IMPACT OF INFLATION ON FDI INFLOWS IN G7 COUNTRIES AND INDIA

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Abstract
Recent invitation by G7 countries to India to attend G7 summit highlights strengthening ties between the developed nations (G7 countries) and the fastest emerging economy in the world (India). In the era of globalization, strengthening relationship between two or more economies results not only economic growth but also economic development. However, there are various factors that play a vital role in the strengthening of such relations such as cultural barrier, economic freedom, democracy, etc. One of such important factor is inflation. Some researchers have concluded that inflation is detriment to the nation's growth while some highlights the importance of inflation in the economy. Hence, it is still unclear about the impact of the inflation on the economy (whether it is developed or developing economies). The paper attempts to study the impact of inflation on FDI inflows in G7 Countries (developed economies) and India (emerging economy) by adopting Correlation technique for the period of 20 years from 2000-2020, the data of which has been gathered from the authorized source such as World Bank. The findings indicate that inflation has positive impact on FDI inflow in G7 countries and India. The finding is important for policy making as well private individuals or company/institutions who are interested in investment or establishing the business in G7 countries and /or India.

Introduction

According to UNCTAD, FDI is defined as an investment done by individuals or enterprises in a country other than one's own and having long-term commitment or interests. For long lasting interests, the investor must possess at least 10% of the voting power in the business established in foreign country. Equity capitals, reinvested earnings and intra-company loans are the 3 main components of FDI. When an investor purchases the share of foreign firm or enterprises, then it is known as equity capitals. When the dividends are not shared among the investors and the profits are reinvested in the business, then it is known as reinvested earnings. When there is short term and long term borrowings and fundings between an investors and its affiliate enterprises, then it is called as intra-company loans. Besides this, there are 3 types of FDI, namely, Horizontal FDI , where an investor invest in the product which are similar or belong to the same industry; Vertical FDI, where investors invest in the supply chain of the same industry, and Conglomerate FDI, where investors invest their money in different industry.

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ROLE OF E-BANKING IN ECONOMY DEVELOPMENT OF INDIA

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Abstract
The Indian Banks are the backbone of Indian financial sector and Indian economy. Now a day in Indian economic scenario, the Indian financial system is in a process of rapid transformation. The shift from the formal banking to E-Banking has been a remarkable 'leap change' in Indian banking history. E-banking has experienced strong and sustained growth. E-Banking, also known as net banking, online banking or internet banking, is the facility provided by banks and financial institutions which allows customers to use banking services via internet. There are scores of services like online money transfer, account opening, bill payment, tracking account activity, etc., which are made available to customers with the help of e-banking. This research paper shows the relationship between e-banking and economic development in India and helps to know the present economic scenario of e-banking. It highlights the role of e-banking in ensuring a speedy Indian economic recovery.
Keywords: E-banking, economic development, present economic scenario.

Introduction

India has arisen as the quickest developing significant economy on the planet and is relied upon to be One of the best three financial powers of the world throughout the following 10-15 years, upheld by its Solid majority rules government and associations. The public authority of India has thought of Digital India drives, which centers around three center parts: production of advanced framework, conveying administrations carefully and to build the advanced literacy. Banking through electronic channels has acquired expanding prevalence as of late. The improvement and the expanding progress experienced in the Information and Communication Innovation combined with the development of the worldwide economy prepared for the change of the Indian financial framework's job from customary exchange financing to activating and directing monetary assets all the more really in practically all features of life.

Objectives of the study

1. To examine the role of e-banking in economic development of India.
2. To highlight the role of e-banking in ensuring a speedy economic recovery of India.
3. To examine the need for e-banking among the Indian populace.

Methodology of the study

The study is mainly descriptive in nature. The data for the purpose of the study has been collected through secondary sources, which mainly include websites, various articles and journals.

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SOIL SALINITY ASSESSMENT AND MAPPING USING REMOTE SENSING AND GIS TECHNIQUES IN THE LOWER PART OF MULA-MUTHA RIVER BASIN, WESTERN MAHARASHTRA, INDIA.

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Abstract: Soil salinity is a global problem. Soil salinization badly affects agricultural lands. It is negatively affecting plant growth, crop yields due to over-irrigation, monoculture of sugarcane, using polluted water of the river leading the further land degradation. It is also a major concern in the lower Mula-Mutha River basin in western Maharashtra, where the climate is arid and semi-arid. The objectives of this study were to estimate the salt affected area and delineate mapping variations in the study area using RS data. Traditional soil salinity assessments have been done by collecting soil samples and laboratory analyzing of collected samples for determining soil pH and electroconductivity (EC). Geographical Informatics Systems (GIS) and Remote Sensing (RS) technologies are used to provide more efficient, economic, and rapid tools and techniques for soil salinity assessment and soil salinity mapping. Using Landsat-8 OLI/TIRS satellite images, Soil Adjusted Vegetation Index (SAVI) and Normalized Difference Salinity Index (NDSI) are studied for finding out the soil saline area of the basin. It is found that more than 65% of the soil in the study area is moderate to highly saline as per SAVI while more than 50% area is covered by moderately to highly saline areas according to NDSI. The results support that geoinformatics techniques using RS data and technologies constitute an effective tool for detecting soil salinity by modeling and mapping the spatial distribution of saline soils. Use of gypsum, no use of polluted river water for agriculture, and avoid of over-irrigation are suggested to reduce the soil salinity problem in the lower Mula-Mutha River basin. Similar methodology can be used for the evaluation and mapping of soil salinity-affected areas in the arid and semi-arid parts of India.

Keywords: Soil salinity, land degradation, Remote Sensing, GIS, Salinity Index, Satelliteimage, Landsat-

Introduction

In recent times, the problem of land degradation has been increasing in many arid and semi – arid regions due to soil salinization. Soil salinization is the process of salts accumulation in the soil surface and in the root zone which causes harmful effects on plants and soil; it follows a decrease in yields, ultimately, soil sterilization. It reduces the area of farmland land 1 to 2% per year and continues to increase. Richards (1954), classified salt affected soils on the basis of its physical and chemical properties in three types: saline soils, saline alkaline soils and sodic soils. In the present study an effort has been made to delineate the salt affected area occurring in the lower Mula-Mutha river basin and suggesting some reclamation methods with the help of geographic information system and remote sensing data. Soil salinity mapping is also done by calculating salinity indices like NDSI (Normalized Difference Salinity Index) and SAVI (Soil Adjusted Vegetation Index) are used for mapping soil salinity in the study area. Physicochemical parameters of soil like pH, EC, various cations and anions are also studied. Integration of remote sensing and geographic information system techniques helps in achieving better and fast results related to salt affected soils and its reclamation methods for effective use of agricultural land.

Study area

For the present research work, lower Mula-Mutha River basin is selected as the study area which comprises some part of Daund tehsil and some part of Haveli tehsil. Gandharv and Sangam Bridge is the area where Mula and Mutha rivers are joined together. Daund tehsil lies on the east side of Pune district and Haveli tehsil lies on the west side of Pune district. The latitudinal extent of the study area is 18◦24’19.21” N to 18◦36’40.03” N and longitudinal extent is from 73◦54’04.07” E to 74◦20’49.41” E. The study area covers about 756.44 sq.km total geographical area. Sugarcane is a major irrigated crop in the study area, where due to its intensive cultivation, water logging and soil salinization problems have engraved. The study area is known as

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RESEARCH ARTICLE

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Bifunctional nanoparticles decorated $Ni_{1-x}Mn_xCo_2O_4$ ultrathin nanoflakes-like electrodes for supercapacitor and overall water splitting

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Summary

Synthesizing triple transition metal oxide (TTMO) is an extraordinary strategy to develop electrodes for efficient energy storage and conversion devices, owing to their unique nanostructure with high porosity and specific surface area. The cobalt-based mixed-valence oxides have attracted great attention due to their facile synthesis, low cost, and excellent electrochemical performance. However, less attention is paid to investigating the effect of different substitutions on the physico-chemical properties of TTMO. In this study, nanoparticles (NPs) decorated ultrathin $Ni_{1-x}Mn_xCo_2O_4$ nanoflakes (NPs@NFs) are synthesized by tuning the molar ratio between Mn and Ni via facile deep eutectic solvents (DESs) method. Unique and highly porous NPs@NFs nanostructures aid to increase the overall surface area of the materials, whereas Mn, Ni, and Co ions participate in their redox-active capacity, improving the electrochemical activity of the material. This $Ni_{0.8}Mn_{0.2}Co_2O_4$ hybrid nanostructure exhibited excellent supercapacitive performance with a high specific capacity (Cs) of 761 mAh g^{-1} at a higher current density of 30 mA cm^{-2} and superior cycling retention of 92.86% after 10 000 cycles. Further, a hybrid asymmetric supercapacitor ($Ni_{0.8}Mn_{0.2}Co_2O_4$//AC) device exhibited an extended potential window of 1.5 V, which results in an ultrahigh energy density of 66.2 W kg^{-1} by sustaining a power density of 1519 Wh kg^{-1}. The electrocatalytic activity of the optimized $Ni_{0.8}Mn_{0.2}Co_2O_4$ shows the outstanding performance toward hydrogen evolution reaction (HER) (150 mV/ 161 mV dec^{-1}) and oxygen evolution reaction (OER) (123 mV/47 mV dec^{-1}) with a lower voltage of 1.51 V (@10 mA cm^{-2}) for overall water splitting, with outstanding stability up to 25 hours. These results indicate that chemically synthesized ultrathin

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STUDY OF THE BIVALVE RESOURCES OF KALI ESTUARY, KARWAR, KARNATAKA STATE, INDIA

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Abstract

The Kali estuary is one of the four important estuarine complexes of Uttara Kannada, which supports good resources of bivalves especially, clams and oysters with the former being the main supporting community to the total molluscan fishery all through the year. Some of the commercially important species of clams found are Meretrix meretrix, Paphia malabarica, Villorita cyprinoides, Sunetta solandrum . Besides providing the nutritious food, the bivalves also serves as raw material for preparation of lime.

Key Words: *M. meretrix, P. malabarica, V. cyprinoides, S. solandrum, Kali estuary, Natural bivalve resource.*

Introduction:

Bivalves, by far excelled gastropods and cephalopods as a cultivable source of food (1). Generally these are the referred as poor man's food, forming nutritious food for people living in coastal areas. The meat is rich in proteins, glycogen and minerals on par with other animal foods (2-6).

An extensive work has been done on molluscan resources of both east and west coasts of India (7-11). Though some literature of Uttara Kannada coast (1,12,13) but the information regarding utilization of the harvested resources is lacking. Hence, to fill this gap an attempt was made to study the distribution and utilization of the bivalve resources landed from Kali estuary, Karwar.

Description of the Area:

The Kali estuary (14˚50' N and 70˚07' E), one of the four important estuarine system of Uttara Kannada, is bestowed with moderately good population of bivalves namely clams and oysters; the former being the mainstay supporting the total molluscan of oysters to the fishery is meager. The important species of clams occurring in the estuary are *Meretrix meretrix, M. casta, Paphia malabarica, Villorita cyprinoides* and *Sunetta solandrum* while the oyster is represented by backwater oyster, *Crassostrea madrasensis.*

Distribution:

The species composition, distribution, density and biomass of clams along the estuary is described by earlier workers (1, 12, 14). A peak production of these species was encountered during the postomonsoon season while a minimum occurrence always corresponded to the southwest monsoon period.

The clam beds at lower reaches of the estuary were mainly composed of *M. meretrix, M. casta, P. malabarica and S.solandrum* while at upstream, it was comprised by a single dominant species, *v.cyprinoides*. Besides, *Anadara granosa, Solen truncatus, Cardium rugosum* were also observed in good quality. At the proximity to the estuarine mouth, the *M. meretrix* was numerically dominant whereas at upper stretches of the estuary (where the fresh water regime established), *V.cyprinoides* outnumbered the other species. As stated by Bhat (14), the minimum production of bivalves occurred during the period of southwest monsoon,

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DIFFERENT MORPHS OF HOOD OF INDIAN COBRA *NAJA NAJA* FROM TAHSIL INDAPUR, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract

During the period of 1991-2022, rescued 481 Indian cobra (Naja naja) snakes from the different areas of Indapur tahsil and released into the forest area at the location suggested by forest authorities at each time. Colouration of the 'spectacled cobra' or binocellate cobra is yellowish, brownish or black above, with or without a black and mark on hood, a black and white spot on the inside of the hood with one or two black crossbars below hood. In Naja naja, at rest, the ribs lie along the length of the body, the overlying skin is loosely attached.When erect the dorsal side skin is streched, making the hood more conspicuous, and the head, bent strongly at the atlas (1st) vertebra, is carried at right angles to the hood. The hood of Naja naja when dialated is diagnostic, more so when the markings are visible.

Keywords: *Naja, India, cobra, hood, Indapur, binocellate*

Asiatic cobra complex comprises 10 species (Wuster, 1998). However, only four species, namely Naja naja (Linnaeus, 1758), N. kaouthia Lesson, 1831, N. oxiana (Eichwald, 1831) and N. sagittifera Wall, 1913 occur in India; and out of them only N. naja shows a fairly wide distribution. Asiatic cobra complex comprises 10 species (Wuster, 1998). However, only four species, namely Naja naja (Linnaeus, 1758), N. kaouthia Lesson, 1831, N. oxiana (Eichwald, 1831) and N. sagittifera Wall, 1913 occur in India; and out of them only N.
naja shows a fairly wide distribution.

Introduction:

Indian cobra (*Naja naja*) of family Elapidae is also called as Spectacles cobra, binocellate cobra or asian cobra, is a cobra species found in India, Pakistan, Sri Lanka, Bangladesh, Bhutan and Nepal, and a member of 'big four' species which are responsible for the most snakebite cases (Mukherji, 2012). It is a protected species under the Indian Wildlife Protection Act (1972).

In Maharashtra state, in Pune District there is 13 taluka out of them Indapur is one of the tahsil lies between Latitude 17°53' to 18°15' N and longitude 74°35' to 75°8' E., and the average height from mean sea level is 546 m. Indapur is 135 km away from Pune, total geographical area of Indapur is 1487 sq. km (148700 hector), Bhima and Nira rivers are very close to Indapur tahsil. In Maharashtra second largest dam having catchment area

i.e. Ujani dam is located 10 km eastwards of Indapur city and backwater extends 48 km towards west upto Daund tahsil. Out of the total geographical area 80% area comes under irrigation. Under Indapur tahsil 143 villages have been included (Sensus of India, 2011). Average rainfall of tahsil is 406 mm. Indapur has enriched with te forest area of 7,361.8 hector (Maharashtra Government Socio-economic reference, 2012-13).

Materials and methods:

The work was conducted at Indapur tahsil of Pune district, Maharashtra state,

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ORIDONIN: A REVIEW OF ITS SCOPE IN ANTICANCER THERAPY

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Abstract
Cancer is one of the leading causes of death, globally and poses a significant challenge to the health sector. Resistance to the available therapies and their side effects has shifted the therapeutic paradigm to the naturally available plant components. Ordidonin, a component from a plant has been studied for years for its anti-inflammatory and anti-cancer properties. It regulates different signalling pathways such as ERK (extracellular signal-regulated kinase and Akt pathway, JAK-STAT (Janus kinase/signal transducers and activators of transcription) pathway, Wnt/β-catenin pathway and MAPK (p38 mitogen-activated protein kinase) in tumor cells eventually leading to cell death. Moreover, studies have been carried out to develop Oridonin analogues for cancer treatment. Further studies on understanding the precise action of Oridonin will unfasten the use of natural components in therapeutics. This review summarises the effect of Oridonin on different signalling pathways, its synergistic action with other chemotherapy and the development of Oridonin analogues for clinical trials.

Keywords: *Oridonin, Apoptosis, Signalling Pathways, Anticancer Therapeutics, Oridonin analogs*

Introduction:

The use of plants and herbs for the treatment of various diseases has been practised since ancient times. The written work describing the use of medicinal plants for the preparation of drugs has been found over 5000 years ago in Nagpur. [1] Traditional Chinese Medicine (TCM) and Ayurveda have been the roots of natural plant-based therapy for a lot of diseases. Various studies have been done on plants to understand their medicinal properties such as their anti-cancer, anti-diabetic, and anti-hepatotoxic effects.[1,2] For instance, *Panax ginseng* has been used for over 2000 years to treat cardiovascular diseases and diabetes.[2] Quinine isolated from the bark of Cinchona species was used by the Peruvian Indians to treat shivering since the 17th century. Furthermore, aspirin, a salicylic acid derivative obtained from the bark of a willow tree has been used in many cultures worldwide to treat inflammation and fever. Use of these traditional medicines set up the platform to develop therapeutics from plants and herbs, with lesser side effects.[3] Apart from anti-inflammatory and anti-diabetic effects, the use of plants for the treatment of cancer has been practised for a long time. Vinca alkaloids obtained from *Catharanthus roseus* (Apocynaceae) initiated an era of cancer treatment using plants.[4] It has a cytotoxic effect by disrupting the microtubule function and causing cell arrest at the metaphase stage.[5] However, a limited understanding of the molecular basis of traditional medicines has restricted the development of cancer drugs from medicinal plants. Similarly, another plant compound Oridionin also has shown anti-cancer properties. Oridionin has an apoptotic effect on cancerous cells. The mechanism of action of Oridonin is not well understood however, it promises the application to treat various cancers. This review article focuses specifically on the current advances in Oridionin for cancer therapy. It summarizes the data from various experiments that depict the anti-cancerous properties of Oridionin.

Oridonin induces apoptosis in cancer cells:

Rabdosia rubescens, also commonly known as *Don Ling Cao* in TCM, is being used by

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STUDY OF THREE TRACE METALS IN SOME FISHES OF KALI ESTUARY, KARWAR, KARNATAKA, INDIA

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Abstract

Manganese, Chromium and Copper concentration in the gill, muscle and whole body samples of four estuarine fishes, namely, *Mugil cephalus, Sillago sihama, Leiognathus brevirostris* and *Gerromorpha setifer* were determined during the period July- November, 2014. Concentration of these metals in different body parts varied from species to species. The three trace metals in *M. Cephalus, S. Sihama* and *L. brevirostris* in the whole body were in the order Mn > Cr > Cu whereas in *G. setifer* the abundance was in the order Cr > Cu > Mn . Significant correlation was observed between concentration of metals in gills and whole body in all species except *M. Cephalus*. Considering the trace metals concentration in relation to wet weight, all the metals are within safety limits in edible part.

Key words: *M. Cephalus, S. Sihama*, *L. brevirostris, G. setifer,* Trace Metals.

Introduction:

Trace metals are normal constituents of marine environments and traces at least are always found in marine organisms. Although at suitable concentration some trace metals are essential for enzyme activity, they also form an important group of enzyme inhibitors when normal concentrations are exceeded. Some metals such as Cu can act in either a stimulatory or inhibitory way depending on their level of availability (Engel et al., 1981). Cons frequently, most trace metals, whether essential or not, become potentially toxic at higher concentrations to living organisms, and also to human beings through the food chain. Trace metal concentrations in fishes have been studied by Bagley & Lockey (1967), Simpson et al. (1979) and Barber et al. (1972). Investigation into the interaction between trace metals and marine organisms have been intensified recently because of increased anthropogenic inputs of these metals into the aquatic systems (Patin, 1982; Moore & Ramamurthy, 1984). In the present investigation, the trace metals namely, Mn , Cr and Cu in the gills, muscles and whole body of *Mugil cephalus, Sillago sihama, Leiognathus brevirostris and Gerromorpha setifer* collected from Kali estuary were determined, keeping in view the relative biological importance of the above trace metals and also the food value of these fishes.

Materials and Methods:

Four species of fishes namely, *M. Cephalus, S. Sihama, G. setifer* and *L. Brevirostris* were caught by cast net and were immediately cleaned in sea water. They were taken to the laboratory and kept in refrigerator (at 0˚C) before processing. Totally 16 fishes were collected comprising four numbers for each species. Before dissection, they were washed thoroughly with tap water and later by double distilled water. They were then aseptically dissected using clean dissection tools. Gills and muscle were dissected out and kept in clean watch glasses. They were dried in dessicator first for 10-15 days at room temperature and then dried at 65-70˚C in an oven for 24 h to remove all the moisture. A known quantity (100 mg) of each dried sample was taken in a 100 ml beaker. To this 8 ml of concentrated HNO_3 and 2 ml of perchloric acid were added and then heated on a hot plate to near dryness, till about 1 ml of solution remained in the beaker. Then about 50 ml double water was added to each beaker and filtered through whatman 42 filter paper (Martin & Knauer, 1937) in case of whole body samples (gut sometimes contained sand particles) and finally made upto 100 ml using double

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JUVENILE COMMON CRANE *(GRUS GRUS*) RARELY SIGHTED AT DIKSAL, TAHSIL INDAPUR, DIST. PUNE, MAHARASHTRA

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Abstract
The distribution of Common Crane (*Grus grus*) is Europe and is also called as Eurasian crane. It is the long distance migratory bird, during its migration it passes its winter in the north India. The juvenile common crane was rarely observed at the wetland area of Diksal (Latitude 18.31045^0 N and Longitude 74.79357^0 E), Tahsil Indapur, Dist. Pune. It is IUCN Red List of threatened species as Least Concerned.

Keywords- Common Crane, *Grus,* juvenile, Bhima, Ujani

Introduction-
The male Common Crane (*Grus grus*) are slightly heavier and larger than females with weight showing the largest sexual size dimorphism, followed by wing, central toe, and head length in adults and juveniles. This species is slate-grey overall. The forehead and lores are blackish with a bare red crown and a white streak extending from behind the eyes to the upper back. The overall colour is dark on the back and rump and pale on the breast and wings. The primaries, the tips of secondaries, the tip of the tail and the edges of upper tail coverts are all black and the greater coverts droop into explosive plumes. Body feathers of juvenile has yellowish-brown tips and lacks the drooping wing feathers and the bright neck pattern of the adult, and has a fully feathered crown. Every two years before migration, the adult *Grus grus* undergoes a complete moult, remaining flightless for six weeks, until the new feathers grow (J. C. Alonso *et al*. 2019).

This *Grus grus* species is found in the northern parts of Europe and across the Palearctic to Siberia. The species of common crane is a long distance migrant predominantly wintering in northern Africa. Autumn migration occurs in August to October in the breeding areas but from late October to early December at the wintering sites. Spring migration starts in the month of February at wintering sites up to early March, but from March through May at the breeding areas (Javier, A. Alonso *et al.*,1990). Migration phenology of common cranes is changing due to the climate change. Some birds can be seen in winter in southern Europe, including Portugal, Spain and France. Most eastern common cranes winter in the river valleys of Sudan, Ethiopia, Tunisia with smaller numbers in Turkey, northern Israel, Iraq and parts of Iran. The third major wintering region is in the northern half of Indian subcontinent, including Pakistan. Minimal wintering also occurs in Burma, Vietnam and Thailand (M. Orellana-Macías *et.al*., 2020).

Methodology-
The study was conducted during the period of September 2018 to August 2022 at the wetland area of Bhima river of Indapur tahsil, Dist. Pune, Maharashtra, India. The observations were carried out twice in aweek of each month during the time 7.00-11.00 am and 3.30-6.30 pm. The birds were observed with the help of binocular and a digital camera. The photographs of the species have been confirmed with the field guide of ornithologist Salim Ali (2002) and Satish Pande *et al*. 2011.

Results-
- **Name of species:** Common crane
- **Family:** Gruidae
- **Scientific name:** *Grus grus*
- **Status:** Winter migrant
- **Date of sighting:** 3rd February 2019
- **Time of sighting:** 10.45 am
- **Weather:** Sunny
- **Number of times sighted:** Single
- **Gender of bird:** Male
- **Locality:** Diksal (Latitude 18.31045^0 N and Longitude 74.79357^0 E), Tahsil Indapur, Dist. Pune, Maharashtra state, India

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SIGHTED RARELY THE WOOD SNIPE (*GALLINAGO NEMORICOLA*) AT WETLAND AREA OF VILLAGE KUMBHARGAON, TAHSIL INDAPUR, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract

Wood snipe (*Gallinago nemoricola*) rarely occurred at marshy area of Kumbhargaon (Latitude 18.28019^{0}N and Longitude 74.76541^{0}E), Tahsil Indapur, Dist. Pune. This species is listed as a vulnerable in the IUCN Red List of threatened species (IUCN 2008). Mostly these species occur in marshy areas. Poaching threats have been the real issue in conservation of wood snipe.

Keywords- Wood snipe, *Gallinago nemoricola*, IUCN, red list

Inroduction-

Wood snipe (*Gallinago nemoricola*) is listed as a vulnerable in the IUCN red list (IUCN 2022). It breeds locally in the Himalayas of northwest and northeastern India, Nepal, Bhutan and China and in the regions of southeast Tibet, central Situan and perhaps Yunnan (Birdlife International 2001, Grimmett *et al.* 2000). In winter it occurs at lower altitudes in the Himalayas as a regular visitors in small numbers to north Vietnam as a vagrant to the hills of central and southern part of the India and Sri Lanka, Bangladesh, Myanmar, North Thailand and Laos (Birdlife International 2001). All the species were found from marshy areas (J. R. Kathiawada, 2010).

Methodology-

The study was conducted during the period of September 2018 to August 2022 at the wetland area of Bhima river of Indapur tahsil, Dist. Pune, Maharashtra, India. The observations were carried out twice in aweek of each month during the time 7.00-11.00 am and 3.30-6.30 pm. The birds were observed with the help of binocular and a digital camera. The photographs of the species have been confirmed with the field guide of ornithologist Salim Ali (2002).

Results-

- **Name of species:** Wood snipe
- **Family:** Scolopacidae
- **Scientific name:** *Gallinago nemoricola*
- **Status:** Vagrant, vulnarable
- **Date of sighting:** 27th January 2022
- **Time of sighting:** 11.15 am
- **Weather:** Sunny
- **Number of times sighted:** Single
- **Gender of bird:** Male
- **Locality:** Kumbhargaon (Latitude 18.28019^{0}N and Longitude 74.76541^{0}E), Tahsil Indapur, Dist. Pune, Maharashtra state, India
- **Habitat description:** Wetland of Bhima river
- **Distance from human civilization:** 2 km
- **Any other bird/animal associates:** Birds sighted at the muddy wetland area are- *Phalacrocorax niger, Egretta alba, Ardea cineria, Threskiomis melanocephalus, Platalea leucorodia, Anas poecilorhyncha, Fulica atra, Charadrius hiaticula, Charadrius dubius, Charadrius alexandrines, Limosa limosa, Tringa glareola and Himantopus himantopus*
- **Bird behavior:** The diet of wood snipe is mostly worms, isect larvae, snells, crustaceans. They slurp up invertebrates through nearly closed bill. Their call is a series of nasal 'check-chek-chek' sound.
- **Threats to the habitat:** Bird poaching
- **Photograph:** Attached

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SEMI VENOMOUS SNAKE, LEITH'S SAND SNAKE RARELY OCCURRED AT THE OUTSKIRT OF GOTONDI VILLAGE, TALUKA INDAPUR, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract
From the desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004, the Leith's sand snake was rescued since it was entangled in a torned piece of fishing net, some one might have thrown that fishing net as unwanted. The investigator has rescued 1479 snakes during the period Nov. 1990-Aug.2022 and this snake rescued once only since it is rare and Least Concerned in IUCN Red List threatened species.

Keywords- Leith's sand snake, IUCN, Indapur, Gotondi, *Psammophis leithii*

Introduction-
Psammophis leithii is commonly called as Pakistan sand racer, Pakistani ribbon snake or Leith's sand snake, is a species of rear-fanged snake in the family Psammophiidae. The species is native to south Asia. It is harmless to humans. This Leith's sand snake (*Psammophis leithii*) species has been mentioned as least concerned in IUCN Red List of threatened species (Vyas, R., Srinivasulu *et.al.*; 2021).

Materials and methods-
The work was conducted at Indapur tahsil of Pune district, Maharashtra state, India, under which 143 villages have been included covering of 1,487 sq km area during the period of 1991-2022 to work on the diversity of snakes, environmental education and wild life conservation of snakes. The rural and urban habitation and also the scrubland, rocky areas, swamp areas, water bodies, etc. have been considered. Survey, collection and identification of snake species have been carried out in a tahsil area. The investigator is a skilled person to handle the various non venomous, semi venomous and venomous snakes. For safehandling of snakes, snake hooks and cotton bags have been used and for rescuing of snake from waterfilled well, the snake tongs have been used. To prevent the snake bite precautionary measures have been taken. During rescuing the Leith's sand snake, the morphological structures of the body of snake have been observed and photographs have been taken for the study purpose..

Results-
Leith's Sand Snake- *Psammophis leithii* (Gunther,1869)-
Scientific classification: From kingdom to subfamily same as Trinket snake
Genus- *Psammophis*
Species- *leithii*
Local name: Marathi- Lithicha Reti sap
Non venomous/Semi venomous/Venomous: Semi venomous
Length: 68 cm
Identification: Yellowish body has four dark brown lines from head to tail. The head has an elongated dark mark. The mouth is also elongated and the head is somewhat bigger than the neck. Big eyes with round pupils. Underside is faint yellowish-white with smooth scales.
Rescued from location: Desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004. I have rescued 1479 snakes during the period Nov. 1990-Aug.2022 and this snake rescued once only since it is rare.
Habitat: Grasslands and deserts.
Habit: Lizards, garden lizards and small birds (Khaire N; 2011).**Breeding behaviour:** Oviparous. Female lays around 4-10 eggs (Khaire N; 2011).
Characteristics: It is a diurnal and is found on the ground as well as trees.

Conclusion-
From the desert outskirt of Gotondi village (Lat. 18.057446^{0}N Long. 74.858476^{0}E), taluka Indapur, Dist. Pune on 19th March 2004, the Leith's sand snake was rescued

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IMPACT OF BIOPSY ON HUMAN EMBRYO CONCERN WITH PREIMPLANTATION GENETIC DIAGNOSIS (PGD): A REVIEW

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Abstract:
Pre-implantation genetic diagnosis (PGD) is generally defined as the testing of pre- implantation stage embryos or oocytes for genetic defects. PGD involves embryos which are examined prior to their transfer into uterus. Embryos are obtained by in vitro fertilization with intracytoplasmic sperm injection (ICSI), and are biopsied mostly on day 3; blastocyst biopsy is mentioned as a possible alternative. The genetic analysis is performed on one or two blastomeres, by fluorescent in situ hybridization (FISH) for cytogenetic diagnosis, or polymerase chain reaction (PCR) for molecular diagnosis PGD involves identification of sex selection, antigen compatible embryo also some extent to cancer. In this paper, techniques for the embryo biopsy and application of PGD is discussed. And new concepts for reproductive health and analysis of embryo at different stages for detecting genetic disorders is being discussed.
Keywords: PGD, IVF, FISH, PCR, SNP's, TE, PGT, ESHRE

Introduction:

Preimplantation genetic diagnosis (PGD) is a tool with which we can find whether an embryo is having any abnormalities and with the help of this technique the foetus can be implanted with correct chromosomes, without any genetic disorders. Embryo biopsy detects aneuploidy, Down's syndrome and many genetic diseases. Autopsy accounts the cause of death of foetus. Attempting conception/fertilization through IVF technique, single nucleotide polymorphism (SNPs) and microarray technique analysis can be done after biopsy to understand the chromosomal abbreviations {1}. PGD has an objective for the problems frequently occurring in prenatal diagnosis. For prenatal testing, commonly used technique is amniocentesis and

chorionic villus sampling. The evaluation of embryo is done on the basis of blastocyst degree of expansion and the quality of the inner cell mass and of the trophectoderm cells (TE). Normally

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AVIAN DIVERSITY AT WADOLI, MADHA TAHSIL, SOLAPUR DISTRICT, MAHARASHTRA, INDIA

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Abstract:-
Wadolivillage of Tahsil Madha has been located at the bank ofBhimaRiver.It is Perennial River,rich in aquatic vegetation and shows the appearance of several types of birds in all the seasons.In the study area various habitats such as wetland,agricultural fields,woodland,riverside and village all are rich in biodiversity.The present study was focussed to document avian diversity of Wadoli of MadhaTahsil, District Solapuras they are the tertiary consumers of the ecosystem and form important link in the food web. The present avian diversity from Wadoli are of 136 bird species from 59 families and 104 genera. There are 3 Near Threatened species. Out of the 136; 96 are resident species, 32 are migratory and 7 are local migrant and one is endemic residential species.These bird species are herbivorous, carnivorous, and omnivorous. These total species of birds shows different habitats.
Keywords: Birds, Resident, Migratory, Local Migratory, Species, Wadoli.

Introduction:-

The Indian subcontinent,a part of the vast oriental biogeographic regions is rich in biodiversity.Out of more than 9000 birds of the world,the Indian subcontinent consistsof about 1300 species or over 13% of the world's bird fauna(Grimmettet al., 1998). Wetlands of natural and manmade fresh water provide numerous ecological services. They provide habitat to aquatic fauna and flora as well as numerous species of birds including migratory species(Natural environment policy, 2006).The research area shows a characteristic vegetation of trees,climber,herbs,etc.It is being suggested that the avifauna plays a crucial role as a scavenger, pollinator,seed dispersal agent and predators of insect pest (Padmavati *et al*., 2010).Bhima River is the tributary of Krishna river system and Ujani is the terminal dam constructed in the year 1981 on Bhima River in Maharashtra(Ranjit *et al*., 2020). Bhima River has been enriched with several local and migratory wetland birds. As far as Wadolivillage site concern no previous study on the same line hence authors conducted the survey to prepare checklist of birds which would be helpful to develop the conservation policies of faunal diversity. This study provides the base line information on birds of Wadoli.

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RARE CASE OF A FISH *CHITALA CHITALA* FOUND IN BHIMA RIVER NEAR WATLUJ, TAHSIL DAUND, DIST. PUNE, MAHARASHTRA, INDIA

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Abstract
A single specimen of *Chitala chitala* was captured on Sepember, 10th 2022 in a gill net during the fishing activity in a Bhima river near Watluj village, taluka Daund, district Pune, Maharashtra, India (Latitude 18.4080370^0 N, Longitude 74.7746196^0 E). The fish was found having length 127 cm and weighed 6 kg and 120 gm. Previously *Chitala chitala* of this length and weight was not recorded from Bhima river of Ujani reservoir.
Keywords: *Chitala*, Bhima, Ujani, length, weight, fish, rare

Introduction:

Ujjani Dam, also known as Bhima Dam or Bhima Irrigation Project, on the Bhima River, a tributary of the Krishna River, is an earthfill cum Masonry gravity dam located near Ujjani village of Madha Taluk in Solapur district of the state of Maharashtra in India. The Bhima River, which originates in Bhimashankar of the Western Ghats, and forms the Bhima Valley with its tributary rivers and streams, has twenty-two dams built on it of which the Ujjani Dam is the terminal dam on the river and is the largest in the valley that intercepts a catchment area of 14,858 km^2 (5,737 sq mi). Total catchment lengthwise area is 48 km from Ujani village upto Daund (National register of large dams, 2011).

The name of *Notopterus chitala* has been modified as *Chitala chitala* (Hamilton,1822) which comes under family Notopteridae, also known as Indian feather or Indian knifefish found in Bangladesh, Nepal, Pakistan, India. In India it is inhabitant of Brahmaputra, Indus, Ganges, Mahanadi river basin (Froese *et al*., 2014). Menon (1999) stated that adults inhabit freshwater reservoirs, canals and ponds. Rahman (1989) quoted that this fish feeds on aquatic insects, shrimps, molluscs and small fishes.

Materials and methods:

A single specimen of *Chitala chitala* (Plate: 1) was captured on Sepember, 10th 2022 in a gill net during the fishing activity in a Bhima river near Watluj village, taluka Daund, district

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CHALLENGES AND PROSPECTS OF MSME IN INDIA TOWARDS 5 TRILLION ECONOMY

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Abstract-*The present paper is an attempt to understand the various issues related to MSME*(Micro, Small and Medium Enterprises)*in India. The various challenges faced by MSME are issues like credit facility, issues of equity capital, issues of infrastructure, issues of Govt. support, issues related to technology and issues related to skill gap. The study is focusing on the expression regarding to the challenges of MSME and development of Indian economy towards five trillion dollars economy.*

Key words- MSME, Challenges of MSME and 5trillion Economy.

Introduction-

In developing country like India Micro, Small and Medium Enterprises (MSME) sector play an important role in creating employment opportunity and the use of resources. The role of MSME in the development process is very crucial to run the economy towards development of rural area. To remove the backwardness, regional imbalance, unemployment the MSMEs have great contribution. It also helps in development of agriculture sector. Definitely MSME are very much important in the socio-economic development of the country.The Micro, Small & Medium Enterprises (MSMEs) have been contributing significantly to the expansion of entrepreneurial skill development through business innovations. The MSMEs are widely expand many sectors of the economy by producingvarious range of products and services for domestic as well as global markets. By comparing to the other industry MSMEs in India provide large employment at lower capital cost. Also, MSME assuring more equitable distribution of national income and wealth.

Role of MSMEs in Indian Economy-

MSME (Micro, Small and Medium Enterprises) sector manufactures more than 8000 products. Almost 90% of total manufacturing industries rely on SMEs for semi-finished, finished and supplementary products. It is also to be noted that the MSME sector has maintained a higher growth rate than the entire industrial sector. MSME sector employs the second largest workforce just after the agriculture sector. The annual compound employment growth rate of MSMEs has been 3.63% as per the annual report of Ministry o MSME 2017-18. This sector also provides employment opportunity to unskilled and semi- skilled workers. It has also helped in increasing India's exports in value terms. About 3 million SMEs contribute to Indian foreign trade. MSME have high potential. As per the annual report of the Ministry of MSMEs 2017-18, there are around 633.92 lakhs enterprises registered as MSMEs in India and out of those only 4000 are from the category of large enterprises. Around 51% of total enterprises are from the rural sector. Now a days MSME become the engines of economic growth in India.

Challenges of MSME-

Issue of infrastructure.

The of infrastructure is a serious issue of MSME in India. Most of the MSME are either situated in rural areas in an unorganized manner. So, they, failed to get adequate support in terms of infrastructure. The basic necessity of infrastructural requirement as communication, roads, transport facility, electricity, distribution, market linkage, banking and credit facility, export orientation etc. Providing these facilities should be the primary criteria for the betterment of the industry. Therefore, the potential of this industry remains unutilized.

Support from the Government.

MSME should not get the sufficient financial support in terms of finance, capital and market from government. To compete with global market the financial support is very necessary.

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REVIEW ARTICLE

On the identification and medicinal importance of Dashmula plant 'Shalparni' *Pleurolobus gangeticus* (L.) J.St.-Hil. Ex H.Ohashi and K.Ohashi (*fam*. Fabaceae)

V. N. Patil[1]*, P. S. Kabnoorkar[2]

Abstract

Nature has been a source of divergent bioactive compounds for thousands of years. A large number of bioactive compounds valued in modern drugs have been isolated from natural resources. Traditional medicines are an important source of potentially useful new compounds for the development of chemotherapeutic agents. Therefore, there is a necessity to explore these medicinal plants in respect with their pharmacognostic and pharmacological studies to discover their therapeutic properties. *Pleurolobus gangeticus* (L.) J.St.-Hil. ex H. Ohashi & K. Ohashi (Syn. *Desmodium gangeticum* (L.) DC.) is a spreading annual herb found throughout India. It is of great therapeutic value in treating various ailments such as typhoid, piles, inflammation, asthma, bronchitis and dysentery. This review attempts to highlight the available literature on *Pleurolobus gangeticus* with respect to ethnobotany, chemical constituents and summary of various pharmacologic activities.

Keywords: Chemical constituents, Medicinal plant, *Pleurolobus gangeticus*, Therapeutic uses.

Introduction

India is known for its rich repository of medicinal plants. Ayurveda is widely practiced in India. The emphasis on development of biologically active new molecules has been gradually replaced by the use of total herbs as medicine and food supplements. Medicinal plants must be given the status of "National Resources" because their continued availability is essential to sustain one of the world's oldest medicinal traditions, a priceless legacy of the Indian people.

Pleurolobus gangeticus (L.) J.St.-Hil. ex H. Ohashi & K. Ohashi (Syn. *Desmodium gangeticum* (L.) DC.) commonly known as Shalparni, is widely used medicinal herb. It is commonly used in systems of medicine viz. Ayurveda, Sidha, Unani, Tibetan, Folk, & Homeopathy. It is used in popular 'Ayurvedic' preparation like 'Dashmularishta'. It belongs to family Fabaceae. According to Bhavaprakasha (1974), the following descriptive synonyms are given.

Prisniparni, Prthkparni, Chitraparnyahi, Parnyapi Krestuvinna, Simhapucchi, Kalasi, Dhavaniguha.

P. gangeticus is a woody herb attaining a height of between 20-120 cm, with a short woody stem and numerous irregularly angled branches covered in a fine grey pubescence. It is found throughout the tropical India into the lower portions of the Himalayan range. The meaning of its Sanskrit name 'leaves like *Sala*' suggests its leaf structure is similar to those of the tree *Shorea robusta* C.F. Gaertn. (Kirtikar and Basu, 1935 and 1974; Warrier *et al*., 1994).

Classification

The Plant classification details are as follows:

Classification System: APG IV 2016

Superregnum	:	Eukaryota		
Regnum	:	Plantae		
Cladus	:	Angiosperms		
Cladus	:	Eudicots		
Cladus	:	Core eudicots		
Cladus	:	Rosids		
Cladus	:	Eurosids I Ordo	:	Fabales

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A Study of Tourism Development in Indapur Tahsil, Pune District (Maharashtra)

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Abstract:
Tourism is one of the largest and fastest growing industries in the world. Everyone is always drawn to nature. The geographical components play an important role in promoting tourism development. Beautiful landscapes, pleasant climate, forests, rivers, waterfalls, wild animals, birds, butterflies, waterbodies and other components are important resources to attract tourists. This article aims to study the development of tourism in Indapur tahsil, district of Pune. This article attempts to understand the development of tourism in the study area. Nira Narsingpur which is situated on the confluence of Bhima and Nira rivers and Kumbhargaon bird sanctuary, Bhigwan in the backwaters of Ujani Dam are famous destinations in Indapur tahsil. A paradise for wildlife photographers and other bird watchers, this bird sanctuary is one of the best sanctuaries in Maharashtra.

Keywords: Tourism, Tourism Development, Wildlife, Bird Sanctuary

Introduction:

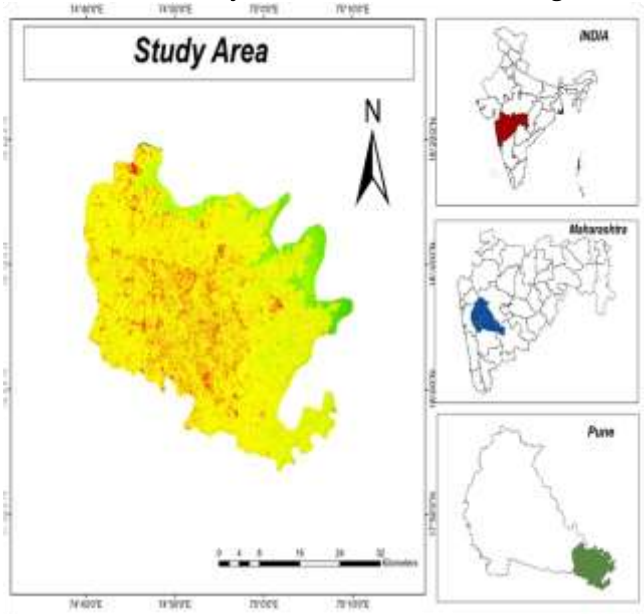
Tourism is an activity that contributes directly or indirectly to the development of the territory concerned. Tourism is one of the emerging service industries in the Indian economy. According to the Economic Survey 2022-23, the sector has the capacity to directly and indirectly create large-scale jobs for different segments of society, from the most professional to unskilled labor. The historical, religious and environmental resources of flora and fauna play an important role in the leisure activities of tourists. The game sanctuary system helps protect wildlife. Today, a day's worth of rare species has disappeared from nature. Therefore, it is necessary to protect the wild animals as well as the environment of the region. Bhigwan bird sanctuary is rich in animal wealth and attracts many tourists.

Research Methodology:

A physical survey was conducted to observe tourism resources such as flora and fauna in Kumbhargaon Bird Sanctuary, Bhigwan. Information about historical and cultural facts is collected from secondary data. Interviews and discussions with bird watchers, nature lovers and tourists who have visited the place are also held.

Study Area:

Indapur tahsil is one of the tahsils of Pune district and comprises 143 villages. Geographically, the study area extends from 17^0 53' to 18^0 15' North latitude and from 74^0 35' to 75^0 8' East longitude. The territory of Indapur tahsil is flowed by the Bhima to the north and east and the Nira River to the south. The study area is located in the southeast of Pune district, with Baramati tahsil in the west, Daund tahsil in the northwest, Satara in the southwest and Solapur district belongs to east, south and north side. The geographical area of Indapur is 1552.93^2 km. The climate if the study area is semi-arid. April, May and June are the hottest months. The average maximum temperature is 40 degrees Celsius. The lowest temperature records are recorded in December and January, with an average minimum temperature of 12 degrees Celsius. The soil in this area is medium to dark black. The population is 384,149 according to the 2011 census. Kumbhargaon Bird Sanctuary, Bhigwan, Nira-Narsingh and Palasnath Temple at Palasdeo village are major destinations in Indapur tahsil. Palasnath temple is located in the backwaters of Ujani Dam. The bird sanct uary is famous for its flamingos.



Applications of New Technologies for Enabling Library Services

Manisha Khandu Gaikwad
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Abstract

This paper is discussing various new technologies that can be applied in Library and Information centers. Implementation of various Technologies has change the way of people to access and communicate information. Users need of easy access of information, leads Library professionals to think out of the box for meeting their information needs. Application of new technologies to provide library and information services are a significant step in this direction. In this 21st century Library professional's essentially to use various technology offering outreach technical options for librarians. Use of this technologies, provides well opportunity to extend new different types of library services to users.

***Keywords**: Mobile Technology, BlockChain, QR Code, RFID, Remote Control Technology, Library science, ICT Services, Library Services.*

Introduction

Libraries are not merely a storehouse of books but becoming a hub of information – based society. Because of increasing awareness among the users, availability of new resources and rapid advancement in Information and Communication Technology (ICT), library professionals and libraries are changing their traditional role. The web technology and Internet has changed the way of information is stored, retrieved and communicated in the libraries. As more libraries move towards traditional services to digital services to improve more advance services by adopting advance technology.

This paper discusses some advance technology that can be applied in the library and with the help of this technology the environment of the library will be upgraded and library services will fulfill the users' satisfaction.

Research Methodology:

For this paper, literature search was carried out by using secondary sources. For this study, the documents were studied online on Google Scholar, databases, N-list, seminar proceedings.

Following Technologies can be applied in libraries

Mobile Technology

Mobile is playing a vital role in enabling Digital India. Now a day, Mobile device is the integral part of every human life. From very beginning of childhood to old man and rural to urban and every corner of the world everybody use Mobile technology for accessing information. In 21st century there is revolutionary change in Information and Communication Technology. Use of nanotechnology is increased. Also this change is used in mobile technology. Now android version of mobile permit their users to access, stored, organize, retrieved information. There is a continually growing numbers in engaging mobile phone as a search tools. Smart phones, cell phones, iphones and tablets are commonly used devices for seeking information.

The invention and the use of information technologies need to meet life's basic challenges and responsibilities (Ademodi & Adepoju, 2009). Academic libraries can use several tools and techniques to fulfill the information need of their users. In the teaching and learning mobile technology is one of the better options to provide service to their remote users effectively. Libraries can play an important role to make their users self-directed and independent learning by providing access to their resources. Following is the possible mobile services that can provide –

- Mobile Apps for library

16. Assessment of Information Literacy Skills among the Senior College Students of Indapur City: A Pilot Study

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North Maharashtra University, Umavi Nagar, Jalgaon. (Maharashtra)

Abstract

This study is a pilot study to assess and evaluate information literacy skills among the students of senior colleges of professional and non- professional colleges of Indapur city under SPPU, Pune.

Keywords: Information literacy skills, Senior College Students, Literacy proficiency.

Introduction

Information literacy is the necessary skills which need in every aspect of every body's life. For students, who have the literacy skills can lead to independent and student – centric learning, rather than dependence on their teacher to provide answers to their problems that they needed. Information literacy skills made students critical thinker than merely gaining knowledge. Information Literacy (I. L.) skills enable students to choose best option for their problems. Becoming information literate will provide essentials skills to become a proficient learner in the college which benefitted students in their professional and personal life. Now a day's due to explosion of information internet provides billions of websites and millions of print items which are complicating access and retrieval of information by the end users. At present, information world provides multiple choices print, electronic, images, videos, sound, numeric. This leads to more challenging for users to choose appropriate format of information and get satisfied their problems. Information literate students who are knowledgeable about finding exact information, evaluate it, analysing properly, integrating and managing neatly and disseminate or conveying information to others efficiently and effectively. Information literate students lead the society and becoming successful in solving problems, providing best solutions and producing new ideas and directions for the future.

'System of Income and Expenditure in 18th Century Maratha Reign'

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Introduction-

Maratha state and its economy was established by Chhatrapati Shivaji. His grandson got his legacy as a dynasty but he had never got any administrative setup or any documentation and treasury. All these things were developed through Peishwa. 18th century Maratha economy was state economy was developed on substructure of 17th century Maratha Swaraj. It is having a concrete administrative structure. The administration had never getting back effect of political or military jerk. It could work very smoothly in these types of up and downs.

Aims and objectives:-

1. To understand the System of income and expenditure through Modi Script documents on state finance.
2. To study the sources of income and nature of expenditure in the reign.
3. To understand the silent features of the income and expenditure
4. Similarities and differences in income and expenditure of village to central govt.
5. Nature of income and expenditure of village, town, Prant (sub-district), fort, custom duty or octroi and central govt's Income-expenditure.
6. To search uniformity income and expenditure at village to central Government level.

Concepts-

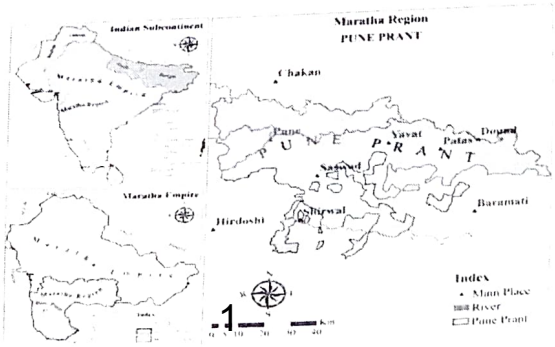
1. *Sal-gudasta* (सालगुदस्ता)- means Revenue collection in or during the past year.
2. *Sal-majakur* सालमजकूर- Means the afore – mentioned year or the present or passing year.[1]
3. *Ek-berji* (एकबेरजी)- The first entering upon the books of sums disbursed or received. It is actually a single entry.

There is also a *Ekaberjii Daftar* (एकबेरजी दप्तर) means an office for arrangements, registry, and deposit of all accounts from the other departments; and from them where framed abstracts of the total receipt, expenditures, and balances of government on all accounts for the year.[2]

4. *Du-berji* (दुबेरजी) means twice brought to a account; regularly entered; i.e. a sum is first set down under the name of him from whom it is received, or to whom it is advanced for expenditure; and afterwards accounted for under the articles purchased, payments & c. made. It also applied to money received for another, entered on the deposit side, and remitted; entered afterwards upon the expenditure side upon intelligence of its having been received and credited.[3]
5. *Varata* (वरात) – It's an assignment or order upon revenue or a treasury[4]. It's a promissory note issued by government for their departments or its stakeholders, to provide money, indirectly through their departments.

Administrative procedure in respect to finance-

Higher authorities like *Kamaavisadaar* (कमाविसदार) or *Mamalatadaar* were appointed by central government. Reliance, financial credit and relations with *Peshwa*, these are the basic eligibility to became a *Kamaavisadar*. After appointment or continuation on post of higher officers (like *Kamaavisadar*) they started to work with the help of previous years accounts. Few months later the central government had to send a copy of estimated income and expenditure sheet or budget, it is known as '*aajamaas*' (अजमास). There was a separate budget or '*Aajamas*' for every *Prant*, which noted down gross demand, deductions, and gross balance and temporary additions etc[5]. It's mandatory to run the account through '*Aajamas*' After completion of the financial year and closing the accounts, *kamavisadar* had to submit the account, known as *taleband* (ताळेबंद). Similarly Balance Sheet / *taleband*, *hishob* (हिशोब), *tarjuma* (तर्जुमा), Details of receipts and expenditure or *jhadati* (झडती) these are documents were prepared. Audit was also performed by higher authorities.



Status of Covid -19 Pandemic In Indapur Tehsil

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Abstract

The corona virus is showing its strength and spreading exponentially in all the corners of India. In Maharashtra Pune is highly infected district Therefore, this paper aims to study the infection level and current scenario of fatality cases in Indapur tehsil. All the supported data is collected from Sub-District Hospital (SDH), Indapur. Fatality rate defined as per the number of currently active cases per 100 positive cases of covid-19. This paper deals with the village wise current situations of current cases, recovered cases, deceased cases .There are reported 4667 confirmed cases up to the month of December 2020. These infected cases are found in 138 villages and tehsil headquarter. Out of them 2.95% deaths occurred in the study area. A wide variation was observed across the tehsil .There was no single fatality case found in 0 to 14 age group people in the study period. Only four villages has not infected by COVID-19. As compare to the rural area the infection level of corona virus is high in urban area.The infected cases are increasing on one side and on another side the numbers of recovered cases are also increasing in the study area.

Key words: *COVID19, infection, mortality, pandemic,*

Introduction

Society is an asset of the every nation. Due to the corona virus almost every nation of the world are suffering from pandemic situation. The corona virus (COVID-19) is spreading rapidly, and scientists are endeavoring to discover drugs for its efficacious treatment in the world (Gao et al., 2020). Older people, suffering from medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer, are more likely to develop severe illness (Remuzzi & Remuzzi, 2020; Singhal, 2020). Maharashtra has more than 1984768 confirmed cumulative infected cases (31 December 2020). The impact of preventive measures on daily infected-rate is discussed for each village of Indapur tehsil dist. Pune.

Objectives

1. To identify the infection level in the study area.
2. To study the mortality status in the study area.
3. To make favorable suggestions for COVID-19 control.

Database and methodology

For the present research work secondary data source are used. All the supported data is collected from Indapur TehsilHealth Office, Indapur, Dist. Pune, Maharashtra.This office provides the most updated information on the daily and total confirmed cases, active cases, recovered and deaths from each village of the study area. Data considered for analysis up to 31 December 2020. Fatality rate defined as per the number of currently active cases per 100 positive cases of covid-19.

Month wise COVID-19 infection in the study area

In the study area, the disease was first detected on 27th April 2020 in Bhigwan station a women who returned from Pune. The gradual incidence of COVID-19 cases has increased in June and July and in the month of August and September these cases has increased rapidly. Mostly the daily infection-rate (DIR) is higher in urban area than the rural. In the high population-density area has found high COVID-19 infected cases i.e. Indapur city and western side villages. Indapur Tehsil Health Office reported total 4667 new confirmed cases up to month of December 2020 (**Table 1**). In this period in urban area 673 and in the rural area 3994 cases found. There are also reports of near capacity utilization of ICU and Ward beds, in the Sub-District hospital in the study area. **Table 1:-** Month wise COVID-19 positive patients in Indapur tehsil.

Sr. No.	Month	March	April	May	June	July	Aug.	Sept.	Octo.	Nove.	Dece.	Total	Perc.
1	Urban	0	0	0	14	45	166	230	68	71	79	673	14.42
2	Rural	0	1	4	10	111	466	1562	738	673	429	3994	85.58
3	Total	0	1	4	24	156	632	1792	806	744	508	4667	100

Source: Indapur Tehsil Health Office, Indapur.

Above Table and figure shows the month wise infection of corona virus. After the first five cases during 27th April to 20th May 2020, there were no more confirmed COVID-19 cases was not found for the next two months. The COVID-19 cases appeared again from 3rd June 2020 onwards. These cases are

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Effect of Customized Training Programme on Selected Physical Fitness Variables of College Female Students

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Abstract:

The primary purpose of the study was to find out the effect of Customized training on selected physical fitness variables among college female students. The study was hypothesized that there would be significant difference in improving muscular strength and muscular endurance due to the effect of training programmes among college female students. To achieve the purpose of this study convenient, available and interested (N=75) female students will be randomly selected from Girls Hostel of Arts, Science and Commerce College, Indapur affiliated to the Savitribai Phule Pune University of Pune, Maharashtra. Their age ranged from 18 to 22 years. Non-equivalent control group design with repeated measures was used for this study. They will be assigned into three equal groups with (N=25) female students by lottery technique. Two experimental groups, namely Functional exercise Training Group I and Yogic Exercise Training Group II and one act as Control Group III. Customized training programme of 12 weeks 3 alternate days a week was applied on experimental groups. Taking consideration of the feasibility criteria availability of instrument and the relevance of the variable to the study, selected variables upper and lower body muscular strength and endurance were measured by using standard testing procedure of muscular strength of upper body by modified push ups, for abdominal strength by modified Sit-ups and muscular strength of lower body by Squats. The data was collected before training, during training and end of the training. The data was analysed by applying repeated measure ANOVA test and post Hoc test. The level of significance was set at 0.05. The result of the study reveals that, there is significant effect of functional exercise training as well as Yogic exercise training on dependent variables.

Key words: Functional exercise and Yogic exercise training, Muscular strength and endurance

Introduction:

Muscular strength and muscular endurance is one of the most important factors of physical fitness. It is important for daily life to do activities like lifting, pushing. Daily exercise and physical activities enhance muscles strength and endurance. Exercises are done by turning, bending and stretching the body. The movement of each and every part of the body is an ideal exercise. Walking, Running, Cycling, Playing, Skipping, as well as Yoga are common exercises which keep people Fit. (Namita Jain., 2013.)

Normally in India scenario girls are restricted and threatened by the parents, family member, and close relatives. They are under psychological pressure that they should come back to their own home in a stipulated time. Indirectly this restricts their movements. As they are not allowed move to side and there is no house hold work there remains no exercise to them in seating in front of T.V. for watching programs or using smart phones continuous. In rural area only 11.6% students are participating in physical activities conducting by college. (Ravi Shekhar. 2016)

Sports participation of girls at higher secondary school and College level

Bharat Bhujbal
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Abstract:

Participating in sports and games has a positive impact in many areas. It supports improves social skills along with promoting physical health and positive mental health. Participating in games and sports develops healthy living habits that beneficial for developing self-confidence, coordination, strength and promotes physical fitness.

The study was carried out in two co-education institutions.The data for the paper comes from twenty seven in-depth interviews with higher secondary school girls and college girls students aged between 17 to 22 years. The respondents belonged to rural areas as well as from urban areas. The sample size was carrying out with the help of theoretical sampling technique. The interview consisted of open-ended questions. When the college girls' students were asked about their participation in sports, based on the information they provide conclusions have been drawn. The data were analysed in accordance with the principles of qualitative data analysis.

Key words: Participation in sports, Higher Secondary School, College Girls Students, physical fitness

Introduction:

The culture of sport itself presents a problem.Women were allowed to participate for the first time at the 1900 Paris Olympic Games with the inclusion of women's events in lawn tennis and golf only. Women participate in swimming events for the first time in 1912, but none of them was from America. In 1992 Olympic they did not allow its female athletes to compete in events without long skirts. In swimming the first women gold medal was won by the Australian Sarah 'Fanny' Durack, who won the 100m freestyle in 1912. In **1928**, women allowed to participate in track and field events for the first time. In 1984 Women's shooting events were first included in the Olympics.Women's athletics and gymnastics introduced at the 1928 Olympics. The 2000 Olympics was the first time weightlifting was allowed to compete in the Olympics for women. A women's wrestling competition was introduced in **2004**.

Games and sports have greatly strengthens the body, improving the body's defensive system to hold any of the diseases alone. Many studies highlight that with constant involvement of the students in the games and sports they tend to increase their immune system and thus are better able to fight against the diseases. Playing indoor games or outdoor games have huge impact on holistic development of child.

Resistance towards sports and games of school and college younger generation is often affected by modern forms of entertainment like online gaming, videos, what's up and instagram etc. Therefore, the younger generation tends to lean more towards virtual online gaming worlds so the drive for sports activities has lost its entertaining attraction. Developing entertainment outlets like social media has only made sports events much less popular. Importance of sports and games is repeatedly undecided by the parents as well as the students. Playing indoor games or outdoor have huge impact on holistic development of child. Indoor or outdoor games and sports not only involve the development of skills but it also stimulates competitive behaviour among students. It makes confidence in the minds of the students. It not only strengthens the physical development but it also contributes towards the mental growth.

04

Impact of Inculcating Sports Culture in Higher Education through Best Practices

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Abstract:

Inculcating sports temperament amongst the students was a challenging task. It has been seen that there is always poor response in sports activities at UG & PG level. In a sustainability of sports culture amongst the youth, we have adopted various innovative practices since past few years. The activities like 'karke to dekho', 'sports week' iPL enhanced sports activities in college and helps to grow the continuous participation and achievement of students through various games at the college, university, state and national levels. Also it was observed that the students who were toppers improved their academic records involving in either sport.

Keywords: Karke to dekho, Sports, Academic, Strength, Physical Activity etc.

Introduction:

The intention of the present investigation was to determine and check the impact of best innovative practice in higher education through improving sports culture. It has been seen that the independent contributions of physical activity not associated with structured physical education and school based physical education participation to academic Early research shown that, educators should recognize that activity- based physical education is not negatively associated with achievement, but provides a great potential avenue for improving cognitive functioning indices that should translate into improved academic performance.[1]

According to WHO report, physical activity and healthy sports are essential for our health and wellbeing. Appropriate physical activity and sports for all constitute one of the major components of a healthy lifestyle, along with healthy diet, tobacco free life and avoidance of other substances harmful to health. The recent research shown that the regular practice of appropriate physical activity and sports provides people, male and female, of all ages and conditions, including persons with disability, with wide range of physical, social and mental health benefits.[2]

There has been three step search method adopted by the researchers to identify studies that used measures of physical activity or fitness to assess either degree of association with or effect on academic achievement and cognitive performance.[3] Researchers introduced a novel framework for understanding the relationships between physical activity (and specific forms of activity like sports) and different aspects of human development. It was proposed that the outcomes of physical activity can be framed as differential 'capitals' that represent investments in domain-specific assets- Emotional, Financial, Individual, Intellectual, Physical, and Social.[4]

The further study emphasized on moderate physical activity and the focus on integration of physical activity into one's lifestyle which offers additional opportunities for sedentary individuals to improve their health through participation in physical activities that are enjoyable, personally meaningful and fit more easily into daily schedules.[5]

There had been examined the association between physical activity (PA), physical fitness, and health-related quality of life (HRQOL) among school-aged children; that were posi-

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Rainfall Runoff in the Indapur Tahsil

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Abstract: General hydrological equation to compute runoff has been estimated. The average surface water village wise runoff of the study area is estimated. There is great deal of variations in terms of volume of runoff by different villages. The entire tahsil is drought prone and faces the problem of water scarcity throughout the year. Observing these outcomes in the present context, this paper calculates the rainfall runoff in the Indapur tahsil. The outcomes of these studies are briefly presented in this paper. It has been observed that the very high runoff found in the study area.
Key words: Rainfall, runoff, surface water, groundwater

Introduction

The nature and distribution of rainfall of the study area discussed earlier indicates that about 90 percent rainfall takes place during the short period of four months from June to September. There is a great variation in the number of rainy days. The maximum water holding capacity of soils is the basic controlling elements of runoff. Outputs are the processes that remove water from the system; these include evapotranspiration, the various uses of water by humans, and outflow from surface water and groundwater. In the present study examined the rainfall runoff in the Indapur tahsil.

Objectives

1. To calculate the runoff of the study area.
2. To make favourable suggestions to low runoff and sufficient water available

Study area

The area extends from 17° 53′ 42" to 18° 19′ 58" North latitudes and 74° 39′ 16" to 75° 09′ 39" East longitudes **(Fig. 1)**. The area is drained by the river Bhima on north and east both sides. Nira River flows south of Indapur tahsil. Total geographical area of the tahsil is 1575.38km^2 (Census 2011), out of which Nira river catchment area compress about 586.8 km^2 and Bhima river catchment covers an area of 902.43km^2. Nira River joins the Bhima River at famous tourist place i.e. Narsinhapur village after travelling a course of 209 Kms from origin. The slope of region is towards east. There are three soil types, namely, coarse shallow, medium black and deep black soils occupying 30, 40 and 30 percent respectively.

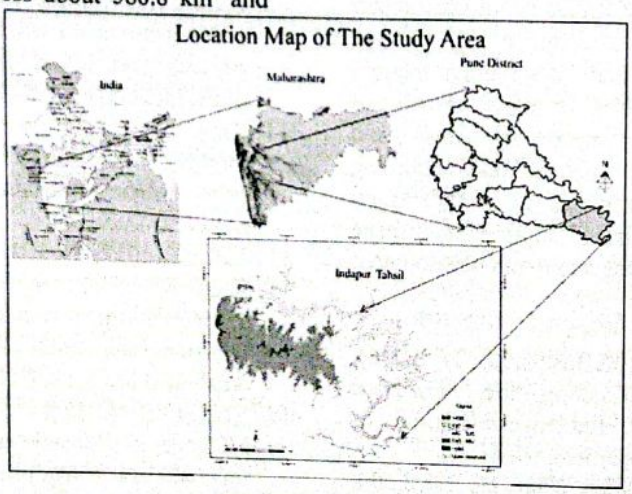

Fig. 1 Location map

Database and methodology

For the present research work secondary data source are used. This work is to develop digital database at large scale using spatial and attribute data All the supported data is collected from survey of India, Maharashtra Governments department of irrigation, department of water conservation. The Dickens, Inglis and Nawab Ali Jung Bahadur formula was used to estimate the runoff. These data base converted to Microsoft access format to suit to the link up for processing through Arc View 9.3, Global Mapper version 11.

Water Estimation of the Indapur Tahsil

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Abstract

A water estimate commonly provides the info of quantity and place of it. Water estimate studies consider the volumes of water within the various reservoirs of the hydrologic cycle and the flow paths from recharge to discharge. The reservoirs of surface and underground water are about 1542.695 MCM; Out of this only 601.38 MCM water is required for use. Water estimate are developed by measuring or estimating the inputs and outputs of a hydrologic system. Inputs are the processes that add water to the system; these include precipitation and inflow from surface water and groundwater. Outputs are the processes that remove water from the system; these include evapotranspiration, the various uses of water by humans, and outflow from surface water and groundwater. General hydrological equation to compute water balance and runoff has been estimated. The average surface water village wise runoff of the study area is estimated. There is great deal of variations in terms of volume of runoff by different villages. The entire tahsil is drought prone and faces the problem of water scarcity throughout the year. Observing these outcomes in the present context, this paper calculates the water budget of the Indapur tahsil. The outcomes of these studies are briefly presented in this paper. It has been observed that the water resources are not uniformly available in the study area.

Key words: Precipitation, evapotranspiration, runoff, surface water, groundwater water balance, water estimation.

Introduction

A water estimate is a basic tool that can be used to evaluate the occurrence and movement of water through the natural environment. Water estimate provide a foundation for evaluating its use in relationship to other important influencing conditions such as other ecological systems and features, as well as social and economic components – how much water is being used by agriculture, industry and residents etc. The water estimate process can encompass various levels of assessment which start simple and grow more complex if there are concerns about how much water is available at any level. Water estimate commonly provides the info of quantity and place of it. Water estimate studies consider the volumes of water within the various reservoirs of the hydrologic cycle and the flow paths from recharge to discharge. Water budgets need to consider this information on a variety of spatial and temporal scales (Hazel Breton 2010). The maximum water holding capacity of soils, rainfall and potential evapotranspiration are the basic controlling elements of water balance. The distribution of these elements decides droughts or water surplus condition. Therefore rainfall, potential evapotranspiration, aridity, humidity and soil moisture are become primary controlling factors of agriculture (Saikia 1994). In the present study water balance technique is used to estimate the availability of rainwater resource in the study area. The nature and distribution of rainfall of the study area discussed earlier indicates that about 90 percent rainfall takes place during the short period of four months from June to September. There is a great variation in the number of rainy days.

Objectives

1. To identify inputs and outputs of a hydrologic system
2. To identify place and quantity of water.
3. To calculate the runoff of the study area.
4. To make favourable suggestions to low runoff and sufficient water available.

Study area

Indapur tahsil is one of the tahsils in the Pune district consisting of 142 villages along with one urban centre in the study area. There are eight revenue circles in the tahsil. The area extends from 17° 53′ 42" to 18° 19′ 58" North latitudes and 74° 39′ 16" to 75° 09′ 39" East longitudes **(Fig. 1)**. The area is drained by the river Bhima on north and east both sides. Nira River flows south of Indapur tahsil. Total geographical area of the tahsil is 1575.38km^2 (Census 2011), out of which Nira river catchment area compress about 586.8 km^2 and Bhima river catchment covers an area of 902.43km^2. Nira River joins the Bhima River at famous tourist place i.e. Narsinhapur village after travelling a course of 209 Kms from origin. The slope of region is towards east. There are three soil types, namely, coarse shallow, medium black and deep black soils occupying 30, 40 and 30 percent respectively.

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Socioeconomic Impact and Environmental Status in Ujjani Dam Affected Area of Indapur Tehsil, Dist - Pune (MH)

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Abstract: ***Ujjani dam project provides the opportunity to study the current status of livelihoods of the people affected by the dam, and the aftermath of displacement and rehabilitation. The livelihoods of project - affected people (PAP) are still at risk from the development of the ujjani dam. In the case of the dam many studies that have been done on the resettlement and rehabilitation policy. Due to a large submersion of forest and agriculture land by the reservoir, over 4, 000 families were classified as affected according to the Government of India. Those who received official designation as Project Affected People (PAP) some studies estimate that the number of families and people affected is much greater than the number accounted for by the Indian government's policies. Some estimates project that nearly 10, 000 people have been affected by this phase of the dam development. The numbers of families living around the dam and reservoir who require compensation due to impacts of the dam. Some of the major's issues and conclusions that emerge from this review. It has invariably led to dispersal of communities, breakdown of traditional support systems and devaluation of their cultural identity and curtailed their access to natural resource base, affecting their mental and physical wellbeing. The resettlement and rehabilitation process is largely dependent and affected by the lifestyle of the families before displacement.***

Keywords: Questionnaires Method, Physico-chemical parameters of soil water

1. Introduction

Project affected persons (PAP) is a broad term which includes all those who are adversely affected by Dam project. To focuses on Socio - economic status of these populations with the help of questionnaire and interview methods due to which to understand the present status of the project affected families. For the rehabilitation of families who have lost their houses and land in ujjani irrigation project, the authorities have selected some sites near Pandharpur for their rehabilitation. Environmental Assessment (EA) is a comprehensive process to identify and evaluate the potential effects of a proposed major project and ways to avoid adverse effects and led to dispersal of communities.

Hydrology is the study of the movement distribution and quality of water throughout the earth. The study of the distribution and movement of groundwater is hydrogeology. Climate change causes unpredictable fluctuations in rainfall and hydrology [1]The study of glaciers is glaciology and distribution of oceans is oceanography. The collective mass of water found on under and over the over a surface of a planet is called hydrosphere. Earth's approximate water volume is 1360, 000, 000 km³ of this volume.

a) Effects of dams on the atmospheric system
Variations in moisture percentage, temperature and air body movement caused by the water bodies differentiate the climatic conditions related to topography. Regional scaled climatic changes can be observed by these effects. As climate change increases, effective planning to avoid cost overrun will become nearly impossible. Climate change causes unpredictable fluctuations in rainfall and hydrology such alterations don't affect human health directly, but they are notable from many plants and animals. Their secondary effects influence human being.

b) Effects of dams on territorial biological system
Biological life of the river changes fast both in the reservoir and in downstream. During the filling works of the dam, while the land remains under water the land part of the region decreases. However, the water - land boundary extends. Thus plant, animal or human being settlement areas changes. Forests, agricultural areas may come under water. Compulsory changes occur in flora, fauna and the algae and the agricultural traditions of people in the region. This effect can extend for kilometers.

c) Effects of dams on aquatic ecosystem
The decomposing of organism causes increase in the nutrient substance in water body in a short period of time. Therefore, BOD (biological oxygen demand) value of water increases. The plants covering the water surface as large green–dark bodies, macro flora grow upon the water surface.

d) Effects of dams on human life
The dams are an important for development; they are not easily acceptable for the people whose agricultural areas, houses on the environment they are living in go under water. For example, when the ujjini dam was created in Solapur district in ujjini village, although a much better settlement area was provided for 20, 000 people in another location. the new settlement improve by this way and result in second ecological needs and changes. For example, drinking water, domestic water waste, water waste treatment etc. moreover, the social life becomes active, trade increases, cultural activities rise. Dams decrease the flood risk in the downstream, by their storing opportunity in their reservoir.

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Assesment of Soil Quality Parameters of Ujjani Dam Affected Areain Indapur Tehsil (MH)

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ABSTRACT:
Soil is the essential medium on which agriculture is supported. Water is equally important resource for agriculture. Soil is composed for four major constituents as inorganic particles, organic matter, water and air.Conservation of water has got special importance in increasing the agricultural productivity and maintaining nature and quality of soils. The soil samples were collected in the study area are sampling sites as Palasadev, Kalthan, Shaha, Kuroli etc. Physicochemical parameter analysis of soil of study area should be extensively monitored since deterioration of soil and water quality was clearly observed.

KEY WORDS: Physicochemical parameter of soil, Questionnaire Survey, Occupation Status.

I. INTRODUCTION:

The most challenging social impact of dam is the displacement of native people. After resettlement, the displacement of native people have faced many social problem such as disturb family relationship, poor drinking water facilities, lack of infrastructure amenities, lack of educational, medical, road and transportation, electrical facilities, absence of public toilet facilities, deficiency of market Centre.[1]The Irrigation has played an important role in changing the agricultural scenario and brought about lot of change in the social,political and economic factor .However introduction of large scale irrigation coupled with overuse of chemical ,fertilizers and practicing of monoculture type of cropping pattern have accelerated the process of soil and water degradation in the study area This degradation includes water logging soil salinity and water quality deterioration. Therefore environmental regulatory bodies such as Environmental Department and Water Resources Board should be more aggressive and effective in environmental monitoring, assessment and enforcement of environmental laws and regulations so as to preserve the soil from further degradation.

A dam interrupting a river leads to unpredictable social impact. First, many communities must resettle to provide land for the dam and the reservoir [3]Over irrigation causes rise in the water levels thereby resulting in water logging of the area this leads to continuous decline in agricultural productivity The fact is that irrigation creates a certain risk of soil degradation such degradation depends upon the composition of soil to be irrigated quality of water and management practices adopted these negative impacts on soil as salinity of soil alkalization, water logging, Depletion in soil fertility, Change in soil properties.Farmer adopts cultivation of crop as traditional method. Excess use of industrial effluent, fertilizer cause calcium, magnesium ammonium ions in various amount increasing their concentration in soil and water which leads to water loggings and salinity of soil and water.Soil enzymes are the important moderator and catalysts of significant roles in soil. [4]

Soil enzymes catalyze the cycling of nutrients such as carbon, Nitrogen, Phosphate and Sulphur decomposition in soil,[6]Excessive use of fertilizers particularly in soil under intensive monoculture type of land use leads to lose organic matter and its ability to retain moisture due to this soil erosion and ultimately lose their fertility and productivity. The burning of waste in the site to reduce garbage releases toxic particulate matter and smokes that cause of respiratory complications and other health problems for people and other living organism [5]

Methods of Sampling:

A field can be sampled to estimate its fertility through soil analysis by several methods. A sampling pattern in a heterogeneous land. Analytical methods employed for the soil analysis of samples from the fourvillage area

The Physico–chemical parameters of Soil analyzed in lab by standard Techniques.[2] Soil and water resources are important for environment that is to reduce the erosion rate and the destructive effects of torrential flooding.

१७. महाराष्ट्राच्या राजकारणात मराठा जातीची भूमिका

नामदेव अशोक पवार
संशोधक विद्यार्थी, राज्यशास्त्र विभाग, हिंद सेवा मंडळाचे पेमराज सारडा महाविद्यालय, अहमदनगर.
प्रो. डॉ. दत्तात्रय वाबळे
साहेबराव शंकरराव ढमढेरे कला व वाणिज्य महाविद्यालय, तळेगाव, पुणे.

प्रस्तावना

भारताच्या लोकशाही राजकीय प्रक्रियेवर अनेक घटकांचा प्रभाव सातत्याने पडत असतो त्यामध्ये धर्म, भाषा, जात, पंथ आणि वर्ग इत्यादींचा समावेश होतो. देशाच्या आणि राज्याच्या राजकारणात जातींची भूमिका महत्वपूर्ण राहिलेली आहे. समकालीन सामाजिक शास्त्रांच्या चर्चाविश्वामध्ये जात व राजकारण यांच्या अभ्यासासंदर्भात 'जाती संघटना' (Caste Organization) आणि जातीचा आग्रही आविष्कार (Caste Assertion) यांचे अभ्यास मध्यवर्ती आहेत. प्रस्तुत संशोधनपर लेखांमध्ये महाराष्ट्रातील मराठा जातीच्या बदलत्या राजकीय पार्श्वभूमीवर मराठा सेवा संघाचा उदय कसा झाला याचा शोध घेण्याचा प्रयत्न केलेला आहे.

महाराष्ट्राच्या राजकारणात मराठा ही जात केंद्रभागी होती तसेच सुरुवातीच्या टप्प्यात मराठा जातीच्या नेतृत्वाने सर्वसमावेशक राजकारण करत मराठा जातीच्या राजकारणाला सर्वजातीय संमती मिळवली होती. परंतु १९८० नंतर मराठा जातीच्या राजकारणाचे खच्चीकरण करण्याचा प्रयत्न देशपातळीवरील काँग्रेस नेतृत्वाने पद्धतशीरपणे केला त्याचबरोबर मराठा जातीतील नेतृत्वातही फाटाफूट झालेली दिसून येते, जागतिकीकरण, मंडल आयोगाच्या पार्श्वभूमीवर इतर मागास जातीच्या अस्मिता जाग्या झाल्या व त्या राजकारणात सक्रिय सहभाग घेऊन सत्तेत वाटा मिळवू लागल्या त्याचबरोबर इतर मागास जातीमध्ये जाती संघटनांचा उदय होऊ लागला परिणामी मराठा राजकारणाला शह बसू लागला व मराठा समाजाची आपण राजकारणात डावलले जात आहोत अशी धारणा बनत गेली. या धारणेतून समाजाला एकत्र करण्यासाठी मराठा जातीतही अनेक संघटनांचा उदय होऊ लागला.

जात व राजकारण

ब्रिटिश काळातील जातिव्यवस्थेच्या पारंपरिक संघटनेमध्ये महत्वपूर्ण बदल झालेले आहेत. स्वातंत्र्यानंतरच्या काळात उदार लोकशाही, भांडवलशाही विकासाचे मॉडेल, राजकीय अर्थव्यवस्था इत्यादीच्या स्वीकारामुळे या बदलात गुंतागुंत होताना दिसते. तसेच औद्योगीकरण, शहरीकरण वाढीबरोबर समकालीन जातीचे स्वरूप गुंतागुंतीचे बनले.[१]

राजकारण व समाजातील जाती हा घटक अभ्यासकांचे लक्ष वेधून घेण्यास तीन प्रक्रिया महत्वाच्या आहेत. पहिली प्रक्रिया - आर्थिक क्षेत्रातील बलामुळे जाती व व्यवसाय यातील पारंपरिक स्वरूपाचे संबंध बदलले

Morphometric Analysis of Linear Aspects of Sina River Basin, Maharashtra

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Abstract

Watershed managers require understanding and synthesizing hydrologic response of river basin for which they have started looking into its basin characteristics or morphologic features and establish connection of fluvial geomorphology to hydrology. According to Strahler (1968), the science of geomorphology treats the origin and systematic development of all types of landforms and is a major part of Physical Geography. Drainage basin is an ideal unit of the earth surface for the study of its landform. Therefore the present study deals with the quantitative analysis of selected drainage basin. Using drainage basin as a basic unit in morphometric analysis is the most logical choice because all hydrologic and geomorphic processes occur within the drainage basin. Measurement of shape, or geometry, of any natural form- be it plant, animal, or relief feature- is termed as morphometry (Strahler, 1957). Systematic description of the geometry of a drainage basin and its stream channel system requires measurement of linear, areal and relief aspect of drainage network. In current research paper only linear aspects are analyzed such as stream order, Stream numbers, bifurcation ratio, stream length, mean stream length and stream length ratio.

***Keywords** : Morphometric, drainage network, linear aspects.*

Introduction

Watershed and its characteristics are controlled by nature and its hydro-climatic parameters are mostly interrelated with each other. Watershed managers require understanding and synthesizing hydrologic response of such basin for which they have started looking into its basin characteristics or morphologic features and establish connection of fluvial geomorphology to hydrology. Geomorphology is the study of landforms (valley, gorge, waterfall, cavity, sand-dunes). Worcester defines geomorphology, the interpretative description of relief features. (Worcester, 1948) Drainage basin is an ideal unit of the earth surface for the study of its landform (Singh S. a., 1974). Therefore the present study deals with the quantitative analysis of selected drainage basin. (Singh S. a., 1974). Using drainage basin as a basic unit in morphometric analysis is the most logical choice because all hydrologic and geomorphic processes occur within the drainage basin. The landscape as well as relief features play a dominant role to influence source of transportation, location of cities and agriculture field so their study is great importance and interest to geomorphologist. The aim of the watershed management is to conserve the soil and water resources, so as to achieve improvement in the agriculture. So the emphasis is on the development of regional resources.

Study Area

The basin used in this study is the drainage area of the *Sina* River. It's catchment area of about 12365.3 sq. km. (approximate). Topographically the basin shows low degree of slopes, less dissection index and typical features of Western Ghats at the origin region of river. The *Sina* River basin is part of the upper Bhima river basin situated in the North part of Krishna River Basin. Actually, Sina river have two main tributaries which are arises from two opposite side, one from (West) Village Jamgaon (height 844 m) and another from (East) Village Sasewadi (height 970 m), and meet at Village Sawedi. River Bhogawati, river Upla, river Mehkari, river Kheri are the major tributaries which join Sina river. The latitudinal and longitudinal extension of the entire basin is from 17^0 21' 25.92" N to 19^0 15' 49.32" N and 74^0 28' 46.56" E to 76^0 05' 52.44" E respectively (fig. 1). The eastern part of the basin is comparatively less rugged and possesses flat rolling topography. The region experiences tropical type of climate. The rainfall pattern in the area is highly variable. About 85% of the rains occur in the months of June to September. The rainfall is below 800 mm.

The entire river basin area rather the Deccan plateau portion is mainly formed during the Late Cretaceous to Palaeogene age. The prolonged weathering of these trap rocks gave rise to residual sedimentary rock known as Laterite. Banks of stream are covered with alluvium patches. The upper part is mainly covered with red-brown soil and at places lateritic soils while the lower most portions is known for black cotton soil. The middle part of the basin mostly comprises of coarse shallow soils and alluvium. The lateritic soil is rich in Iron and Alumina.

Effectiveness of Employment Training and Development Programme at *Dudh Ganga Sahakari Dudhutpadak Sangh Limited Indapur Dist. Pune* Maharashtra State

Dr. Gajanan Kadam*

ABSTRACT

Dudhganga Milk grown multi fold and has been known for quality of its raw milk and for offering milk & milk Products Moved by the plight of Milk Farmers being exploited by Milk Dealers, he started milk collection and packing to help reduce Farm to Consumer cycle. Being Farmer, he improvised the systems for milk collection which reduced milk contamination and delivered healthy milk at Dairy.

This project began small with a milk collection of just 12,000 liters of milk every day. Continuous Innovation at Processing and Milk Collection and a dedicated and committed staff has resulted in Dudhganga processing 70 thousand liters milk per day. Dudhganga continues to grow rapidly scaling new milestones every year. It is one of the fastest growing large Dairy units in Maharashtra.

Dudhganga Dairy is based on the traditional values of trust and Farmer welfare. It also follows industry standards that define the quality of its products. The entire process from collecting the milk to delivering the final products moves under strict hygienic conditions and maintaining exceptional work ethics to fulfill international commitments and local standards,in which process departments includes Milk & Milk Products manufacturing, & warehouse. Engineering includes mechanical, electrical, instrumentation, civil, Fire & safety, environment, and support services departments include store, commercial, accounts, canteen, administrative & human resources. In, training of employees at various level gives highest important from human resources point of view. For training of employees, identification of training needs through department head is must. On the basis of requirements human resources is arranging various training programme for employees. Indapur Dairy & Milk Products Ltd this organization selected for project, on the basis of best training practices in present corporate companies. Training improves the efficiency of employee and the ultimately of company. The apprentices working in different factories used toget vocational training when use of computers, automatic machines etc. increased and because of rapidly changing techniques the need of training is recognized as one of the most important organizational activities.

Training held at Dudhganga Sahakari Dudh Utpadak Sangh Limited Indapur is given when there is a difference between the job requirements and employees present with their specifications. Organizational efficiency, productivity, progress, development, organization viability, stability and growth to greater extent depend on training.

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8. Nationalization and Privatization Impact in the Context of Indian Banking Industry

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Abstract

The facilitation of economic transactions and friendly investor environment is undertaken through effective performance of financial systems. Mobilization of savings and funding the profitable business opportunities are essential in improving the efficiency of intermediation. The study aims to evaluate the effects of nationalization and privatization on Indian banks. Various factors have been considered to examine the effects of privatization and nationalization, including sources of public sector inefficiency, measures of firm performance, econometric issues, and the mode of privatization. The data was collected for the period of 2015 to 2020 from Indian banks. Data Envelopment Analysis (DEA) was used to evaluate the financial reports of the banks selected to evaluate the efficiency of input and output variables. Positive results were observed, concerning the efficiency and profitability of banking industry after banks privatization. Performance of private banks has been observed effective and efficient as compared to the public sector banks. Privatization of banks must be increased and maintained to sustain the efficiency of the banks and implement strategies to maintain the assets. Future studies may recruit more appropriate sample size to evaluate the privatization and nationalization effects of Indian banking industry. Greater number of banks will provide more precise results, using data envelopment analysis.

Keywords: Banks, Data Envelopment Analysis, Efficiency, Indian banking industry, Privatization, Nationalization

Introduction

The performance of financial system is a fundamental angle in the improvement of economy for any country. The presence of set up monetary framework can be utilized to advance the monetary dependability of a country. Actually, twisting can be capable by a temperamental financial framework among loan costs, monetary movement, and expansion. In this way,

ROLE OF E-BANKING IN ECONOMY DEVELOPMENT OF INDIA

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Abstract
The Indian Banks are the backbone of Indian financial sector and Indian economy. Now a day in Indian economic scenario, the Indian financial system is in a process of rapid transformation. The shift from the formal banking to E-Banking has been a remarkable 'leap change' in Indian banking history. E-banking has experienced strong and sustained growth. E-Banking, also known as net banking, online banking or internet banking, is the facility provided by banks and financial institutions which allows customers to use banking services via internet. There are scores of services like online money transfer, account opening, bill payment, tracking account activity, etc., which are made available to customers with the help of e-banking. This research paper shows the relationship between e-banking and economic development in India and helps to know the present economic scenario of e-banking. It highlights the role of e-banking in ensuring a speedy Indian economic recovery.
Keywords: E-banking, economic development, present economic scenario.

Introduction

India has arisen as the quickest developing significant economy on the planet and is relied upon to be One of the best three financial powers of the world throughout the following 10-15 years, upheld by its Solid majority rules government and associations. The public authority of India has thought of Digital India drives, which centers around three center parts: production of advanced framework, conveying administrations carefully and to build the advanced literacy. Banking through electronic channels has acquired expanding prevalence as of late. The improvement and the expanding progress experienced in the Information and Communication Innovation combined with the development of the worldwide economy prepared for the change of the Indian financial framework's job from customary exchange financing to activating and directing monetary assets all the more really in practically all features of life.

Objectives of the study

1. To examine the role of e-banking in economic development of India.
2. To highlight the role of e-banking in ensuring a speedy economic recovery of India.
3. To examine the need for e-banking among the Indian populace.

Methodology of the study

The study is mainly descriptive in nature. The data for the purpose of the study has been collected through secondary sources, which mainly include websites, various articles and journals.

A Study of National Agricultural Insurance Scheme in Indapur Tehsil Dist. Pune Maharashtra State

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Abstract
Agricultural production and farm income in India involve several risks. Crop insurance is the only mechanism available to safeguard against production risks. Against this background, this paper has examined the features and performance of National Agricultural Insurance Scheme (NAIS) operating in Indapur tehsil Dist. Pune of Maharashtra state and has suggested some modifications to make it more effective. NAIS coverage in terms of crop area, number of farmers and value of agricultural output is very small. If crop insurance programme is to be made an important tool in agricultural risk management, the present level of coverage will have to be improved, at least by 3-4 fold. Such an expansion can occur only with improvements in and broad-basing of the insurance scheme. Every suggested improvement has financial implications and affects the concerned insurance practices. It requires renewed efforts by the government in terms of designing appropriate mechanisms and providing financial support to agricultural insurance. Providing of similar support to the private sector insurers would help in increasing the insurance coverage and improving the viability of insurance schemes over time.

***Keyword**: farmer, agricultural, insurance, debt, indebt, loss, agriculture risk, remedies.*

Review of National Agricultural Insurance Scheme (NAIS)

Agricultural production and farm income in India involve several risks. These relate to natural events, weather aberrations, epidemics and manmade disasters. All these affect both crop area and yield. Further, with the growing of agricultural commercialization and climatic changes, the degree of risk due to unfavorable eventualities is increasing. Sharp fluctuations in agricultural prices are causing a wide variability in farm income. For a section of the farming community, the Minimum Support Prices (MSP) for certain crops provide a means of their income stability (Vyas and Singh, 2018). But, for most of the crops and in many of the states, MSP has not been implemented. Recently, mechanisms like 'contract farming' and 'future trades' have been introduced and these are expected to provide some risk cover against price fluctuations, directly or indirectly. It is believed that crop insurance is the only mechanism available to safeguard against production risks in agriculture. Considering this need, the Government of India had introduced a Comprehensive Crop Insurance Scheme (CCIS) in 1985 and later, a National Agricultural Insurance Scheme (NAIS) in 1999-2000. But, this scheme also has not been able to make the expected impact and acceptability. Against this background, this study has examined the features and performance of National Agricultural Insurance Scheme (NAIS), operating in the country and has suggested changes to make it more effective. The main objective of the scheme is to protect farmers against losses suffered by them due to crop failure on account of natural calamities, such as drought, flood, hailstorm, cyclone, fire, pest/ diseases, so as to restore their credit worthiness for the ensuing season. The paper has presented the results of detailed analysis of secondary data for 13 crop seasons, since the inception of NAIS, covering the period rabi 1999-2000 to rabi 2005-06. Field investigations were also conducted for the state of Maharashtra special in Indapur tehsil Dist. Pune during October, 2019 to assess the perception of loanee and non-loanee insured farmers, bankers and other functionaries of NAIS. Besides the field study, discussions were also held with experts in Agriculture Insurance Company (AIC) and agricultural departments, and bankers, academicians and farmers' representatives.

Main Features of NAIS

The National Agricultural Insurance Scheme (NAIS) was introduced in the country from the rabi season of 1999-2000. Agricultural Insurance Company of India Ltd (AIC), which was incorporated in December, 2002, and which started operating from April, 2003, took over the implementation of NAIS. This scheme is available to both loanees and non-loanees. It covers all food grains, oilseeds and annual horticultural / commercial crops for which past yield data are available for an adequate number of years.

Testing of Adulterants in Milk and Milk Products by Using Household Chemicals

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Abstract:

Milk is essential sustenance for human life. Health of human being depends on quality of milk that they consume every day. The quality of milk can be lowered by addition of some substances. Milk is declared to be adulterated when some unwanted cheaper substance is added or removal of valuable constituents partly or wholly. Sometimes the various chemicals are added in milk and milk products to improve its appearance and taste. In many countries, the main cause of adulteration is financial gain to increase the quantity of milk and milk products and to make it more attractive. Milk prepared, processed, packaged or stored in unhygienic condition is also one of the major cause of adulteration. Milk adulteration is punishable act and many rules have been imposed by government agency, but still adulteration is reported on daily basis. Awareness and knowledge of detecting common adulterant by some simple methods can prove to be a one of the most weapon to fight against adulteration. Day by day milk can be adulterated, to know the little knowledge about identification of some adulterants, which is discussed here.

Keywords- Adulterants, Household, Organoleptic, Preservatives, MST, LDL

I.INTRODUCTION

The health of mankind depends on the quality of food they consume. Milk is adulterated if its quality is lowered or affected by the addition of substances which are injurious to health or by the removal substances which are nutritious. According to Food Safety and Standard Authority of India (FSSAI), the technical definition of adulteration is addition or removal of substances to or from food substance so that natural composition and quality of food substance get affected. Purpose of adulteration is not only to increase the weight but also to improve taste, lifetime, appearance and productivity of milk and milk products. All these above mentioned practices are responsible for milk adulteration. The addition or removal of some substances, physical contamination of some metals and chemicals are added during the processing of milk and milk products beyond permissible level, affects the quality and can prove to be toxic. The microbial contamination of milk is also one of the biggest cause of health problems. Sometimes metals may also enter into milk by contamination and also proves to fatal if cross certain limits. So the milk that gets contaminated or adulterated becomes unfit for consumption. The adulteration of milk can occurs at various stages.

Producer- 1) Poor agriculture practices.

Comparative Studies on Extraction of Essential Oils from Different Medicinal Plants.

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Abstract:
Medicinal plants are considerable significance due to their special attributes. The large number of phytochemicals present may lead to the development of novel drugs.The extraction of medicinal plants with traditional methods plays an important role in the extraction outcomes. Essential oils extracted from flowers and leaves are the mixture of chemical constituents which contains less molecular weight compounds as alcohols, polyphenols, terphenols, aliphatic and carbonyl compounds, which possess various biological properties.Here in this study, a very simple method as hydrodistillation and steam distillation for extraction of oil is adopted and compared for evaluation of their properties and extraction outcomes.
Keywords:Medicinal plants,Hydrodistillation,Extraction , Essential oil.

1.INTRODUCTION:

As a traditional medicinal herb and valuable natural spice, essential oil has many significant effect[1-4]. Interest in utilizing natural sources in the development and formulation of skin products, as an alternative to conventional drugs and synthetic products, contribute to increase interest in research and industrial application of medicinal plants. High content of phenolic and flavonoids in medicinal plants have been associated with their antioxidant activities that play a role in the prevention of the development of age-related disease, particularly cause by oxidative stress. With regards to the beneficial phytochemicals in medicinal plants and the shift towards natural products in pharmaceuticals and cosmetic industry, the research on medicinal plants particularly are as important as the research on conventional drugs. The study of medicinal plants starts with the extraction procedures, which is an important step in the processing of the bioactive constituents from plant materials.

Conventionally, the essential oil is taken from plant raw material by different extraction methods [5,6] including solvent extraction and steam distillation. However these methods have drawbacks such as loss of volatile compounds, low yield and accruement of toxic solvent residues[7,8].Essential oils are lipophilic and soluble in organic solvents due to their hydrophobic nature and lower density than water. In this study, the selected plants essential oil has various applications.As a part of our investigation on evaluation of aromatic medicinal plants. The aim of this work is to provide comparative record of analysis on essential oils of Geranium, Eucalyptus and Lantana Camara.

2.MATERIALS AND METHODS:

2.1.Preparation of Plants:

The fresh,green fleshy leaves of Geranium, Eucalyptus and Lantana Camara were collected from local area and A. S. C. College campus,Indapur. Collected leaves were washed with distilled water to remove dirt and dust and dried in shade for 1 hour, chopped into fine pices and was used for further study.

2.2. Extraction of oil by Hydrodistillation method:

Hydrodistillation is an advanced method for extracting essential oils from plants because of its abilityto maintain the original quality of plants. The fresh leaves of each plant about 250 g was taken in 500 ml round bottom flask and added with 250 ml of solvent(distilled water).The reaction was heated at 100 ^{O}C for about 2 hours.The distillate was collected in conical flask. Shown in fig.1(9-12).After completion of distillation,essential oil was separated by using separated funnel and rotavapours.The collected essential oils (from different plants) were collected and stored in dark glass bottles and stored at 4 ^{O}C. The infusion will be stronger for six months to 1 year.

2.3. Extraction of oil by Autoclave method:

Autoclave method is used for large scale extraction of oils.The autoclave containing water is arranged in such a way to remove the steamfrom it using copper pipes at the top.The ratio of solvent and plant material was kept same for all plants (7 kg plant material : 5000 ml solvent) at 100 ^{O}C for 2 hours. The pressure of steam was reduced by adjusting knob and condensed by passing through circular copper tubular coil dipped in icecold water can.The distillate was collected through pipes which was fitted at the base.

In this procedure, two distinct phases were obtained: an organic phase (EO: essential oil) and an aqueous phase containing a part of the essential oil. The organic phase was separated from the aqueous phase by shaking it with 10 ml hexane (solvent) and separated by separating funnel and finally on rotavapour (13).The essential oils were collected and labelled in air tight glass bottles and stored at 4 ^{O}C.

Biosynthesis, Characterization and Antimicrobial activity of Silver Nanoparticles using Justicia Adhatoda.

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***Abstract*: Biosynthesis is a simple, non-toxic, economical and eco-friendly approach for the synthesis of nanoparticles. In the present work, nanoparticles of silver were synthesized by using aqueous solution of *Justicia Adhatoda* leaf extract as a reducing agent. These synthesized Ag-NPs were further evaluated for antimicrobial activity against *Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa* and *Bacillus subtilis.* The characteristics of silver nanoparticles were studied using UV-Visible spectroscopy and Fourier Transform Infra-red spectroscopy (FTIR). The potential applications of bio-synthesized nanoparticles showed antimicrobial efficacy against *Escherichia Coli* (12 mm) and *Bacillus subtilis* (11 mm) respectively.**

***Keywords*: Biosynthesis; *Justicia Adhatoda* extract; Silver nanoparticles; Antimicrobial activity.**

1. INTRODUCTION

Nanotechnology is an important field of modern research mainly concern with synthesis of nanoparticles of variable sizes, shapes, chemical compositions and controlled dispersity and their potential use of human benefits. Biosynthesis provides advancement over chemical and physical method as it has no need to use high pressure, energy, temperature and toxic chemicals ¤1¥. Nanomaterials are seen as a solution to many technological and environmental challenges in the field of solar energy conversion, catalysis, medicine, and water treatment. Research on the synthesis of Nano sized material is of great interest because of their unique properties like optoelectronic, magnetic and mechanical which differs from bulk.

The biosynthesis of Silver oxide nanoparticles of different sizes and shapes has been reported using bacteria, fungi and plant extract ¤2¥. Plants provide a better platform for nanoparticles synthesis as they are free from toxic chemicals as well as provide natural capping agents. Physical and chemical methods uses harmful chemicals such as sodium borohydride, sodium citrate dehydrate which are possibly hazardous and very costly to the natural settings and organic functions. Bio inspired synthesis of these particles proves to be cost effective environmental alternative to chemical and physical methods in preparing of nanoparticles, ecofriendly and helps to reduce harmful effects on environment ¤3,4¥.

In the present study Silver nanoparticles were synthesized through bio inspired synthetic approach. The applications of Silver nanoparticles (AgNPs) are a very promising, efficient and cost effective method for remediating this environmental health concern. Plant extracts have shown prospects in AgNPS synthesis which is a green chemistry synthetic approach ¤5¥. Plant extract mediated synthesis of nanoparticle is one of the stable and suitable alternatives in comparision with other conventional methods. *Justicia Adhatoda* known as Vasaka or Malabar nut belongs to *Acanthaceae* family. It has many medicinal properties such as antibacterial, antifungal, anti-inflammatory. Biologically synthesized silver nanoparticles could be of immense use in medical textiles for their efficient antibacterial and antimicrobial properties ¤6, 7¥.The synthesized silver nanoparticles were characterized by UV-Visible spectroscopy, FTIR spectroscopy and tested for their antimicrobial activity.

2. MATERIALS AND METHODS

2.1 Preparation of *Justicia Adhatoda* Leaf Extract

Fresh leaves of *Justicia Adhatoda* were collected from A.S.C College campus, Indapur. The collected leaves were thoroughly washed several times with distilled water and shade dried for a day. 10 g leaves was added in 100 mL of distilled water and heated at 80 °C for 15-20 minutes. Allowed to cool at room temperature and filtered through Whatman No. 42. The filtrate was centrifuged at 1500 rpm for 10 minutes. The supernatant filtrate was used as leaf extract for the synthesis of nanoparticles, stored for further use.

2.2 Preparation of 0.01M $AgNO_3$ solutions

0.169 gm. A.R grade $AgNO_3$ dissolved in 100 mL distilled water (DW) and stored in amber colored bottle in cool and dry place.

2.3 Preparation of Silver Nanoparticles

50 mL 0.01 M Silver nitrate were taken in beaker and stirred using a magnetic stirrer for 5 minutes. After 5 minutes, 25 mL leaf extract was added slowly into this beaker for uniform precipitation of silver nanoparticles. The solution was left undisturbed and allowed to room temperature. The yellowish brown colored precipitate get deposited at the bottom, indicates the formation of nanoparticles. The deposited nanoparticles were washed with sterile distilled water and was subjected to centrifugation at 10,000 rpm for 20 minutes. The nanoparticles was dried in hot air oven for 1 hour at 80°C and subjected for characterization. Reduction of silver ions to silver nanoparticles was confirmed by color changes from colorless to yellowish brown (figure 2).

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REMOVAL OF NICKEL (II) FROM AQUEOUS SOLUTION USING *POMEGRANATE* PEEL POWDER

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ABSTRACT

Removal of Nickel (II) from aqueous solution using *Pomegranate* peel powder as a new biosorbent was studied. Investigations have been made to study various sorption parameters such as biomass amount, contact time, pH, temperature and initial ion concentration. The selected adsorbent was effective for the removal of Nickel (II) ions in acidic medium and attained the equilibrium in 30 minutes. The adsorption process is endothermic in nature. This adopted method is quite feasible, economic, time saving and low cost.

KEYWARDS: Adsorption**,** *Pomegranate* peel powder, Heavy metal, Aqueous solution.

1. INTRODUCTION

Industrialization to a larger degree is responsible for the contamination of environment especially water where lakes and rivers are overwhelmed with a large number of toxic substances. Heavy metals are reaching hazardous levels when compared with the other toxic substances [1]. Heavy metals are a unique group of naturally occurring compounds. Their continuous release leads to overconsumption and accumulation. Many industries such as fertilizers, metallurgy, leather, mining, electroplating, energy and fuel production, discharge waste containing heavy metals either directly or indirectly into the water resources.[2] There are several conventional methods can be adopted for the removal of heavy metal from wastewater like chemical precipitation, electroplating, ion-exchange, reverse osmosis, chemical coagulation and adsorption. These methods are highly costly, not effective, require high energy input and non-ecofriendly in nature.[3-4] Among these, adsorption technique has gained importance due to its cost economy, high efficiency, harmless nature and ease handling.[5]

Pomegranate is a widely available fruit, belongs to *Lythraceae* family. *Pomegrante* has various properties as anti-oxidant, anti-viral, anti-tumor and many more. *Pomegranate* fruit is a good source of vitamins as well as folic acid. *Pomegranate* fruit peel is full of flavonoids and tannins.[6] The main objectives of this research is to investigate the effects of various parameters as biomass amount, contact time, pH, temperature and initial ion concentration on the adsorption efficiency of Nickel (II) ion on the *Pomegranate* fruit peel powder.

2. MATERIALS AND METHOD

2.1. Preparation of Biomass

The fruit peels of *Pomegranate* were collected and washed severally followed by distilled water to remove dirt and dust. After washing, peels were dried in shade for 6-7 days, till becomes crispy. Dried peels were grinded on grinder to obtain a desired size powder. Dried powder were further used throughout the experiment.

2.2. Preparation of Stock solution

The stock solution of Nickel (II) 1000 mg/L was prepared by dissolving 1.1343 g of $NiSO_4.6H_2O$ in distilled water. All chemicals used were of analytical grade. For working solutions, it was further diluted to desired concentration by diluting the Nickel stock solutions. The concentrations of Nickel (II) ion in the solution was determined complexometrically.

2.3. Adsorption study

In this study, adsorption experiments were conducted for the adsorption of Nickel (II) on natural *Pomegranate* fruit peel powder as a function of biomass amount, contact time, pH, temperature, and initial ion concentration. Aqueous 25 ml Nickel (II) solution of different concentrations were taken in 100 ml Erlenmeyer flask. The experiment was carried with 0.2 to 0.6 g of *Pomegranate* fruit peel powder varying with contact time. We varied the experiment for different

Cost and Return From The Cultivation Of Sugarcane: A Case Study Of Indapur Tahsil (Pune District)

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Indapur, Dist. -Pune, Maharashtra

1. Introduction

Sugarcane is one of the important industry based crop in the world. About 195 countries grow sugarcane crop to produce 1324 million tonnes of sugarcane (more than six times the amount of sugar beet produced). Indian sugar industry has been playing a vital role in the socio economic transformation of the country. India is the second largest sugarcane producer and the highest sugar consumer in the world. Apart from sugar, sugarcane is grown for many other uses like fodder, paper and biofuel. In spite of its growing demand, there are a number of problems which affect the sugarcane producing farmers in their production and increasing their profit.

2. Study Area

Indapur tahsil is situated in Pune district. The northern and eastern border is demarcated by Bhima River in Pune and Solapur districts while southern boundary is confined by Nira River in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daund tahsil of Pune district. The region extends between 17° 53′ to 18° 15′ north latitudes and 74° 35′ to 75° 8′east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 142 settlements and three urban settlements.

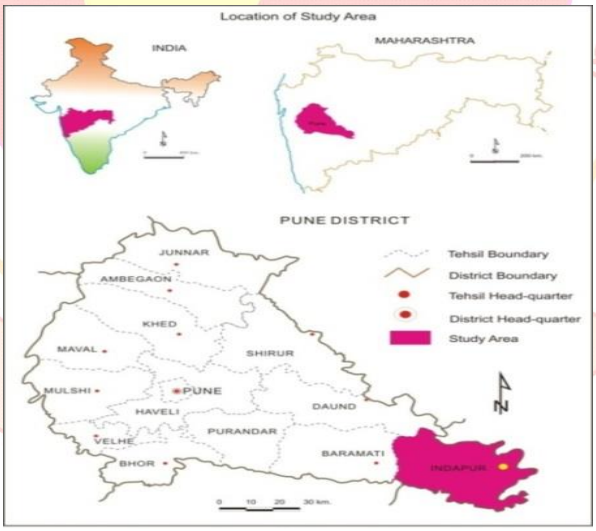

Fig-1: Location of Study Area

Review of Literature

Patil S. R., (2014) Carried out his study on "Cost benefits analysis of sugarcane cultivation of Walva tahsil, dist. - Sangali (MS). The study deals with sugarcane crop as a agricultural model to get money for utilization of natural resources present in the region and also brought outside the region. The study of cost benefit analysis is very important for any crop that can be observed the economic profitability of the farmer.

Singh Gomatee (2013) carried out his study on, 'An empirical study of economics of sugarcane cultivation and processing based farming in Uttar Pradesh'. The main objective of this study was changes in area,

Spatio-Temporal Changes in Urban Landuse and Land Cover Pattern of Indapur *Tahsil*

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Introduction

Maharashtra is one of the most urbanized state in India. The proportion of population in Maharashtra is (45.23%) as per the latest census of 2011, which was (38.69%) in 1991. In absolute terms, the urban population increased from 30.5 million to 41.00 million and net addition to states urban population was 10.5 million during the 1991 to 2001 and 20.2 million additions in 2001 to 2011. The state of Maharashtra is highly urbanized in comparison to the country, as a whole (31.15%), but its urban population is mostly concentrated in few major cities. For this skewed distribution, the socio-spatial factors are responsible and this imbalanced situation needs to be corrected after investigation.In the state, the number of urban centers has increased from 336 in 1991 to 534 in 2011 and the growth of urban centers was (12.50%). During the same period the proliferation of the urban unit was from 336 to 534 with the percentage growth rate of (41.26%).The state was less than above 10%, which was much less than the growth of towns in India as whole. But the share of urban population in the total population of Maharashtra states (45.23%) was much higher than in the entire country (31.15%). Indapur has historic significance in the expansion of Mughal empires in Central-South India, and subsequent Maratha resistance. Indapur is the Jagir of Malojiraje and Shahajiraje Bhosale. The historical place where Chatrapati Shivaji Maharaj's grandfather Shri Malojiraje was living & died in a war. This place is also famous for the Shri Shantinath Digambar Jain Teerthkshetra. It is also the part of sugar belt and various industries as like paper mill, fruit processing declares product factories. Similarly agro based industries and other industries are located around Indapur town. On the basis of observations and field work it would be investigated that how far the urban center of Indapur Tahsil has been baring developed.

Objectives

1. To examine the existing landuse and plan for a proposed landuse of main urban centers of Indapur tashil.
2. To appraise the infrastructural development in urban centers.
3. To assess the impact of urban centers on their peripheries.

Data Base and Research Methodology

Exhaustive literature survey of the topic of investigation is to been undertaken. Published Literature, Census Reports have collected from various libraries, institutes; Government departments etc. Besides, relevant literature is obtained through Internet. Visiting to the study area and its fringe areas in different seasons, GPS surveys, Instrumental surveys, Photographs, Questioner survey etc. facilitated the understanding of the complexity of a dynamic phenomenon such as urban sprawl, land use changes, urban sprawl pattern.

The Study Region

Indapur tahsil is one of the administrative blocks in Pune district consisting of 142 villages and three urban settlements. It lies entirely in Bhima-Nira basin. Geographically, this region extents from 17° 53´ to 18° 15´north latitudes and 74° 35´ to 75° 8´east longitudes and located at 527m elevation from mean sea level. The region is drained by Bhima on north and east sides and the Nira River in south side. Indapur tahsil lies in southeast of Pune district, it is surrounded by Baramati tahsil in west side, to the northwest lies Daund tahsil, to the southwest lies Satara district and Solapur districts belong to east, south and north side.The geographical area of study region is 1552.93Sqkm according to 2001 Census. The Bhima River and its tributary Nira flow in study region .According to the 2011 Census, study region has 383183 persons (93.34 percent rural and 6.65 percent urban population). The density of Pune district is 603 that may be attributed to the rapid growth in the industrial and commercial sectors. Immigration due to job opportunities and educational institutes has also resulted in the influx of a large amount of persons. The urban agglomeration around the Pune city along with high level of urbanization is also an added reason for the population growth of Pune city. According to the 2001 census, total urban population of the district is 42.01 lakh and the rural population is 30.32 lakh. Higher population density in the urban area, i.e. 6,700 as against 202 in the rural area, is because of employment opportunities in the secondary and Tertiary sector, which includes the manufacturing, processing, servicing and the construction sector. The urban to rural population ratio in the district is highly imbalanced. Of the total population, urban population is 58%, which is spread over on only 4 per cent geographical area. Whereas, remaining 42% rural population is spread over on 96 per cent geographical area of the district. The urban population density indicates the degree of urbanization in the district.

Cost Benefit Analysis of Sugarcane Production under Flood and Drip Method of Irrigation

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Abstract

The Present Study deals with the cost and return of sugarcane production under drip and flood method of irrigation in the Indapurtashil of Pune district. The primary data was collected for the year 2017- 2018 from the sample respondents by conducting personal interview and pretested. 600 farmers were selected randomly from eight division of the study area.On an average, farmers received yield of sugarcane36 to 41 tonnes per acreunder flood method and53 to 60 tonnes per acre in all divisions of the study area.The net return of cultivation of sugarcane was found averagely in range of Rs.7808 to Rs.21020 per acre under flood method andRs.40235 to Rs.50020 per acre under drip method. Profit margin is the major concern of the study and found to be quite high on drip method than flood method.

Introduction

Man has developed various agriculture activities for his stable life. Agriculture is one of the most important activitieswhich help the farmers for his socio - economic development. Agriculture activity provides various employments in rural part of the country, not only foods and labour but also services, trade, industry, transportation and market etc. Farmers take production of various crops on their physical, social and economic condition. The production is variable and change according to region to region, therefore, the production of any crop is necessary to check out benefit or profit analysis.

Irrigation is basic need for crop growth. It helps in the development of agriculture as well as human life. Canal, river, well, tube well and tanks are the main sources of irrigation, developed by man from last several years. Sugarcane cultivation depends on farmer's behaviour in various operations. There are traditional and drip methods for sugarcane cultivation but farmers use traditional methods on large scale.

In last decade, input price of sugarcane in the study area has increased continuously. Sugarcane growing farmers are facing various problems, such as rate given by sugar industry, increasing transportation expenditure, diseases on sugarcane, water scarcity, irregular supply of electricity, increasing labour rate etc. Today's situation,especially in Maharashtra state and in study area, farmers are demanding to the Government to increase the FRP of sugarcane. So we can say that there are some problems in sugarcane cultivation. Therefore, it is necessary to study the economics of sugarcane production at micro level.

Study Area

Indapurtahsil is situated in Pune district. The northern and eastern border is demarcated by BhimaRiver in Pune and Solapur districts while southern boundary is confined by NiraRiver in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daundtahsil of Pune district. The region extends between 17° 53′ to 18° 15′ north latitudes and 74° 35′ to 75° 8′east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 140 rural settlements and three urban settlements.

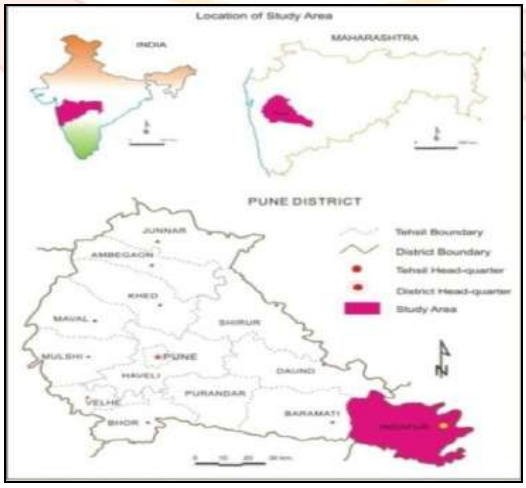

Fig-1: Location of Study Area

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CHALLENGES BEFORE THE HIGHER EDUCATION: PRE AND POST COVID -19 IN INDIA

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Abstract
Before Covid -19 there were number of challenges in higher education Sector. But Due to pandemic challenges are increases before HE. The corona pandemic has made all the schools and colleges across the country to adapt online teaching through various apps like Zoom, Google meet, cisco WebEx meetings, team's app and many more. Institutes like IIM's and IIT's have an infrastructure to connect students but the experience shows that not all students had a good interaction due to various reasons. The present research work based on secondary data .In the present paper focus on the challenges in higher education sector before the pandemic and during covid-19.
Keywords: Pandemic, HE, Digital Infrastructure.

Introduction

Education is nation's top priority because it is a basic human right and the foundation on which to build peace and drive sustainable development. In Indian scenario access in higher education has significantly improved in the past few decades, but is still not sufficient to reach all our young citizens because number of challenges in higher education. The global health pandemic has shined a harsh light on the vulnerabilities and challenges humanity faces. It has provided a clear picture of existing inequalities—and a clearer picture of what steps forward we need to take, chief among them addressing the education of more than 1.5 billion students whose learning has been hampered due to school and colleges closures.

The corona pandemic has made all the schools and colleges across the country to adapt online teaching. The experience shows that not all students had a good interaction due to various reasons in online teaching mode.

Objectives:

1. To Study the challenges before HE in India.
2. To study the challenges during Covid -19 in Higher education.

Present Scenario of Higher Education in India: It has a large higher education sector — the third largest in the world in student numbers. There are 1043 Universities, 42343 Colleges and 11779 Stand Alone Institutions listed on AISHE web portal and out of them 1019 Universities, 39955 Colleges and 9599 Stand-alone Institutions have responded during the survey.

Challenges before higher Education:

India's colleges and universities have become large, under-funded, ungovernable institutions. Under-investment in libraries, information technology, laboratories, and classrooms makes it very difficult to provide top-quality instruction or engage in cutting-edge research. Indian Higher education facing the number of challenges such as

1. Fragmentation of the higher education system:

India has over 1043 universities and approximately 42343 colleges, reflecting the overall severe fragmentation and small size of HEIs currently in the country. Remarkably, over 40% of all colleges in the country run only a single programme, far from the multidisciplinary style of higher education that will be required in the 21st century. In fact, over 20% of colleges have enrolment below 100, while only 4% of colleges have enrolment over 3000 (AISHE 2016-17). To make matters worse, thousands of the smaller colleges hardly have any teaching faculty at all, and there is little or no education taking place - thus affecting severely the integrity of the higher education system in the country. This fragmentation of the system leads directly to severe sub optimality on various fronts: resource utilization, the range and number of programmes and disciplines, the range and number of faculty, and the ability to carry out high-quality multidisciplinary research.

2. Too many silos; too much early specialization and streaming of students into disciplines:

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महानगरीय कथा साहित्य में नारी विमर्श

डॉ. पवार सीताबाई नामदेव
अध्यक्ष हिंदी विभाग
कला, विज्ञान एवं वाणिज्य महाविद्यालय इंदापुर

प्रस्तुत शोध आलेख में कतिपय महानगरीय कथाओं में से स्त्री पात्रों को प्रतिनिधिक रूप में रखकर स्त्री के विविध पहलुओं को स्पर्श कर उनके सामाजिक, राजनैतिक, आर्थिक एवं पारिवारिक दृष्टि से गुणात्मक परिवर्तन का विश्लेषण करते हुए उनके जीवन में उभरकर आये हुए तरह-तरह की समस्याओं का चित्रण यथार्थ महानगरीय नारी में हमें गुणात्मक परिवर्तन होता हुआ दिखाई देता है, जिसमें उसकी एक नवीन मानसिकता और अस्तित्व उभरकर सामने आया है। भारतीय समाज के आर्थिक ,सामाजिक, पारिवारिक बदलाव के परिणाम स्वरुप नारी के विविध रूपों में भी परिवर्तन आया है । उसके बदलते रूप विमर्श निम्नलिखित कारणों के माध्यम से किया जा सकता है –

अ.सामाजिक ब. राजनैतिक क.आर्थिक ई. पारिवारिक

सामाजिक दृष्टि से महानगरीय नारी का गुणात्मक परिवर्तन :-

सामाजिक परिवेश में नारी समाज का एक अविभाज्य घटक है । हर युग में उसका बदलता हुआ रूप समाज के बदलते परिवेश को जिम्मेदार है। सामाजिक तौर पर नारी का गुणात्मक परिवर्तन महानगरीय कहानियों में होता है। डॉ.गणेश दास के मतानुसार- "समाज में संवैधानिक, आर्थिक, शैक्षणिक , नैतिक परिवर्तनों से नारी के समक्ष संबंधों का एक नए क्षितिज खुला । वह समाज में केवल पारिवारिक संबंधों को लेकर प्रतिष्ठित हुई है । सामाजिक क्षेत्र में जिससे यह स्पष्ट हुआ है कि उसका अपना अलग अस्तित्व भी है और महत्व भी है । अब वह पुरुष के साथ वैचारिक एवं भावनात्मक स्तर पर जीवन जीने लगी है । उसे शिक्षा और अर्थ से संबंध क्षेत्रों में पुरुष के साथ रहना पड़ा है"। चार दीवारों में रहनेवाली नारी घर की दहलीज पार कर पुरुषों के कंधे से कंधा लगाकर वह अलग-अलग क्षेत्रों में काम करके अपने व्यक्तित्व की तलाश करते हुए सामाजिक अस्तित्व का निर्माण करने चली । किसी पर निर्भर न रहकर पारिवारिक भूमिका संभालते हुए सामाजिक जीवन में अपनी नई छबी बनाने का प्रयास करती हुई दिखाई देती है । साथ ही वह अपने व्यक्तित्व को तलाशते हुए स्वच्छंद जीवन जीने की अभिलाषा रखती है। सामाजिक के प्रति नारी की सजगता का प्रमाण यह है कि सन 1952 से लेकर आज तक उन्होंने भारतीय संसद में प्रवेश नहीं किया बल्कि संसद में अपनी स्वतंत्र छवि को प्रस्तुत किया। अखिल भारतीय महिला सम्मेलन, भारतीय राष्ट्रीय महिला परिषद, भारतीय राष्ट्रीय महिला आयोग और अंतर्राष्ट्रीय महिला सबलीकरण वर्षा भारत में मनाना आदि इस बात का प्रमाण है कि वह पुरुष की भांति एक अस्तित्व लेकर भारतीय समाज में उभर कर आई है।

महानगरीय नारी के राजनीतिक रूप का चित्रण हमें मन्नू भंडारी की 'हार' इस कथा में दीपा के माध्यम से मिलता है। दीपा राजनीति में भाग लेती है। विवाह पूर्व और विवाह पश्चात वह राजनीति में सक्रिय रहती है और पति के विरोध में चुनाव में खड़ी रहती है। वह अपने पति से कहती है कि- "अभी तक तुम्हारी पार्टी की विरोधानी थी, अब तुम्हारा भी सामना करना पड़ेगा तुम हारो यह नहीं चाहती और तुम जीतो यह तो कभी भी नहीं चाहती.... कल हम लोगों ने बहुत बड़ी सभा का आयोजन किया है। तुम्हारी कसकर धज्जियां बिखरने वाली हूं।" इसके अलावा निर्मल वर्मा के 'डेढ़ इंच ऊपर' इस कथा में पत्नी भी हमें राजनीति जीवन में सक्रिय दिखाई देती है। महानगरीय नारियों का अपना अलग राजनीतिक अस्तित्व दिखाने का प्रयास इन कहानीकारों ने किया है।

मन्नू भंडारी कि ईसा के घर इंसान इस कहानी में एंजिला एक ऐसी महानगरीय नारी का प्रतिनिधित्व कर रही है, जो धर्म के नाम पर चलने वाले नारी शोषण के खिलाफ आवाज उठाती दिखाई देती है। मानसिक संस्कारों और आत्म शुद्धि के नाम पर चर्च के फादर युवतियों से अपनी काम तृप्ति कर उन्हें जिंदा लाश बना देते हैं। एंजिला ऐसे अन्याय के प्रति विद्रोह करती है एक राजनीति नेता की भांति वह नारी स्वतंत्रता के लिए आवाज उठाती है। समाज में होने वाले ऐसे अन्याय के खिलाफ शोषित महिलाओं में जन जागरण कर आत्म रक्षा कर फादर का भंडाफोड़ देती है।

महानगरीय नारी का आर्थिक धरातल पर परिवर्तन:-

राजनीतिक अधिकारों के साथ-साथ नारी को आर्थिक स्वाधीनता भी प्राप्त हुई। वह आत्म निर्भर बनने के साथ समाज के हर क्षेत्रों में कार्य करने लगी। जहां एक और उसमें वयक्तिक अस्तित्व की चेतना ने जन्म लेकर वह स्वावलंबी बनी, वहीं दूसरी और घर

Original Research Paper

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Zoology

DIVERSITY OF PHYTOPLANKTONIC GROUPS IN THE RIVER KALI, WEST COAST OF INDIA.

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ABSTRACT Present study was carried out in Kali River and in all 44 genera were recorded , out of which 30 belonged to Bacillariophyceae , 6 each to Dinophyceae and Chlorophyceae and 1 each to Cyanophyceae and Rhodophyceae . In Kali River , primary peak was observed during post-monsoon and secondary during pre-monsoon . Annual percentage distribution data indicates that Bacillariophyceae was dominant (79.30%) followed by Chlorophyceae (11.09%) Dinophyceae (9.16%) while Rhodophyceae and Cyanophyceae were poor and noticed during certain period of present study. Positive correlation was observed between Cyanophyceae- pH , suspended load and nitrite while temperature and silicate showed positive correlation with Bacillariophyceae . Chlorophyceae exhibited positive correlation with dissolved Oxygen and phosphate . Negative correlation existed with air temperature and VEC with Dinophyceae members . Rhodophyceae exhibited correlation with water temperature and silicate . Phytoplankton distribution and abundance was governed by hydrological factors like Temperature , Salinity and nutrients .

KEYWORDS : Phytoplankton, Hydrological parameters, Kali river, Uttar Kannada.

INTRODUCTION

Studies on phytoplankton of different riverine systems of west coast of India have been carried out extensively projecting an ecology of phytoplankton and their role as a fin-fish diet and as an indicator of pollution and also the trophic status of water bodies (Qasim et.al., 1972, Zingde et.al.,1990,Naik and Neelkantan 1990)

Kali river is one of the major riverine system of maritime district of Uttar Kannada which originates in the western ghats at Kusavali Village in Supa Taluka after meandering nearly 165 Km and discharge the fresh water into the Arabian sea at Karwar, central west coast of india. Since a limited work was carried out on these area with an earlier works of Ramamurty (1965).Konnur (1981) and Naik And Neelkantan (1990) who have studied the distribution of phytoplankton in the Karwar Waters and in Kali river. No work has been carried out in the upper reaches of the river and hence the present investigation was carried out to study the variation in different groups of phytoplankton of this kali riverine system along with the hydrographic parameters. An attempt has also been made to correlate environmental variables and biotic entities.

MATERIALS AND METHODS

Kali river (14° 50' 21" N and 74°09' 05" E), one of the five major riverine systems of Uttara Kannada coast, located on the central West Coast of India. Kali River being the northern most riverine system of this coast is known for its fin-fish and Shell-fish fisheries. A monthly collection of water samples along with the plankton samples were made in this river from the fixed five study stations namely Kodibag (st-1), Sunkeri (st-2),Kinnar (st-3), Halga(st-4) and Kadra (st-5) for a period of 1 year(sept.2016-sept.2017).

The phytoplankton samples were collected from these study sites using a conical net of bolting nylon cloth of 0.018 mm mesh width, and mouth ring diameter of 35cms, with the help of an out trigger canoe. The net was hauled for the duration of 10 min as surface haul and volume of water filtered through it was determined by flowmeter attached to it. The net was back washed between the two stations to avoid clogging of meshes. The samples were preserved in 4% neutralized formaldehyde for further analysis in the laboratory. After diluting the sample to known volume, an aliquot of 1ml subsample was transferred to sedgewick's counting chamber and phytoplankton identified and quantified, similarly triplicate subsamples were analyzed and their mean was taken and multiplied to the total volume of the sample. Total standing crop of phytoplankton was represented as number of cells per 1cubic meter of water and their percentage composition is calculated. Hydrographic parameters such as temperature, salinity , dissolved oxygen , pH, suspended load, VEC, phosphate- phosphorous ,Nitrate-nitrogen, nitrite –nitrogen ,silicate-silicon were also recorded at the of plankton collection. These hydrographic parameters except water temperature were analyzed by following the standard methods as suggested by strickland and parsons (1975). Water temperature was recorded by using the ordinary thermometer.

RESULTS AND DISCUSSION

Steep fall in temperature from pre-monsoon to south-west monsoon was noticed while a gradual decreasing trend noticed from pre-monsoon to post-monsoon during the present study. The impact of south-west monsoon was severe which prevailed during June to September was vigorous on salinity the Table.1 and seasonal variation in Table.2. A similar trend was noticed by Naik And Neelkantan (1990). The salinity trends to decrease with increasing distance from the river mouth to upper reaches of the river and this could be probably due to run off the land, Rainfall during the monsoon season and evaporation from the river itself. In addition to this flow of fresh water from upper reaches through reservoirs and other tributaries of Kali River could be the reason for the lowering of salt content. Temporal variation of dissolved oxygen shows maximum during post monsoon (7.58 mg/l) and minimum during june (3.76 mg/l) while spatial variation showed a minimum value (4.35 mg/l) at station 2 , while a maximum (6.34 mg/l) at station 5. The pH value fluctuated between 7.19-8.71 with slightly higher values during post and pre-monsoon. According to Perkins (1976), the range of pH of estuarine waters at normal and unpolluted conditions is 6.7-9.25. Maximum suspended load was recorded during south-west monsoon period (0.0514 gm/l). The influence of highly turbid fresh water and land run off resulting in a higher suspending load as stated by Jerlov et.al., (1978) the concentration of suspended water vary from less than 0.1 mg/l in the open oceans to many grams per liter in the estuarine and nearshore waters. The present data coincides with the findings of the earlier workers Naik and Neelkantan (1990) .

Temporal variation in VEC shows a high value of 2.85 during the month of May and low value of 1.92 in July. Temporal variation of phosphate shows a high value (3.076 µg at/l) during the post-monsoon at station Halaga and low (0.445 µg at/l) during the pre-monsoon season. Nitrate was found maximum during post-monsoon (16.66 µg at/l) while minimum (3.19µg at/l) during the south west-monsoon. Comparatively an intermediate value (11.05µg at/l) noticed during pre-monsoon. A maximum concentration of this nutrient salt was observed at Kodibag (11.88 µg at/l) and lower value (6.14 µg at/l) at Hulga. Nitrite-N concentration was found maximum during the south-west monsoon (0.441 µg at/l) while the lowest values recorded during post-monsoon (0.063 µg at/l) concentration of content varied between (21.74 µg at/l – 43.26 µg at/l) with maximum during the pre-monsoon and minimum during post monsoon season. The present study was undertaken to evaluate an abundance and distribution of phytoplankton with respect to time and space. Totally 55 planktons were identified and are categorized into 5 groups. Namely Cyanophyceae, Bacillariophyceae, Dinophyceae, Rhodophyceae and Chlorophyceae . The biomass of phytoplankton varied between 0.12 – 2.0 ml/m³. It is summarized from the results that the annual mean of 5

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Zoology

A CASE STUDY OF LIPID CONTENT IN THE BRAIN OF *CIRRHINA MRIGALA* AND *LABEO ROHITA* FROM RAJARAM TANK NEAR SHIVAJI UNIVERSITY KOLHAPUR, MAHARASHTRA, INDIA.

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ABSTRACT

Neutral lipids (NL) and phospholipids (PL) with their constituents were studied in brain of *Cirrhina mrigala* and *Labeo rohita,* by employing TLC and Bioassay technique . The total lipid in the brain of *Labeo rohita* is 24.14 mg lipids / gm , increase to 127.9 mg lipids / gm in the brain of *Cirrhina mrigala* . The ratio of cholesterol and phosphotidylcholine in the same species is 5:1 and 4:1 respectively .

Neutral lipids consists of six components , triacylglycerol being main component . Cholesterol (CHO) , Diacylglycerol (DG) , Cholesterol-ester (CE) , and Monoacylglycerol (MG) were moderate in concentration . Free fatty acids (FFA) was low in quantity . Phospholipids exhibits seven constituents , Phosphatidylcholine (PCL) and phophatidyl - ethanolamine (PE) were major constituents , sphingomyelin (SPG) , phosphatidyl - inositol (PI) and phosphatidyl- serine (PS) were moderate in concentration . Lysophosphatidylcholine (LPC) were low in quantity .

KEYWORDS : Neutral Lipid, Phospholipid, TLC technique, Bioassay technique.

INTRODUCTION

The brain is amongst the most complex and highly evolved organ, involved with special function which has given man his unique place on the ladder of evolution. It is remarkable for its state of continuous activity as may be evidenced both by experience as well as by electrophysiological monitoring. Since it is an important organ of body it has been studied for many aspects, including the biochemical information.

From the critical review of literature on the lipids of fish brain, the following significant facts emerges especially in *Cirrhina mrigala* and *Labeo rohita*. The lipid contents in the various organs like liver, testis , ovary and accessory reproductive organs of fishes including mammals, seems to have received greater attention from the workers in the fields. However, the most important organ systems like brain are overlooked due to which there is a paucity in the information of brain lipids particularly in lower vertebrates. Some research workers studied parameters like lipid peroxidation in vivo and in vitro studies.

From the above literature indicates very scanty information is available on lipids of fish, especially in the above species. Hence in the present case study the attempt was made to find out the content and composition of lipids in the brain of *Cirrhina mrigala* and *Labeo rohita* . A few research workers have made their contribution in reporting the brain lipids in some fishes. Pravdina and Chebotareva (1974) eel, Dasiatis Pastinaca, Kreps et.al. (1976), teleost and elasmobranch fishes; Malkhede et.al. (1981), Clarias batrachus, Vadhva and Mahdi (1987) fish, Hollander (1970) goldfish and Ushkolova and Ioanidis (1985) white fish.

MATERIALS AND METHODS

For the present study two Vertebrates were selected, each one representing a class of sub phylum vertebrata, While selecting the animals, care was taken to see their evolutionary states, they are as follows;

Two species of fishes *Cirrhina mrigala* and *Labeo rohita* were collected from Rankala tank in Kolhapur city (Maharashtra, India). Fish species of each type were collected at a time and brought to the laboratory, where they were kept in plastic containers for about six hours for acclimatization. The average weight of fish was about 250gm. The fish were sacrificed to take out the brain for further studies.

METHODS

Thin layer chromatographic technique for the analysis of lipids in fish brain was used. This gives a good separation of both neutral and phospholipid components for quantification studies bioassay method is used.

Extraction of lipids

The brain tissue were homogenized with 20 volumes of chloroform methanol (2:1, v/v) at room temperature. The homogenates were allowed to stand for 4 to 6 hours at 4°C and then filtered through the sinctered funnel into glass-stoppered container. The precipitate was rehomogenised with 10ml of chloroform methanol mixture (2:1, v/v) and then filtered through the sinctered glass funnel. Both the filtrates were pooled together and the resultant mixture was shaken well with 0.2 volume of glass distilled water. Extract were allowed to partitioned into two distinct phases. The upper phase while generally contained the major part of the non-lipid contaminants were removed as completely as possible with a fine tipped pipette. The lower phase which mainly contained lipid fraction was transferred quantitatively through sodium sulphate to remove water completely from the lipid sample. The more chloroform was added to remove any lipid fraction from the sodium sulphate. Then it was transferred quantitatively into a glass stoppered container and evaporated under vacuum at 40°C.The lipid sample was weighed accurately and preserved by desiccation under vacuum at 20°C for further use.

The NL and PL were separated by thin layer chromatography (TLC) using silica gel G (about 200 mesh containing CaSO4 as a binder E Merck Germany), the TLC plates (20*20cm) were prepared according to Wagner et. al. The known quantities of sample dissolved in chloroform were applied with Hamilton's micro syringe (Number 8206.B) 2.5 to 3.0 cm from the bottom edge of the plates. For neutral lipids the plates were developed in Hexane (b.p.65° to 70°C): diethyl ether: acetic acid (85:15:2,v/v) as recommended by Gloster and Flecter. The phospholipids plates were developed in chloroform: methanol: ammonia (115:45:5,v/v) as recommended by Barval and Kalra. The standards of neutral lipid and phospholipid (Sigma, USA) were co- chromatographed in each respective run and then plates were kept in Iodine chamber for identification of individual spots of lipids.

Estimation of neutral lipid and phospholipid

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REPRODUCTIVE CYCLES IN TWO GEOGRAPHICALLY SEPARATED POPULATIONS OF THE OYSTER *Saccostrea cucullata* FROM SINDHUDURG DISTRICT, MAHARASHTRA STATE, INDIA

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Abstract:

Two geographically separated localities at Deogad (160 23' N ; 730 23' E) and Achra (160 15' N; 780 26' E) in Sindhudurg district of Maharashtra State ,India were selected on the basis of the differences in habitat , topography ,vegetation and local market value to study the reproductive cycles of the oyster Saccostrea cucullata. The maximum sizes attained by S. cucullata in the estuaries at Deogad and Achra were 44-45 mm shell length. However, comparatively larger sized oysters are found round the year in the estuary at Deogad than at Achra.

The environmental parameters such as tidal heights, pH, temperature, dissolved oxygen and salinity existing on the oyster beds in Deogad and Achra were recorded on every new-moon and full-moon days for a period of twelve months.

The microscopic details of the gonad tissue processed on every new moon (NM) and full moon (FM) days of each month revealed following stages ; (i) Gametogenesis ; (ii) Maturing ; (iii) Mature; (iv) Partial spawning ; (v) Complete spawning ; (vi) Recovery ;(vii) Neutral . The gonads of twenty oysters were staged for males and females separately on each NM and FM days and percentage of the males and females in these different stages were calculated.

The study on reproductive cycle in male oysters of S. cucullata from Deogad showed that many oysters were in gametogenesis stage in entire June and once again on November NM. Maturing stage was seen on March NM, May FM, July NM and again on November FM and in entire December. Many oysters were in mature stage on March FM, April FM and July FM and again on January NM. Most of oysters were under spent stage on March FM, in entire August and September, and on January FM. Many oysters were under recovery stage on May NM and in entire October. Most of the samples collected in entire February and on April NM showed prominent neutral stage. The female oysters showed that the gametogenesis was dominant on March NM, in entire June and on November NM; maximum on NM of March and on November. The maturing stage was dominant in entire April and May and on July NM and December NM. Oysters under spent condition were dominant on April NM and December FM, and all the gametes were released in entire August, September and on October NM. The recovery stage was recorded in many oysters on October FM and January FM, while the neutral stage was recorded in entire February.

The male oysters from Achra showed gametogenesis stage on March NM, April FM and June NM. The maturing stage was seen in most oysters on April FM, June FM, July NM, September NM and FM. The mature stage was very conspicuous on July FM and November NM. Most oysters were in the spent stage on May FM , August NM ,October NM and December FM. Oysters under recovery stage were in high percentage on December NM , January NM and February FM. The neutral condition was most prominent in many oysters on March NM and January FM. The female oysters at Achra showed that many oysters under the gametogenesis appeared on April NM, June NM and December FM. The maturing condition in oysters was dominant on April FM, June FM, August FM, entire September and on February NM. Many oysters in mature stage occurred on October NM and November NM. The spent stage in oysters was dominant on December NM, In entire May and on July FM. The recovery stage was recorded in December NM, while the neutral stage in oysters was dominant on January FM and March NM. These different stages of the gonads have been correlated with the changes in environmental conditions over the oyster beds from the two localities. The results are discussed in the light of possible impact of the environment on reproductive events.

Keywords: S. cucullata, Deogad, Achra, FM, NM, gametogenesis.

Introduction:

Along the west coast of India the backwaters and estuaries are very extensive and play an important role for food production. These are widely scattered and have an area of 30.7 lakhs acres (Mitra, 1970) from which Maharashtra coast constitutes 3.0 lakhs acres

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LIFE TABLE AND INTRINSIC RATE OF INCREASE IN LEPIDOPTERAN PEST *Hypsa producta*

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Abstract:
Hipsa producta is the Lepidopteran insect pest is forest pest which acts as defoliator of *A. excelsa.* Therefore life table and intrinsic rate increase have been studied. The first adult mortality was noted on 5th day. Average period of immature stages was 30 days. Maximum mean progeny production per day, mx was 26 on the 3rd day. The immate capacity for increase was found to be 0.141 per female per day and population of *H. producta* multiplied 76.76 times in generation 'T' of 30.78 days.
Keywords: *Alianthus excelsa, H. producta,* life table, intrinsic rate of increase.

Introduction:
The estimate of rate of growth of the pest have tremendous importance in pest management. The estimates of the rate of growth of the pests have tremandous importance in pest management (Howe, 1953). In a given environment an individual living animal shows its own characteristics qualitatively and quantitatively at longevity and fecundity. The value of development, are determined in part by the environment and in part by inherent characteristics of the living animal itself. According to Thompson (1924) the inherent characteristics of the animals are collectively called the 'innate capacity for increase". He visualised the first mathematical method for population dynamics. Later, Lotka (1925) derived the function for "the intrinsic rate of natural increase' and then Birch (1948) used the same for animal ecology and for the insect populations. In the present study the life tables were constructed according to Birch (1948) as elaborated by Howe (1952) and Watson (1964) .

Review of literature indicates that life table studies have been attempted in different orders of insects by several workers, noteworthy amongst them refers to Morris & Miller (1954) on Choristoneura fumiferana (Lepidoptera), Stark (1959) on Recurvaia starki (Lepidoptera), Richards & Waloff (1961) on Phytodecta olivacea (Coleoptera), Le Roux et al.,(1963) on Spilonota ocellana (Lepidoptera); Waloff (1968) on Sitona recansteinansis Herbst (Coleoptera) and on Arytacina cenistae (Homoptera), Mcleod (1972) on Neodiprion swainei Midd. (Hymenoptera), Tamaki et al.,(1972) on Zebra caterpillar (Lepidoptera), Bains & Shukla (1976) on Chilo partellus (Swinh.) (Lepidoptera), Bilapate & Pawar (1980) and Reddy & Bhattacharya (1988) on Helicoverpa armigera.

Material and methods:
Intrinsic rates of increase-

Birch (1948) visualized the following equation to study intrinsic rate of natural increase.

$$\sum e^{-r} m^{x} l_x \, m_x = 1$$

Where
'e' is the base of the natural logarithms,
'x' the age of the individual in days,
*l*x the number of individual alive at age, 'x' as a portion of one, and m_x the number of female offsprings produced per female in the age interval 'x'.
The sum of the products 1x mx is the net reproductive rate,
'R_0' which is the rate of multiplication of the population in each generation measured in terms of females produced per generation.

The approximate value of cohort generation time 'Tc' was calculated as follows:

$$T_c = \frac{l_x m_x X}{l_x m_x}$$

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HISTOPATHOLOGY OF PROSTATE GLAND IN TERRESTRIAL SLUG *Semperula Maculata* AFTER ACUTE EXPOSURE OF ZINC CHLORIDE

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Abstract:
This study enlights on terrestrial molluscan slug, *Semperula maculata*, against acute exposure of Zinc chloride ($ZnCl_2$). Histopathological changes were observed in the cellular arrangement of prostate gland. Prostate gland showed increased dilated secretory cells and damaged connective tissues were observed in the sectional view. These alterations found directly proportional to the time of exposure period. Evidence indicates that Zn degeneration and impact over the normal function and structure of prostate gland.
Keywords: *Semperula, maculate, Morus, indica*, alcohol, prostate gland

Introduction:

Molluscan species can also represent hazards or pests for human activities. Snails and slugs can also be serious agriculture pests, and accidental or deliberate introduction of some snail species into new environments has seriously damaged some ecosystems (Kadam *et al.* 2021). Terrestrial gastropods are highly sensitive to toxic chemicals producing alterations at the cellular level (Hernadi *et al.* 1992). He also reported the mussel *Elliptio complanata*, exposure to Cu had a significant effect on the mean percentage of destabilized lysosomes in different concentration. Now a day rapid industrial development in agricultural field leads to organic and inorganic contamination from hazardous chemicals and heavy metals of aquatic and terrestrial ecosystems. These form a major group of aquatic and terrestrial contaminants showing deleterious impact on terrestrial and aquatic media (Sanchez, 2008; Davidson *et al*. 2011; pack *et al*. 2014). Heavy metals are enter in the environment through anthropogenic sources, such as industrial effluent, traffic, smelting, combustion of fossil fuels, and certain agricultural practices (Uyear *et al*. (2009).

From above review it is clear that there is scanty information available on the effect of heavy metal on the reproductive organs i.e. on the prostate gland. Thus, the present study designed to study the effect of zinc chloride on the prostate gland of terrestrial slug.

Materials and Methods:

Experimental animals-

Adult herbivorous, hermaphrodite, terrestrial slugs *S. maculata* (Approximately of 67 cm length, 11.5 cm width and 34 g wt.) were collected from natural habitats from the village Panmala at Bedug, Miraj, district Sangli, Maharashtra, India. Animals were carried in aerated plastic bottles to the laboratory. Experimental animals were kept in open-air trough covered with aerated plastic lead covering to provide proper ventilation. Experimental animals were allowed to feed on fresh leaves of mulberry plant (*Morus indica*). All the animals were kept under controlled lab conditions of water, temperature, and fresh air for better acclimatization (Kadam *et al*. 2021).

Induction and tissue preparation-

Experimental animals, *S. maculata*, were acutely exposed to previously determined mean LC50 (377.7 ppm) concentration of $ZnCl_2$ (Londhe, 2013).Control and experimental animal were dissected after 24, 48, 72, or 96 hr., respectively, for prostate gland and fixed in Bouin's solution (75 ml picric acid + 25 ml formalin + 5 ml acetic acid) for 6-7 hr. at room temperature followed by washing with 70% ethanol for three days, dehydrated with ethanol-graded series, cleaned with xylene, and embedded in paraplast. Tissue blocks were prepared and sectioned with a rotary microtome at 6 mm thickness and for histological study (Londhe, 2013).

Histological study-

WATER REQUIREMENT IN THE INDAPUR TAHSIL DISTRICT PUNE MAHARASHTRA

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Abstract

The requirement of water is essential for every inhabitant and for a wide range of economic and informal sector activities. India accounts for about 17.5 % of the world's population and roughly 4% of the total available fresh water resources. With increasing population and growing demand from industrial and agricultural sectors the water consumption is set to jump up tremendously in the near future. Present study attempts to highlight the requirement of water resources in the Indapur tahsil Pune district of Maharashtra.

The proportion of water requirement is in three different activities i.e. domestic purpose, agriculture purpose and industrial purpose in Indapur tahsil are also discussed in the paper. The water requirement statistics has also been worked out through secondary data and personal interviews conducted during the field visits. For this purpose a questionnaire was framed. Questions are related to domestic, agriculture, livestock and industrial water requirement has also been incorporated accordingly. These data base converted to Microsoft access format to suit to the link up for processing through Arc View 9.3, Surfer version 10, Global Mapper version 11. The outcomes of these studies are briefly presented in the paper. It has been observed that the requirements of water resources are not uniform over the study area. The total water requirement for domestic, agricultural and Industrial purpose claims to 601.38MCM.

Key words: domestic, agriculture, industrial, requirement of water.

Introduction

A given water requirement is the amount of water which is necessary for the undisturbed course of any natural or technological process. It includes water consumption (consumed flow), i. e. the difference between water withdrawal and the net return flow that consists of consumptive use and losses. The water loss represents that part of the water requirement, water consumption, water withdrawal or water resource which returns into the hydrologic cycle in the form of seepage, leakage, percolation, evaporation etc. losses may be either ways. Water requirements and water consumption in the course of agricultural and industrial processes may be distinguished as

(a) Minimum,

(b) Optimum,

(c) Non-Economic.

Minimum water requirement or minimum water consumption during a specific production process can be achieved under special conditions, e.g. in

STUDY OF REPRODUCTIVE BIOLOGY OF A MOTH *EUTECTONA MACHAERALIS WALKER*

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ABSTRACT:

*Eutectonamachaeralis Walker*Lepidopteran moth and is pest for *T. grandis.* Biology of the *Eutectonamachaeralis Walker*have been studied. In ten individuals, preoviposition period ranges from 2 to 3 days with an average of 2.6 ± 0.52 days. and post oviposition period ranged from 1.0 to 2.1 to 2 days with an average of 1.4 ± 0.52 days.Average egg hatching percentage was 75 78.5 ± 9.88. The developmental period of larval instars ranged from 15 to 18 days with an average of 17.0 ± 1.12 days. Instars of *Eutectonamachaeralis Walker*showed head capsule, body width and body length.

KEY WORDS: *Eutectonamachaeralis Walker,*preoviposition, oviposition and postoviposition.

INTRODUCTION:

Pachauri and Sridharan, 1998 reported that much damage is done to our natural resources and wealth.Beeson (1913) reported that *H. puera* and several species of Arctiids such as *Aularchesmiliaris*, *Teratodesmonticollis* Grey and *Spilosomaobliqua* defoliate teak forests. Garthwaite (1939) reported that *Calopeplaleayana* was a serious defoliator of *Gmelinaarborea* in Assam, Bengal, Mumbai and Chennai. *Celosternascabrator* was a most notorius pests of babul, *Acacia arabica* and teak plantations (Beeson, 1941). Khan *et al,*(1988) studied the seasonal activity and abundance of *H. purea*, *Euproctis* sp. and *E. machaeralis* in forest. listed various insect pests of teak, including lepidopterous such as *S.* Sensharma and Thakur (1988) *malabaricus*Moore, *H. puera,* and *E. machaeralis.* Beeson (1941) studied the biology of teak skeletoniser, *E. machaeralis.* David andKumarswami (1982) reported that female of *E. machaeralis* lays 250 to 500 eggs on leaves and as many as 10-12 generations were completed in a year.

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MORPHOLOGICAL CHANGES IN CHICK EMBRYO NEURAL TISSUE ASSOCIATED WITH WARFARIN USE DURING PRENATAL DEVELOPMENT

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ABSTRACT:

Warfarin is generally called as blood thinner that inhibits the clotting of blood by reducing the production of factors by the liver that promotes clotting. It is anticoagulant drug due to this it helps to keep blood flowing smoothly in our body. The liver is dependent on a good enough amount of vitamin K due to the production of these factors by the liver. Warfarin is responsible for reducing the production of the factors. The aim of this study was to determine the effect of prenatal warfarin exposure on cell viability and cell morphology in chick embryonic neurons; specifically, to identify areas of the hindbrain that may be affected, to an extent contributing to Dandy-Walker Syndrome (DWS). histological staining technique namely Haematoxylin and Eosin (H&E) staining was used to evaluate chick embryonic neural tissue exposed to 4.865mM and 5.838mM warfarin on day 5 (Carnegie stage 17) and day 7 (Carnegie stage 20) of development. For further analysis of cell viability, primary chick embryonic Neuronal Cultures were prepared and increasing concentrations of warfarin (1.625mM, 2.435mM, 3.25mM, 4.865mM, and 5.838mM) were added. The percentage of cell viability was determined by the MTT assay method. We observed that warfarin indicated neurotoxicity at high concentrations of exposure. Although cell death could be detected, the exact mechanism needs to be yet investigated. Since the developing brain is so susceptible to chemical toxicity, care must be taken while administering warfarin to pregnant mothers or young children.

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HYDROBIOLOGY OF THE SHELF WATERS OFF KARNATAKA COAST, INDIA

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ABSTRACT:

Results of a comprehensive hydrological sampling programme of the shelf waters off Karnataka coast was conducted on the R.V.Gaveshani Cruise No. 208. Eight transects across the shelf, covering 25 stations were studied. Depth of stations varied from 17 to 1650 m. Findings of study described the hydrographical parameters as temperature, salinity, pH, dissolved oxygen, phosphate, nitrate, nitrite of surface and bottom waters.

Results presented were on the basis of a sampling trip conducted during the end of Post-monsoon period, thus providing information on the spatial pattern of various parameters. Information on temporal (seasonal) variation is essential in order to define the hydrographic dynamics of shelf waters of the region over the temporal sequence.

Key words: Temperature, salinity, pH, dissolved oxygen, phosphate, nitrate and nitrite.

INTRODUCTION:

Research vessel Gaveshani Cruise No.208 was carried to investigate the hydrography of the shelf waters off Karanataka coast. With the existence of six major estuarine systems namely, Kali at northmost, Gangavali, Aghanashini, Sharavati, Bhatkal, Koondapur and at southern Netravati (**Fig. 1**). Though the influence of the these on the fairly high fish production of Karnataka is understood, a systematic study to investigate the different abiotic and biotic factors was lacking long since. The present work is an effort to fill the lacuna besides to obtain a baseline data exclusively for the shelf and deep waters of Karnataka coast (from Netravati to Karwar). Environmental factors play a vital role in the productivity of the sea. Prevalence of the favourable hydrographical conditions is a prerequisite for optimum primary and secondary productions on which depends the fish production. The role of nutrients in limiting the distribution and abundance of plankton on which the fish thrive is also well understood. Since the coastal waters of North Kanara support an important fishery for the Indian mackerel. Earlier investigation at Karwar [1][2][4] and Mangalore [13] have contributed to our knowledge of the hydrological conditions of Karnataka coast. According to Shenoi *et al.* [11] the surface hydrography during March–April was dominated by the intrusion of low-salinity waters from the south; during May–June, the low-salinity waters were beginning to be replaced by the high salinity waters from the north.

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DISSOLUTION AND REFORMATION OF CRYSTALLINE STYLEOF THE EDIBLEOYSTER*SACCOSTREACUCULLATA*FROM SINDHUDURGDISTRICT, MAHARASHTRA STATE

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ABSTRACT:
Two geographically separated estuarine localities at Deogad (16^0 23' N; 73^0 23' E) and Achra (16^0 15' N; 78^0 26' E) in Sindhudurg district of Maharashtra State,India were selected on the basis of the differences in habitat, topography,vegetation and local market value to study the dissolution and reformation of the crystalline style of the oyster *Saccostrea cucullata*. The maximum sizes observed by S. *cucullata* in the estuaries at Deogad and Achra were 44-45 mm shell length. Comparatively large sized oysters are found round the year in the estuary at Deogad than at Achra.

The environmental parameters such as pH, temperature, dissolved oxygen and salinity existing on the oyster beds in Deogad and Achra were recorded at the time of the experiment. The oyster beds in Deogad gets exposed to atmospheric air for comparatively a long time than those at Achra and with the commencement of high tide oyster bed at Achra gets reimmersed to the sea water earlier than the bed at Deogad. The time required for dissolution of crystalline style from the oysters of estuary at Achra is less than those from the estuary at Deogad. Further, time required for the reformation of style after immersion in sea water was less in the oysters from the estuary atAchra than at Deogad.

Key words:*S. cucullata*, Deogad, Achra, estuary,oyster, dissolution and reformation.

INTRODUCTION:
[15] Along the west coast of India the backwaters and estuaries are very extensive and play an important role for food production. These are widely scattered, have an area of 30.7 lakhs acres from which Maharashtra coast constitutes 3.0 lakhs acres combining together 2.0 lakh acres for brackish water and one lakhs acre for estuaries. [9] The backwater and estuaries are very productive along the coast and are being used for various purposes. They are the breeding grounds of various species of marine and estuarine fauna.

Two geographically separated localities at Deogad (16^0 23' N; 73^0 23' E) and Achra (16^0 15' N; 78^0 26' E) in Sindhudurg district of Maharashtra State were selected on the basis of the differences in habitat, topography, vegetation and local market value to study the dissolution and reformation of the crystalline style of the oyster

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RECAPITULATION OF GERONTOLOGY AND FRAILTY; DISCOVERING A CURRENT REVIEW

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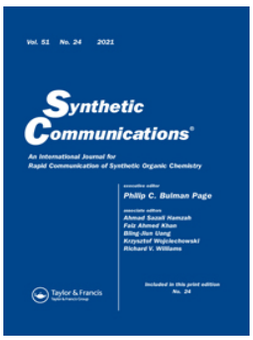
ABSTRACT:

Gerontology is the study of the social, cultural, psychological, cognitive, and biological aspects of ageing. Due to the advancements in technology the studies concerning ageing has grown impressively. One of the most important fields of study under ageing is frailty, which is the main highlight of this article. Frailty is a dynamic syndrome which affects an individual not just physically but also mentally, socially and psychologically. Each of the mentioned domains has copious factors which lead to frailty. Finding out these factors in an individual can be helpful as it will aid in recognizing the correct interventions with the help of which frailty can be somewhat reversed and prevented. According to the several amount of research it has been found that the onset of frailty is not just because of ageing but also due to several environmental factors, chronic diseases and genetics, which further tells us that frailty is not just common to old adults but can be developed at a younger age as well. Some well-known models for instance, Phenotype and Cumulative deficit model and various other assessment tools have been developed in order to identify frailty in old individuals. Frailty also had a major impact on Covid-19 patients. Frail individuals were more severely harmed by the Corona Virus, similar rise in Cluster of Differentiation molecules can be observed in both frail and Covid-19 patients. Also, several biomarkers have been recognized that occur in an increased level in majority of frail individuals. According to a study it was found that not all old adults who are frail will identify themselves as frail, and for almost every



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A systematic appraisal on catalytic synthesis of 1,3-oxazole derivatives: A mechanistic review on metal dependent synthesis

Suraj R. Shinde, Pankaj Girase, Sanjeev Dhawan, Shaukatali N. Inamdar, Vishal Kumar, Chandrakant Pawar, Mahesh B. Palkar, Mahadev Shinde & Rajshekhar Karpoormath

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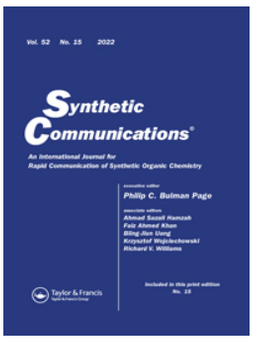

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Recent advances and approaches in the metal-free synthesis of 1,3-oxazole derivatives

Suraj Shinde, Shaukatali Inamdar, Mahadev Shinde, Narvadeshwar Kushwaha, Vincent Obakachi, Pankaj Girase, Babita Kushwaha, Sanjeev Dhawan, Vishal Kumar & Rajshekhar Karpoormath

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Water Budget of the Indapur Tahsil

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Abstract

Water budgets provide a foundation for evaluating its use in relationship to other important influencing conditions such as other ecological systems and features, as well as social and economic components – how much water is being used by agriculture, industry and residents etc. A water budget commonly provides the info of quantity and place of it. Water budget studies consider the volumes of water within the various reservoirs of the hydrologic cycle and the flow paths from recharge to discharge. The reservoirs of surface and underground water are about 1542.695 MCM; Out of this only 601.38 MCM water is required for use. Water budgets are developed by measuring or estimating the inputs and outputs of a hydrologic system. Inputs are the processes that add water to the system; these include precipitation and inflow from surface water and groundwater. Outputs are the processes that remove water from the system; these include evapotranspiration, the various uses of water by humans, and outflow from surface water and groundwater. General hydrological equation to compute water balance and runoff has been estimated. The average surface water village wise runoff of the study area is estimated. There is great deal of variations in terms of volume of runoff by different villages. The entire tahsil is drought prone and faces the problem of water scarcity throughout the year. Observing these outcomes in the present context, this paper calculates the water budget of the Indapur tahsil. The outcomes of these studies are briefly presented in this paper. It has been observed that the water resources are not uniformly available in the study area.

Key words: *Precipitation, evapotranspiration, runoff, surface water, groundwater* water balance, water budget.

Introduction

A water budget is a basic tool that can be used to evaluate the occurrence and movement of water through the natural environment. Water budgets provide a foundation for evaluating its use in relationship to other important influencing conditions such as other ecological systems and features, as well as social and economic components – how much water is being used by agriculture, industry and residents etc. The water budget process can encompass various levels of assessment which start simple and grow more complex if there are concerns about how much water is available at any level. Water budgets commonly provides the info of quantity and place of it. Water budget studies consider the volumes of water within the various reservoirs of the hydrologic cycle and the flow paths from recharge to discharge. Water budgets need to consider this information on a variety of spatial and temporal scales (Hazel Breton 2010). The maximum water holding capacity of soils, rainfall and potential evapotranspiration are the basic controlling elements of water balance. The distribution of these elements decides droughts or water surplus condition. Therefore rainfall, potential evapotranspiration, aridity, humidity and soil moisture are become primary controlling factors of agriculture (Saikia 1994). In the present study water balance technique is used to estimate the availability of rainwater resource in the study area. The nature and distribution of rainfall of the study area discussed earlier indicates that about 90 percent rainfall takes place during the short period of four months from June to September. There is a great variation in the number of rainy days.

Objectives

1. To identify inputs and outputs of a hydrologic system
2. To identify place and quantity of water.
3. To calculate the runoff of the study area.
4. To make favourable suggestions to low runoff and sufficient water available.

Study area

Indapur tahsil is one of the tahsils in the Pune district consisting of 142 villages along with one urban centre in the study area. There are eight revenue circles in the tahsil. The area extends from 17° 53′ 42" to 18° 19′ 58" North latitudes and 74° 39′ 16" to 75° 09′ 39" East longitudes **(Fig. 1)**. The area is drained by the river Bhima on north and east both sides. Nira River flows south of Indapur tahsil. Total geographical area of the tahsil is 1575.38km^2 (Census 2011), out of which Nira river catchment area compress about 586.8 km^2 and Bhima river catchment covers an area of 902.43km^2. Nira River joins the Bhima River at famous tourist place i.e. Narsinhapur village after travelling a course of 209 Kms from origin. The slope of region is towards east. There are three soil types, namely, coarse shallow, medium black and deep black soils occupying 30, 40 and 30 percent respectively.

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A Study of Labour Welfare initiative at Small and Medium Industries (Chatrapati Industry Ltd Loni Devkar, Indapur Dist. Pune Maharashtra)

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Abstract

During the pre-independence period, industrial relations policy of the British Government was one of *laissez fair* and also of selective intervention. There were hardly any labour welfare schemes. After independence, labour legislations have formed the basis for industrial relations and social security. These legislations have also provided machinery for bipartite and tripartite consultations for settlement of disputes. Soon after independence, the Government at a tripartite conference in December 1947 adopted the industrial truce resolution. Several legislations including the following, were enacted to maintain industrial peace and harmony; Factory Act 1948, Employees State Insurance Act, 1948 and Minimum Wages Act, 1948. The Payment of Bonus Act was passed in 1965.

In the early 1990, the process of economic reforms was set in motion when the Government introduced a series of measure to reduce control on industries, particularly large industries. The workers have opposed economic liberalization policy for fear or unemployment while entrepreneurs have welcomed in the hope of new opportunities to improve Indian industrial relations. The new economic policy has directly affected industrial relation in the country, because the Government has to play dual role, one of protecting the interest of the worker's and second to allow a free interplay of the market forces.

Economic reforms by removing barriers to entry have created competitive markets. Fiscal stabilization has resulted in drastic reduction budgetary support to the public sectors commercial enterprises while exposing his enterprises to increased competition from private sector.

Keyword: laissez fair, labour welfare, Minimum Wages, Bonus, Economic reforms

Introduction

Employee welfare is justified for several reasons. A typical worker does a lot of work life digging coal earth, fetching and refining oil, to build dams for society. They look after necessities as well as luxuries of people in society. Thus, welfare measuresare must for them.

Welfare measures are going to have a great impact on worker's productivity. Thus, a worker show safeguards economic and social factors of the industrial economy needs a boost with welfare activities.

Welfare may help retain the employee. Most welfare facilities are hygiene factors according to Frederick Herzberg, they create dissatisfaction if not provided. Replace dissatisfaction, place an employee in favorable mood, and provide satisfiers, and the motivation will take place. Welfare facilities, besides removing dissatisfaction, help develop loyalty in workers towards the organization.

Welfare may also help minimize social evils, such as alcoholism gambling, drug addiction etc. a

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Role of Primary Agriculture Cooperative Credit Societies (PACS) in the Development of Agriculture Sector in India

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Abstract

Primary Agriculture Cooperative Credit Societies(PACS) are the banks which are situated in rural area and plays a very important role in rural credit system by performing their activities on co-operative principles and also these banks are worked under the District Credit Co-operative Banks. They provide short term and medium term loan to rural people to meet their financial requirements. But, the rural people still depend on unorganized sources such as money lenders in village, mandies, traders etc. So , various measures taken by Government to reduce these unorganized sources through the establishment of PACS in rural areas. In order know the role of PACS in agricultural development in India the study has been undertaken.

Keywords: *primary, credit, agricultural, co-operative, society, finance.*

Introduction

The co-operative banks in India play a significant job in even today in provincial financing. These are enrolled under the Co-usable Societies Act and furthermore managed by the RBI. They are administered by the "Banking guideline Act-1949" and Banking Laws (Co-employable social orders) Act 1965. The matter of co-usable banks in urban territory additionally have increased in recent year due to sharp increment in the number of essential co-usable banks. The co-employable development was expressed in India generally with the end goal of giving agriculturists reserves foragricultural activities, at low paces of intrigue and shields them from the grip of cash moneylenders.

Objective of the Study

1. To study the role and performance of PACS in respect of agricultural credit and rural development.
2. To find out reasons for poor recovery of loans in PACS.
3. To offer suggestions to improve the performance of PACS.

Methodology

The study is based on Secondary data. The data has been collected from books, magazines and websites.

A) Role of PACS

A co-employable acknowledges society, ordinarily known as Primary Agricultural Co-usable Society (PACS) might be expressed with at least 10 people, regularly having a place with a town. The estimation of each offer is commonly ostensible in order to empower even most unfortunate rancher to turn into a part. PACS involve a prevalent situation in the co-employable structure and structure its base. A Primary Agricultural Credit Society is sorted out at grass-root level of a town or a gathering of little towns. It is the fundamental unit which manages rustic (horticultural) borrowers, gives those advances and gathers reimbursements of advances given. It fills in as the last connection between definitive

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SOLAR PHOTOCATALYTIC DEGRADATION OF METHYLENE BLUE USING Sb-DOPED TiO_2 NANOPARTICLES

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Abstract:
Sb-doped TiO_2 were synthesized by sol–gel process combined with surfactant incorporating method. The concentration level of Sb (III) additive was varied systematically from 1 to 11 wt.%. Wide structural and surface characterization of samples was carried out in order to establish a correlation between the effects of antimony incorporation on the TiO_2 photocatalytic properties. Results revealed that the anatase structure is highly stable for Sb/TiO_2 with enhancement in the surface area. UV–Vis diffuse reflectance spectra showed that this dopant was responsible for narrowing the band gap of TiO_2 and shifting its optical response from ultraviolet to visible-light region. The photocatalytic activity of the Sb/TiO_2 catalyst was evaluated in the decomposition of methylene blue solution under solar light irradiation with respect to the content of antimony on the catalyst surface. The results showed that the incorporation of antimony into the TiO_2 seems to enhance the photocatalytic activity of the samples, which is ascribed to the enlargement of specific surface area, photo generated carriers separation, light absorption, as well as the higher surface acidity. The photocatalytic efficiency and activity of the composites remained good, even after three cycles.
Keywords: Sb/TiO_2; Nanomaterials; Solar photocatalysis; Methylene blue.

Introduction:

Photocatalysis has emerged as an effective technique to decontaminate toxic and non-biodegradable environmental pollutants [1-2]. Among various functional metal oxides, TiO_2 is the most nontoxic, highly stable, cost effective, strong oxidant, and noncorrosive semiconductor, which make it more suitable choice for removing organic and inorganic contaminants from the environment [3-4]. The photochemical reactions proceed on a pure TiO_2 surface, when irradiated with ultraviolet light. This barricades the frequent and convenient use of TiO_2 photocatalyst. The increase in redox potential and decrease in the particle size is essential to enhance the photochemical reaction rates. Decreasing the particle size to nano scale, results in the larger surface area per unit mass. Reduction of band gap facilitates the catalyst to make use of solar and visible light energy, which makes it environmentally and electrically suitable photo catalyst [5]. Further, the anatase to rutile phase ratio is also an important factor in enhancing photo catalytic activity. The anatase phase is kinetically more stable and higher hydrophobicity of this phase increases the absorption of reactive species, while rutile phase scatters light which decreases its absorption power [6-7].

Recently, much attention has been paid in modifying TiO_2 to enhance its catalytic efficiency or expand its applicability under solar irradiation [8]. Different metallic [9] and nonmetallic dopants [10] have been doped to decrease the band gap and increase excitation life time of pure TiO_2. Mao et. al, used nitrogen dopant for the photo-oxidation of organic molecules in water [11]. Shamalah et. al, showed degradation of Brilliant Green dye with Zn and Cu-doped TiO_2 [12]. Moreover, many attempts have been carried out in direction of attaining high surface area photocatalysts to increase active sites by using the support materials like zeolites [13], HZSM-11 zeolite [14], Clinoptilolite [15] and silica–clay composite [16]. Zhang et. al. synthesized mixed platinum catalysts supported on various carbon nanomaterials [17]. The nano Ag/Pt and methyl violet co-doped catalyst was developed resulted in higher photodegradation activities towards various dyes [18]. Elham S. Baeissa investigated the removal of cyanide employing cobalt metal doped on TiO_2–SiO_2 nanoparticles [19]. Nano sheets of $Au/HTiNbO_5$ have also been synthesized by Hsin-Yu Lin, et. al to produce hydrogen from water splitting [20]. The important issue governing the efficiency of photocatalytic oxidative degradation is minimizing electron-hole recombination by maximizing the rate of interfacial electron transfer to capture the photogenerated electron and/or hole. Various n and p type photocatalysts are well documented in the literature. A Na-doped p-type flower-like ZnO photocatalyst (Na:ZnO) that is highly visible-light-sensitive in air at room temperature was synthesized by a continuous flow microreactor [21]. Rh-doped $BaTiO_3$ powder was prepared by the polymerized complex (PC) method, and the photocatalytic activity for H_2 evolution from water was examined. $BaTiO_3$ is a wide-gap n-type semiconductor having a band gap of 3.0 eV. Doping Rh species into the lattice of $BaTiO_3$ resulted in the formation of new absorption bands in visible light region [22]. Different p-type Cu_2O powders were prepared from electro deposition and subjected to analysis of their photocatalytic activity in water reduction [23]. Sb-doped catalyst on different supports has been synthesized previously [24-25]. However, they did not evaluate the effect of concentration level of Sb (III) on crystallite size, specific surface area and phase transformation and surface

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AN OVERVIEW OF INDIAN AGRICULTURE SECTOR IN THE ERA OF GLOBALIZATION

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Abstract

The term globalization refers to International Integration. It includes opening up of world trade, development of advanced means of communication, internationalization of financial markets, growing importance of MNC's, population migrations and more generally increased mobility of persons, goods, services, capital, data and ideas. It is a process through which the diverse world is unified into a single society. In short it is a creation of world into a global village. It is the recent concept that has come to govern the world since end of the 20th century with the end of the cold war and melting down of Soviet Union. The need of structural changes in various world economies, dominance of market related economies, growing importance of private resources and capital and pressure of world bank and other International organizations like IMF (International Monetary Fund) have started this process in many of the developing countries like India. It has brought in new opportunities to developing countries. Greater access to foreign markets, technology transfer, improved productivity and higher living standard are some of the advantages of this process to the countries like India. But it has also creates new challenges like growing inequality across and within nations, volatility in financial market and environmental deteriorations. As Indian is agrarian economy it is wise to know the impact of Globalization on Indian economy. An overview of Indian agricultural sector indicates that globalization did not yield the desired results in India. It has marginally contributing in minimizing poverty, and removing social inequalities. The desired objectives of this process have not been achieved in India. As far agricultural sector is concerned we have seen mixed results in the country. It is clear with the study that agriculture plays key role in the economy. Agriculture employees 59% of Indian population, yet it contribution varies only from 15 to20% of the GDP (Gross Domestic Product). After adoption of globalization in 1991 Indian agriculture growth rate increase but at present the economy condition of the farmers is not satisfactory because input cost is high and output cost is low. Cut off of subsidies are hindering growth of agricultural sector

Keywords: *Globalization, International integration, agriculture, social inequality, subsidy, International Monetary Fund, Gross Domestic Product.*

Introduction:

The term globalization refers to International Integration. It includes opening up of world trade, development of advanced means of communication, internationalization of financial markets, growing importance of MNC's, population migra-

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Finding Locations for Continuous Contour Trenches in Indapur Tahsil, Dist. Pune (Maharsshtra)

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Introduction

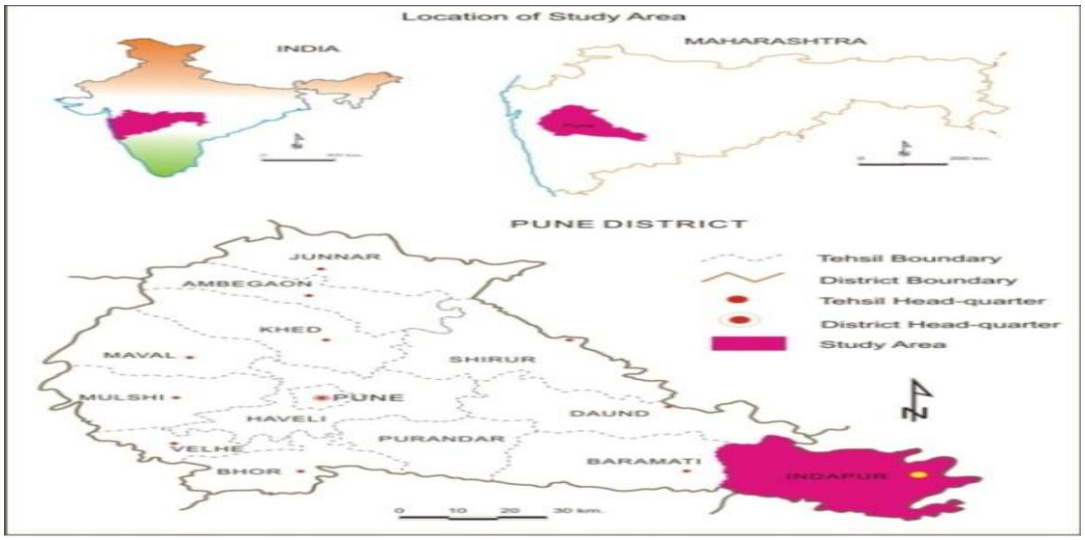
Water is vital to life, without which no living body can survive. Water is considered as prime natural resource, a basic human need and a valuable national asset. Water is core component of environment. Now days, there are many problems rises related to water quantity and quality. Water scarcity is also main problem because of over use of surface and ground water. So watershed management is the need not only for water conservation and soil conservation, but also has impact on food production and national economy. Continuous Contour Trenches (CCT) method is helpful to increase ground water level in the surrounding areas/ dug wells and tube wells which increases the yield of farms and water quality. This will also avoid loss of soil due to erosion; increase the grass coverage which will helpful for soil stabilization. This method can be adopted in low rainfall area to high rainfall area up to 3200mm and from flat area to hilly area with 65% steep slope. This method is suitable for plantation of all species and easy, simple for laborers and comparatively less record keeping. Indapur tahsil is one of the tahsils of rain shadow tahsil in Maharashtra. Average annual rainfall of Indapur tahsil is about 450 mm.

Origin of the research problem:

Indapur tahsil is selected for the study of water resources. The choice and topic under investigation is influenced by many considerations. Firstly, researcher belongs to Indapur tahsil hence is familiar with the study region. Secondly, study region falls in drought prone region of Deccan trap of Maharashtra state receiving annual average rainfall between 400-500 mm. It is distributed unevenly in study region. Thirdly, irrigation is dominant factor in study region having considerable impact on water use in Indapur tahsil. Although main sources of water for study region is the rivers like Bhima, Nira and other tributaries, there is drought in some region of Indapur tahsil. Fourthly, this region has not been so far studied in depth for water analysis point of view by geographers. The main problem is that water source is abundant in the part of east and south of Indapur tahsil, whereas water sources is scanty in west and north side of Indapur tahsil. So we study the water resources in Indapur tahsil.

Location, Situation and Site

Indapur tahsil is situated in Pune district. The northern and eastern border is demarcated by Bhima river in Pune and Solapur districts while southern boundary is confined by NiraRiver in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daundtahsil of Pune district. The region extends between 17° 53′ to 18° 15′ north latitudes and 74° 35′ to 75° 8′east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 142 settlements and three urban settlements.



Objectives :

1. To study the slope analysis and soil distribution of study area.

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Study and Analysis of Water Resources in Indapur Taluka (Pune District)

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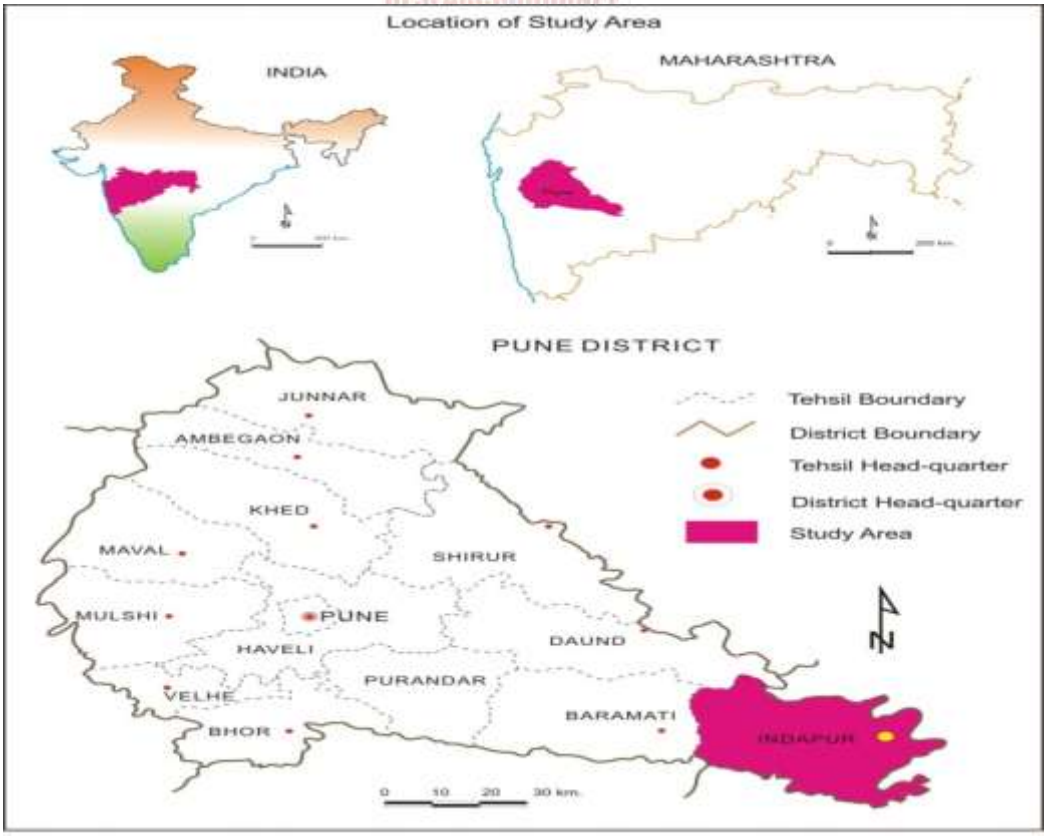
1. Introduction

Water is vital to life, without which no living body can survive. Water is considered as prime natural resource, a basic human need and a valuable national asset. Water is core component of environment. There is vast disparity in the distribution and utilization of water resource at the global, regional and local levels. Water scarcity due to depletion of surface as well as ground water following fast population growth, urbanization, rising incomes, industrial development etc. For water management, we need to assess the water resources.

The main problem is that water source is abundant in the part of east and south of Indapur taluka, whereas water sources is scanty in west and north side of Indapur taluka. So we have studied the water resources in Indapur taluka.

2. Study Area

Indapur tahsil is situated in Pune district. The northern and eastern border is demarcated by Bhima river in Pune and Solapur districts while southern boundary is confined by NiraRiver in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daundtahsil of Pune district. The region extends between 17° 53′ to 18° 15′ north latitudes and 74° 35′ to 75° 8′east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 142 settlements and three urban settlements.



कन्हैयालाल धबधबा, मत्स्या धबधबा आणि जांभाळी धबधबा व अनेक कमळांच्या तलावांमुळे पावसाळ्यात धक्क करणारे सौंदर्य अनुभवते.

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२००० नंतरच्या भटक्या विमुक्त जमातींच्या आत्मकथनांचे बदलते स्वरूप

श्री. राजकुमार बबन शेलार
ता. इंदापूर, जि. पुणे

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प्रस्तावना :

भटक्या विमुक्त जमातींच्या आत्मकथनांनी मराठी साहित्य समृद्ध केले आहे. या आत्मकथनांची किर्ती जागतिक पातळीपर्यंत गेली आहे. मराठी साहित्य विश्वाला अपूर्व असे योगदान या आत्मकथनांनी दिलेले आहे. कारण या आत्मकथनांतून अविष्कृत होणारे अनुभवकथन सामाजिक, सांस्कृतिक, आर्थिक व धार्मिक जीवन विलक्षण अनुभव देणारे आहे. भटक्या विमुक्त जमातींच्या आत्मकथनांमध्ये ग्रामीण व शहरी भागातील जीवन व्यक्त झाले आहे. ग्रामीण भागातील येणाऱ्या भटक्या जातीजमातींचे ते जगत, भोगत असलेल्या जीवनांचे चित्रण आत्मकथनात आले आहे. या आत्मकथनांमध्ये पहिल्या पिढीतील जी निडरता नव्हती. ती निडरता २००० नंतरच्या भटक्या विमुक्त जमातींच्या आत्मकथनात प्रामुख्याने आढळून येते.

२००० नंतर कालखंडातील भटक्या विमुक्त जमातींची आत्मकथने :

भटक्या विमुक्त जमातींची आत्मकथने ही सामाजिक जाणीव आणि उपेक्षित समाजाचे वास्तव असलेला दस्तावेज आहे. डॉ. बाबासाहेब आंबेडकरांच्या विचारातून निर्माण झालेली ही आत्मकथने पहिल्या पिढीतील आत्मकथनांपेक्षा सर्वार्थाने वेगळी, भिन्न ठरली आहेत. कारण ही आत्मकथने केवळ अनुकरणातून आलेली असून सजग जाणिवेने लिहिली गेली आहेत. त्यामध्ये 'बिराड' हे अशोक पवार यांचे आत्मकथन (२००१) साली प्रकाशित झाले. विमल मोरे यांचे 'तीन दगडांची चूल' (२०००), रामचंद्र नलावडे यांचे 'दगडफोड्या' (२०००), संतोष पवार यांचे 'चोरटा' (२००१), रत्नेश पिंग्या काळे यांचे 'पारध्याचं जिणं' (२००७), ज्ञानेश्वर भोसले यांचे

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Kinetic study of Fast brominations of regioisomers of Chloroacetanilide using Competition Techniques

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ABSRACT - The competitive kinetics applied with assurance and determine the kinetic in milliseconds due to fast bromination reaction. Determination of kinetics is fundamental aspects for the design and operation of the reactor. Competition kinetic method was proposed to determine directly bromination rate constant of regioisomers of Chloroacetanilid Xylidine.The specific reaction rates determined from this study are 1.7 x $10^5 M^{-1}S^{-1}$ for *P*-Chloroacetanilide, 1.8 x $10^5 M^{-1}S^{-1}$ for M-Chloroacetanilide and 1.3 x $10^5 M^{-1}S^{-1}$ for *O*-Chloroacetanilide Kinetic evidence gives information about mechanistic route.

KEYWORDS - Regioisomers of Chloroacetanilide, Competitive kinetics, Bromine, Potassium nitrate, potassium iodide

I. INTRODUCTION

Regio-isomers of Chloroacetanilide in the three competition reactions studied with the aim of maintaining the competition ratio nearly 1 and in view of the observed rapidity of the reactions. The concentrations of both the competitors are large and almost constant compared to that of bromine in the competition. The rate of reaction is an expression relating the rate of reaction to the concentration of the relating species present which may include reactant, product and catalyst[1]

Chloroacetanilide in which amide group is electron donating group it exerts +I effect and orienting ortho and para isomers.The rection rate is influenced by certain external factors such as concentrations of the reacting substances, temperature and pressure.[2]

The Competition ratio V-v/v is operate in such manner as that of approximately 1. By using the equation rate constant can be calculated. Fast reaction will have a low activation energy, but if the reactants are present in low concentrations the rate of reaction will be small[3] The competition techniques are necessitated to study the kinetics of these brominations of aromatic substrate due to their rapidity.[4]

II. EXPERIMENTAL METHOD

Table 1 : Bromination of 2-chloroacetanilide

Initial concentrations of the reactants in 100 ml reaction mixture

Sr. No.	Reactant	Concentration/M
1	Bromine	0.0025
2	2-chloroacetanilide	0.01
3	potassium iodide	0.04

Titre values V = 8.6 ml v = 4.9 ml

Table 2 : Bromination of 3-chloroacetanilide: Initial concentrations of the reactants in 100 ml reaction mixture

Sr. No.	Reactant	Concentration/M
1	Bromine	0.0025
2	3-chloroacetanilide	0.01
3	potassium iodide	0.04

Titre values V = 8.6 ml v = 4.2 ml

Table 3 : Bromination of 4-chloroacetanilide: Initial concentrations of the reactants in 100 ml reaction mixture

Sr. No.	Reactant	Concentration/M
1	Bromine	0.0025
2	4-chloroacetanilide	0.01
3	potassium iodide	0.04

Titre values V = 8.6 ml v = 4.5 ml

III. OBSERVATION

Velocity constant K can be calculated with the help of following equation

$$\frac{k_1 [\text{Chloroacetanilide}]^x [Br_2]^y}{k_2 [K\ I] [Br_2]} \times \frac{V-v}{v}$$

When x and y are both taken as 1, over a variation of the concentration range of Chloroacetanilide, the velocity constant values k_1 obtained for the bromination of Chloroacetanilide are found to be constant suggesting an overall order of second for the reaction in all the two reactions studied. The velocity constant values obtained.

Fig.1 Mechanism of bromination reaction of Chloroacetanilide

I. Bromination of *2*- Chloroacetanilide by molecular bromine

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REPRODUCTIVE CYCLES IN TWO GEOGRAPHICALLY SEPARATED POPULATIONS OF THE OYSTER *Saccostrea cucullata* FROM SINDHUDURG DISTRICT, MAHARASHTRA STATE, INDIA

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Abstract:

Two geographically separated localities at Deogad (160 23' N ; 730 23' E) and Achra (160 15' N; 780 26' E) in Sindhudurg district of Maharashtra State ,India were selected on the basis of the differences in habitat , topography ,vegetation and local market value to study the reproductive cycles of the oyster Saccostrea cucullata. The maximum sizes attained by S. cucullata in the estuaries at Deogad and Achra were 44-45 mm shell length. However, comparatively larger sized oysters are found round the year in the estuary at Deogad than at Achra.

The environmental parameters such as tidal heights, pH, temperature, dissolved oxygen and salinity existing on the oyster beds in Deogad and Achra were recorded on every new-moon and full-moon days for a period of twelve months.

The microscopic details of the gonad tissue processed on every new moon (NM) and full moon (FM) days of each month revealed following stages ; (i) Gametogenesis ; (ii) Maturing ; (iii) Mature; (iv) Partial spawning ; (v) Complete spawning ; (vi) Recovery ;(vii) Neutral . The gonads of twenty oysters were staged for males and females separately on each NM and FM days and percentage of the males and females in these different stages were calculated.

The study on reproductive cycle in male oysters of S. cucullata from Deogad showed that many oysters were in gametogenesis stage in entire June and once again on November NM. Maturing stage was seen on March NM, May FM, July NM and again on November FM and in entire December. Many oysters were in mature stage on March FM, April FM and July FM and again on January NM. Most of oysters were under spent stage on March FM, in entire August and September, and on January FM. Many oysters were under recovery stage on May NM and in entire October. Most of the samples collected in entire February and on April NM showed prominent neutral stage. The female oysters showed that the gametogenesis was dominant on March NM, in entire June and on November NM; maximum on NM of March and on November. The maturing stage was dominant in entire April and May and on July NM and December NM. Oysters under spent condition were dominant on April NM and December FM, and all the gametes were released in entire August, September and on October NM. The recovery stage was recorded in many oysters on October FM and January FM, while the neutral stage was recorded in entire February.

The male oysters from Achra showed gametogenesis stage on March NM, April FM and June NM. The maturing stage was seen in most oysters on April FM, June FM, July NM, September NM and FM. The mature stage was very conspicuous on July FM and November NM. Most oysters were in the spent stage on May FM , August NM ,October NM and December FM. Oysters under recovery stage were in high percentage on December NM , January NM and February FM. The neutral condition was most prominent in many oysters on March NM and January FM. The female oysters at Achra showed that many oysters under the gametogenesis appeared on April NM, June NM and December FM. The maturing condition in oysters was dominant on April FM, June FM, August FM, entire September and on February NM. Many oysters in mature stage occurred on October NM and November NM. The spent stage in oysters was dominant on December NM, In entire May and on July FM. The recovery stage was recorded in December NM, while the neutral stage in oysters was dominant on January FM and March NM. These different stages of the gonads have been correlated with the changes in environmental conditions over the oyster beds from the two localities. The results are discussed in the light of possible impact of the environment on reproductive events.

Keywords: S. cucullata, Deogad, Achra, FM, NM, gametogenesis.

Introduction:

Along the west coast of India the backwaters and estuaries are very extensive and play an important role for food production. These are widely scattered and have an area of 30.7 lakhs acres (Mitra, 1970) from which Maharashtra coast constitutes 3.0 lakhs acres

अठारहवीं सदी के महाराष्ट्र में भू-राजस्व व्यवस्था

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शोध सारांश:-

मध्यकालीन अर्थव्यवस्था में कृषि का अत्यधिक महत्व था। कृषि पर कर सरकारी राजस्व का सबसे बड़ा स्रोत थे। भारत में कृषि का महत्व प्रागैतिहासिक काल से ही रहा है। इसलिए प्राचीन और पूर्व मध्यकालीन ग्रंथों में कृषि से संबंधित कई संदर्भ मिलते हैं। कृषि आय के महत्व के कारण, सरकार ने खेती के तहत अधिक भूमि लाने का प्रयास किया है। भूमि की नियमित जुताई को प्रोत्साहित किया गया। भू-राजस्व एकत्र करते समय भूमि और फसल निरीक्षण बहुत महत्वपूर्ण था। पहले जमीन का सर्वे किया गया और फसल तैयार होने के बाद फसल का निरीक्षण कर कर का निर्धारण किया गया। मध्यकालीन शासकों निजामशाही के वजीर मलिक अंबर और छत्रपति शिवाजी महाराज ने एक बहुत अच्छी कृषि प्रणाली की स्थापना की जो बाद के समय में टिकाऊ बनी रही। अठारहवीं शताब्दी में, सरकार ने कृषि आय बढ़ाने के लिए सिंचाई सुविधाओं का निर्माण किया और बंजर भूमि रखने वाले किसानों पर एक बंजर भूमि कर लगाया।

किवर्ड : कुटीर उद्योग, बटाई, बिधावनी, चकबंदी, सारा, कास, टके / टका, रुका, पडीचा पैका.

मध्यकालीन शासनकी अर्थव्यवस्था में भू-राजस्व सबसे आय देनेवाला कर था। अधिकांश लोग खेती में लगे हुए थे। इसलिए, कृषि की प्रकृति, राजस्व संग्रह, कृषि से संबंधित अन्य महत्वपूर्ण विकासों का अध्ययन करना आवश्यक है। इस उद्देश्य के लिए वर्तमान मामले में विषय वस्तु तैयार की गई है। विषयवस्तु समझने के लिये में मुख्य रूप से अठारवीं सदी के प्रांत पुणे और तरफ पाटस प्रदेशोंसे से उदाहरण शामिल हैं।

कृषि की खोज मानव विकास प्रक्रिया के इतिहास में एक मील का पत्थर थी। प्रागैतिहासिक काल से ही भारत में मानव संस्कृति के विकास में कृषि महत्वपूर्ण रही है। हड़प्पा संस्कृति में, बैलों द्वारा खींचे गए लकड़ी के हल से जुताई की जाती थी और गेहूं, जौ और कपास की सूखी खेती की जाती थी।[1] ऋग्वेद में मुख्यतः ४५०० से २५०० ईसा पूर्व के वैदिक काल के कृषि और कृषि जीवन की जानकारी मिलती है। आर्य अपनी आजीविका के लिए कृषि पर निर्भर थे। आज की कृषि प्रगति के बीज वैदिक कृषि में दिखाई देते हैं। आर्य भूमि की पूर्व जुताई कर रहे थे, बीज बो रहे थे और खरपतवार नियंत्रण के लिए फसल की अंतर-फसल काट रहे थे।

मिट्टी की बनावट और जलवायु के अनुसार फसलों का चयन किया गया। वेद ग्रंथोमें हल, हल का फाल, कुदाल, चाबुक, सूप, दरांती आदि जैसे कृषि उपकरणों का उल्लेख है, जबकि अथर्ववेद में हल बनाने का वर्णन है।[2] प्राचीन काल में किसानों के पास निजी जमीन के साथ-साथ सरकारी जमीन भी थी और रबी के मौसम में फसलों का उल्लेख है ... बुवाई से पहले बीजों को संसाधित किया जाता था और फसलों की सिंचाई की सुविधा होती थी ... किसानों को वार्षिक कृषि उपज का भुगतान करना पड़ता था। अकाल के समय उन्हें सहायता मिलती थी... प्राकृतिक आपदाओं जैसे फसल की क्षति और सूखे से होने वाली बीमारियों, शत्रु सेना और जंगली जानवरों के कारण किसानों को माफ कर दिया जाता था।[3]

संत ज्ञानेश्वर द्वारा लिखित ज्ञानेश्वरी में ज्वार, धान, गेहूँ, हरा चना, चना, तिल, सरसों, सूरजमुखी, गन्ना, कपास, नागवेल, लहसुन, प्याज, मिट्टी, लौंग, अदरक, हींग, तेज पत्ता; कद्दू और पड़वल सब्जियां; केला, कपूर केला,

Availability of Water Resources in the Indapur Tahsil, Pune District

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Abstract

The average annual rainfall is 550 mm. Owing to lack of rainfall there is a need of restoring and maintaining water. In Indapur tahsil, out of 142 villages, around 73 villages (51% area of the total area) gets the benefit of Ujani Dam, Bhima river, Nira river, Nira Left canal and Khadakwasala right canal. The remaining 71 villages (49 % area of the total area) depend on uneven rainfall. All these villages fall under the drought-prone area. The middle part of Indapur tahsil is the most water scarcity area. The majority of small and marginal farmer and landless depends on agriculture, especially in the dry area. Primary and secondary data are used in this paper and data process through Arc View 9.3, Surfer version 10, Global Mapper version 11 for this paper.

The availability of fresh water for domestic use, agriculture purpose and industrial purpose water conservation and management is necessary. Water resources are available through canal, reservoir, K.T. weirs, farm tanks, tanks and other sources in the study area. From all reservoir types water is made available for Indapur tahsil and around 273.81MCM.

The major amount of availability of water resources is rainfall and existing conservation measures. It is observed that the wells and canals are major source of water supply in the study area.

KEYWORDS: availability, domestic, agriculture, industrial, reservoir, water scarcity.

Introduction

Water is the basic need of life for the human beings and any alteration in its availability is directly going to impact them through various means. Most of the rivers are rain-fed and seasonal and only few are perennial. The present study has been taken up to quantify the area being in monsoon climatic conditions it is subject to high variability conditions, it's likely to affect on the availability of water. Thus the conservation and optimum utilization of water as scare resource is extremely important for national economic development. Verma and Phansalkar (2007) studied the temporal and spatial variation in availability of water and it was observed that 71 percent of India's water resources are available to only 36 percent area while the remaining 64 per cent has 29 percent available. Till the middle of the 20th century, the importance of water on life had not been particularly felt because of its moderate demand. But relentless increase in the demand of fresh water in recent years has lead to the scarcity of this basic resource in country.

In Indapur tahsil, out of 142 villages, around 51% area of the total area gets the benefit of different natural and manmade sources. The remaining 49 % areas of the total area depend on uneven rainfall. Water use includes all individual and collective activities of human society which affect water resources and change their quality and quantity. The method of water use and distribution depends especially on the degree of development and availability of water. It becomes systematic as a consequence of agricultural, social and industrial development. Water is also an

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Rainfall Distribution and Its Variation in the Indapur Tahsil District Pune Maharashtra

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Abstract: *Indapur tahsil is one of the drought-prone areas in Pune district. It is always known as a region of scarce rainfall in Maharashtra. The study area comes under the rain-shadow region, due to which it is considered as a drought-prone area. The average annual rainfall is 503.8 mm. The onset of monsoon, amount of rainfall and the variability of rain are very irregular in the study area. As such, a large part of agricultural land depends on the monsoon and there is an uncertainty of rainfall. The majority of small and marginal farmer and landless depends on agriculture, especially in the dry area. The present research work secondary data sources are used. In addition to this detail, spread of average annual rainfall which has been analysed for more than 90 years of data has also been considered for interpretation. All the supported data is collected from different offices and online. There are seven watershed areas in the study area. Average rainfall distribution spread over the entire study area thus produced in grid format has been used for volumetric analysis. The average annual volume of rainfall is 1052.46 MCM. The very low rainfall volume is observed to the northern side and very high rainfall volume is observed to the eastern side of Indapur tahsil.*

Key words: *distribution, rainfall, variation, watershed.*

1. Introduction:

Investigations of Rao and Mishra (1971) have shown that annual rainfall of India is quite stable in general, but it is most uncertain in the north-western parts of the country. Currently, the main problem emerging in many parts of the world is water scarcity. The Indapur tahsil being a semi arid and arid track incorporated under the Drought Prone Area Programme (DPAP) the area is characterized by scanty and uneven rainfall ranges from 450 to 550 mm.. The Rainfall is mainly received from the south-west monsoon. Monsoon sets in the month of June and lasts up to the month of October. Monsoon onsets first week of June and having its peak period during the month of September and October. It is also characterizes by uneven and scanty rain with long dry spell during summer. The highest rainfall is observed in the in 2009 and it is recorded to be 1103 mm at Bawada and minimum at Sansar 85 mm in 2003. Agro climatically, this study area belongs to scarcity zone of rainfall to about 80 to 90 percent received from southwest monsoon and remaining very less rainfall receives from retreat of monsoon. It can be clearly noticed that rainfall distribution decreases steadily from north-west to south-east direction. The study area comes under the rain shadow region, hence rainfall is very irregular. The onset of monsoon, amount of rainfall and the variability of rain are very irregular in the study area.

2. Objectives

- To understand rainfall condition.
- To study the variation of the rainfall.
- To analyze the rainfall distribution in the study area.

3. Study area

Indapur tahsil is one of the tahsils in the Pune district consisting of 142 villages along with one urban centre in the study area. There are eight revenue circles in the tahsil. The area extends from 17° 53´ 42" to 18° 19´ 58" North latitudes and 74° 39´ 16" to 75° 09´ 39" East longitudes **(Fig. 1)**. The area is drained by the river Bhima on north and east both sides. Nira River flows south of Indapur tahsil. Total geographical area of the tahsil is 1575.38km^2 (Census 2011), out of which Nira river

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Study and Analysis of Water Resources in Indapur Taluka (Pune District)

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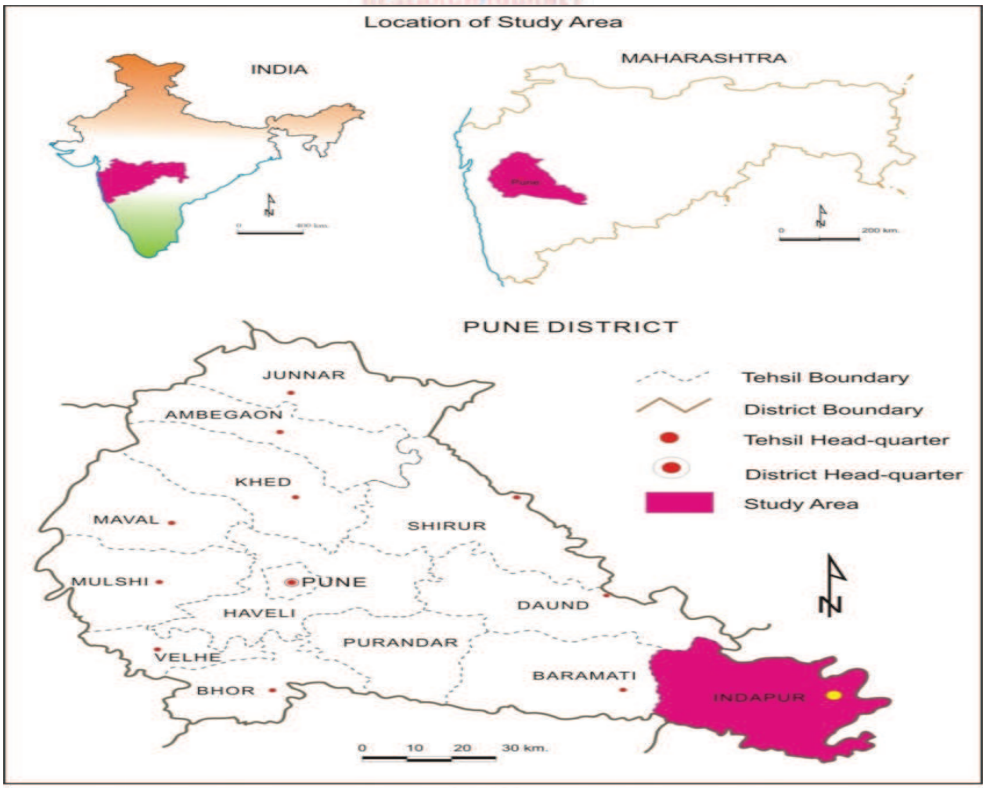
1. Introduction

Water is vital to life, without which no living body can survive. Water is considered as prime natural resource, a basic human need and a valuable national asset. Water is core component of environment. There is vast disparity in the distribution and utilization of water resource at the global, regional and local levels. Water scarcity due to depletion of surface as well as ground water following fast population growth, urbanization, rising incomes, industrial development etc. For water management, we need to assess the water resources.

The main problem is that water source is abundant in the part of east and south of Indapur taluka, whereas water sources is scanty in west and north side of Indapur taluka. So we have studied the water resources in Indapur taluka.

2. Study Area

Indapur tahsil is situated in Pune district. The northern and eastern border is demarcated by Bhima river in Pune and Solapur districts while southern boundary is confined by NiraRiver in Pune and Satara and Solapur districts. The west boundary is confined by Baramati and north boundary is delimited by Daundtahsil of Pune district. The region extends between 17° 53´ to 18° 15´ north latitudes and 74° 35´ to 75° 8´east longitudes. The total geographical area of this tahsil is 1552.93 square kilometres having 3, 83,183 population (2011). This tahsil consists of 142 settlements and three urban settlements.



कलम ३७० निर्मिती व प्रवास

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भारताला स्वातत्र्य मिळून सात दशके पूर्ण झाली स्वातंत्र्य मिळाल्यापासून आजपर्यंत आपण अनेक समस्यांशी झगडत आहोत. त्यातील प्रमुख समस्या म्हणजे काश्मीर आणि कलम ३७० ही होय. एकंदरीत भारताच्या घटनात्मक आणि राजकीय प्रक्रियेला दीर्घकाळ प्रभावीत करणारे सर्वात वादग्रस्त व चर्चेचा विषय ठरलेले कलम म्हणजे ३७० होय. कलम ३७० हे कश्मीरच्या वेगळेपणाचे (कश्मिरीयतचे) एक प्रतिक मानले गेले, त्यामुळे ते अधिकच अडचणीचे ठरले. सर्वसाधारणपणे ३७० कलमाबावत दोन टोकाचे दृष्टीकोन पहायला मिळतात. एक म्हणजे कलम ३७० रद्द केलेच जाऊ शकत नाही अशी भावना व समज आणि दुसरे म्हणजे कलम ३७० रद्द करणे हाच काश्मीर समस्येवरील एकमेव रामबाण उपाय आहे. मात्र ३७० कलम हा मुद्दा वाटतो त्यापेक्षा अधिक राजकीय व भावनिक आहे. तो तसा भावनिक व राजकीय का झाला हे समजून घ्यायचे असेल तर कलम ३७० ची निर्मीती कशी झाली? कलम ३७० कोणत्या तरतुदीमुळे विशेष ठरते? कलम ३७०चा प्रवास? कलम ३७० रद्द करण्यामुळे काय बदल होणार? कलम ३७० रद्द केल्यानंतरचे धोके काय? इ. प्रश्न समजून घेणे गरजेचे आहे. प्रस्तूत संशोधन लेखामध्ये या प्रश्नांचा शोध घेण्याच्या दृष्टीने प्रयत्न करण्यात आलेला आहे.

कलम ३७० ची निर्मीती

घटना समितीचे एक सदस्य एन.गोपालस्वामी अय्यंगर यांनी १७ ऑक्टोबर १९४९ रोजी घटनासमिती मध्ये ३०६ (अ) (आत्ताचे कलम ३७०) सादर केले या कलमावर फारशी चर्चा न होता त्याच दिवशी ते मान्यही करण्यात आले. या कलमानुसार जम्मू – काश्मीर राज्याला इतर संस्थानापेक्षा वेगळी वागणूक देण्याचे कारण अय्यंगर यांनी स्पष्ट केले ते पुढीलप्रमाणे.

१) काश्मीर राज्यातील सांस्कृतीक –सामाजिक परिस्थिती भिन्न आहे त्यामुळे ती तात्काळ भारताशी एकात्म होण्यासारखी नाही. कालांतराने असे एकात्मीकरण होईल.

२) काश्मीरमध्ये सध्या अंतर्गत अशांतता आहे तसेच हा प्रश्न संयुक्त राष्ट्राकडे आहे. त्यावर लागलीच तोडगा निघण्याची चिन्हे नाहीत.

३) काश्मीरमध्ये शांतता प्रस्थापित झाल्यानंतर तेथे सार्वमत घेऊन लोकेच्छेचा आदर करण्यास भारताने बांधिलकी मानली आहे.

कलम ३७० मधील तरतुदी

भारतीय संविधानाच्या पहिल्याच कलमात काश्मीरला भारताचे १५ वे राज्य म्हणण्यात आले. परंतु त्याची तत्कालीन पार्श्वभूमी लक्षात घेऊन संविधानात कलम ३७० चा अंतर्भाव करण्यात आला होता. ज्यात तात्पुरती, संक्रमणात्मक व विशेष प्रावधाने अंतर्भूत होती यात.

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Kinetic Study of Fast Brominations of Xylidine Using Competition Techniques

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Absract: *The competitive kinetics applied with assurance and determine the kinetic in milliseconds due to fast bromination reaction. Determination of kinetics is fundamental aspects for the design and operation of the reactor. Competition kinetic method was proposed to determine directly bromination rate constant of regioisomers of Xylidine.The specific reaction rates determined from this study are 1.7 x* $10^5M^{-1}S^{-1}$ *for 3,5 Xylidine, 1.4 x* $10^5M^{-1}S^{-1}$ *for 2,5 Xylidine* ***and*** *1.2 x* $10^5M^{-1}S^{-1}$ *for 2,3 Xylidine. Kinetic evidence gives information about mechanistic route.*

Keywords: *Regioisomers of Xylidine, Competitive kinetics, Bromine, Potassium nitrate, potassium iodide*

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I. Introduction

Kinetics of chemical reaction deals with the rate of chemical reaction, Chemical reaction is one or two step process usually involve collision between two reactants refer to as a bimolecular step or dissociation of a single reactant molecule which is refer as unimolecular. Kinetics study of chemical reaction is carried out analysis of elementary steps i.e. the reaction mechanism and determination of absolute rate of reaction. The rate of chemical reaction means the rate at which reactants are used up or equivalently the rate at which products are formed, In kinetic studies the kinetic parameters such as frequency factor, activation energy, stiochiometric concentration, enthalpy and entropic changes on the rate of reaction[1]

Experimental techniques have been developed to monitor reactions over timescale varying as few femto seconds (1Fs= 10^{-15}sec.) It is to monitor the kinetic study of a slow reaction occurring over minute to hour or longer and kinetic study of a fast reaction occur in few seconds or femto seconds therefore highly specialized techniques are used to study fastest reaction. In 2003, more than twenty US Army troops were allegedly exposed to 3,4-xylidine during the operation of Iraq, leading to a number of health complaints.[2]

A kinetic experiment essentially consists of mixing the reactants and initiating reaction on a timescale that is negligible to that of reaction and then monitoring concentration of reactants and products as the function of time. Reaction in pharmaceutical industries is known for their complexities, reaction with intermediate product are common in these industries.[3] For kinetic study of a fast reaction a large number of techniques have been developed as Flow Techniques, Flash photolysis techniques, Relaxation Method, Life time methods, Absorption Spectroscopy, Competition Techniques. The competition techniques are necessitated to study the kinetics of these brominations of aromatic substrate due to their rapidity.

Competition Techniques-

In Competitive Techniques A and B react with C However A and B do not react with each other but competition take place with A and B react with C Where C is insufficient quantity although A and B are large amount, if the rate constant for one of the competitive reaction is known, the other can be determined.

II. Experimental Method:

The Competition ratio V-v/v is maintained to be near to unity In titration **v** Cm^3 of sodium thiosulphate in the iodometric titration corresponds to the bromine reacted with potassium iodide V-v is corresponds to that reacted Xylidine in the competition. The Competition ratio V-v/v is arranged as that of near about 1. By using the following equation K can be calculated

To Compare the Effect of Improvement the Maximal Oxygen Uptake (VO2 Max) Capacity through Training Programs

Bharat Bhujbal*

Abstract

This study presents hypothetical study comparing the improvement of the whole body maximal oxygen uptake (VO2max) when training with different methods at different intensities matched for total work performance and frequency of training. We compare VO2max improvement in two training methods. The methods are group of functional exercises and other is suryanamaskar and pranayama method. The study was conducted on 75 female students of 18 to 20 age having almost everyone has same physical ability. The selected subjects were measured of their physical fitness component maximum oxygen uptake capacity with Queens Colllege 3 Minutes Step Test. The total fitness standard of sample was calculated by converting the raw scores into standard scores. The data was analysed by applying repeated measure ANOVA test and Post Hoc test for multiple comparisons.

Keywords: Cardiorespiratory fitness, VO2max, maximal oxygen uptake training methods, Queen's Colllege Step Test, physical fitness.

INTRODUCTION

VO2 max is generally considered as the best indicator of cardiorespiratory fitness. Cardiorespiratory fitness is an important health variable, which is associated with several risk factors for cardiovascular diseases. VO2 max is a physiological parameter by which we are able to estimate body consumes how much oxygen when working at a very high level of exercise. Cardiorespiratory fitness is measured by VO_2max which is one of the most often used tests to evaluate endurance capacity. It is a best way to evaluate overall body function and health. It measures an aerobic fitness. Training programs are help to increase the VO2 max and improve overall fitness. Cardiorespiratory and aerobic fitness level are depends on lung capacity and heart volume, capillary delivery and muscle efficiency. When lung capacity is more the heart can pump more oxygenated blood that's why more oxygenated blood reach to the muscles through capillaries. Oxygenated blood supply to the muscles through the capillaries increases the efficiency of the muscles. Increasing muscle function increases the body's ability to function as a whole. Cardiorespiratory fitness is mainly increased through aerobic endurance exercises but in some not fit or diseased populations a small benefit can be achieved by muscular strength exercise (ACSM 2006b, Pollock M., et al 2000).

It is my intension to do this study to develop more oxygen capacity using the proper training methods. There is a great lack of exercise in college girls. There are many reasons for this, indifference

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The Kinetic Study for the Fast Bromination Reaction of the Regioisomers of Cresol in Aqueous Medium by Competition Techniques

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Abstracts: *The kinetic study for the bromination of the regioisomers of cresol in aqueous medium by molecular bromine has been carried out using the competition technique. These reactions are rapid and are found to be of the second order. The specific reaction rates determined at 27.0^o C are 0.8 x 10^4, 1.78 x 10^4 and 4.4 x 10^4 M^{-1} s^{-1} for the ortho, para and meta isomers respectively. These values quantitatively justify the relative reactivity of these regioisomers in aqueous medium which has been qualitatively speculated hitherto for these rapid bromination reactions.*

Date of Submission: 06-05-2019 Date of acceptance: 20-05-2019

I. Introduction

The competition technique is used to study the fast bromination of the regioisomers of Cresol. A chemical reaction has kinetic and thermodynamic aspects. Chemical kinetics furnishes information regarding reactivity of the reactants from the determination of the rate constant which is in turn associated with the height of the energy barrier between the reactants and products.The mechanism of a reaction in one sense is the sequence of several elementary steps involved in the conversion of the reactants into products. Reaction mechanism gives the analytical information about the make and break of the chemical bonds involved in the reaction. and identification of products. These are electrophilic substitution reactions generally and are rapid in aqueous solutions. Of these, Brominations are the fastest and Iodinations the slowest. Various brominating reagents are used such as molecular bromine.[1]

The significant equilibrium in aqueous solutions is

$$X_2 + H_2O \rightleftharpoons HOX + HX$$

Table 1: The formation of H_2OX^+ as the probable electrophile in these aqueous solutions is easily ruled out as the following table

Halogen	$[X^+]\ [X^-] / [X]$	$[H_2OX^+]\ [X^-] / [X]_2$
Cl_2	10^{-60}	10^{-30}
Br_2	10^{-50}	10^{-20}
I_2	10^{-40}	10^{-10}

Table 2: The relative reactivities of some brominating reagents was estimated by Shilov and Kaniaev as

Br^+	BrCl	Br_2	HOBr
110000	43000	80	0.12

However, Raoet.al.have convincingly ruled out the formation of positive protonated cations in aqueous brominations and has proposed a catalytic route to explain the increased rates of these reactions in acidified solutions. The bromination of aromatic compound by N-bromoSuccinimide and bromine molecule as a brominating reagent

A rapid reaction may proceed slowly enough for conventional measurements provided the low concentrations of the reactants reached are measurable.

B] The Competition Technique

When A and B do not react with each other but C reacts with both A and B then a competition can be arranged between A and B to react with C wherein C is in insufficient quantity and A and B are in large excess. If the rate constant for one of the competing reactions is known, the other can be found out. Taft and Cook have determined the rate constant by the competition technique.[2]

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Reproductive periodicity in the edible oyster Saccostrea cucullata from Deogad, Sindhudurg district, Maharashtra State, India.

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ABSTRACT:

The locality of Deogad (16^0 23' N ; 73^0 23' E) in Sindhudurg district of Maharashtra State, India was selected on the basis of the habitat , topography, vegetation and local market value to study the reproductive periodicity of the oyster *Saccostrea cucullata* . The maximum sizes attained by *S. cucullata* in the estuaries at Deogad was 44-45 mm shell length. However, larger sized oysters are found round the year in the estuary at Deogad.

The environmental parameters such as tidal heights ,pH, temperature , dissolved oxygen and salinity existing on the oyster beds in Deogad was recorded on every new-moon and full-moon days for a period of twelve months.

The microscopic details of the gonad tissue processed on every new moon (NM) and full moon (FM) days of each month revealed following stages ; (i) Gametogenesis ; (ii) Maturing ; (iii) Mature; (iv) Partial spawning ; (v) Complete spawning ; (vi) Recovery ;(vii) Neutral . The gonads of twenty oysters were staged for males and females separately on each NM and FM days and percentage of the males and females in these different stages were calculated.

The study on reproductive periodicity in male oysters of *S. cucullata* from Deogad showed that many oysters were in gametogenesis stage in entire June and once again on November NM. Maturing stage was seen on March NM, May FM, July NM and again on November FM and in entire December. Many oysters were in mature stage on March FM, April FM and July FM and again on January NM. Most of oysters were under spent stage on March FM, in entire August and September, and on January FM. Many oysters were under recovery stage on May NM and in entire October. Most of the samples collected in entire February and on April NM showed prominent neutral stage. The female oysters showed that the gametogenesis was dominant on March NM, in entire June and on November NM; maximum on NM of March and on November. The maturing stage was dominant in entire April and May and on July NM and December NM. Oysters under spent condition were dominant on April NM and December FM, and all the gametes were released in entire August, September and on October NM. The recovery stage was recorded in many oysters on October FM and January FM, while the neutral stage was recorded in entire February.

These different stages of the gonads have been correlated with the changes in environmental conditions over the oyster beds from the two localities. The results are discussed in the light of possible impact of the environment on reproductive events.

Key words: *S. cucullata*, Deogad, Achra, NM, FM, gametogenesis, maturing, mature, spent

8. The Roles of ICT in Education

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Arts, Science and Commerce College, Indapur, Dist. Pune.

Abstract

Technical advancement of the modern world, popularity of social networks are significantly changing the direction in education. Both the future of the education and of society in general depends on understanding by all participants of educational process of the direction of a strategic development of education (Koryuhina C, Shamshina T). ICTs are making dynamic changes in society. They are influencing every aspects of human life. ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters (UNESCO, 2002).

As world is moving rapidly towards digital information, the role of ICTs in education becomes more and more important and this importance will continue to grow and develop in 21st century. This paper highlights various impacts of ICT on contemporary higher education and also discusses potential future developments. It also explores some challenges in higher education like cognitive tutors, need for developing a model, collaborative authoring etc. It is generally believed that ICTs can empower teachers and learners, making significant contributions to learning and achievement. The innovation of the Information Communication Technology (ICT) in modern teaching, which is a pivotal for national development, has not been inculcated in third world countries.

Key words: ICT, technology, scientific, information, communication

Introduction

According to Daniels (2002) ICTs have become within a very short time, one of the basic building blocks of modern society. Many countries now regard understanding ICT and mastering the basic skills and concepts of ICT as part of the core of education, alongside reading, writing and numeracy. However, there appears to be a misconception that ICTs generally refers to 'computers and computing related activities'. Pelgrum and Law (2003) state that near the end of

Water Utilization in the Indapur Tahsil District Pune Maharashtra

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Abstract

Water is life and it is universally acclamation as the most important natural resource. The end use of water is essential for every inhabitant and for a wide range of economic and informal sector activities. It is vital for agriculture, industry, health and hydropower. India accounts for about 17.5 % of the world's population and roughly 4% of the total available fresh water resources. With increasing population and growing demand from industrial and agricultural sectors the water consumption is set to jump up tremendously in the near future. Climate change can severely threat Indapur tahsils water security. Observing these outcomes in the present context, in this paper utilization of water resources and requirement of water resources in the Indapur tahsil. Present study attempts to highlight the utilization of water resources in the Indapur tahsil Pune district of Maharashtra. This paper has been attempt has been made to quantify the water budget of the study area. The proportion of water utilization is in three different activities i.e. domestic purpose, agriculture purpose and industrial purpose in Indapur tahsil are also discussed in the paper. The area being in monsoon climatic conditions it is subject to high variability conditions, it's likely to affect on the availability of water. The outcomes of these studies are briefly presented in the paper. It has been observed that the utilization of water resources are not uniform over the study area.

Key words: domestic, agriculture, industrial, utilization of water.

Introduction

Water is the basic need of life for the human beings and any alteration in its availability is directly going to impact them through various means. India accounts for about 17.5 % of the world's population and roughly 4% of the total available fresh water resources. Most of the rivers are rain-fed and seasonal and only few are perennial. The present study has been taken up to quantify the area being in monsoon climatic conditions it is subject to high variability conditions, it's likely to affect on the availability of water. Water use includes all individual and collective activities of human society which affect water resources and change their quality and quantity. The beneficial utilization of water depends, as does its natural functions, on the water properties. The method of water use and distribution depends especially on the degree of development and organization of the social system. It becomes systematic as a consequence of agricultural, social and industrial development. The end use of water is essential for every inhabitant and for a wide range of economic and informal sector activities. It is vital for agriculture, industry, health and hydropower. Water is also an integral part of the natural environment and the habitat for many forms of life; it may be human, animal and plant (Opoku-Agyemang, 2005). The household wise water utilization statistics has also been worked out through personal interviews conducted during the field visits. For this purpose a questionnaire was framed. Questions are related to domestic, agriculture, livestock and industrial water use and requirement has also been incorporated accordingly.

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Problems and Prospects of Ground Water Resources in Pune District of Maharashtra

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Abstract

Based on the data obtained from Central Ground Water Board, Ministry of Water Resources and empirical data collected personally and attempt has been made in this paper to identify the status of ground water level in Pune District of Maharashtra. In order to suggest remedies for elevating ground water levels and improve upon the water quality, a careful investigation of exciting problems has been made. It is found that, the potential yield of ground water is medium at most of the places while, ground water is suitable for irrigation with low level risk. Low rainfall and heavy use of ground water in the study area lead to decline of ground water level. The industrial influent and domestic sewage release are responsible for deteriorating the quality of ground water at some places. Over irrigation is responsible for salinization of ground water. Thus various measures have to be taken in view of qualitative and quantitative improvement of ground water. The present study may prove to be of some help in ground water management of the study area.

Keywords: Pune, Ground water level

Introduction

Groundwater, which is in aquifers below the surface of the Earth, is one of the Nation's most important natural resources. The importance of groundwater for the existence of human society cannot be overemphasized. Groundwater is the major source of drinking water in both urban and rural India. Groundwater is the source of about 33 percent of the water that county and city water departments supply to households and businesses (public supply). It provides drinking water for more than 90 percent of the rural population who do not get their water delivered to them from a county/city water department or private water company. Besides, it is an important source of water for the agricultural and the industrial sector. About 42 percent of the water used for irrigation comes from groundwater. Being an important and integral part of the hydrological cycle, its availability depends on the rainfall and recharge conditions. Till recently it had been considered a dependable source of uncontaminated water. Withdrawals of groundwater are expected to rise as the population increases and available sites for surface reservoirs become more limited.

Study Area

Pune district is located between 17°54' to 19° 24'North latitude and 73°10' to 75°10' East longitude. The district has geographical area of 15,642 sq.km (Census, 2011). Pune district is bound by Ahmadnagar district on north-east, Solapur district on the south-east, Satara district on south, Raigad district on the west and Thane district on the north-west. The landscape of Pune district is distributed triangularly in western Maharashtra at the foothills of the Sahyadri Mountains and is divided into three parts: "Ghatmatha", "Maval" and "Desh". Pune district forms

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A Delineation of Crop Diversification of Bawada Circle in Indapur Tahsil (Pune District)

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Abstract :

In this paper an attempt has been made to analyze crop diversification in study area. Ten major crops have been considered for analysis. Crop diversification is one of the technique delineating agricultural regions. The factors like rainfall and irrigation affect crop diversification. The study area though experiences semi-arid climate, has the irrigation facilities due to canal and backwater of Ujjani dam. The primary and secondary data are collected and crop diversification is done using Gibb's Martin Index.

General Introduction :

The agriculture is a basic activity of human beings since ancient period. Agriculture contributes 27 percent to India's total national income. 62 percent population is associated in the agriculture activity and 90 percent of rural population is engaged in agricultural and allied activities. Agriculture provides raw materials to small as well as large scale industries and much of export items. (Davis, 1982) Agro-based industries give output and employment to many people. Rainfall is vital and instrumental in case of Indian agriculture. The present paper is attempted to study the landuse pattern in *Indapur*tahsil in Pune district for its better landuse planning. The regional survey of landuse and its mapping is made by *Patrick Geddes*, Later, on Late *L. D. Stamp* in Britain (1930). This is perhaps, the first attempt to survey the land. Many geographers, economists and planners have further attempted for landuse planning. The *Indapur*tahsil is one of the tahsils in Pune district consisting of 143 villages and only three urban settlements. *Indapur* Tahsil is situated in South-east side of Pune district; it lies entirely in the *Bhima-Nira* basins. The present study has attempted to study the crop diversificationof *Bawada* Circle in *Indapur*tahsil (Pune district) for its better landuse planning and management for the development of circle.

Study Area :

The *Bawada* Circle is one of the circles in *Indapur*tahsil consisting of 18 villages. Geographically, this area extents from 17.894959° to 18.072995°North latitudes and 74.940695 to 75.135104°East longitudes The study area experiences semi-arid climate. Month April, May and June are the hottest months with maximum mean temperature of 40° centigrade Temperature gradually reduces in December and January with minimum mean temperature 12 ° centigrade. The medium black and deep black soils appear within study area. The soil fertility encourages growing various crops like Sugarcane, *Jawar*, *Bajra*, Wheat, Vegetables etc.

Morphometric Analysis of Linear Aspects of Upper Neera River Basin, Maharashtra

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Abstract

Watershed managers require understanding and synthesizing hydrologic response of river basin for which they have started looking into its basin characteristics or morphologic features and establish connection of fluvial geomorphology to hydrology. According to Strahler (1968), the science of geomorphology treats the origin and systematic development of all types of landforms and is a major part of Physical Geography. Drainage basin is an ideal unit of the earth surface for the study of its landform. Therefore the present study deals with the quantitative analysis of selected drainage basin. Using drainage basin as a basic unit in morphometric analysis is the most logical choice because all hydrologic and geomorphic processes occur within the drainage basin. Measurement of shape, or geometry, of any natural form- be it plant, animal, or relief feature- is termed as morphometry (Strahler, 1957). Systematic description of the geometry of a drainage basin and its stream channel system requires measurement of linear, areal and relief aspect of drainage network. In current research paper only linear aspects are analyzed such as stream order, Stream numbers, bifurcation ratio, stream length, mean stream length and stream length ratio.

KEYWORDS : Morphometric, drainage network, linear aspects.

Introduction

River basin and its characteristics are controlled by nature and its hydro-climatic parameters are mostly interrelated with each other. Watershed managers require understanding and synthesizing hydrologic response of such basin for which they have started looking into its basin characteristics or morphologic features and establish connection of fluvial geomorphology to hydrology. Geomorphology is the study of landforms (valley, gorge, waterfall, cavity, sand-dunes). Worcester defines geomorphology, the interpretative description of relief features. (Worcester, 1948) Drainage basin is an ideal unit of the earth surface for the study of its landform (Singh S. a., 1974). Therefore the present study deals with the quantitative analysis of selected drainage basin. (Singh S. a., 1974)Using drainage basin as a basic unit in morphometric analysis is the most logical choice because all hydrologic and geomorphic processes occur within the drainage basin. The landscape as well as relief features play a dominant role to influence source of transportation, location of cities and agriculture field so their study is great importance and interest to geomorphologist. The aim of the watershed management is to conserve the soil and water resources, so as to achieve improvement in the agriculture. So the emphasis is on the development of regional resources.

Study Area

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Study of Total Dissolved Solids (TDS) of Water in Indapur Taluka

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Abstract

The present study was undertaken to know the variation in Total Dissolved Solids (TDS) of various sources of water i. e. Ujjani reservoir, open well and bore well located in Indapur taluka. The study was carried out over a period of one month. In India there are enormous number of natural and manmade water bodies used for various purposes, mainly for drinking and agriculture. One of the most severe problems in arid and semi- arid regions is high concentration of salts in soils and water resources. Thus, water quality and its management have received much attention in developing countries. The present study is aimed at assessing the Total Dissolved Solids (TDS) for water quality of sources of water and find out the causes of increased TDS. The analysis reveals that the surface water of the area needs some treatment before consumption; and it also needs to be protected.

Keywords: Total Dissolved Solids, Water quality

Introduction

Ground water is a good source of fresh water available on the earth. It is the important renewable resource having several inherent advantages over surface water (Sinha, 1945). Hence it is very important to assess the ground water quality not only for its present use but also from the view point of a potential source of water for future consumption (Kotadiya, et al, 2013). Water sources available for drinking and other domestic purpose must possess high degree of purity, free form chemical contamination and micro organism (Borul and Banmeru, 2012). Water is also one of the most important factors for every living organism on this planet. The quality of water is getting vastly deteriorated due to unscientific waste disposal, improper water management and carelessness towards environment, which has also led to scarcity of potable water affecting the human health (Agarkar, 2003).

In India there are enormous number of natural and manmade water bodies used for various purposes, mainly for drinking and agriculture. However, in recent years due to rapid urbanization industrialization and modern agricultural activities, the quality of water bodies deteriorated causing environmental hazards. Due to the growth of population, and man-made activities, the quality of water is deteriorating everywhere (Datye, 1984). Thus, water quality and its management have received much attention in developing countries.

For this research, Indapur taluka is selected as study area because it is one of the talukas of Maharashtra which is fall under drought prone area. Water quality of eastern area of Indapur taluka is very poor. In this research paper water quality of Indapur taluka is assessed.

Study Area

Indapur taluka is situated in Pune district. The northern and eastern border is demarcated by Bhima in Pune and Solapur districts while southern boundary is confined by Neera in Pune and Satara and Solapur districts. The region extends between 17° 53´ to 18°

15. Evaluation of Computer Assessed Learning Module for the Topographical Map Interpretation Skill

Dr. Mahammad Mulani
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Department of Geography, Arts, Science and Commerce College, Indapur, Dist. Pune.

Abstract

Teaching and learning is one of the processes of education system in all over the world. Various teaching and learning methods are implemented in education system like lecture method, discussion method, seminar method, tutorial method etc. by teachers, professors and persons who is working in education and research fields. ICT (Information and Communication Technology) have been using in teaching-learning process since two to three decades. Computer and various software are used in teaching to provide information and knowledge effectively for students. James Kulik (1994) used research technique called meta-analysis to aggregate the findings from more than 500 individuals research studies of computer-based instruction. Computer-assisted Learning software seems to be a promising option for undergraduates, as it not only provides them in-depth knowledge to visualize live experiments on a computer screen but also helps them to self-assess their acquired knowledge through a series of multiple choice questions (Govindaraja C, et al, 2011). In the present study, Computer-assisted Learning Module is used for the geography subject. We found that Computer Assisted Learning Module is effective method which increases the skills of Topographical map interpretation.

Keywords: Teaching, learning, Computer Assisted Learning Module, Topographical Map.

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Computer-assisted Learning software seems to be a promising option for undergraduates, as it not only provides them in-depth knowledge to visualize live experiments on a computer screen but also helps them to self-assess their acquired knowledge through a series of multiple choice questions (Govindaraja C, et al, 2011). Geography is description and distributional study

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Spatio-Temporal Analysis in Agricultural Cropping Pattern of Indapur Tahsil, Pune District (Maharashtra)

Miss. Ghuge Radhika Dashrath.
Arts, Science and Commerce College,
Indapur Dist. Pune (Maharashtra)

Abstract:

Agricultural land use means cultivation of crops during the agricultural year on a certain piece of land. The present study is related to the changing agricultural land use in Indapur Tahsil, Pune district. The Indapur Tahsil is one of the Tahsil in Pune district which consist of 143 villages. Geographically, this area extents from 17° 53´ to 18° 15´north latitudes and 74° 35´ to 75° 8´east longitude. Indapur Tahsil lies in southeast of Pune district with geographical area of 1,569.76 square kilometers.

The Spatio-temporal analysis of ten selected crops has been studied in Indapur tahsil. In study area sugarcane, corn and fodder crops have increased, reason behind it the sugarcane are main commercial crop now day's sugar, Gur factories as well as Dairy farmers purchasing it for the Making a Sugar, Gur, and Animal Fodder. The share of Jowar, Sugarcane and Some extent fodder crops are growing fast because it supported Animal husbandry. But jowar, wheat, bajara, fruits, oilseed and pulses have declined percent in this tahsil during the study period. Sugarcane is first ranking crop occupying 38.89 percent to net sown area. Sugarcane was cultivated on 22.60 percent in 2001 which is increased by 16.29 percent in 2016

Keywords: Land use pattern, cropping pattern, Agricultural land use, Spatio-temporal variation.

Introduction:

Agriculture is the basic occupation of the people. Agriculture provides food grains to human beings and fodder for animals. There is rapid growth of industry and service sector in modern India. But agriculture is still an important economic activity. The rural economy is still based on agriculture. The present study focuses on spatio-temporal distribution of agricultural crops in Indapur Tahsil.

The spatial distribution and their temporal variations have been studied for the period from 2001-2016. The data regarding crops of 143 villages collected from agriculture office, Indapur. The collected data converted into percentage to net sown area. After that, these crops percentage were arranged into different groups and finally, spatial distribution was studied for ten crops in study area. The study of temporal variation of crops in study region was computed for 16 years (2001-2016).

Study Area:

Indapur Tahsil is selected for the study. The Indapur Tahsil is one of the Tahsil in Pune district including of 143 villages. Geographically, extent of study area is from 17° 53´ to 18° 15´north latitudes and 74° 35´ to 75° 8´east longitudes. The area of Indapur Tahsil is drained by Bhima on north and east sides and the Nira River in south side. The study area lies in southeast of Pune district, it is surrounded by Baramati Tahsil in west side, Daund Tahsil in northwest side, Satara in southwest side and Solapur district belongs to east, south and north side. The geographical area of Indapur is 1,569.76^2 km.

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अठराव्या शतकातील पुणे प्रांताचे कमाविसदार

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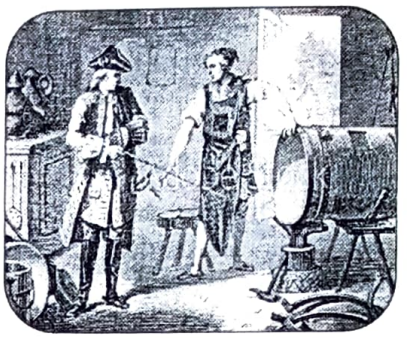
- **प्रास्ताविक–**



१७ व्या शतकात मराठी राज्याचा उदय झाला. छत्रपती शिवाजी महाराजांनी स्वराज्याचे प्रशासन उभारले. 18 व्या शतकात मराठी राज्य साम्राज्यात रुपांतरीत झाले. त्याचबरोबर मराठा राज्यव्यवस्थेत बदल झाले. प्रशासकीय व्यवस्थेत सुद्धा बदल झाले. 18 व्या शतकातील प्रशासकीय व्यवस्था ही कमाविसदारी व्यवस्था होती. या काळात वतनी अधिकार्यांचे महत्व कमी झाले. देशमूख, देशपांडे यांचे आक्रसले आणि कमाविसदार नावाच्या अधिकार्याच्या कार्याचा विस्तार झाला. महाल हा तत्कालीन प्रशासकीय व्यवस्थेतील मुलभूत घटक बनला. महालांचा आकार अगदी दहा गावांपासून एखाद्या सुभ्याएवढाही असे. हा एक प्रकारे महसूली एकक बनला. महसूली आकारणी, नोंदी, हिशोब, वसूली यासाठी हे मध्यवर्ती घटक बनले.

- **कमाविसदारी व्यवस्था–**

मराठेशाहीच्या विस्ताराबरोबरच स्थिर प्रशासन ही अत्यंत महत्वाची बाब बनली. मराठी राज्यविस्तारास टिकविण्यासाठी प्रशासकीय स्थौर्य आवश्यक होते. कमाविसदारी व्यवस्थेने साम्राज्यास स्थिरता दिली. वर्तामान काळातील जिल्हाधिकार्याप्रमाणे तत्कालिन कमाविसदार हा त्या महालाचा प्रमूख असे. त्याला मोठे अधिकार असत. कमाविसदाराप्रमाणे मामलेदार नावाचे अधिकारीही या काळात दिसतात. मामलेदाराची कार्यकक्षा मोठ्या प्रदेशाची असावी असे मत डॉ. सुरेंद्रनाथ सेन यांनी व्यक्त केले आहे.[1] मामलेदार वा कमाविसदार त्या महालाचा हिशोब ठेवित असे आणि तो हिशेब प्रत्यक्ष मध्यवर्ती शासनास जमा केला जात असे.[2]

कमाविसदारास वर्षाच्या सुरुवातीस अथवा कमाविसी नेमनूकी वेळी आजमास दिला जात असे. या आजमासाच्या कागदाच्या विवरणात जमा व वसूलाची माहीती दिलेली असे. त्यानूसारच त्याला वसूली करावी लागे तसेच खर्चही करावा लागे.[3]

- **कमाविसदारांचे अधिकार व कार्य–**

1. दिलेल्या प्रदेशातून रयतेकडून महसूल वसूली करणे.
2. दरसाल पिकपहाणी करणे.
3. पाऊस न पडला, अतिरिक्त पडला, शत्रूचे आक्रमण यातून रयतेचे नुकसान झालेस कमी–अधिक सूट देने, हप्तेबंदी, मुदतवाढ इत्यादी उपाययोजना करणे.
4. महसूल थकल्यास वसूली करणे.
5. तंटयांचे व गुन्ह्यांचे तपास, निवाडे करणे, शिक्षांची अमलबजावणी करणे.

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Physical Exercise is part of Our Life

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Abstract:

In today's world physical exercise is essential. Exercise plays a vital role in preventing health diseases and stroke. Human body is a composition of various systems, it is necessary to keep these systems fit and in good working conditions. These systems will function properly if there be a kind of co-ordination between them. Such kind of co-ordination can be developed with the help of various physical activities. Various kinds of physical exercises help in developing the organic system and functioning of the body. They also improve the abilities of human being to resist fatigue, to remain active and perform efficiently. Man can live healthy and better life only by doing physical exercise. Physical exercise is not only about having a sound physical health but is also concerned about various other aspects of the personality of any individual. It works towards shaping the overall personality of a human being. Through physical exercise man can live his day to day life healthily. Physical exercise plays important role in man's development and proves helpful for better physical, mental, social, emotional and spiritual life.

Introduction

Physical exercise is widely recognized as the best way to keep the body healthy and active. Neglect of bodily health can be disastrous for us. It causes several physical and mental problems. Slowly our body becomes vulnerable to many diseases. His energy and beauty is lost early. He grows old early. Strength, stamina and power of concentration decline.

A sedentary lifestyle and a lack of physical activity can take a toll on a person's body. Physical inactivity is associated with an increased risk for certain types of cancer, numerous chronic diseases, and mental health issues.

Regular exercise and physical activity promotes strong muscles and bones. It improves respiratory, cardiovascular health, and overall health. Staying active can also help you maintain a healthy weight, reduce your risk for type 2 diabetes, heart disease, and reduce your risk for some cancers.
In other words, staying active is a crucial part of maintaining good health and wellness.

Importance of fitness:

Physical fitness is one of the most vital aspects that determine the quality of life lead by any person. Fitness does not only refer to being physically fit, but also refers to a person's mental state as well. If a person is physically fit, but mentally unwell or troubled, he or she will not be able to function optimally. Mental fitness can only be achieved if the body is functioning well. You can help relax your own mind and eliminate stresses by exercising regularly and eating right. A healthy lifestyle ensures a better health and this is the reason that right eating habits along with the required exercise is known to be the key to a sound physical health.

People who are physically fit are also healthier, are able to maintain their most optimum weight, and are also not prone to cardiac and other health problems. In order to maintain a relaxed state of mind, a person should be physically active. A person who is fit both physically and mentally is strong enough to face the ups and downs of life, and is not affected by drastic changes if they take place.
Becoming physically fit requires a change in life style as well. A person will have to incorporate a regular exercise routine in his life and also eat healthier. By avoiding junk foods, fizzy drinks, bad habits like