natural background ionizing radiations depends upon the geological and geographical conditions. Estimation of natural background radiation level has become an important part of national and international environmental radiation survey.

In this work we have attempted to assess the radionuclides present in soil samples from Maharashtra state using gamma spectrometric analysis [1,2]. We have recorded gamma radiation spectrum of four soil samples collected from Sindhudurg district of Maharashtra using High Purity Germanium detector (HPGe) and identified the radionuclide present in the soil samples. The results obtained are presented in the paper.

Experimental Details

The gamma spectrum of four different soil samples were collected from different places of Sindhudurg district of Maharashtra state, India and recorded using HPGe detector at Nuclear Physics Division, Saha Institute of Nuclear Physics, Kolkata. The HPGe detector is a versatile tool for the gamma ray spectrometry and spectroscopy. The Falcon-5000 coaxial Broad Energy, HPGe (BEGe) detector which uses pulse tube cooling technology, manufactured by CANBERRA was used. It measures a wide range of gamma energies (20keV-3MeV). Additionally, it has low noise, good efficiency and resolution at lower energy resulting from a reduction in the loss of signal, preserving at the same time, good efficiency for higher energies. The detector system is coupled with a radionuclide identifier and with a location identifier. For collimation application FALCON 5000 can be used in conjunction with a 8mm thick Falcol (98.0% W, 1.71% C, 0.29% H) collimator. The density of "falcol" is 11 g/cc In the present work, we have used this option to carry out measurements. Energy calibration of the detector has been carried out using standard Eu-152 calibration source.

The soil samples were collected from a depth of 6 inches below the surface. The collected samples were dried in an oven at 100° C for 24 hours and then crushed and ground to fine powder and homogenized by passing through 250 μm test sieve. The samples were sealed, weighed and stored in an air-tight container for a period of 21 days for attainment of radioactive equilibrium. The samples were then analyzed for presence of gamma emitting radionuclide. In order to carry out this analysis, the room background gamma spectrum was first recorded. The spectra of the soil samples were recorded for a long counting time in such a way that the product of spectrum recording time and

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New Current Trends in Commerce Education

Prof. Sandeep Shivram Teli

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Dist- Sindhudurga, University of Mumbai.

Abstract

The Present Paper is an attempt to highlights the new trends in Commerce Education in India. Since last two decade a number of changes and emerging new trends have taken place in the social and political area. India being a developing country is facing new challenges in educational system. India's Education system is often cited as one of the main contribution to the economic rise of India. In India, Commerce Education is very important part of education which is called Business Education. It is that area of education which develops the required knowledge, attitudes and skill for successful handling of trade, commerce and industry. Commerce Education serves as a catalyst to socio-economic development of any country or a region.

The objective of Higher Education can be achieved only through qualitative change in the system. The output of commerce education should be multidimensional and with full global competitiveness. The practical oriented Commerce Education is a need of the age.

The main objective of education is to develop Human Resources to face any challenges of the life. The role of Commerce Education is to develop Human Resources to overcome the challenges in the field of commerce and business.

Keywords :- Commerce Education, Online Education, E- Commerce, E-Banking, E- Marketing.

Introduction

Commerce Education is that area of education which develops to requisite skills, knowledge and attitudes for the successful handling of Trade, Commerce and Industry. The commerce Education is primarily meant for providing the students in depth knowledge of different functional areas of business so as to prepare people required by the community for the purpose of the Trade, Commerce and Industry.

The first commerce school was established In Chennai in 1886 by trustee of Pachiyappa's Charities. Commerce classes started in the presidency college, Kolkata in 1903. The Sydenham College of Commerce and Economics was established in 1913 which is the first institution for higher education in Commerce.

Education it must enable the individual to develop the activity and skill to earn and carry on reasonable standard of living and it must also enable him to develop his creative potential to utmost so that he enrich his personality, intellectually, morally, physically and spiritually.

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Impact of GST on Agriculture Sector

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Abstract

India is a unique experiment in federal Governance with the challenge for ensuring efficient economic evelopment without compromising independence of states. "Goods and Service Tax" was envisaged to have simple harmonized tax structure with operational ease leading to a single unified market at national level for oods and services.

Goods and Service Tax is a comprehensive tax levy on manufacture, sell, and consumption of goods nd services at a national level. One of the biggest taxation reform's in India the (GST) is all set to integrate ate economics and boost overall growth.

Indian government has decided "One Nation One Tax" it means "Goods and Service Tax" (GST) place with all indirect taxes. Indian government remove all indirect taxes namely Value Added Tax, Service ax, Sales Tax, Entertainment Tax, Octroi etc. GST it will be vital role in Indian tax system. The Goods and rvice Tax will indeed be a further significant improvement towards a comprehensive indirect taxes reforms the country.

GST is expected to create a business friendly environment, as price level and hence inflation rates ould come down and uniform tax rate is applied. It will also improve government fiscal health as tax llection system would become more transparent, making tax evasion difficult. An attempt is made in this per to study the concept of GST and its impact on Agriculture.

Keywords :- Goods and Service Tax, Indian Agriculture Sector, Indirect Tax, VAT.

Introduction

Tax is one the most important means of income for the Government. In other words, tax could be said compulsory donation made to the Government does not assure any special benefit to the tax payers. The vernment provides basic amenities and service to public from the revenue generated through tax collection.

A major portion of the country's income comes from the constitution made by Indirect taxes. Indirect is levied on product and not an products and not an products and not an people. Since every person is a er of some or the other products, he automatically pays the taxes. Such taxes are levied on manufacture of ds, sale of goods and import as well. In this Indirect tax included value added tax (VAT), Sales Tax, NVAT.

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Assessment of insect pest diversity on Alphonso mangocultivationsinDevgad Tehsil During 2015-2016.

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INTRODUCTION

Mangois one of the choicest tropical fruit in world and is popular in fresh as well as processed form.Mango fruit is a rich source of vitamins and dietary minerals. Similarly the mango seed contains carbohydrates and proteins (Fowomola 2010).Mangoes are being produced in about 100 countries including India.However, India is the top most mango producing country. But the productivity of the fruit in India is low with respect to the actual land area under cultivation (Sivastava 1997). The average productivity of Alphonso mango is3.8 tonnes/ ha which is much lower than the state productivity 5.0 tonnes/ ha (Salvi*et al.* 2013). The national average production is 8.5 tonnes/ ha. In Maharashtra the main mango cultivars are Alphonso, Keasr, Payari, Ratna, Sindhu and Rajapuri. Alphonso mango cultivation is mainly concentrated in Sindhudurg, Ratanagiri, Raigad and Thane districts from Konkan region.Mango is a major cash fruit crop of Konkan. Presently monoculture of single mango variety Alphonso is observed throughout the Devgad Tehsil. Alphonso variety is renowned for its aroma, colour, texture and taste. Spongy tissue, thin skin, alternate bearing, low resistance towards pest and less productivity are some of the major drawbacks of this world famous mango variety (Salvi*et al.*2013).

There are about 176 insect pests on mango tree and fruits (Chowdhury 2015). Mango is infested by various insect pest right from its nursery stage to maturity. Even fruits at pre- harvest stage are infested making them unsuitable for marketing and foreign export (Acema*et al.* 2016). Infestations of insect pest is the main hurdle in production of quality Alphonso mangoes. Insect pest cause massive loss to Alphonso mango crop in Devgad. Particularly stone weevil and fruit fly are serious pests due to which export to foreign countries was banned due to the fear of introducing alien insect species in those countries. Due to indiscriminate use ofpesticides, many pests have developed resistance within them. This has led many farmers to use disproportionate high doses of pesticides than the recommended ones, leaving behind the high toxic residues in fruits.Present study is based on the principle insect pests which attack Alphonso mango crop in Devgad. They include Mango hopper, mango mealy bug, fruit fly, fruit borer, thrips, termites, aphids, stone weevil, shoot borer, leaf miner, stem borer, leaf webber, ants and mango scales. Infestation of insect pest is the major reason for low productivity of mango. Incidences of these pests affect the marketability of mango at local as well as abroad. In Devgad tehsil, the incidence of insect pest is very severe. Therefore, the farmers need to apply the pesticides regularly at the interval of 10-8 days. Previously, pesticides were needed to be applied once a month and 4-5 times within a season due to less pest populations. But due to increased resistance for pesticides and monoculture practices, the pest populations has increased tremendously in last few years. Hence why the number of sprays hasbeen increased accordingly to cope up with the facts. Therefore indiscriminate use of pesticides adds to the cost of mango production.Low productivity and quality of marketable fruits decrease the net profit of farmers.Consequently the farmers have to face the economic loss.

Objectives:

1. To study insect pest diversityon Alphonso mango cultivations in Devgad Tehsil
2. To study the nature of damage of each pest
3. To study the period of damage of each pest

Material and Methods:

Study area:

Sindhudurg district is situated on the western coast of Maharashtra. The total geographical area of the district is 5, 219 sq.km. It is located on North Latitudes 15.37^0 to 16.40^0 East Longitude 73.19^0 to 74.18^0. Study was conducted in Devgad tehsil which lies on western coast of Sindhudurg district.Ten villages from overall study area were covered during the study: Devgad, Jamsande,Walu Girye, Vaghotan, Padel, Talebazar, Kunkeshwar, Hindale and Naringre.

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STUDIES ON ECONOMICS OF EDIBLE BIVALVES IN MANGROVE ECOSYSTEM OF MALAI CREEK IN DEVGAD, (SINDHUDURG)

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Introduction:

Mangroves provide a wide range of ecological services like protection against floods and hurricanes, reduction of shoreline and riverbank erosion, maintenance of biodiversity. Mangrove estuarine areas often support an abundance of molluse species that are largely sessile in nature. Edible species of oysters, mussels, cockles and gastropods are collected extensively for local consumption, usually by the families of local fishermen. Mangrove roots and lower parts of trunks provide substrate for oysters and mussels. Because of the high primary productivity in mangrove systems, a large number of fish and invertebrates occupy mangrove habitats. Phylum Mollusca is the second largest group of living organisms in the world. It comprises more than 1, 00, 000 species. The name Molluse (=Mollusk) was derived from word Latin molluse which means soft. This term was first used by Cuvier, a French zoologist in 1798. First Molluscan species appeared during Cambrian period about 500 million years ago. Molluscs are soft bodied and boneless animals. But they are highly successful animal group in terms of ecology and adaptations. They are found almost in all habitats ranging from ocean bottom to the intertidal zone, freshwater and land. The diversity is highest in the sea.

B] Material and Methods:

A] Study area

Sindhudurg district of Maharashtra has coastline of about 121 km. It is a well-known district for its natural biodiversity by all means. The total geographical area of the district is 5, 219 sq.km. It is located on North Latitudes 15.370 to 16.400 East Longitude 73.190 to 74.180. Of that, area of the Devgad Tehsil in hectors is 78127. The coastal area of the district is blessed with vast network of back waters, creeks and specialized ecosystems like mangroves and coral reefs. The district possesses estuarine area of about 8000 ha. The coastal belt of the district comprises combination of sandy, rocky and estuarine pockets that support the artisanal fisheries to the poor rural fishermen of the district. The vast estuarine and rocky areas can be utilized for augmenting the molluscan fisheries resources by farming them in their natural habitat of distribution. Sindhudurg district of Maharashtra has coastline of about 121 km. The coastal area of the district is blessed with vast network of back waters, creeks and specialized ecosystems like mangroves and coral reefs. Malai creek is selected for the proposed study. Malai creek is nearly 8 km away from the Devgad, having a rocky-muddy mixed shore habitat with maximum of mudflats. The length of area covered for the study was approximately 2 km on each shore. The basin of the creek is very shallow. Besides, it is completely a mudflat .The average depth of mudflats of Malai beach is not more than 5-6 feet as observed during specimen collection at very low tides.

b] Methods:

Methods used for the study mainly included handy collection of the specimens during low tides and interactions with the local people. A total of about 20 fishermen including women were interviewed for study. Photography of the study area and relevant matters was done by using a proper digital camera. Identification of the specimens was done by using proper identification keys available at hand.

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Eia with Reference to Threats of Synthetic Pesticides Used on Alphonso Cultivations in Devgad Tehsil (Sindhudurg)

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ABSTRACT

Devgad is a coastal town in theSindhudurg district of Maharashtra state on the West coast of India. It is a tehsil in the Sindhudurg District and comprises around 70 villages. Devgad is globally famous for its Alphonso mangoes. *Mangiferaindica*, a member of family Anacardiaceae, is known as king of fruits. It is due to the soil rich in minerals like Al, Fe, Zn etc.along with the typical coastal atmosphere which contributes significantally. The Alphonso mango grown here is characterized by its distinct aroma along with a smooth and thin skin and thick saffron pulp. Approximately14.9% of area in Tehsil is under mango cultivation. This crop is attacked by insect pests like mango hoppers, shoot borer, fruit fly, mealy bugs etc. and some pestsfrom other animal categories like red mites and diseases like anthracnose, powdery mildew. For a respective cure, a variety of pesticides are used to control the pest population. In the present study, it has been revealed that farmers and workers applying pesticides on crop need a special training on safe application of pesticides. It is because of the fact that those synthetic chemicals cause severe direct and indirect effects on human health as well as on the non-targeted organisms like pollinating agents. As a part of that general awareness programs were conducted at different locations.

Keywords: Devgad, Alphanso Mango, Pest, Pesticides.

INTRODUCTION

Devgad Tehsil is a coastal town with a total area of hectors is 78, 127 with a forest cover of 3000 hectors, non-agricultural arid land of 35, 077 hectors and remaining land under agricultural use as well as civil utilization. Climate of the tehsil is hot and humid. Annual rainfall is 113" to 120" annum. Devgad is 0-100m above sea level and land is composed of basalt plateau. Temperature range in rainy, winter and summer is 11°C-35 °C, 13°C- 37°C and 15°C- 39° C respectively. Mango is important crop of Konkan. In the selected tehsil, mango cultivations have occupied almost an area of 11505.36 hectors. The crop has a capacity to bring out economic revolution in Konkan. At present, on Indian scenario, we produce 57% of total world mango production. In Maharashtra, about 4,74,5000 hectors land is under mango cultivation of which 1,82,000h is in Konkan. As the land under mango cultivation is increasing day by day, the problems related to the crop protection are becoming critical.

Regarding the cultivation practices, monoculture of the species *Mangifera indica* variety is observed all over the Tehsil. It is due to its maximum productivity, absence of spongy tissues.This crop is attacked by arthropod pest like mango hoppers, thrips, shoot borer, stem borer, fruit fly, mealy bugs and red mites.Mango hopper is major pest on mango. But due to improper management practices other minor pest like shoot borer, fruit fly, mealy bugs, mites, red rust, red ants, spider and mites are also becoming severe. For that, various pesticides are used to eradicate the pests and promote the productivity. Application of pesticides of all kinds is gradually becoming less effective which necessitates the application of higher dosages and increased dose

SIGNIFICANT THREATS TO FISHERIES IN DEVGAD TEHSIL, DIST. - SINDHUDURG.

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Abstract:
The fishery sector has been recognized as one of the dominant income and employment generating sourcein Devgad. Fishing is exclusively carried out in sea and estuaries since ancient times. There are very less opportunities available for development of fresh water fishery development in the study area. Fishing is the main occupation of a larger population residing in and around Devgad. Devgad tehsil has been naturally endowed with a length of coastal line reaching almost 120km. It is highly rich in fish resources of silver pomfret, seer fish, tuna, croaker, mackerel, prawns, crabs etc. Fishing is done in both traditional as well as using modernized crafts. Increased demand of sea foods has accelerated the resource harvesting operations on Devgad sea coast. Marine resources are mainly exploited by gill nets, purse- sine, trawling, shore seines (Rampani), fish and lines. However there are many threats emerging in front of fishing industry. Encroachment by foreign fishers, pollution, overfishing, unsustainable fishing practices, immature catch, advanced fishing technique, depletion in fish resources, sedimentation in estuaries (Nesat) and post-harvest losses are some of the major issues faced by fishermen in the study area. Overexploitation of marine resources resulting in decline of catch has been hampering the socio- economic development of fishermen. All these aspects are gradually leading to destructive fishing, unemployment, poverty, food insecurity, socio-economic as well as political and geographical conflicts and.

Keywords: Threats, Devgad, Fisheries, socio-economic

A] Introduction:

Fisheries are an important sector in India providing employment to millions of people and contributing to food security of the nation.Fishery sector occupies an important place in the socio-economic development of the country. This sector is a primary sector of the Indian economy along with agriculture. Fishing industry makes immense contribution to the economy in form of employment, livelihood, food security and foreign exchange earnings (John 2014).The continuous changes and up-gradation in existing fishing technologies and modernization helped to increase the efficiency of craft and gears.At the same time it has also demoted the fishers' population who are not able to cope up with these changes. However the application of modern technology is associated with deterioration and overexploitation of marine resources. Increasing demand of resources had boosted the harvesting operation and

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OBSERVATIONS ON FEEDING ADAPTATIONS OF TERRESTRIAL BIRD SPECIES IN SELECTIVE MANGROVESWAMPS IN DEVGAD TEHSIL

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Abstract

Rich avifaunal diversity in the mangrove swamp ecosystems is a bio-indicator of the better health and potent productivity o the ecosystem. Mangrove swamps support and sustain a large animal diversity involving a complex food web among them Different hydro-biological parameters in a mangrove ecosystem flourish the growth of various levels of organisms, right fro its micro-benthos upto the shore animals. In the same sequence, species richness in mangrove swamps invites dependence on sustenance ofa large diversity of birds in and around its premises. As the birds are ecologically sensitive animals, som selective mangrove swamp ecosystems in Devgad Tehsil of Sindhudurg district were selected for the studies on their avifauna diversity. The studies were carried out during a period of one year from August 2013 to November 2014. The observations wer analyzed with some interesting results as the conclusions. It was observed that almost 90% of the species depend on mangro swamps only for feeding and 10% for both feeding as well as nesting in mangrove trees. Besides it has been also detected tha some bird species, which are otherwise only terrestrial in their habits, are also adapted for the feeding in the swamps o mangroves. They were found to feed in the mangrove swamps especially during the periods of low tides. The feeding frequenc of such birds and their stay in and around the swamps has also been found to be considerable. They were found to be feedin along with some other regular aquatic birds without any competition for the food and any interspecific conflicts.

Keywords: Mangrove swamps, feeding adaptation, terrestrial birds, Devgad

Introduction

The term adaptation refers to the capacity of the organism to cope with the environmental changes and make itself fit for th survival through that. The adaptability of a species depends on the speed of the environmental changes and the physical as well as physiological complexity of the individual makeup of the organisms in it. Ultimately the adaptability is related with th capacity or irritability of a species to respond the environmental changes and need to respond them. Gradually the response displayed to the environmental changes by a generation of the species may get percolated in its genetic constitution and become stabilized forever as variations in that species. Thus they become a raw source of evolutionary improvement in the species. Responses given to a specific environmental change may differ from species to species. The speed as well as time o the response may also differ in every species.

As a matter of fact, birds are the most ecologically sensitive animals. They can detect any minute change in any environmenta factor and immediately respond to that. Through the behaviour of several birds, human beings can predict certain environmenta events. Feeding act of birds is also varied. Accordingly they have different types of beaks and legs evolved for the purpose.

As we know better, Mangrove forests are among the world's most productive ecosystems. They enrich coastal biodiversity protect coastlines and support coastal fisheries. The mangroves create a unique ecological environment that hosts rich assemblages of a number of aquatic as well as terrestrial animal species. A large number of bird species use mangroves as their roosting and feeding sites. It is very common to see in Devgad Tehsil that a variety of birds interact with mangrove swamps with their mudflats and the coastal terrestrial habitats over there including human civilizations as well as agricultural lands, open arid lands, scrubby woods, cultivations and thick forest habitats. In the total area of the Tehsil, more or less 134 species of birds have been detected so far till date in last few years. Of them, cumulatively 73 bird species have detected interacting with different mangrove swamp ecosystems in different parts. Out of them, 44 species were found interacting with both mangroves as well as human establishments while remaining 29 strictly restricted to human establishments. Many birds use the mangroves for daily foraging as well as for roosting while some make use of them just for roosting. Some species are also found to use them just as timely resting places during their daily activities. Interestingly some species of birds which are considered to be perfectly terrestrial in their feeding act have been found to be actively feeding on inner margins of the intertidal zone as well as on the outskirts of the mangroves.

AVIAN DIVERSITY ALONG THE WADATAR-MALAI CREEK OF DEVGAD TEHSIL IN SINDHUDURG DISTRICT DURING SEPTEMBER 2011 TO SEPTEMBER 2014

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Abstract

Sindhudurg district is a naturally rich district in its biodiversity. It has been endowed with a very rich mangrove veg along its coastal lines; especially creeks. Obviously, mangroves habitats in the creeks of Devgad Tehsil of the district rich in their biodiversity as well as the complexity of their food chains. Wadatar-Malai creek in Devgad is a very habitat in that sense as it has a long mangrove coastal line as well as small mangrove islets in its stream. The overg volume in the main stream of the creek remains ample irrespective of the tidal cycle as on its immediate West mouth, i the Arabian Sea. But major part of its deep mud flats on its shores becomes completely bare during low tides considerable length of almost 3km. Besides, thickness of the mangroves is also significant on the shores. The natural of the creek is thus favourable for harbouring a large number of shallow water animals like molluscs and fish constitute bulk of the avian food.Thus the overall situation is very much supportive for a rich avian diversity along the During the study period of one year, about 57 avian species were found to be associated with the Wadatar-Malai creek or indirectly for various purposes like feeding. Besides, the human civilizations and vegetations other than mangrove the coastal line also support the survival of the birds by providing roosting places, breeding grounds as well as supplem food resources. Hence Wadatar-Malai creek is an ideal habitat for birds to stay, survive and sustain.

Key Words: Devgad, Wadatar-Malai, Avian diversity, Mangroves, Mud flats

Introduction

Sindhudurg district is a well-known district for its natural biodiversity by all means. It is a part of South Konkan on the coast of Maharashtra. The total geographical area of the district is 5, 219 sq. km. It is located on **16° 4' N** to **16° 8' N** and to **74° E.** It has been endowed by a **natural seacoast** of approx. **120Km.** Sindhudurg has a fascinating variety of habitats of all kinds. As it has a very long coastal line, it obviously has a very thick vegetation of Mangroves along coastal lines and estuaries. Coastal habitats in Sindhudurg are surprisingly comprised of various substrata like black and sand, rocks, muddy and mixed.

Mangroves are the rich natural plantations that grow muddy coast lines. Mangrove forests are among the world's productive ecosystems. They not only enrich the coastal biodiversity but also protect coastlines and support coastal fis The mangroves create a unique ecological environment that hosts rich assemblages of a number of aquatic as well as ter animal species. The rich nutrient cycle in the microbenthos of mudflats with mangroves flourishes a rich biodi Obviously as a result, the coast of Sindhudurg is very rich in its coastline diversity of aquatic as well as terrestrial a Much of that comprises bulk of the avian food chain overthere. As a result, avian fauna, as an avoidable part of a habitat, is also very rich in the mangrove habitats in Sindhudurg. A large number of bird species use mangroves roosting and feeding sites. According to observations of different ornithologists and amateur observers and naturalis are about 255 species of birds residing in different habitats of the district.

Devgad Tehsil in the district is a typical coastal town, world famous for its alphanso mangoes. It has a rich coastal a many sea shores as well as estuaries. Many of them are lined by thick mangrove vegetation along them. The total m mangrove species found all over the coast of the district is 16. It is important to note that considerable human po reside in the vicinity of the mangroves and the concerned shores. Those populations depend mainly on the fishing and related businesses in the area. Their interference with the mangrove ecosystems, so as to create any threat to almost nil or negligible.

Present Status of Traditional Bivalve harvesting in selected Creeks of Devgad Tehsil with reference to Natural Sustainability of Crop Animals

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Introduction:

Sindhudurg district of South Konkanis well known tourism district in the Maharashtra State and also known as Malabar. It is located on 16°4' N to 16° 8' N and 73°8' E to 74°E. The tehsil Devgad selected for proposed studies lies on geographical coordinates as 16° 23' 0" N., 73° 23' 0" E.

South Konkan is well known for its terrestrial as well as marine biodiversity. It is a coast with a natural length of 121km providing food and money to several people residing over there since long times. Devgad Tehsil in Sindhudurg district is one of the important naturally endowed zones in that coastal length. It has partially fragmented but significantly long coastal lines. Those coastal lines represent several naturally endowed creeks. Most of the creeks are fortunately still away from major human nuisance and the consequent eco-biological damages. The selected creeks of Devgad Tehsil lie in such undisturbed zones. Obviously they have their own characteristic habitat structure and microenvironment flourishing a large biodiversity in their basins. Molluscan diversity inthe premises of those creeks has a very good species richness as well as abundance.

Hence to detect the overall abundance of edible molluscan diversity, their harvesting processes and the some ideas of conservation and sustainable development of the crop,a comparative study of two selected creeksWadatar-Malai and Mithbavfrom the tehsil was carried out during a period of two and half years fromMay 2013 to October 2015. The study included identification of the species, interviews and discussions with the local catchers depending on them, population analysis by quadrate method and biomass index wherever possible and comparative analysis of the observations. Interesting results have been obtained with respect to these parameters if the overall environmental parameters and seasonal changes are concerned. Occurrence and abundance of the observed species differs in the selected habitats. Some molluscan species were found only on one shore and not on the other while some were common on both with differing population densities. Molluscan diversity here is refereed to all classes of the phylum. But as the studies were mainly confined to edible molluscs, only bivalveswere obviously focused.

It has been recently estimated that the overall business of edible bivalves in the selected creeks runs in lakhs in the local markets per year depending on the season. The catch is actually related with some very vital environmental factors like movement of sand under the bottom, speed of tides, period of occurrence of high and low tides, nutritional fluctuations, exposure to sunlight and mangrove thickness on the coastal lines.

Objective:

1. Selection of the creeks significantly known for variedmolluscan diversity and related harvesting process.
2. Visits to the study areas during the times of harvest by local people
3. Interviews with local catchers
4. Overall estimation of the catch
5. Culture practices run by local MahilaBachat Gat and UNDP.

Material and Methods:

Study area:

1] For the proposed study, two creeks were selected for the purpose. They are known as **Wadatar-Malai**creek and **Mithbav**creek.

Wadatar-Malai creek

is nearly 8 km away from the Devgad town in its North and North-West. This creek is having a rocky-muddy mixed shore habitat with considerably wide mudflat extending inward from both of its shores. It has very thick mangrove vegetation on the outskirts of its both shores. It has long mangrove thickets along its coastal line as well as small mangrove islets in its midstream. The width of the stream extends upto more than 100 meters. The midstream mangrove islets are also considerably thick and away from easy reach of mankind. It must also be noted that the overall water volume in the main stream of the creek remains ample irrespective of the tidal cycle as on its immediate West mouth, it opens in the Arabian Sea. Major part of its deep mud flats on its shores becomes completely bare during low tides. The creek has a considerable length of almost 6 km on its both coasts. The natural habitat of the creek is thus favourable for harbouring a large number of shallow water animals like molluscs, other invertebrates and fishes.

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Title: Studies on Dependence of Somebirds of Prey on Mangrove Vegetations Forfeeding and Nesting in Selective Mangrove Ecosystems in Devgad Tehsil [Dist.: Sindhudurg]

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ABSTRACT

Rich avifaunal diversity in the mangrove ecosystems is a bio-indicator of the better health and potent productivity of the ecosystem. Mangroves support and sustain a large animal diversity. They represent a complex food web among them. Various biological parameters in a mangrove ecosystem support the growth of various levels of organisms. Richness of the variousspecies in mangroves is also reflected in its avian diversity. Avifauna depends upon the same for breeding and feeding.Birds found in mangroves are diversified on the basis of their feeding and breeding habits. Depending on the feeding habits, avifauna in mangroves can be classified into several types as gramnivorous, insectivorous, waders, birds of prey etc. Of those categories, diversity of the birds of prey was studied in three selective mangrove creek ecosystems of the Devgad Tehsil during a period of one year from December 2013 to January 2015. During the overall studies, along with the species diversity, individual species richness was also evaluated. Total 77 species of the birds were observed among the mangroves of the selected creek habitats in the study area. Of those 77 species, 28 species were found to be the birds which specifically rely on the mangrove basins for the feeding as well as their roosting and nesting.They have a very wide range of their food sources in the concerned ecosystems. Among those 28 species, about 11 species were the birds of prey. It was also observed that in spiteof species richness in the selected creeks, individual populationdensity of every species of birds of prey was not the same throughout. In fact, it was found that some species like tawny eagle and crested serpent eagle are too less in their individual number and also do not depend solely on the mangroves as they have other feeding alternatives in just the vicinity i.e. on terrestrial terrains. On the other hand, white bellied sea eagle mainly depends upon the marine sources for its food. It depends on the type of tall vegetation nearby for its nesting process. In overall impression, dependence of birds of prey on mangroves in the selected creek ecosystems was found to be significant. But they do not solely depend on the same for their food.

Keywords: Mangroves, Devgad, birds of prey, feeding, breeding.

INTRODUCTION

Topologically, Sindhudurg district is a well-known district for its natural biodiversity by all means.

It is a part of South Konkan on the West coast of Maharashtra. The total geographical area of the district is 5, 219 sq. km. It is located on **16° 4' N** to **16° 8' N** and **73° 8' E** to **74° E**. It has been endowed by a **natural seacoast** of approx. **120Km.**

Sindhudurg has a fascinating variety of natural habitats of all kinds.As a result, avian fauna, as an avoidable part of any living habitat, is also very rich in this habitat. According to different observations of amateur observers and naturalists, there are about 255 species of birds residing in different habitats of the district.

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IVERSITY TEXT BOOK OF ZOOLOGY

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HYDROPHOBIC COATINGS USING LAMP BLACK

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ABSTRACT:

There is need of protective coatings for industry as well as domestic purpose. A wide range of coating materials are being researched for variety of applications such as corrosion resistance, scratch resistance, hydrophobic coating etc. As carbon black is hydrophobic in nature, an attempt was made to produce hydrophobic coating on metals using lamp black. The water contact angle and sliding angle measured on the lamp black coatings were 142 ° and 9 °, respectively.

INTRODUCTION:

Increasing needs of modern technology have attracted the attention of researchers and scientists from diverse disciplines towards the studies on the properties and applications of surfaces synthesized by various methods. The surface behavior of materials is crucial inour day-to-day lives. The obvious problems such as corrosion, alkali/acid attacks etc. are overcome by special surface treatments which modify the chemical composition and/or the surface morphology [1]. Superhydrophobic coatings are one of the widely applicable types of protective coatings. Hydrophobicity is a key aspect to be considered when the surfaces are bare with high tendancy of corrosion. Corrosion of surface lowers down the original inherent function of the surface and decreases its life span. To protect the underlying surface and its properties for intended applications hydrophobic coatings need to be applied. Wetting refers to the study of how a liquid on a solid (or liquid) substrate spreads out [2]. Carbon black has inherent hydrophobic character, therefore it was coated on metal surface by simple method to produce hydrophobic surface to protect the metal surface from water and moisture [3].

EXPERIMENTAL:

Facile way to get carbon black is to burn oil. We used groundnut oil lamp to coat copper and steel surface. The metal substrates were grazed to remove dust, dirt and oxides and thoroughly cleaned. Prior to deposition, a layer of castor oil is applied to the metal substrates for better adhesion of lamp black. A thin layer of the lamb black was deposited at very low deposition rate, manually. Once the layer was deposited, the coating was cold treated at low temperature (~5 °C). The obtained coatings were characterized and tested for hydrophobic character.

Low density silica aerogel synthesized in less processing time via mechanical shaker

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1. Introduction

Silica aerogels possess extremely low density (< 0.500 g/cm3) which can be characterized by low thermal conductivity (0.005 W/mK), high porosity (~99%) and large surface area (~1000 m^2/g) [1-4]. These properties lead silica aerogel a wide range of applications of monoliths and granules in variety of fields such as insulator, Cherenkov radiation detection etc. [4-6]. Light weight silica aerogel monoliths are prepared by supercritical drying process which is difficult to follow due to requirements of high temperature (~ 240 °C), hizh pressure (~ 8 MPa), expensive instruments [7]. The ambient pressure drying (APD) or subcritical drying method can be assumed to be easy and inexpensive as compared to supercritical drying. The steps to follow to obtain silica aerogels are homogenization of precursor, hydrolysis and condensation reactions, and drying of wet gel. During drying of wet gel by APD, solvent exchange and silylation processes are carried out which prolong the processing time. In order to shorten the processing time we employed mechanical shaking during solvent exchange and silylation of alcogel thus the processing time was reduced considerably to ~ 27 hours.

2. Experimental

Chemicals used for silica aerogel synthesis were tetraethoxysilane (TEOS) as precursor, methanol (MeOH) as a solvent, oxalic acid, NH4OH as catalysts, Hexane for solvent exchange and tetramethylchlorosilane (TMCS) as surface modifier. All the chemicals were used as received without further purification. Flow chart (fig. 1) gives the detailed process of silica aerogel synthesis followed in the present work. Here, the shaking time for solvent exchange was optimized by observing the density.

3. Characterizations

The obtained silica granules were characterized for density and contact angle and existence of silica network and effect of surface modification (silylation) was confirmed by Fourier transform infrared (FTIR) spectroscopy.

The time of solvent exchange (exchanging MeOH by low surface tension Hexane) with mechanical shaking employed was varied and the density of samples was calculated. The bulk density of the aerogel was calculated by considering mass to volume ratio:

$$\rho = \frac{m}{V} \qquad (1)$$

where, m = mass (gm) and V = volume occupied (cm^3) of the silica aerogel gradуals.

The static contact angle measurement was done using the travelling microscope to measure the base and height of drop and high quality photographs of the water on the powdered silica aerogel spread on glass substrate were taken. Following formula to determine the contact angle (θ) was used:

$$\theta = 2\tan^{-1}\frac{(2h)}{b} \qquad (2)$$

where, h = height and b = base of the water drop.

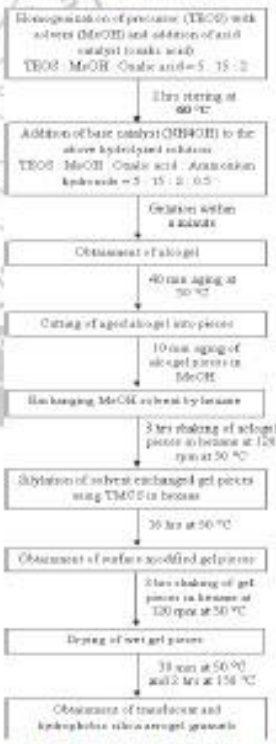

Fig. 1: Flow chart of steps involved in synthesis of silica aerogel

References:http://www.understandingnano.com

http://www.in.pinterest.com

16.SYNTHESIS AND PERFORMANCE EVALUATION OF LAMP BLACK BASED HYDROPHOBIC COATINGS

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Abstract

Protective coatings are need of various industries and domestic purposes as well. There is extensive research going on in the field of coatings synthesized following an environment friendly way. Variety of applications such as corrosion resistance, scratch resistance, water resistance etc. demand economic and efficient materials. Hydrophobic nature of lamp black is already know, thus based on the same, we made an attempt to obtain hydrophobic coatings on metals. The static water contact angle measured was 145 ° while the sliding angle was 7 °.

Introduction

Modern technology demands are increasing and it have attracted the interest among the researchers community working in various disciplines. Researchers and scientists are extensively working on the studies regarding the synthesis and properties and applications of

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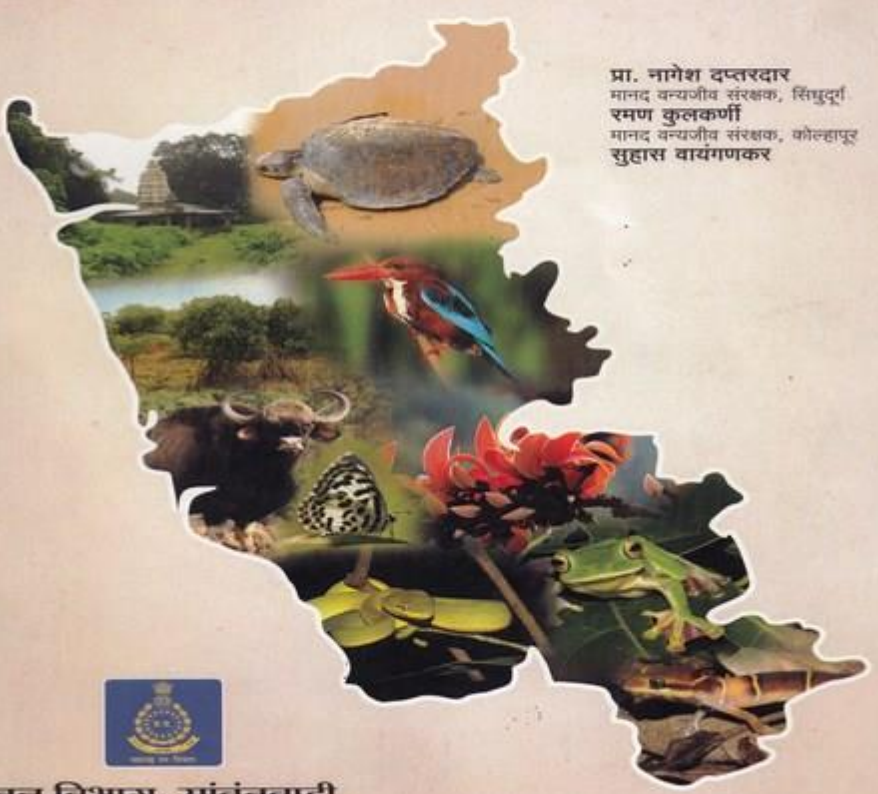

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INORGANIC CHEMISTRY
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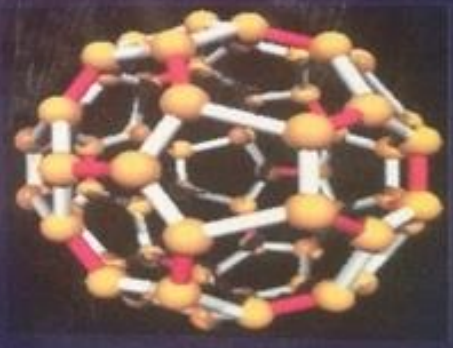

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centres have to consider various possible alternatives. In this direction, information retrieval system has emerged as a viable device for meeting challenges of increasing cost and to meet the users need. Thus library and information science professional should play a vital role in open access movement, by establishing institutional repositories, to provide world wide access to their research work.

References:

1. Lynch,C.A.(2003). Institutional repositories: essential infrastructure for scholarship in the digital age, ARL Bimonthly Report,vol.226, 2003.http://www.arl.org/resources/pubs/br226irhtml

2. Crow,R. (2002). The case of institutional repositories: A SPARC Position paper ARL bimonthly report vol.223, 2002. http://www.arl.org/bm-doc/instrepo.pdf.

3. Directory of open access Repository (open DOAR) http://www.opendoar.org (access on Dec.12 2008)

4. E-prints in Library and information science, http://eprints.rclis.org (access on Dec.12 2008)

5. Katariya Sanjay, 'Intellectual Repositories in Institutions of Higher Learning in India: An overview' (accepted and available on internet in LDL- Indian archives of LIS).

6. Ghosh S.B. and Anup Kumar, Open access and institutional repositories-a developing country perspective: a case study of India' IFLA conference, seoul (Aug.2006). (Accepted and available on internet in E-LIS- An institutional archives of LIS).

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02

Applications of Mobile Technology in Library

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Abstract:-

Libraries have always set an example in experimenting with new technology developments, whether it is automation or adopting other information and communication technologies to improve their services. This paper seeks to address this issue. Through examination of trends and technological developments in the area of mobile devices e-commerce and review of the potential of mobile devices and e-commerce, libraries especially use several tools and techniques to circulate the information to the user community. Mobile technology has become boon to the libraries. Mobile applications are the exact replacements of web based applications.

Keywords:-Mobile communication systems, academic libraries, Higher education, Information management.

Introduction:-

In the past few decades, some technological changes have appeared gradually and their impact on higher education has been incremental. In other cases, over relatively short periods of time, technological changes, such as the introduction of Web browsers, have had a major, and some would say revolutionary, impact on higher education as well as the broader society. Which will it be for mobile devices? Will their impact be gradual and incremental or sudden and revolutionary? There is a case for both points of view. Since individuals

DIGITAL LIBRARY DEVELOPMENT AND MANAGEMENT

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Abstract: *In this age of information technology there have been so many opportunities for the libraries and their staff of involvement in an information based society including electronic and multimedia publishing, internet based information services, global networking web based digital resources. This paper emphasizes the significance of digital libraries in present information era, its standards, their superstructure, technological requirements and challenges in an Indian scenario. The digital libraries Plays an important and indispensable role in educational and research development of higher educational institutions such as colleges, universities and institutes of academic and research nature. The aim digital libraries is to provide instant access to digitized information and consists of variety of information sources paper to paperless professionals form including multimedia. It suggest that in developing countries resources are limited, funds are inadequate the library and information professionals should develop their skill and proficiency to meet the challenges of technological developments and changes emerging out of digital library services.*

Keywords:-Digital Libraries, objectives of Digital Library, Changing Role of Library Professional, Digital Library Infrastructure and Challenges of Digitization of library

Introduction:-

Digital library is not only digitization of physical resources, but also thoughtful organisation of electronic collection for better access. Such organization provides coherence to a massive amount of shared knowledge base. While the method of access provides convenient information retrieval for a wide range of global user. Essentially a digital library deals with organisation and access of a large information repository. In all probability, digital libraries are likely to augment traditional libraries, such as an on-line card catalogue augments, rather than strictly replacing, a book collection. The reason for this could be than the digital medium tends to be better for searching and the physical medium better for reading. Lets us know about digital library and the skills required to build up digital collection

What is a digital library:-

According to Digital Library Federation, "Digital libraries are organization that provide the resources, including the specialized staff, to select structure offer intellectual access to, digital works so that there are readily and economically available for use by a defined community or set of communities. Digital library is a logical extension of the networked environment and the development triggered thereof and provides the users with coherent and access to a very rare, organized repository of information and knowledge. In a sense it is global virtual library the library thousand of networked electronic libraries."

Objectives of digital library:-

APPLICATION OF RFID TECHNOLOGY IN LIBRARIES AND ROLE OF LIBRARIAN

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Abstract:
Library consists of intellectual capital like scholarly journals, books, reports, theses etc. For security purpose, the goal of the security system should be to provide a safe and secure facility for library employees, library resources and equipment and library patrons. At the same time due to application of security system, it promises to increase efficiency, productivity and enhance user satisfaction. Considering the importance of library security, the present paper concentrates on application of RFID technology in libraries, its components, benefits and role of librarian are described.

Keywords: RFID, Library Security, Radio waves, Security System, Tag, Theft detection

Introduction:
RFID means Radio frequency identification i.e. the technology that uses radio waves to automatically identify individual items. The objective of any RFID system is to carry data in suitable transponders, generally known as tags and to retrieve data, by machine readable means, at a suitable time and place and to satisfy particular application needs.

RFID is one of the most technologies being adopted by both industry and academic world. Modern academic library is a place where millions of books advanced; periodicals, CDs, DVDs and other electronic reading materials are contained. It is a challenge to manage for librarians, managing such type of huge collection.

RFID technology is in use since the 1970s. RFID tags can be active, semi-passive and passive. It is a small device that can store information. Passive tags don't have internal batteries. RFID reader is a device that can receive and transmit a radio signal. It is built to encode data stored in the tag's microprocessor. Because of the higher cost, active and semi-passive RFID tags are used for valuable asset tracking. The passive RFID tags are used in RFID library management systems.

RFID library management, using RFID tags library, is easy and convenient. A RFID library management system consists of books, each attached with an RFID tag, RFID reader, computer network and software. Library staff handle lending, returning, sorting, tagging etc. of books, using RFID tags in this library system. A person can locate RFID library books marked with a RFID tags, using the RFID reader which identifies and locates the book. When the book is carried to the counter, the library staff can either activate or deactivate the electronic article surveillance bit in the book's tag. If a book is borrowed, then the surveillance bit is deactivated.

Assessment of Drinking Water Quality From Ground Water Source From Different Villages of Devgad Tehsil of Sindhudurg District, (M.S.)

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Abstract :

The paper focuses on the Assessment of Drinking water quality from ground water source ,from different villages of devgad Tehsil of sindhudurg District, Maharashtra,India.Total 10 samples of drinking water from open wells were collected.Physisco-chemicals parameters P^H,E_C,T_H,TDS,TA, Fe,Mn,Cu,were assessed.The present study indicates that samples collected found to have values of Total Hardness ranging from 2 – 60 ppm,these values are within desirble limit.Electrical conductivity,Total alkalinity values are also within desirable limit. Copper, Manganese also present within per missible limits,Iron content exceeds permissible limit.Sample 1,2,5,8,9,10 showes P^H values towards acidic sides.

Introduction :

Man uses water for drinking, preparation of food, bathing and cleaning purposes.The purity and quality of water is of basic concern to mankind .Water never occurs in nature in pure state due to its strong solvent action.Ground water is the name given to fresh water stored in open spaces within underground rocks .More than 98% of fresh water on the earth is below the earth as ground water.It is the main source of drinking water.Ground water can get easily polluted from waste generated from domestic ,industrial and agricultural sources. There are many sources of water supply and each has its own type of contamination. Assessment of water is essential to confirm purity, potability for safety of public health.

Due to use of unsafe water people may prone to water borne illness. It is necessary to assess physicochemical parameters like P^H,E_C,TA,TH,TDS,and element content of ground water samples collected from dugwells in the regeion.In present study an attempt is made to evaluate the

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PP-2

Synthetic food colour-Food additive

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ABSTRACT

Dye is a coloured organic compound which imparts colour to substrate. Food dye is a substance that imparts colour, when it is added to food products. Food additive are non nutritive substances added to food, generally in small quantities to improve its appearance, flavor, storage properties. Synthetic food colours are the food additive used both in commercial food production and in domestic cooking. In this article , limitations of natural dyes, synthetic dyes ,their requirements, adverse effects are discussed.

Introduction:

Dyes dissolves in water and are manufactured as powders, granules, liquids or other special purpose forms. They can be used as beverges, dry mixes, baked goods, confectionary, dairy products, and variety of other products. In many cases,natural colouring material do not exit for a desired hue, carbonated beverages, candies and bakery goods are some food that are coloured with coal tar dyes. Water soluble dyes are used in foods. According to FDA rules no person shall sell coal tar dyes for use in food except under licence.

Requirements of synthetic dye to be used as food additive -

It should be nontoxic and completely harmless to human being. It should be highly pure and should not contain heavy metal impurities. It should be aesthetically suitable colour. It should be stable to light and heat. It should not interact with other ingredients of food. It should not alter the taste and flavor of food. It should be certified by FDA (Food and drug authority) as permitted colour. It should restore colour lost during processing or storage.It should be ensure that each batch produced is identical in appearance or does not appear 'off'; It should reinforces colour already in foods, e.g. enhance the yellowness of a custard; It should give colour to foods which otherwise would be colourless (e.g. soft drinks) and so make them more attractive.The following dyes are permitted to be used in foods under FDA rules,Higher doses will cause adverse effects on health,

i) Red- Carmosine, erythrocine, ii) Blue-Indigo carmine, brilliant blue
iii) Yellow- Tartrazine,Sunset yellow , iv) Green - Fast green

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७. अविनाश बापट

मालवणी मेवो

देवदिवाळीक हिंदळ्याच्या काळभैरव जत्रेत
तुका पहिल्यांदा आवशी बांगडा बघलंय्
तेव्हा तू काट्यार बसलं हुतस्, नजरा नजर झाली... नी
तू खयतरी मनात भरलंस्
पुषी पौर्णिमेक मुणग्याच्या जत्रेत
महिन्या भरान तुका परत बघलंय्
डोळ्याक डोळो भिडवून तू वायच हसलस्
तू मेवो-मिठाईच्यो पुडयो बांधत व्हतस्
ऊन जाळत होता तरीव् तू
सुरंगीच्या हारासाऱ्या वाटलंस
महाशिवरात्रेक कुणकेश्वराच्या जत्रेत
पिवळ्या साडयेत तू गल्ल्यार...
खाजा, मेव्याक तुज्या दुकानार, गिराइकांची झुंबड उडालली
मियाव् खिसो चाचपॉन -
- अर्ध्या किल्याची पुडी उचल्लय्
आयेची नजार चुकवान, माझी नोट तू परत केलंस
आपल्या हातान माजे पिशयेत पुडी घालताना
तू माज्या कानाक लागलंस् -
- "ह्यो मालवणी मेवो आवडलो तुमका?"
तेव्हा मातर जेत्रेतल्या खाज्या-मेव्याचा ढीगांत
तूच गमूक लागलंस्
तू म्हणजे मालवणी मेवो
मालवणी मेवो म्हंजे तूच वाटलंस !

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डॉ. आंबेडकर आणि स्वतंत्र मतदारसंघ

वसंतराव भाऊसाहेब भोसले
श्री. स. ह. केळकर महाविद्यालय, देवगड, जि. सिंधुदुर्ग

भारताच्या सामाजिक, आर्थिक, शैक्षणिक परिस्थितीचा अभ्यास करण्यासाठी सन १९२८ मध्ये डॉ. बाबासाहेब आंबेडकर यांनी सायमन कमिशनच्या माध्यमातून प्रयत्नाला सुरूवात केली. परंतु म. गांधी आणि काँग्रेसच्या कार्यकर्त्यांनी सायमन गो बॅक म्हणून त्याचा निषेध केला. त्यासाठी मोठे उग्र जन आंदोलन केले

बाबेळी डॉ. आंबेडकर आणि त्यांच्या अनुयायांनी बेलकम सायमनच्या घोषणा दिल्या, परंतु डॉ. आंबेडकर आणि त्यांच्या अनुयायांची ताकद म. गांधी आणि त्यांच्या कार्यकर्त्यांच्या शक्तीपुढे अपुरी पडली. परिणामी सायमनला परत जावे लागले.

त्यानंतर पहिल्या गोलमेज परिषदेवर म. गांधी आणि काँग्रिसने बहिष्कार घातला, म्हणून ब्रिटिशांनी इंग्लंडमध्ये दुसरी गोलमेज परिषद आयोजित केली. या परिषदेला डॉ. आंबेडकरांनी अत्यंत प्रभावीपणे व तळमळीने भारतातील अस्पृश्यांचे प्रश्न मांडले व त्यांचा उद्धार-विकासासाठी स्वतंत्र मतदारसंघाची मागणी मंजूर करून घेतली. याचा अर्थ अस्पृश्यांचा प्रतिनिधी निवडण्याचा हक्क केवळ अस्पृश्य जातीतीलच मतदारांना असेल असे केल्याने खरोखर केवळ अस्पृश्यांच्या उद्धाराची तळमळ असलेले व त्यांच्यासाठी प्रामाणिकपणे कार्य करत असलेलेच उमेदवार निवडून येतील व समाजबांधवांसाठी कार्य करतील असा होता. सर्वसाधारण उमेदवारांसाठीही अस्पृश्य जातीतील मतदारांना मतदान करण्याचा हक्क असेल अशी अस्पृश्य मतदारांना दोन मते देण्याची योजना स्वतंत्र मतदारसंघाची होती. ती ब्रिटिशांना पटल्यामुळे डॉ. आंबेडकरांची ही मागणी त्यांनी मान्य केली होती, परंतु गोलमेज परिषदेहून भारतात परतल्यानंतर गांधीजींनी डॉ. आंबेडकरांची ब्रिटिशांनी मान्य केलेली मागणी रद्द करावी यासाठी पुण्यामध्ये आमरण उपोषणाला सुरूवात केली. काँग्रिसच्या अनेक कार्यकर्त्यांकडून डॉ. आंबेडकरांना मागणी मागे घ्या नाहीतर जीवे मारू अशा धमक्या येत होत्या पण डॉ. आंबेडकर डगमगत नव्हते. गांधीजींची प्रकृती अधिकच खालावत गेल्याच्या बातम्या वर्तमानपत्रातून येऊ लागल्या. डॉ. आंबेडकरांना २४ सप्टेंबर १९३२ मध्ये गांधी-आंबेडकर पुणे करारावर सही करावी लागली व स्वतंत्र मतदारसंघ रद्द होऊन त्याऐवजी अस्पृश्यांना गांधीजींनी राखीव मतदारसंघाला मान्यता दिली. याचा आजपर्यंत असा परिणाम झाला आहे की, अस्पृश्य जातीतील उमेदवाराला केवळ अस्पृश्य मतदारानी मते द्यावयाची नाहीत, तर सर्व मतदारांनी मते द्यावची याचा परिणाम म्हणून सवर्ण नेत्यांच्या हो ला हो असे मान डोलावणारे अस्पृश्य उमेदवार त्यांच्या मतपिक्याच्या जोरावर निवडून येत आहेत अशा पद्धतीच्या मतदानामुळे स्वतः डॉ. आंबेडकरांचा पहिल्या सार्वत्रिक निवडणुकीत पराभव झाला होता, हे सर्वज्ञात आहे.

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