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Study of Possible Ecotourism Hot spots around Gagron Fort and differentiate from Tourism: A Field Survey

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Abstract

Probably when man has learned to walk, he is travelling for food, safety and to earn resources (trade). Each improvement in technology increased opportunities for individuals to travel. The Gagron fort is an example of Hill and water fort, surrounded by Kalisindh and Ahu river by three sides, both are the two major rivers of Jhalawar district, the fourth side is adjacent to Mukundara Hills the newly declared Tiger reserve of Rajasthan. Gagron Fort was declared as World Heritage site in 2013, at the 37th session of the World Heritage committee by UNESCO. Being most humid and having highest annual rainfall in Rajasthan, there are much more possibilities for the flora and fauna in Jhalawar. Gagron Fort is favourite place of Vultures and famous Gagroni Parrot (Rai Mitthu), seasonal water bodies near Gagron become Bird watching points specially in summer season, there are many aquatic plants near both rivers and vast of terrestrial plants at adjacent Mukundara Hills. Rich Biodiversity attracts more tourists which is beneficiate to local people as well as government. Not only ecological but also economically Gagron fort could be an important ecotourism site for Rajasthan. There are many sites of ecotourism to explore around it. This research paper is based on the author's field survey, in which he observed various sites here and identified some special areas. Which, if developed in a planned manner, can prove to be hot spots of Ecotourism.

Keywords: Ecotourism, Biodiversity, Field Survey.

Introduction

Jhalawar range is situated in the southeastern district of Jhalawar in Rajasthan state of India. It is a part of Hadoti region of Rajasthan and lies at Malwa Plateau (Chourasia et.at, 2011). This area falls in the territorial forest division of Jhalawar district ($24^0$37' 40.57' N, $76^0$10'58.64'E). The average annual rainfall of Jhalawar is 35 inches (890mm) which is the highest for Rajasthan state (www.jhalawar.nic.in).

Ecotourism was first conceptualized in the early 1980s as a kind of travel in which people enjoy it without harming nature and to study the culture of that tropical place. It became an official definition in 1982 when it was included in the Oxford Dictionary as "Organized holidays that are designed so that the tourists damage the environment as little as possible, especially when some of the money they pay is used to protect the local environment and animals. "

Origin of the term Ecotourism

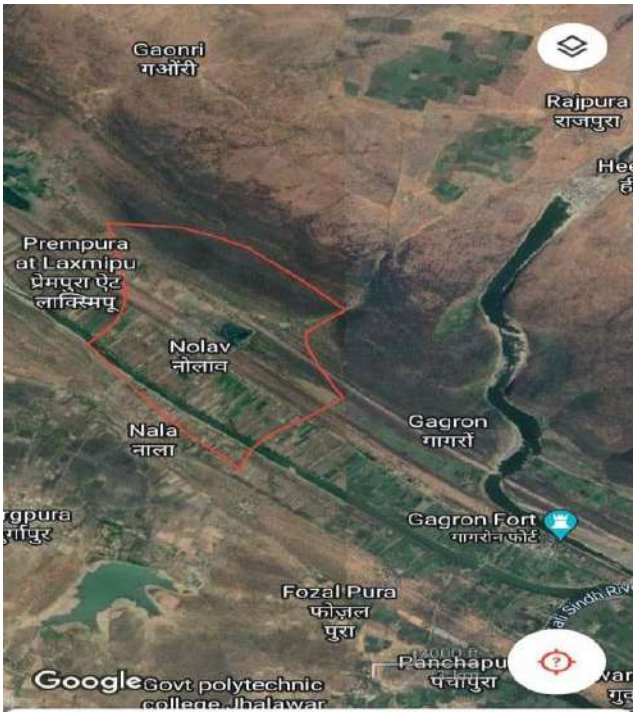
As Weaver and Lawton (2007) state, the term Ecotourism began to appear in the tourism journals in the late 1980s. ecotourism has reached in critical juncture in its evolution (Arlen 1995)

Environmental organizations have generally emphasized that only tourism Nature-based, continuously-managed, conservation-supported and environmentally-educated should be described as ecotourism (Baez and Rovinski 1992; Boo 1990; Ceballos-Lascurain 1992; Eber 1992; EAIPR 1992; Figgiss 1993; Lee and Snepenger 1992, Richardson 1993a, 1993b; Swanson1992; Young 1992; Young and Wearing 1993; Ziffer 1989)

Research Methodology

The present study is based on author's field survey, primary data collected through direct contact with tourists and local people. The sites for collecting data were Pipaji temple, Ganesh ghat, Gagron fort, bagher valley, Nolav Talab, banks of Kalisindh and Ahu river. Secondary data were collected from different departments of government i.e. tourism department, water supply department and Forest department. Data Collected between June 2022 to August 2022 by many field visits.

Site Map



Ecotourism Hot Spots surrounding Gagron Fort:

The hidden and unexplored places surrounding of Gagron fort with their importance is divided as follows :

S.No.	Name of observed places	Fields of Importance
1.	Main Fort (Gagron)	Religious, Socio-Cultural
1.	Dargah Mitthe Shah	Religious, Socio-Cultural
2.	Saint Pipa Temple	Religious, Socio-Cultural, Ecological
3.	Balinda/Ganesh ghat	Religious, Ecological
4.	Nolav Talab	Ecological, Tourism, Bird Watching

Results and Discussion

When we talk about Ecotourism, we are talking about preserving the place, community and promoting active participation with hosts where we are travelling to make meaningful contribution in their economy is well. As we know it contains travel and conservation in itself, so a brief comparison of these three terms is necessary. There is a lot of confusions here in Travelling and Ecotourism, so we first find the differences in them:

Sr.no.	Points of Discussion	Travel	Ecotourism
1.	Meaning in terms	Journey to a place of interest.	Responsible tourism
2.	Economic Benefit	benefit Only corporate	Economically beneficial to hosts as well as corporate
3.	Effect on Environment	Does not benefit nature in any way but harm it.	Not only conserves natural habitats but also sustains them.
4.	Cultural integrity	Restrict tourists to travel and enjoy the natural areas only.	This emphasizes and promote their language, knowledge and culture.

Conclusion

Everyone who involved in tourism should take responsibility of environmental issues. The comparison done in table 1 to differentiate ecotourism from tourism and is clearly only one of many possibilities. This could be expanded and elaborated indefinitely. The paper develops an ecotourism framework drawing on the works of Ralf Buckley(1994). Although it integrates the various topics that have been raised in the previous discussion of tourism, environment and ecotourism. Much of this applies to broad sectors of the tourism industry, including ecotourism.

There are much more possibilities of Ecotourism and the sites covered by author can be develop as Ecotourism Hot Spots. The paper stresses the need of such studies to encourage ecotourism and efforts to generate revenue for the betterment of society.

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Different Protocols of Synthesis of Metal nanoparticles

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Abstract

Nanotechnology is a fast evolving scientific topic that has attracted a lot of attention in recent years due to its wide range of applications. Nanotechnology is a process for application and handling of materials at very small scales i.e. 1–100 nm. The materials at this scale exhibit significantly different properties compared to same materials at larger scales. Synthesis of Metal nanoparticles are followed by so many physical, chemical and recently green methods. Metal nanoparticles (MNPs) are used in different fields. The new nano-based entities are being strongly manufactured and incorporated into everyday personal care products, cosmetics, medicines, drug delivery, and clothing to impact industrial and manufacturing sectors.

Keywords: Nanotechnology, Metal nanoparticles, Physical, Chemical, Biosynthesis methods.

Introduction:-

Nanotechnology is concerned with nanoparticles with at least one dimension of 1 to 100 nanometers. Nanotechnology is becoming an emerging field in recent years and is getting more attention due to its wide variety of potential applications in optical, biomedical and electronic fields [1]. Nanomaterials usually have large surface area that is more chemically reactive, in addition to this it can also in a position to bind, adsorb and carry other particles such as probes, drugs and proteins to the site of action [2]. Different preparation methods have been used
for the formation of Nanoparticles along with controlled structure and size.

Approaches to synthesis of Nanoparticles:-

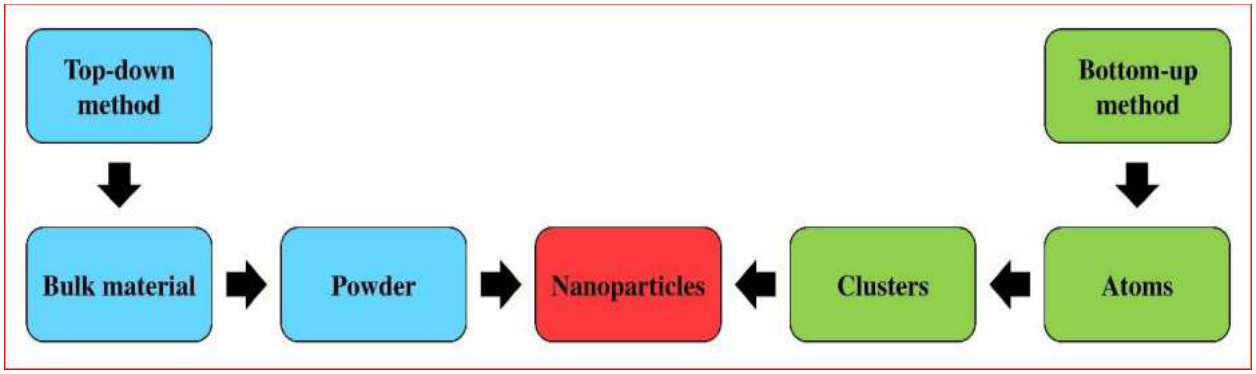

Figure 1. Synthesis Approach

Top down Method

The synthesis of Metal nanoparticle may be done by using Top down method. This method is also named as destructive method in which reduction of bulk material takes place into nano scale particles. Laser ablation, Sputtering, Mechanical milling, Electro-deposition, are some of the most widely used nanoparticle synthesis methods [3].

Laser ablation.

It is a solvent based method in which production of nanoparticles are takes place by different solvent. The irradiation of a metal submerged in a liquid solution by a laser beam condenses a plasma plume that produces nanoparticles [4]. By using this method carbon based and metal oxide based nanoparticles are synthesized.

Mechanical milling

It is a reliable top-down method that provides an alternative solution to conventional chemical reduction of metals to synthesis metal based nanoparticles. The mechanical milling is used for milling and post annealing of nanoparticles during synthesis where different elements are milled in an inert atmosphere [5]. In mechanical milling process metal, oxide and polymer based nanoparticles are synthesized.

Sputtering

Sputtering is the deposition of nanoparticles on a surface by ejecting particles from it by colliding with ions [6]. Sputtering is usually a deposition of thin layer of nanoparticles followed by annealing. The thickness of the layer, temperature and duration of annealing, substrate type, etc. determines the shape and size of the nanoparticles [7]. Using this method metal based nanoparticle are formed.

Bottom up approach:-

Bottom-up or constructive method is the assemble of material from atom to clusters to nanoparticles. Sol-gel, spinning, chemical vapor deposition, and biosynthesis are the most commonly used bottom-up methods for nanoparticle production [8].

Sol-gel.

The sol is a colloidal solution of solids suspended in a liquid phase and the gel is a solid macromolecule submerged in a solvent. Sol-gel is the very useful bottom-up method due to its simplicity and as most of the nanoparticles can be synthesized from this method. In wet-chemical process containing a chemical solution acting as a precursor for an integrated system of distinct particles. In sol-gel process Metal oxides and chlorides are the typically used as precursors [9].

Spinning. The synthesis of nanoparticles by spinning is carried out by a spinning disc reactor (SDR). The reactor is generally filled with inert gases to remove oxygen inside and avoid chemical reactions [10]. The spinning causes the atoms or molecules to fuse together and is precipitated, collected and dried [11]. The

various operating parameters such as the liquid flow rate, disc rotation speed, liquid/precursor ratio, location of feed, disc surface, etc. determines the characteristics nanoparticles synthesized from SDR.

Chemical Vapor Deposition (CVD)

Chemical vapor deposition is the deposition of a thin film of gaseous reactants onto a substrate. A chemical reaction occurs when a heated substrate comes in contact with the combined gas [12]. Result of this reaction is a thin film of product on the substrate surface that is recovered and used. Substrate temperature is the influencing factor in CVD. The advantages of CVD are highly pure, uniform, hard and strong nanoparticles.

Bio synthesis

Bio synthesis, a bottom-up approach, is similar to chemical reduction but in this method expensive chemical reducing agents are replaced by extract of a natural product such as leaves of trees or fruits, bacteria and fungi etc. for the synthesis of metal or metal oxide NPs. These biological entities acquire capping and stabilizing agents which are required as growth terminator and for inhibiting aggregation/ agglomeration process [13,14].

Conclusion

Nanotechnology gives different way for the application and handling of materials at nano-scales. In this paper we discuss about various methods but green synthesis method is the most appropriate and sustainable to synthesize nanoparticles. The reaction provided an environmentally friendly, simple, and efficient route for synthesis of nanoparticles Biosynthesis has suggestively enhanced NPs production without the application of toxic conditions and chemicals. It prevents waste accumulation and suggest us for the development of degradable products.

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Oxidative decomposition of organic Pollutants in presence of biosynthesized Iron nanomaterials

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Abstracts: The present study reports stable dispersed nanosized iron nanoparticles (FeNps) were prepared by the biosynthesis process without any protecting gas. The biomolecules present in leaf extract act as reducing and stabilizing agent in an aqueous medium. The formation of FeNps was characterized by UV visible spectrophotometric and Fourier transform infrared spectrophotometric techniques. The study reports the maximum absorption peak of UV Visible spectra observed at 250 nm wavelength and FTIR peak at 3000cm^{-1} confirms the formation of zerovalent iron nanoparticles. The synthesized nanoparticles were applied as a catalyst in the degradation of orange G in presence of peroxomonosulphate (PMS). The biosynthesized Fe-NPS is expected to be a suitable substitute and play a significant role in the field of catalysts and environmental revolution.

Keywords: Iron Nanoparticles, Azadirachta Indica (Neem), Orange G, Catalyst, oxidative degradation.

Introduction: Contamination of water by anthropogenic pollutants poses major environmental hazardous and motivates the development of efficient, cost-effective water treatment technologies[1,2].While established water treatment technologies seem quite mature, so that performance improvement appears less likely, nanotechnology may offer great opportunities to undoubtedly upgrade process performance and significance[3,4] Specifically the unique properties of nanoparticles may increase catalytic activity and lead to significant enhancement of process performance by reducing reaction time and overall chemical demand [5,6].

The advanced oxidation process (AOP) is the name given to several oxidation methods that are based on the generation of strong free radicals for destroying organic pollutants present in anthropogenic sources. Furthermore, persulfate and their product (SO_4^{-2}) have the least effect on natural organisms[7]. Additionally, the sulfate radical (E^0 =2.5-3.1v) generated in activated persulfate systems is more selective for the degradation of organic compounds with carbon-carbon double bond and aromatic rings[8].Thermal radiation[9]. U.V. light[10] and transition metal[11] are the main technologies for persulfate activation. Therefore, it is a great interest to develop low cost, highly effective methods for the activation of persulfates for dye removal processes. Transition nano-metal activated peroxomonosulphate (PMS) technology has been successfully applied to degrade organic pollutants[12]. Among various transition metal ion, iron-mediated decomposition of PMS is an efficient catalytic system to generate SO_4^- as the major oxidizing species[13]. The nano

mediated FeNPs/PMS system for the degradation of organic pollutants has shown a lot of interest due to its significant effectiveness under different experimental conditions.

2. Experimental: -

2.1 Material & Method:-

Peroxomonosulphate ($2KHSO_5.KHSO_4.K_2SO_4$ 95%) (Sigma-Aldrich), Ferric chloride (E. Merck), orange G. and other reagents employed analytical grade. Azadirachta Indica (Neem) leaves were collected from Kota (Rajasthan) India. Double distilled water was used throughout the study.

2.2 Characterization techniques:-

Characterization of synthesized nanoparticles is significant to understand the synthesis process and morphology of particles. The formation of FeNps, preliminary confirmed by U.V. visible spectroscopy by sampling the reaction mixture at different intervals of time and maximum absorption spectra were obtained in a range of wavelengths between 200-450 nm using (U.V 3000^+ LAB.INDIA) double beam spectrophotometer. The functional group of biomolecules present in Neem leaf extract was analyzed by ALPHA- T Bruker Germany FTIR (Fourier Transformation Infra-Red) spectrometer.

Results and discussion:

3.1 Characterization of iron nanoparticles :

The biosynthesis of FeNps has confirmed the color of dispersion changed from bright yellow to brownish-black shown in fig.1, indicates the reduction of Fe^{+2} into Fe^0 particles can impart such color. The recent studies report that the optical properties of metal nanoparticles depend upon the size and shape, thus the optical response of nanoparticles can be controlled geometry and size of nanoparticles. During the synthesis process is an aqueous solution, optical spectroscopy can be used as a primary tool for confirmation for metal nanoparticles. The absorption peak obtained maximum at 250 nm, which can be confidentially ascribed to SPR of Fe^0 particles or FeNPs formation.

Fig.1. Color change during the Fe nanoparticle synthesis process.

3.2. Peroxomonosulphate dependence - Peroxomonosulphate plays an important role as a source of sulfate radicals and activated by transition metals. The degradation rate constant increased from 1.2x 10^{-4} to 7.2x10^{-4} $S^{-1}$with the PMS Concentration from 1.0x 10^{-4} to 7.0x 10^{-4} mole l^{-1} The positive correlation of PMS concentration with a degradation rate of orange G suggests that PMS itself and either its secondary species supposed for the attack of dye molecules.

3.3 Dye dependence: The initial concentration of orange G varying from 1.0x 10^{-5} to 8.0x 10^{-5} mole l^{-1} at 30^{O}C and other reactant concentration constant. The result illustrates that at high concentration of orange G and constant PMS concentration, the availability of So_4^{-2} radicals are constant so degradation rate was constant.

Conclusion:

The present research reports highly stable FeNps synthesized by the Azadirachta Indica (Neem) leaf extract as an efficient, eco-friendly reducing as well as capping agent. Therefore synthesized FeNps have stability for one month at 4°C temperature without any protecting gas. The green synthesized FeNps were applied as a catalyst for the degradation of orange G. The results recommended that Fe-Nps have good potential for fast dye degradation technology.

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SYNTHESIS OF NANOPARTICLES USING PLANT EXTRACT

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Abstract

Nanotechnology is an innovative technology that deals with nanosized materials. It is a multiple areas field, which covers diverse domains from engineering, biology, physics, and chemistry. The synthesis of nanoparticles from plants is a green chemical approach that combines nanotechnology and plant biotechnology. The plant extract is used for the bioreduction of metal ions by forming nanoparticles. Plant metabolites such as sugars, terpenoids, polyphenols, alkaloids, phenolic acids, and proteins have been shown to play an important role in reducing metal ions to nanoparticles and aiding their subsequent stability. Green synthesis using different biological entities can overcome many destructive effects of physical and chemical techniques. Biological synthesis is preferred today because it is safe, clean, inexpensive, and scalable for well-designed NP scale syntheses.

Key Words: Nanotechnology, Nanoparticles, Green synthesis, Plant Extract

Introduction

Nanoscience is a multidisciplinary technology that deals with physics, chemistry, medical and materials science. Nanotechnology is sometimes proffered as a general purpose technology because in its advanced version it will have significant impact on almost all areas of society and all industries. (1) The word “nanotechnology “was given by Norio Taniguchi belongs to Tokyo University of Science. The prefix ‘Nano’ comes from the Greek word, which means “dwarf” refers to object one billions in size (2). The technology used in practical applications such as devices is known as nanotechnology. Nanotechnology includes two main approaches: (i) top-down approach that reduces the size of the larger structure at the nanoscale while maintaining the properties of the original atoms which are uncontrollable or decay from a larger structure to a smaller one. (ii) the bottom-up approach, also known as "molecular nanotechnology" or "molecular production", was introduced by Drexler et al. (1) Nanoparticles are very important for the development of sustainable technology for the future, for humans and the environment. Nanoparticles can be divided into different types depending on the size, morphology, physical and chemical properties.

Some of them are carbon-based nanoparticles, ceramic nanoparticles, metal nanoparticles, semiconductor nanoparticles, polymeric nanoparticles and lipid-based nanoparticles.

Green synthesis of nanoparticles

The Synthesis of Nanoparticles using plants is a green chemistry approach that interconnects nanotechnology and plant biotechnology. Nanoparticles can be synthesized using a variety of methods including chemical, physical, biological, and hybrid techniques. (3) Conventional synthesis of nanoparticles by chemical method uses chemicals that cause general toxicity and cause serious development problems that accelerate ecological processes. "Green synthesis" of nanoparticles makes use of eco- friendly, non-toxic and safe reagents. Nanoparticles synthesized using biological techniques or green technologies are synthesized in a one-step, so they are very stable and have different characteristic at the appropriate size. over the past decade, it has been shown that many biological systems, including plants and Using plant extract Steams, leaves, latex, flower, seeds Using microbes Bacteria, fungi, yeast can transform inorganic metal ion into metal nanoparticles (figure:1).

Currently there are some single metal nanoparticles and bimetallic nanoparticles are synthesized from different plant extract-

S.NO.	**PLANT PART**	**NANOPARTICLES**	**REFRENCE**
1	Citrus lemon fruits extract	Cu-NP	(4)
2	*Azadirachta Indica* leaves	Ag-NP	(5)
3	Cinnamon bark extract	Cu-NP	(6)
4	*Azadirachta Indica* leaves	Cu-NP	(7)
5	Date palm tree (Phoenix dactylifera) leaves	Cu-Ag BMNPs	(8)
6	Toddy palm	Ag-Cu and Cu-Zn BMNPs	(9)
7	Citrus sinensis (sweet orange) peels	Ag NPs , Au NPs ,And Ag−Au BMNPs	(10)

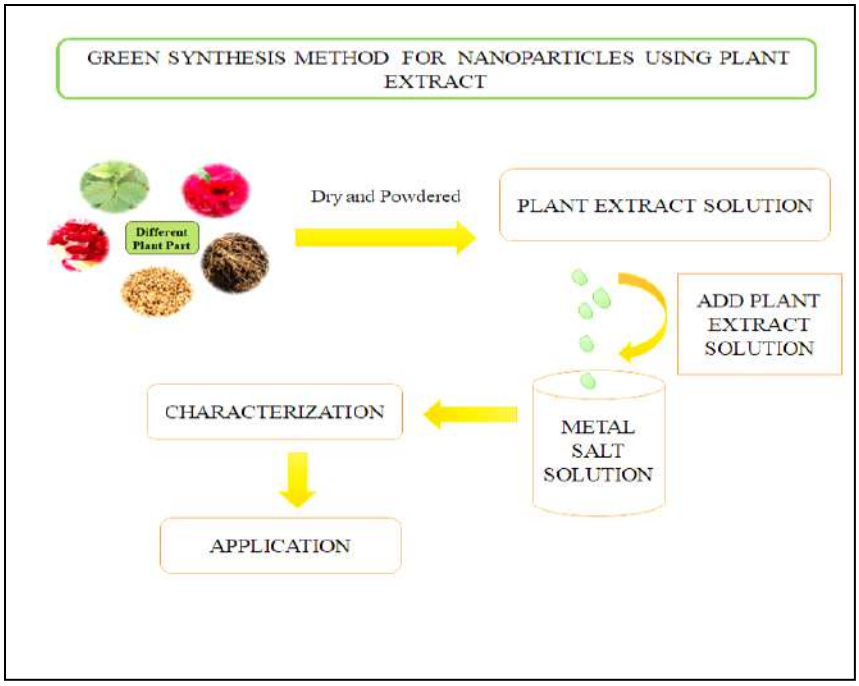

Figure 1 Green synthesis of nanoparticles

Characterization

Once the NPs are synthesized, their conformational details about shape, size, dispersity, homogeneity as well as surface morphology are determined by using various techniques .The Green synthesized nanoparticles have been characterized using UV-vis, Fourier-transform infrared spectroscopy (FTIR), scanning electron microscopy/energy dispersive X-ray analysis (SEM/EDX), x-ray diffraction (XRD) and transmission electron microscopy (TEM).

Conclusion

Plant extracts are an excellent source of phytoconstituents. The benefits of green synthesis provide a long range of options for researchers to synthesize NPs from different plant parts. Persistently, we should motivate the green synthesis of NPs from plant sources or genetically modified plant sources to synthesize NPs in a superior and more stable. The intensification of optical, biological, magnetic, electrical, mechanical, and catalytic properties is widely used for industrial scale-up and globally use in different sectors such as medicine, food, agriculture and industries.

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Trichoderma sp : An amended compost and biopesticide used as organic substrates over soil borne fungal diseases of Kota district (Rajasthan)

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Abstract – *Trichoderma* sp. are used as an amended compost organic material .It was isolated from the soil samples of selected fields to obtain a pure culture of *Trichoderma* . *Trichoderma* is used in biotechnology and microbiology labs , as it is a fresh and pure culture of *Trichoderma* sp. In a lab, *Trichoderma* species can be isolated and multiplied on a growth medium without contamination for compost preparation . The aim of this study was detecting organic substrates of *Trichoderma* spp. for their antagonistic ability, for this purpose six major agricultural fields of Kota district are selected and tricho-compost was applied over diseased vegetable crops to study the antagonistic effects of *Trichoderma* sp.

Key Words – *Trichoderma* , pure culture ,antagonistic , tricho - compost, isolation

Introduction - Soil - borne fungi are microscopic living cells which grow as minute , thin and long thread-like structures i.e hyphae . A group of hyphae is called mycelium. The mycelium absorbs all essential nutrients of the plants . Common examples of soil borne fungi are *Pythium ,Fusarium, Phytophthora, Rhizoctonia* etc. These fungi enter into the plants through haustorium and indirectly harm the living cells of the plants by making them weak, nutrient deficient , and finally death .

The harmful effect of Soil – borne fungi can be controlled by using fungicides and various chemicals , as it is the simplest and quick method applied by farmers for better yield. A huge quantity of chemicals are used to reduce the disease incidence of which is not only detrimental to the environment but are also hazardous to the human health .

There is a need so these harmful chemical control could be minimized or to be replaced by eco- friendly substances over soil – borne fungal diseases (Lockwood,1990).

Now a days , *Trichoderma* sp. are used as an amended compost material .It worked as biopesticides which protects the plants from harmful fungal diseases. *Trichoderma sp*. are natural competitors against a wide range of harmful fungi; it is added to compost material which work as an antifungal agent to protect crops in the field. *Trichoderma* is a genus of beneficial fungus present in nature. have been used as bio-control agents against plant pathogens (Harman, 2000).

The systematic position of *Trichoderma* is Division - Ascomycota, Subdivision - Pezizomycotina, Class - Sordariomycetes, Order - Hypocreales, Family – Hypocreaceae. *Trichoderma* is known from 1920 for its capability to function as biocontrol agents (BCA) against plant pathogens (Samuels, 1996).

Trichoderma show the multiple interactions with vegetable crop plants like tomato , brinjal, cucurbits , okra etc and soil borne fungal pathogens such as *Pythium ,Fusarium, Phytophthora, Rhizoctonia* etc. (Woo et al., 2006).*Trichoderma* is cultured in biotechnical lab, where a specific *Trichoderma* species can be isolated and multiplied on a growth medium without contamination as a biological control agent.

Materials and Methods –

a) Collection of Soil Samples - Soil samples were collected from different agricultural fields of Kota district for the isolation of *Trichoderma* spp. (Table 1). These samples are needs to be isolated from the soil to obtain a pure culture of *Trichoderma.*

S.No.	Name of Vegetable Crop	Place of Collection	Disease percentage
1.	Tomato	Girdharpura	26.5%
2.	Okra	Nanta	32.7%
3.	Brinjal	Manpura	18.8%
4.	Bottle gourd	Arjunpura	42.4%
5.	Bitter Gourd	Arjunpura	37.8%
6.	Beans	Badgaon	26.4%

b) Isolation of Soil Samples –Soil Samples were brought to laboratory and stored at 5°C until used. Soil -serial dilutions of each preserved samples were prepared in sterilized distilled water A wide range of media are used for isolation of different groups of fungi that influence the vegetative growth and colony morphology. The mediums used is Nutrient media i.e. Potato Dextrose Agar (extract from 250g of potato boiled and filtered, dextrose 20g, agar 15g and distilled water 1000ml) and Serial Dilution Plate Method (Waksman,1922). The pH of the medium was maintained at 5.5 being optimal for the growth and sporulation in a majority of fungi.

Soil samples are diluted up to 38 times in distilled water which is used as inoculum in a sterilized Potato Dextrose Agar (PDA) medium that allow the fungi to grow as organic substrate. From the fungi colonies in PDA growth medium, *Trichoderma* is isolated after identification by counting spores and conidia appears in petriplates. Now about 0.5 ml diluted sample was poured on the surface of *Trichoderma* Specific Medium (TSM) (Elad et al. 1982). Plates were incubated

at 28 ± 2°C for 3 days in BOD. The purified isolates were preserved at 5°C and used for preparation of tricho- compost.

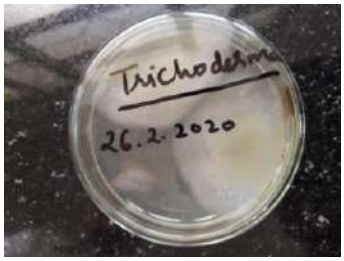

Figure 1 : *Trichoderma spp*.observed in petriplate incubated at 28 ± 2°C

c) Preparation of Tricho-compost – Tricho – compost is combination of *Trichoderma* inoculum and compositing material found in our surrounding. Following materials are used for preparation of Trico- compost .

Materials used for making Tricho - compost -

- Wood chips
- cow dung (rich in nitrogen, with a carbon & nitrogen ratio (C:N) of 8)
- Twigs , dry leaves
- Poultry manure
- Sawdust (Source of carbon)
- Vegetable matter
- Crop residues
- Wood ashes.
- Newspapers etc

Now *Trichoderma* inoculum mixed with 0.5 kg of compost (mix up of above listed material) with 2 litre of water . All these ingredients are well mixed together and then placed in the compost bin. Carefully note that the compost and inoculum was mixed up properly before being placed in the compost bin.The compost bin is kept covered for 30 days at a cool place with temperature 25-32^{o} C , so all materials get mixed up and fermented easily. After 30 days , Tricho- compost is ready to applied as a manure in fields. It should be applied at a rate of 2 to 2.5 tons/hectare to the crop field for better results.

Figure 2 : Use of *Trichoderma* as tricho- compost material

Results and Discussion – *Trichoderma*, is a beneficial fungi, as it worked over many plant pathogenic fungi. It worked as antagonistic fungi over soil borne fungal diseases. The identification of the fungal species is based on morphological characteristics of the colony and microscopic examinations (Diba et al., 2007) . Morphological observations were recorded from cultures grown on PDA plates. The Mycelium discs are 5 mm in thickness . Petri plates containing PDA media and incubated at 28 ± 2°C for one week in BOD. The radius of fungal colonial was measured about 22 mm in thickness. Some characters i.e. colony appearance , presence of pigments, green conidia, odour are also seen and recorded for further references.

Conclusion-

Tricho-compost works as a natural antifungal agent against harmful fungi which are mostly responsible for soil borne disease like *Fusarium sp* , *Rhizoctonia sp, Sclerotium sp, Phytophthora sp, Pythium sp, Sclerotonia sp* etc. *Trichoderma sp.* are used in the composting process .Tricho--compost work as growth promoter in many vegetable plants (Celar & Valic, 2005). Tricho-compost is primarily used as a soil amendment (Hudson & Berman ,1994). It improves soil structure, helpful in maintaining soil pH, improves water holding capacity etc.

Amending the soil with tricho-compost as a source of organic matter can be viewed as both a problem-solving activity and as part of ecosystem management. Hence , *Trichoderma sp* are considered safer for the environment and use of tricho-compost as a biological control methods works as a boon and new strategy for disease management and it is environment friendly too.

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AMAZINGLY NEGLECTED: DUNG BEETLE THE UNSUNG HEROES OF THE ENVIRONMENT

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Abstract

Dung beetle are the beetle which feeds on the faecal matter, they use the faecal matter for the purposes like feeding, reproduction, breeding. This divine creature have great social as well as economic importance for us such as nutrient cycling, soil aeration and reduction of carbon dioxide and methane emissions, parasitic control and secondary seed dispersal. They are also important in food webs not only as decomposers but also as prey for birds, bats and other insectivorous animals. But today even after being such natural friend of environment there is lack of awareness and information in people about these beetles. Their population is declining day by day by the activities such as use of harsh pesticides, insecticides, antibiotics given to cattle for maintaining their population and yield ,since there are least conservative practices is in force for the conservation of these divine creature we are losing the our natural cleanup crew. Strategies and policies for the conservation should come into implementation in order to conserve this super divine but yet so neglected creature.

Key Words: Dung beetle, Scarabaeidae, Coleoptera, neglected, unsung heroes of environment, friend of farmer, clean-up crew.

Introduction

Dung beetles belong to the zoological order Coleoptera (largest order which include beetles and weevil) and family Scarabaeidae. The members of Scarabaeidae (sub family Coprinae) are commonly called as Dung beetles. On the basis of behavior of handling dung, they can be classified into three categories-The Rollers which remove the balls of dung and roll it to tunnel away from dung pile. The Dwellers which burrow, lay eggs and feed with in it or just below fresh dung piles. The tunnelers which dig tunnel below dung pile, move dung into the tunnel and lay eggs. In size ranges from 2mm (0.1inch) to 60mm (2.5 inches). The front legs have serrated edges which they used for digging tunnels. Their body color ranges from black to brown to red and can have metallic appearance. Dung beetles play economically major and vital role in our ecosystem. They are often called as natural cleanup crew because they feed on dung (pastures), breakdown it into smaller balls and use it for housing and as food for their young ones and thus remove the dung pile from soil but while doing so they left behind fertilizer and that's how they do their contribution in increasing soil fertility as well as in nutrient recycling and that's why they are called as a friend of farmer. At the same time they

also destroy the breeding grounds of parasites which uses dung to lay egg, these parasites get their nourishment from moisture present in dung but the activities of dung beetles absorb all water present in dung and makes it dry and eventually this leads to the death of parasite's egg and that's how they also prevent disease transmission in domestic as well as wild animals.

Social Importance of dung beetle

Dung beetles are not just great for pasture, livestock health and the environment they are also great for us. Dung beetles play vital role in maintaining soil health and carbon storage as well as they also helps in controlling flies. Dung beetles can improve soil, reduce water runoff, reduce livestock parasites, sequester carbon and reduce emissions, improve pastures and reduce bushfly and buffalo fly populations. That's how they also prevent disease transmission in domestic as well as wild animals. They breakdown dung into smaller balls and use it for housing and as food for their young ones and thus remove the dung pile from soil but while doing so they left behind fertilizer and by this natural fertilizer we can replace artificial fertilizers for agriculture. They are also important in food webs not only as decomposers but also as prey for birds, bats and other insectivorous animals.

Negative impact of human activities

According to a new report from IUCN-Med, dung beetles are facing major losses of suitable habitats due to the decline of traditional livestock farming practices and the abandonment of rural environments, as well as chemical contamination of dung by veterinary medical products. Moreover, the comprehensive use of veterinary medical products leads to contamination of livestock faeces. The majority of these substances are poorly metabolised by livestock and expelled unaltered in their faeces, affecting non-targeted fauna such as dung beetles. It is therefore necessary to improve legislation to regulate the use of veterinary medical products for parasite control, and implement measures to prevent their unnecessary administration from causing pollution.

Need of awareness and conservation

Dung beetles influence ecosystem in many ways , they play such crucial roles in environment like nutrient cycling, dung decomposition, increase soil fertility ,prevent disease transmission and increase water holding capacity of soil by their tunneling behavior, etc. Even after being such natural friend of environment there is lack of awareness and information in people about these beetles.

Today even after being such beneficial insect for our society and agriculture, people are least concern about their conservation so that's why more research should be conduct on these

beetles so that the world can know more about them and these unsung heroes of our ecosystem can be conserved and more valued.

Conclusion

Dung beetles are really very interesting creature on this planet, they serve the society through many ways like they feed on dung or excreta of animals and got the name of cleanup crew while doing so they increase the soil fertility by enriching the soil with the nutrients. As they roll, dig, tunnel by this action they renew the soil texture, increase porosity and percolation by shifting and distributing microorganisms present in soil. By removing the dung they prevent parasite flies to lay egg in the dung and hence also a true friends of farmer.Even after being such beneficial insect there is lack of knowledge in layman about them and in today's lifestyle their population is declining just because of use of harsh pesticides as well as increased use of antibiotics injection to cattle. More awareness should be spread in common people about the good deeds of this divine creature and conservative practices should be come in force so that the population of this wonderful friend of farmers can be conserved. Policies are therefore needed to highlight the importance of preserving or introducing farming practices and livestock grazing systems that ensure that healthy natural and agricultural habitats supporting the population of dung beetle to flourish.

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Review: Different Protocols for the Synthesis of Nanomaterials

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Abstract

The current advancements in nanotechnology suggest a sustainable development in the synthesis of nanoparticles. Although there are many methods for physio-chemical synthesis, biosynthesis of nanoparticles provides an attractive alternative to chemical synthesis and physical synthesis methods. Thus, an attempt has been made to provide a clear perspective on nanoparticle synthesis and antioxidant, antibacterial, anticancer, antidiabetic and size/size dependent applications of nanoparticles.

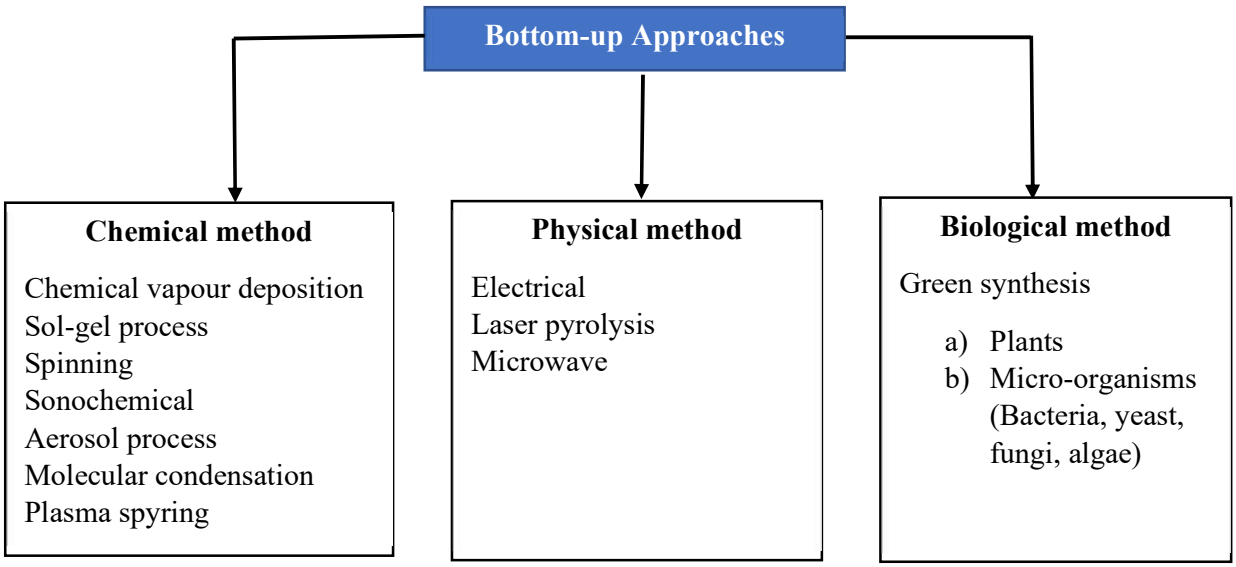
Keywords- Nanomaterials, Metal nanoparticles; Physio-chemical Synthesis; biogenic synthesis

Introduction

Nanotechnology has received remarkable attention in recent years due to its unique physio-chemical and biological properties and widespread use in diverse fields (1). The field of nanoscience, with its promise of amazing nanotechnology, is one of the most challenging multidisciplinary areas of science today (2). Nanoscale materials typically range from 1-100 nm and are an emerging area of nanoscience (3). Metallic nanoparticles are classified as monometallic, bimetallic, trimetallic etc. (4). Biosynthesis of transition metal nanoparticles is gaining importance due to their biocompatibility, low toxicity, cheap, and environment-friendly (5). Some studies of bimetallic nanoparticles structures have been reported to include core-shell nanoparticles, single alloy nanoparticles and sub-clusters (6). The biosynthesis of metallic nanoparticles is a major source of plants (7), leaves (8) and seeds (9). Nanoparticles are synthesized by physical methods produce high amounts of energy which reduce economy in nature and chemical method are hazardous in nature and affect many environmental issues (10). The biological method for the synthesis of bimetallic nanoparticles is cost-effective, eco-friendly, non-hazardous in nature and uses low amounts of energy.

Research Methodology

The top-down and bottom-up method are two approaches to nanoparticle synthesis (11). In the top-down approach, the bulk metal is converted into metal powder and the metal powder into nanoparticles. In the bottom-up approach, the metal atoms are converted into clusters and the clusters into nanoparticles. The bottom-up approaches are-



Chemical Method-

Synthesis of Ag metal nanoparticles by chemical method. These metal nanoparticles have antibacterial, antifungal, and antiviral biomedical application (12). Effect of electrolyte quantity on the synthesis of copper oxide nanoparticles by atmospheric pressure plasma electrolysis (13).

Physical Method-

Synthesis of silver nanoparticles from electrical method. This suggested process offers the perspective to effectively use these synthesized silver nanoparticles to improve the conductivity of electronically conductive adhesives (14). Synthesis of ceramic nanoparticles by laser pyrolysis the size of nanoparticles should be 5-60 nm and functional applications in various field (15).

Biological Method-

Biological method is ecofriendly, cost effective, and nonhazardous in nature. Green synthesis of silver nanoparticles using *Cynara cardunculus* leaf extract in aqueous media. The size of nanoparticles is less than 45 nm (16). Biogenic synthesis of silver nanoparticles using endophytic bacteria and their role in antibacterial activity (17). Synthesis of silver nanoparticles using red algae Portieria hornemannii and its antibacterial activity for the treatment of fish dishes (18).

Conclusion-

This review focuses on the development of improved bimetallic nanoparticles, as well as the many factors that affect nanoparticle synthesis. Since conventional growth methods of nanoparticles are expensive and produce highly hazardous products, it is important to limit toxic exposure to the environment from the many chemicals used in physical and chemical

methods. In order to detect the size, shape, distribution, surface morphology and surface area of the nanoparticles, they are subjected to different characterization techniques.

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ETHANOBOTANICAL AND PHYTOCHEMICAL STUDIES OF *Urginea indica* IN RAJASTHAN

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ABSTRACT

Urginea indica is a rare, threatened and endangered medicinal plant belongs to Liliaceae family and commonly known as Jangli Pyaz. In the present study, the ethanobotanical and phytochemical analysis and the antioxidant activity of the methanolic extract of *Urginea indica* bulbs was carried out in Rajasthan. The secondary metabolites produced by this medicinal plant are reported to have therapeutic values. The secondary metabolites like phenol, flavonoid, tannin, saponin and alkaloid have been analyzed qualitatively as well as quantitatively in this species. The quantitative estimation has revealed the highest concentration of tannins (130.10 mg of GAE/gm) in methanolic extract of *Urginea indica* bulb, whereas alkaloids (17.80 mg/gm of dry plant sample), flavonoid (13.66 mg of QE/gm), phenol (6.27 mg of GAE/gm) and saponin (4.00 mg/gm of dry plant sample) were found to be in good quantity. Considering the importance of natural products in modern phytomedicine, the antioxidant activity of *Urginea indica* extract was evaluated. The methanolic extract showed antioxidant activity by DPPH assay (IC50=51.87 µg/ml) comparable to gallic acid (IC50 =39.91 µg/ml). Such an effect might contribute to explaining the traditional use of wild onion sps, *Urginea indica* in the treatment of various chronic diseases.

Keywords: Urginea indica, ethanobotanical, phytochemical, Rajasthan, theurapeutic, chronic

INTRODUCTION

Urginea indica belonging to the family liliaceae, is a glabrous herb with polytypic genus consisting of about 99 species all over the world, 9 occurring in India [1]. It is commonly called as Indian Squill or Sea onion and locally known as jungli piyaz [2]. It is a small plant growing up to a height of 45 to 60 cm [3]. In Ayurveda, *Urginea indica* is commonly known as Bon Pollundu and has find its use both in pharmaceutical as well as in agricultural

sector [4]. Among the different parts of the plant, the bulb has been reported to have immense significant value mainly as antidiabetic, antioxidant, anticancer, dyspepsia, cardiac stimulant, in hypertension, arterio-sclerosis, in treatment of edema, dropsy, asthma, rheumatism, gout, allergies, wound healing and to treat various other disorders [5]. The other actions accredited to *U. indica* are expectorant, anthelmintic, stomachic, purgative, digestive, diuretic, in rheumatism, scabies, skin diseases, internal pain and leprosy [6]. Various chemical constituents like tannins, phenols, alkaloids, flavonoids are present in all parts of the plant, whereas steroids are solely present in the bulb [7]. Also, the bulb contains glycosides, carbohydrates, resins, quinones and saponins [8]. In the present study, the ethanobotanical and phytochemical analysis and the antioxidant activity of the methanolic extract of *Urginea indica* bulbs was carried out in Rajasthan.

RESEARCH METHODOLOGY

A thorough literature survey of the plant *U. indica* was carried out from different parts of Rajasthan. For the online literature survey, The terms " Indian squill" ," *Urginea indica*" , " *Drimia indica*" ," Ban Palandu" ," *Scilla indica*" and " Kolkanda" were searched for the online literature survey. This review consists of a comprehensive collection of the various literatures on the therapeutic activity of *Urginea indica*.

Plant description

Urginea indica is a perennial herb having fibrous roots. The roots proceeds from the base of the bulb (pear-shaped and conical) and are about six to ten inches in length. The bulbs had transparent outer scales, resembling the size of a big onion, comprising fleshy coats that are orange-brown or papery red in colour, encircling each other fully, is engrossed in the sand by three fourth. Leaves having smooth-edged grow from the bulbs in the shape of a rosette about 1– 2.5 cm wide and 15– 30 cm long. The flowers blossom in the month of April and May. A long, stiff, smooth succulent flower rises from the middle of the leaves with a high of about one to three feet, having close spike of whitish flowers, which stand on purplish peduncle [9, 10].

Urginea indica

The main active constituents of *Urginea indica* are the steroidal glycosides. A number of steroidal glycosides are present in *Urginea indica*, among which Scillaren A and proscillaridin A are found in the highest concentration in the bulb [11]. From the blub, plenty of phytochemicals were extracted, which were found to be potentially bioactive. Other elements found in the herb include steroids, esters, carbohydrates, flavonoids, saponins, antifungal glycoproteins and esters. The bulb also contains steroids which were used to cure psoriasis by the indigenous people [12, 13]. A total number of thirteen Bufadienolides were identified in both the roots and bulb [14]. *Urginea indica* has also been reported with a novel 29 kDa glycoprotein that has Antifungal acitivity [15]. 0ther compounds such as quercitin (found helpful in reducing the blood pressure of individuals), paraldehyde (used as a hypnotic and sedative), mindereru' s spirit (helpful in perspirations), and tartronic acid (used as oxygen scavenger) were also recognized [16-18]. Listed below is a table showing the active compounds present in *Urginea indica* responsible for its activity [13, 19]

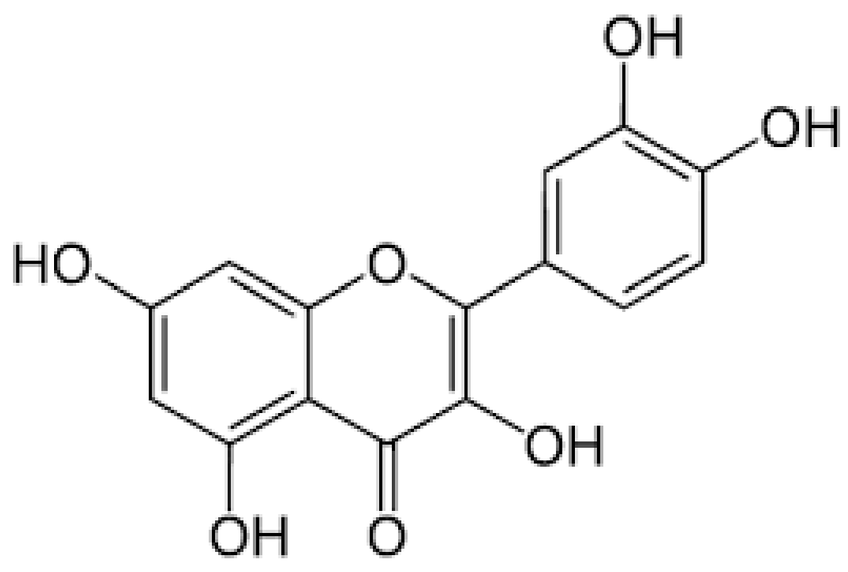
(a) Root Sample (b) Stem Sample (c) Leaf Sample

Urginea indica **samples**

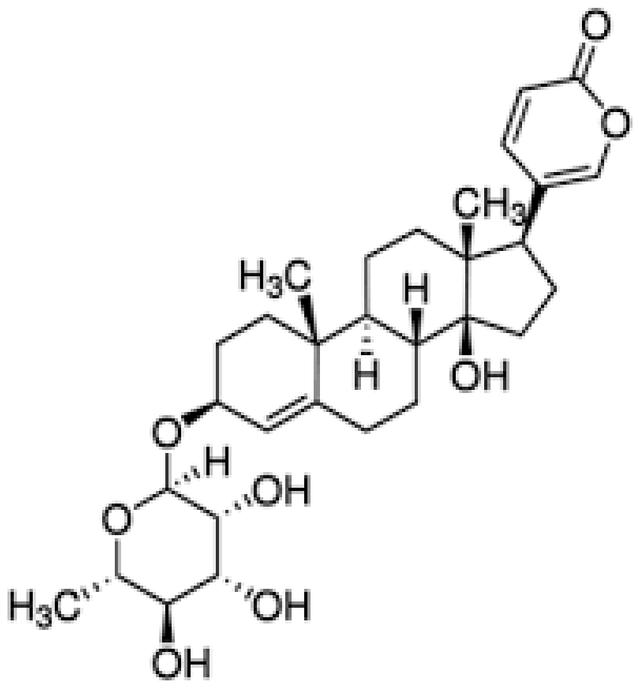
RESULTS AND DISCUSSION

Table 1: Compounds present in *U. indica* and the activity they are responsible for

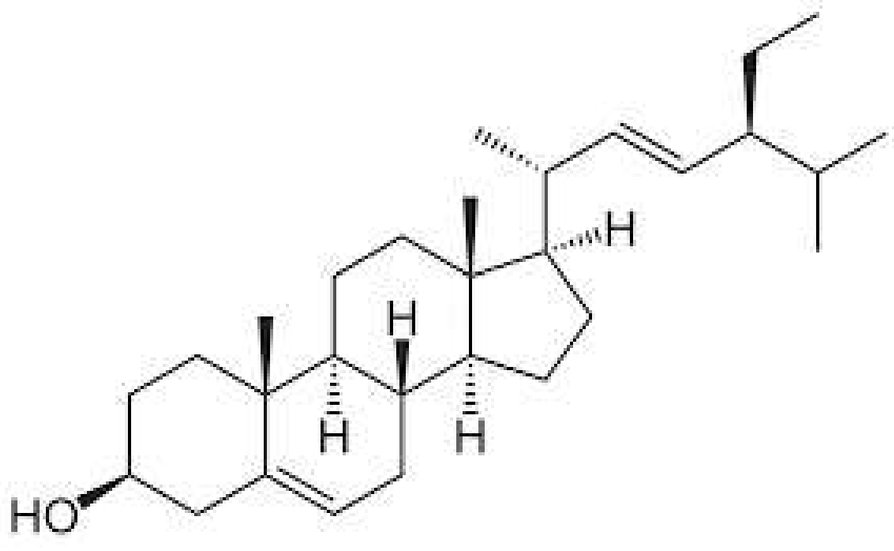
S. No	Compounds	Activity responsible for
1	Glucose	Acetylcholinergic, Antihepatotoxic, Antiedemic, Antivaricose, Memory enhancer
2	Scillarenin	Anticarcinomic, Antirhinoviral, Cardiotonic, Pesticide
3	Mannose	Anticystic
4	Quercetin	Cancer preventive
5	Flavones	Anti-inflammatory



Scillarenin Quercetin



Proscillardin Tartronic acid



Stigmasterol

Antioxidant

Flavonoids, carotenoids, polyphenolics are some of the popular natural antioxidant substances reported in *Urginea indica*. A methanolic extract of the bulbs of *U. indica* at a concentration of 150 µg/ml showed antioxidant activity by DPPH assay. In this *in vitro* study, different concentrations of the methanolic extracts were taken ranging from 30 to 150 µg/ml. Here the extracts showed the varying percentage of activity i. e, from 98.10% to 99.14%. However, this report could not be considered to be operative enough as the doses showing antioxidant activity were too high, also to compare the DPPH radical scavenging activity; there was no positive control used [20]. In another *in vitro* study, the methanolic extract of *U. indica* showed antioxidant activity by DPPH assay. Different concentrations of 20, 40, 60, 80, 100 and 200 µg/ml of the extract were used to

evaluate the DPPH radical scavenging activity. The IC50 value of the extract was found to be 51.87 µg/ml, which was comparable to the gallic acid IC50 value of 39.91 µg/ml [21].

Also, it was reported that the bulbs of *U. indica* have proanthocyanidin and phenolic substances that are responsible for its antioxidant and free radical scavenging activities [22]. Again, in another *in vitro* study, chloroform, ethyl acetate and methanol extracts of the bulbs were reported to have antioxidant activity. Different concentrations of 10, 20, 40, and 60 µg/ml of the extract were used to evaluate the DPPH free radical scavenging activity. The IC50 values of 24.98, 23.00, and 22.61 µg/ml were found, respectively where the methanol extract IC50 value was found to be alike to ascorbic acid (22.33 µg/ml). The study reported that methanolic extract has the highest activity, at 95.50%– 97.57%, followed by chloroform (93.38%– 95.91%) and ethyl acetate (86.40%– 88.24%) [23].

Flowers of *U. indica*

Antidiabetic

An antidiabetic study was conducted by Gupta *et al*. of the ethanolic extract of bulbs (*U. indica*) against streptozotocin-induced diabetes rats. Glibenclamide (10 mg/kg) was used as the standard drug. The extract was used as 750 mg/kg and 1.5 g/kg of body weight. Both the extract and the drug were used orally for a period of 14 d. Within 120 min of administration of the extract at the dose of 1.5 g/kg considerable decrease in the blood glucose levels was shown in the diabetic rats. Along with the reduction in the blood sugar level, total cholesterol and triglyceride levels were also found to reduce by the extract. Moreover, matched with the group of untreated rats, the levels of high-density lipoproteins

were found to improve. The histopathological study revealed that the extract partially repaired the damaged cellular population of pancreatic islets in rats. The results of the experiments suggested that ethanolic extracts of *U. indica* has significant antidiabetic effects on STZ-induced diabetic rats [24].

Anthelmintic

The bulbs of *U. indica* has been reported to treat helminthiasis, which is a macroparasitic disease. It is caused by the parasitic worms in humans and animals. In an in-vivo study, an aqueous extract obtained from the leaf, scape, and bulb of the plant was tested for anthelmintic activity against earthworm (*Pheretima posthuma*) due to its anatomical and physiological resemblance to human intestinal roundworm parasites. The extract, at the dose of 5 mg/ml, paralysis the earthworms at 41 min and death at 50 min. On the other hand, albendazole (5 mg/ml), a positive control in this study, showed paralysis at 92 min and the death of earthworms at 110 min. The above study revealed that the crude extract of the bulbs was highly effective against earthworms and was equally potent to albendazole at a similar concentration. On the basis of this study, it can be suggested that the active molecule/s of the plant certainly have a higher potential. However, this needs further advanced study to reach a final conclusion [25].

Antibacterial

U. indica has also been reported to have antimicrobial efficacy. In a study, it was found that the methanolic extracts obtained from the leaves, stem and roots were effective against different bacteria like *S. aureus, E. coli, B. subtilis, A. niger, S. epidermidis, C. albicans* and *P. aeruginosa* at a dose of 2 mg/20 µl. The standards used were Penicillin and streptomycin against bacteria and clotrimazole against fungi at 10 µg/20 µl. Among all the extracts obtained from different parts, the methanolic root extract revealed the highest activity, showing Inhibition Zone Diameter values of 15.06, 14.33, and 12.33 mm against *B. cereus, S. epidermidis,* and *S. aureus,* respectively [26].

Potent inhibitory action was reported by aqueous bulb extract of *U. indica* against gram-negative bacteria (*Shigella flexneri, Pseudomonas aeruginosa* and *Vibrio cholerae*), gram-positive bacteria (*Bacillus brevis, B. subtilis, B. licheniformis* and *Streptococcus aureus*) and fungus (*Candida kruse*), showing inhibition zone diameter (IZD) ranging between 19 and 28 mm at 200 µl [27].

Another study showed that the methanolic bulb extracts showed activity against *Escherichia coli, Staphylococcus aureus,* and *P. aeruginosa*, with an IZD range of 0.7– 1.4 cm at 50, 100, and 150 mg/ml. The results were compared to levofloxacin at a concentration of 500 mg/disc, although this concentration looks to be too high for an *in vitro* study and may not be considered authentic, showing an IZD of 1.3 and 1.4 cm against *P. aeruginosa* and *E. coli,* respectively. In this study, pure methanol was used as a control. The results were correlated with its traditional use in wound healing [28].

Antifungal

U. indica also has been reported to have antifungal activity. A 29-kDa glycoprotein found in the bulbs of *U. indica* were shown to have antifungal activity against some plant pathogenic fungus-like, *Rhizoctonia solani, Fusarium oxysporum, Alternaria tenuissima* and *Sclerotium rolfsii*. The maximum inhibition was found against *F. oxysporum* at 10 µg/well [29]. In another study, protein chitinase present in the bulbs was reported to show activity against the plant pathogenic fungus *R. solani* and *F. oxysporum* [30].

Anti-inflammatory and analgesic

In an in-vitro study, the ethanolic bulb extract of *U. indica* was administered in Swiss albino rats to evaluate its anti-inflammatory and analgesic activities. The ethanolic extract used was fractionated from the methanol extract of oven-dried material, was used at an oral dose of 1.5 g/kg showed significant anti-inflammatory activity against carrageenan-induced oedema in rats, having a range of inhibition between 18.68% and 29. 78% at 1– 4 h when compared to the untreated control. On the other hand, the standard drug (ibuprofen) inhibited oedema at an oral dose of 6 mg/kg by a range between 23.07% and 41.84% 1– 4 h post-treatment. With a similar oral dose, i.e., 1.5 g/kg, the extract also exhibited analgesic activity in rats using a hot plate assay. The hot plate pain perception

in rats was raised for up to 3 sec by the extract compared to the untreated rats, whereas ibuprofen with an oral dose of 6 mg/kg showed pain perception for 11 sec till 4 h [31].

Anticancer

Methanolic extract of *Urginea indica* (MEUI) was reported to have anticancer activity against Ehrlich Ascites Carcinoma (EAC) cells in swiss albino mice. Swiss albino mice were inoculated with EAC cells and the reduction ability of EAC cells was observed by Rudimentary assessment of Methanolic extract of *Urginea indica*. The reduction of average tumor weight was measured to find out anti-cancer efficacy of MEUI. This study revealed significant weight variation at 4X doses of MEUI indicating loss of tumor weight. The weight variation study of tumour by MEUI showed a 47.66 % decrease at 2x dose and 65.10% decrease in weight at 4x doses in total ascites fluid weight versus control, which was statistically highly significant (p=0.003). After 30 d of observation, no mice survived in the control group, whereas 3 mice were alive in the group treated by MEUI at 2x dose and 5 mice were alive in the group treated with MEUI at 4x dose. This study showed that MEUI has anticancer activity [32].

Bronchodilator and cardiac stimulant

An aqueous ethanol extract of the bulb was studied in rabbit tracheal and guinea pig atrial preparations. The extract inhibited contractions induced by carbachol (1 μM) and K+(80 mmol) in rabbit tracheae, similarly to dicyclomine. The results suggested the presence of Ca2+-channel blocking and anticholinergic mechanisms of the extract. The extract (0.01– 1 mg/ml) increased the force of guinea pig atrial contractions without affecting their rate. This effect was perhaps mediated through the combined mechanism of an anticholinergic and Ca2+antagonist accompanied by an inotropic effect. This *in vitro* report gave an idea about the possible role of *U. indica* bulbs in bronchial diseases such as asthma and bronchitis. However, further studies with *in vivo*/clinical models are warranted before its use as a bronchodilator. Its purified fraction(s) or constituent(s) should be used to improve its efficacy and also to reduce dose sizes [33].

Other medicinal use

U. indica has also find its use in milder cases of heart insufficiency and also for diminished kidney capacity. An inulin like substance named Sinistrin is extracted from

squill for use as a marker in diagnosis of renal problems [34]. The extract of *U. indica* has also proved effective in muscle pain and developed as an analgesic [35]. Studies has also reported larvicidal action of *Urginea indica* against Aedes larvae causing dengue fever. The lypholised aqueous extract of 400 µl showed 100% mortality of the larvae within fifteen hours [13]. Again, local application of dichloromethane extract obtained from the bulbs of *U. indica* also showed trauma healing activity in rats with skin trauma [36].

CONCLUSION

This study concludes that various extracts of *U. indica,* mainly the extracts of the bulb have shown significant anthelmintic, antibacterial, antifungal, anticancer, antioxidant, antidiabetic, bronchodilator, anti-inflammatory, analgesic, and wound healing activities in different *in vitro* and *in vivo* models due to the presence of various bioactive compounds and can be a potential source of new useful drug. Although the plant has been used in Ayurveda for many years, no clinical studies are performed on this plant. Hence, there is quiet a decent possibility for upcoming research based on clinical trials of this plant.

However, *Urginea indica* is favorable for further studies of bioactive compounds and isolation of a new drug. The plant species needs immediate protection, propagation and conservation as it is under the threatened category.

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Study of Ecological role of Indian Robin *Saxicoloides fulicatus* in Agricultural Insect Management

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Abstract

In present study an effort has been made to document the Ecological role of a passerine bird the Indian Robin *Saxicoloides fulicatus.* This species of bird belongs to family Muscicapidae. Indian Robin is a territorial and non-migratory bird, mostly found in scrub forests, rocky areas, open grasslands and near human habitation. The bird was often seen running on the ground for searching food and always perching on rooftops, shrubs, trees and backyard of home for singing and territatory marking. It is a common garden bird and it's foraging sites were observed mostly grassland, shrubs and human associated places. Indian Robin is mainly an Insectivorous bird but, it also takes food grains, rice and pulses in diet. The Indian Robin feeds on Insects and could help in controling the Population of Insects, minimizing the use of insecticides and pesticides in agriculture for insect control and also help in conservation of innocence of the environmental aspects. The birds are good Indicators of Environmental changes. This Insectivorous species Indian Robin could play essential role in Agriculture for Insect control. The bird could indirectly help of human beings with stopover insect born disease. By feeding on insects the bird favours the mankind to overcome through health hazards in positively manner. This research paper is based on author's field observation, in which she observed the role of insectivorous bird Indian Robin in stabilizing Agro-ecosystem in Eco-friendly manner.

Keywords: Ecological, Insectivorous, Agro-ecosystem, Eco-friendly, Bio-indicator.

Introduction

The Indian Robin (*Saxicoloides fulicatus*) is a species of bird distributed throughout the country in all climatic zones. They are commonly found in open scrub areas, grasslands and often seen running along the ground or perching on low thorny shrubs, rocks and rooftops. The males of the Northern subspecies have brown backs while the males of the Southern subspecies having all black backs. The bird have long tail that is usually held up and the chestnut undertail coverts. This unique appearance make them easily distinguishable from other birds. The Indian Robin is sexually dimorphic bird. The male bird is mainly black with a white shoulder patch or stripe and have chestnut undertail coverts. These undertail coverts are visible as the bird raised the tail upright. The female bird is slightly differ from

male in having brownish body but, no white stripe on shoulders, and are greyish below, with the vent a paler shade of chestnut than the males. They are mainly found in dry habitats and are mostly absent from the thicker forest regions and high rainfall areas. All populations are resident and non-migratory. The species is often found close to human habitation.





Research Methodology

The present study deals with ecological role of insectivorous bird Indian Robin and this study is completely based on field observations. For the data collection daily field observations of 7-8 individuals were done with binoculars and camera. Scan and Focal sampling were used during the observation of habitat selection, territory marking and feeding behaviour of the bird at two sites Gajner and Darbari in Bikaner region of Thar Desert by daily field visits in the morning. Besides, reports and research articles of previous authors were consulted and their observation were compared with the present study for conclusion.

Results and Discussion

Indian Robin is an Insectivorous bird and resident breed. These birds were observed foraging on ground and feeds on insects. This Insectivorous species could help in control the population of insects by feeding on them and minimize the use of insecticides and pestisides in Agricultural lands for killing insects. They are good bio-indicators in the agro-ecosystem and check the buildup of insect pest species. On the other hand, the bird could indirectly help of human beings with stopover insect born disease. By feeding on insects the bird favours the mankind to overcome through health hazards in positively manner.

Conclusion

The abundance of insectivorous birds is closely associated with the vegetation structure and composition of an agro-ecosystem. Intensification of agriculture has resulted to the development of agro-ecosystem as highly important and managed terrestrial ecosystem. Bird species prefer some habitats over others as the resources in the environment are not evenly distributed. Variation in habitat determines the abundance of a species at one location and scarcity at another location. The Ecological role of the bird is significant to the Environment as the bird acts as natural indicator of rapid changes in surroundings. The bird is beneficiary to Ecosystem and Agricultural needs and helps in maintaining and stabilizing the food chain. There are more possibilities that, eradication of insects by bird the population of insects will remains in control and mankind will obtained a healty environment.

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Fish biodiversity and Fish production of Gosunda dam

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Abstract

Gosunda dam has a fairly rich fish fauna and during reconnaissance survey, the species found represent several families. The Fish diversity was rich in the major carps (*Catla catla, Labeo rohita, Cirrhinus mrigala),* Cat fish *Mystus seenghala* was also found in the dam. Among the Indian major carps, the *Catla catla* was present in high percentage.

Keywords: Biodiversity, Fisheries, Indian major carps, Gosunda dam.

Introduction

Biodiversity may be defined as the variety of flora, fauna and microbes in an ecosystem. In recent years the sustainable utilization of available biodiversity has assumed great significance in the face of increasing environmental threats. Fish constitutes almost half of the total numbers of vertebrate in the world. Living species of fish have been recorded out of 39,900 species of vertebrates (Jaya ram 1999).

India is one mega biodiversity in the world and occupies ninth position in fresh term of freshwater mega biodiversity (Mittermeier and Mittermeier1997).

Fisheries in the state of Rajasthan are, mainly capture type where in fisheries exploitation is practice through open bid system.

In view of the above, the present study on fish biodiversity and production in Gosunda dam, Chittorgarh (Rajasthan) has been made as there is no such study conducted earlier on this water body.

Research Methodology

In the present study, three sampling sites were selected in Gosunda dam. In order to study the biodiversity, samples of fisheries were collected from the commercial catches and sample netting during fishing year 2020-21 at landing center of Gosunda dam.

Fishes were identified in the field itself using standard manuals (Day1994 and Jaya ram 1999).

Study Area

Gosunda dam is an important irrigation project on river Berach of Rajasthan. This dam is located at Latitude 24º 49' 35" N and Longitude 74º 31'24" East in village Appawas, of Chittorgarh district of Rajasthan.

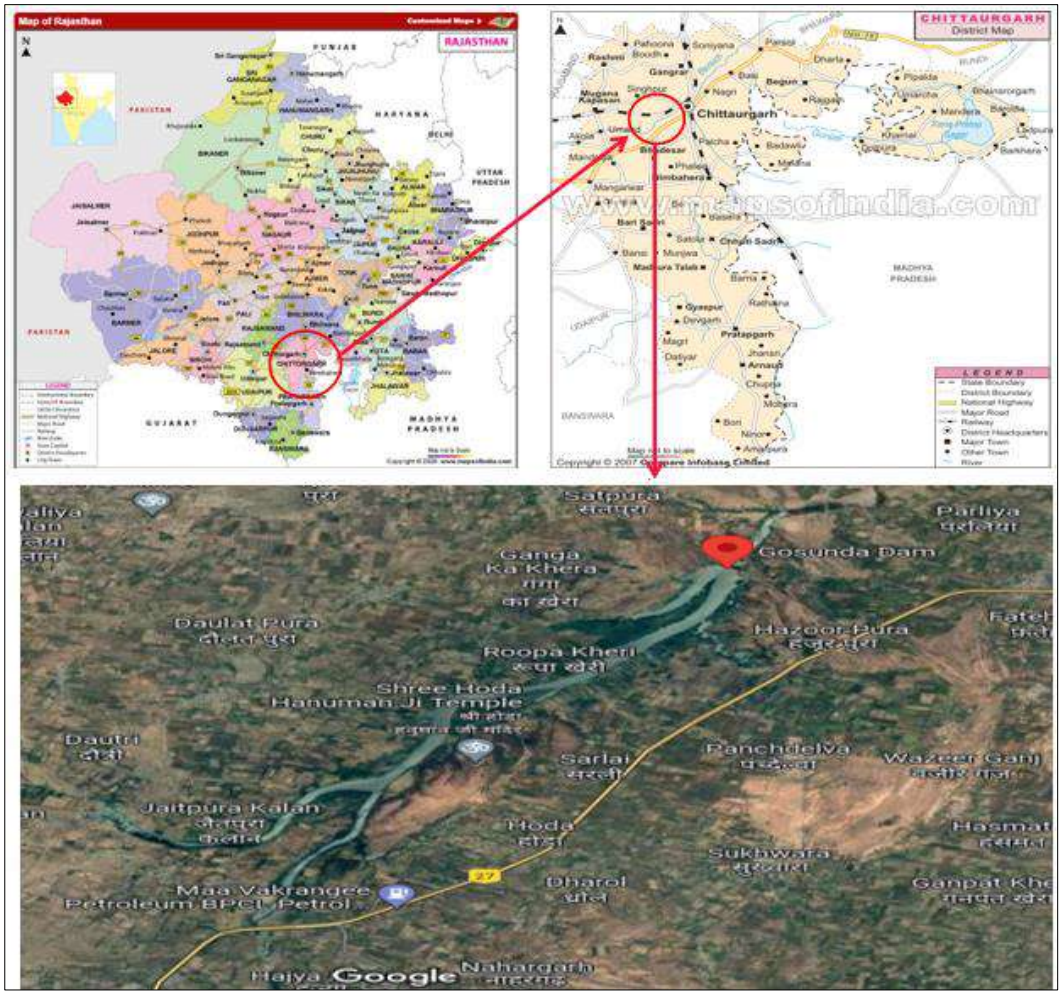

Fig 1: Site Map of Gosunda Dam

Result and Discussion

The fish faunal variety in the present investigation have been noticed. *Catla catla, Labeo rohita, Cirrhinus, mrigala, Wallago attu, Mystus singhala, Channa marulius and Silver carp* contributed to the commercial catch of this dam. Indian major carp have dominated in the dam. Fish production data were collected from Fisheries department Chittorgarh, (Rajasthan). The fish production obtained during year 2020-21, was 163 metric ton.

Table 1: List of fish fauna represented in the catch from Ghosunda dam, Chittorgarh

S.No	Scientific name	Local name
1.	*Catla catla* (Ham.)	Catla
2.	*Cirrhinus mrigala* (Ham.)	Mrigal or Narain
3.	*Labeo rohita* (*H*am.)	Rohu
4.	*Wallago attu* (Ham.)	Lanchi
5.	*Mistus seenghala* (Sykes)	Singhara

Conclusion

In any aquatic ecosystem biodiversity can affect both fauna and flora, biodiversity contributes both directly and indirectly to human such as good health. Fish is filled with omega-3 and vitamins such as D and B2. Fish is rich in calcium and phosphorus and a great source of minerals, such as iron, zinc, iodine, magnesium, and potassium.

The outcome of the present study from biodiversity and fisheries point of view is that in Gosunda dam, many species contribute to the Ichthyofauna of the dam. In the commercial fish catch Indian major carps *Catla catla, Labeo rohita and Cirrhinus mrigala* dominated in Gosunda dam.

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Urban forestry: An important component for smart city planning

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Abstract

More than half of the total world's population lives in urban areas, and it is expected that 66% of all them will live in urban areas by 2050. The population growth and continuing urbanization in the world cause many social, economic, technical, and organizational problems related to transportation, businesses, communication networks, services, and utilities that can risk the cities' economic and environmental sustainability. Recently, a smart city concept has been developed to provide a solution to improve citizens' quality of life in urban areas with the adoption of smart and digital technologies and infrastructure for energy, water, mobility, buildings, and government. Urban forestry is one of the components that must include in smart city planning. Urban forestry play a major role in urban heat reduction and many other social, physical, esthetical, and environmental benefits. The choice of the plantation species plays a crucial role to develop green space in urban areas. The plant species should be evergreen, long-living, big canopy, have high branching, have high soil binding strength, etc. The selection of sites for planting in the urban area must be carefully chosen.

Keywords: Urbanization, sustainability, esthetical

Introduction

Concept of Urban Forestry According to the Society of American Foresters' Dictionary of Forestry (1998 edition), urban forestry is defined as 'the art, science, and technology of managing trees and forest resources in and around urban community ecosystems for the physiological, sociological, economic, and aesthetic benefits trees provide society. It emerged as a discipline in North America in response to better ways to deal with the growing importance of tree-dominated urban green spaces and growing pressures on green areas. During recent decades an international urban forestry research community has developed, as has an increasing body of knowledge as well as new approaches and techniques. Urban forestry has close links to forestry but tends to be more multidisciplinary.

Urban forestry is the process of incorporating vegetation into an urban area to increase cooling through shading and evapotranspiration. According to the United States department of agriculture forest service report that urban forestry can decrease midday maximum air temperatures by 0.07°F (0.04°C) to 0.36°F (0.2°C) for every 1% increase in canopy cover. Similarly, the incorporation of urban agriculture can also help reduce the heat island effect.

The concepts and policies of smart cities are promoting smartness to make cities technologically more intelligent. In India, the main objective of the smart city mission is to provide core infrastructure, a clean and sustainable environment, digitalization, better transportation, improved communication and give a decent quality of life to its citizen. However, for the completion of this mission urban forestry can also play an important role. This is one of the components that should be incorporated in smart city planning.

Benefits of Urban Forestry

Urban forestry plays an important role in controlling various environmental problems, including those related to erosion control, noise and air pollution abatement, wastewater management, watershed protection, increasing water quality, aesthetic value, etc. (Grey and Deneke 1978, Miller 1988). Trees and shrubs are good soil binders as they improve the hydrology of urban areas as it increase the level of groundwater (Grey and Deneke 1978). Urban trees reduce surface water runoff, which can indirectly affect water quality by reducing the amount of sediment and urban pollutants entering a stream system (Nowak 2006).In urban forestry, we can also include terracing practices, contour planting, avenue trees planting, etc.

Components of urban forestry

There are three important components of a sustainable urban forest—a healthy vegetative resource, resource management, and community support (Clark et al.1997). The choice of trees is a very important factor for developing urban forestry; some factors are canopy cover, species suitability, age distribution, and native vegetation. In community support, there can include, public agency cooperation, Involvement of large private and institutional landholders, Citizen-municipality-business interaction, general awareness of trees as a community resource, and regional cooperation. Resource management can be done through municipal funding, city management planning, tree establishment planning, city staffing, and tree protection policies, etc.

Choice of Tree species:

The choice of tree species should be appropriate for green space. They should be evergreen, long-living, have a big canopy, and have high branching. The incorporation of small to medium trees and shrubs species in between tall trees is an important factor to increase soil binding capacity. Some species for planting in urban areas are shown in table -1 and table-2

Table-1 Tree species including tall, medium, and small size trees for planting in urban areas.

S.No.	Botanical name	Family	Local Name
1	*Ficus benghalensis* L.	Moraceae	Bargad
2	*Moringa oleifera* Lam.	Moringaceae	Sahajan
3	*Ficus religiosa* L.	Moraceae	Pipal
4	*Cassia fistula* L.	Fabaceae	Amaltas
5	*Senna siamea* Lam.	Fabaceae	Senna, swarnmukhi
6	*Delonix regia* (Boj.ex Hook)	Fabaceae	Gulmohar
7	*Anthocephalus cadamba* (Roxb.)	Rubiaceae	Kadam
8	*Dalbergia sissoo* (Roxb.)	Fabaceae	Shisham
9	*Butea monosperma* (Lam.)	Fabaceae	Dhak
10	*Azadirachtaindica* A.Juss.	Meliaceae	Neem
11	*Terminalia arjuna* (Roxb.)	Combretaceae	Arjun
12	*Mitragyna parvifolia* (Roxb.)	Rubiaceae	Rudrakh
13	*Acacia nilotica* (L.)	Fabaceae	Babool
14	*Acacia Senegal* (L.)	Fabaceae	Kumta
15	*Callistemon citrinus* (Curt.)	Myrtaceae	Bottle brush
16	*Bauhinia variegate* (L.) Benth.	Fabaceae	Kachnar

Table-2 Shrub species for planting in urban areas

S.No.	Botanical name	Family	Local Name
1	*Duranta repens* L.	Verbanaceae	Nilakantha (sky flower)
2	*Hibiscus rosa sinesis* L.	Malvaceae	Gurhal
3	*Hamelia patens* Jacq.	Rubiaceae	scarlet bush
4	*Nerium Oleander* L.	Apocynaceae	Kaner
5	*Thevetia peruviana* L.	Apocynaceae	Peela kaner
6	*Jatropha integrrima* Jacq.	Euphorbiaceae	Jamal ghota
7	*Tabernaemontana coronaria* (Jacq.) Willd.	Apocynaceae	Chandani
8	*Combretum indicum* (L.)	combretaceae	Madhumalati
9	*Catharanthus roseus* (L.) G.Don.	Apocynaceae	Sadabahaar
10	*Plumeria sp.*	Apocynaceae	Champa
11	*Cassia angustifolia* Mill.	Fabaceae	Indian senna
12	*Lawsonia inermis* L.	Lythraceae	Mehandi
13	*Ziziphus mauritiana* Lam.	Rhamnaceae	Bair
14	*Bougainvillea sp.* Comm. ex Juss.	Nyctaginaceae	Kagaj ke phool
15	*Punica granatum* L.	Lythraceae	Anar
16	*Nyctanthes arbor-tristis* L.	Oleaceae	Harsingar

Challenges

The challenges that urbanization pose is multifarious. Land allocation priorities for urban green cover are usually neglected in the countries that are in the state of transition or underdeveloped countries. The selection of sites for planting in the urban area must be carefully chosen. Urban environments are challenging for tree survival. They often contain soil contamination, compacted and poorly aerated soil, higher temperature, air pollution, and high-velocity wind. The preservation and management are also challenging in urban areas, often trees are cut down to broaden the roadside, for electrical wire, for construction of new sites, metro rail, airports, etc. Rising population and their exponential growth in urban areas, increasing carbon dioxide emissions, and resource consumption are some challenges before urban forestry.

Discussion

Smart cities are increasingly part of urban sustainable development. There is a growing concern that how citizen engagement, connected technology, and data analytics can support sustainable development. Evidence has also frequently shown that green infrastructure such as urban forestry is a critical component of urban sustainability and resilience. Urbanization devoid of urban green can cause many social and physical impacts on its residents. Hence, a locally suitable Green Index should be devised and incorporated in the urban planning of cities, in spite of the size of the city. (Angulari and Narayan 2017)Still, it is unclear whether green space and urban forest management are gaining significant attraction in smart city planning. It is thus timely to consider whether and to what extent urban forests and other green spaces can be effectively integrated into smart city planning, to maximize green

benefits for all city dwellers (Nitoslawski et al. 2019). A smart city is only smart when there will be enough green space, as it provides ecosystem benefits to residents and helps to reduce pollution, temperature, etc. the present day plantation of the fast-growing plant is not appropriate for example plantation of *Prosopis juliflora* in a large area in Kota city (Rajasthan).To provide a quality and healthy life, it is essential to define the distribution of green cover in urban areas. The World Health Organisation considers that the green space value for healthy living is 9.5 m2 per capita. Using this standard, a comparison can be made between a scale of sustainability and the coherence of urban green space (Kuchelmeister, 1998). Analysis of per capita green cover available for every citizen is a very necessary step to meet the social and psychological needs of residents. Tree protection laws should be enacted for the preservation and management of trees.

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Sighting of Alexandrian parakeet (*Psittacula eupatria*) in Jhalalawr district Rajasthan, India

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Abstract :

Alexandrine parakeet is a medium sized parakeet species that inhabits Gagron Fort forest area and various places of Jhalawar district. Alexandrian parakeet is well known case bird worldwide and popularly known for its human voice imitating habit recently its population is declining day by day due to anthropogenic activities or its migration on another places. The present study is carried out to explore the Alexandrian parakeet in various places of Jhalawar district other than Gagron Fort forest area and have better management plan in future for its conservation.

Keywords : Gagron Fort forest, Alexandrine parakeet, Jhalawar ,conservation

Introduction :

Alexandrine parakeet (*Psittacula eupatria*) is one of the medium sized parakeets (also called parrots) that belong to order psittaciformes, family pssitaculidae, of the genus psittcula. This species is commonly used as a pet and cage bird and this might be reason behind that decreasing and the continuous decline of its population in its natural range to be ranked as Near Threatened by the IUCN Red list (IUCN 2017). The population of Alexandrian parakeet is rather rapid decline because of continuing habitat destruction and unsustainable level of exploitation Alexandrine parakeet is named after Alexander the Great who is credited with the exploring of specimens of this bird from Punjab into European and Mediterranean countries (Campbell –Johnston, 2007). Alexandrine parakeet is the largest native species of all parakeets (small parrot with long tail). Earlier Alexandrian parakeet has been popular in Gagron fort forest area and known as Gagroni parrot (Rai Mitthu). On recently only few individuals reported from Jhalawar district apart from that there is no much information available on this species hence we report the sighting of Alexandrian parakeet in various sites of Jhalawar other than Gagnon Fort forest area.

Materials and methods:

Jhalawar is a hilly city in Rajasthan which is located in the south-eastern position in the state. Jhalawar experiences a subtropical dry environment .The condensation is passably fine in this district. Jhalawar forest division is situated in the south -eastern part of the Hadoti region and located at the edge of Malwa plateau of Rajasthan in India and is characterized by slight undulation on the west and a vast fertile expanse on the east (**Prakash and Singh 2001**) spread over an area of about 150-180 sq. km. This forest division falls in the territory (24º 37" to 24º 46" N and 76º 02" to 76º 11" E) extending from the south-east part of the Gagron fort (24º37´ 41.5" N,76º 10´ 52.6") along the western bank of Kalisindh River to Khanpur village. Beyond that it forms a strip of an average 10 km width and joins the Mukundara Hill National Park in the north-west. . Gagron fort in surrounded by water on three sides and a moat filled with water on the fourth side. It is constructed on the confluence of Ahu River and Kali sindh river, The fort also boasts three ramparts as opposed to traditional forts that have only two. The towers of the fort are blended with Mukundra Hills of the Vindhya range. The mountain that the fort sits on is itself the foundation of the fort. The fort also has two main entrances. One gate leads towards the river, while the other gate leads towards the hilly road (**Mehta and Jhuee, 2019**). The famous Alexandrine parakeet were found in the forest area of this fort and also known as Gagroni parakeet, it derives its name from the Gagron fort of Jhalawar, it is also known for imitating the human voice. Climate of the area is identical to the Indo -gangetic plain.

We used direct observation method in the croplands of Manoharthana tehsil in sorghum fields we spotted alexandrine parakeet on sorghum crop identified by using standard field guides **(Ali 2002, Ali and replay 1987, Grimmet et. al, 1999)** the bird survey has been carried out in morning hours.

Site Map:

Result and discussion :

Sighting of parakeet Alexandrine parakeet (*Psittacula eupatria*) in crop lands of Manoharthana tehsil in sorghum fields .First sighting made on September 18th 2022 during morning 6:00 AM to 10:00 AM. The species actively observed was feeding on sorghum crop along with Rose ringed parakeet (*Psittacula krameri*) observations made continuously from 18th September 20th September the flock size of rose ring parakeet was more than 20 individuals among which only one individual of Alexandrian parakeet was spotted the species was identified as male with a maroon patch at the top of their wing coverts, black and pink bands on their naps and females with light and dark shades of grey ringneck. This species measure 23 in total length and at tail 8.5- 14 inches. Adult birds commonly weight between 200 and 300gm **(Del Hoyo *et al.*, 1996**). This species is known to found in Gagron Fort forest area of Jhalawar. Recently it's number has been declines from this area due to its talking ability which causes to make them pet by people from several years. Though in India buying, selling or killing of Alexandrine parakeet *(Psittacula eupatria*) is banned with five years imprisonment being the consequence .Setting up aviary system will be very effective for its proper breeding.

Conclusion :

The continuous decline of Alexandrine parakeets *(Psittacula eupatria*) population in its natural range to be ranked as Near threatened by the IUCN Red List 2017. This species might be one of the invasive species in future like the Rose ring parakeet. Need to conserve this by the extension program in the villages however in Gagnon Fort forest area and other places of Jhalawar, parrot diversity experiencing is under great anthropogenic factors. Therefore is an urgent need to take conservation measure that would aim in the better wildlife habitat management programs in the Jhalawar.

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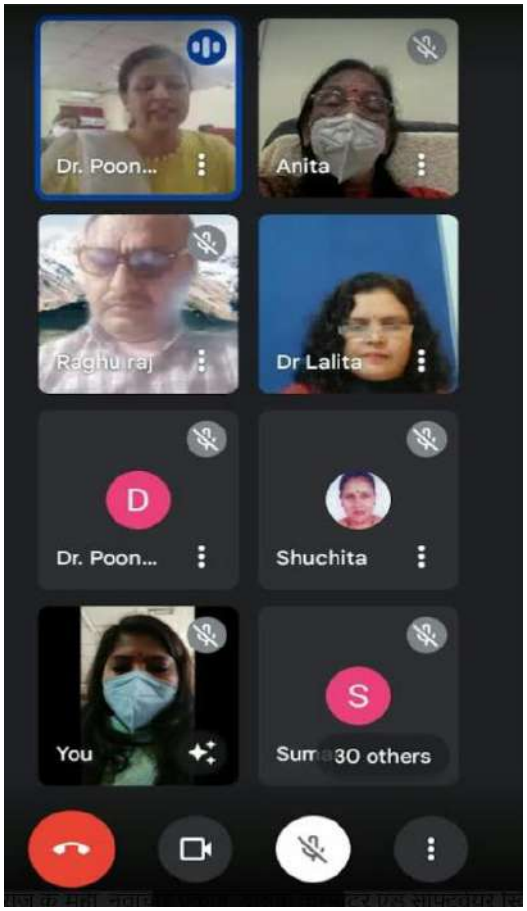
जानकी देवी बजाज राजकीय कन्या महाविद्यालय, कोटा

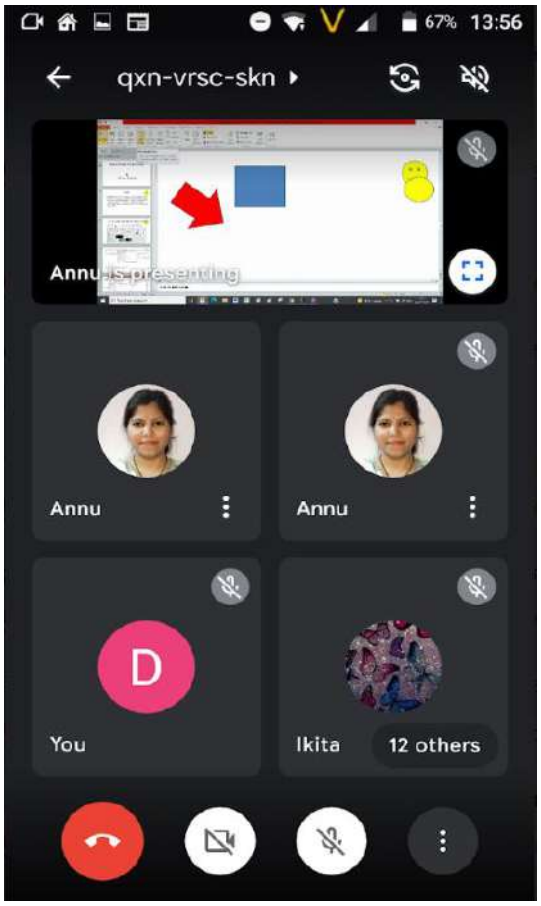
बेसिक कम्प्यूटर व साफ्टवेयर स्किल

नवाचार प्रकोष्ठ के तत्वावधान में 15 दिवसीय प्रशिक्षण कार्यक्रम की शुरुआत

जानकी देवी बजाज राजकीय कन्या महाविद्यालय में नवाचार प्रकोष्ठ द्वारा बेसिक कम्प्यूटर एंड साफ्टवेयर स्किल विषय पर दिवसीय प्रशिक्षण कार्यशाला का दिनांक 17 जनवरी 2022 को शुभारंभ हुआ। महाविद्यालय की प्राचार्य डॉ अनीता कोठारी ने छात्राओं को संबोधित करते हुए कहा कि राजस्थान में महाविद्यालय में यह अपनी तरह का अनूठा कार्यक्रम है। यह प्रशिक्षण महाविद्यालय में कार्यरत संकाय सदस्यों द्वारा दिया गया जिसमें माइक्रोसॉफ्ट ऑफिस वर्ड, पावरप्वाइंट तथा एक्सेल में छात्राओं को लर्निंग विद डूइंग माध्यम से प्रशिक्षित किया गया । प्रशिक्षण के प्रथम दिन वनस्पति शास्त्र की सहायक आचार्य श्रीमती अनीता मालव ने आफिस वर्ड के विभिन्न एप्लीकेशन के बारे में विस्तार से जानकारी दी। पावरप्वाइंट का प्रशिक्षण गणित विभाग में सहायक आचार्य डॉ अन्नू बंशीवाल तथा एक्सेल का प्रशिक्षण वनस्पति शास्त्र विभाग में सहायक आचार्य डॉ पूनम जायसवाल ने दिया ।

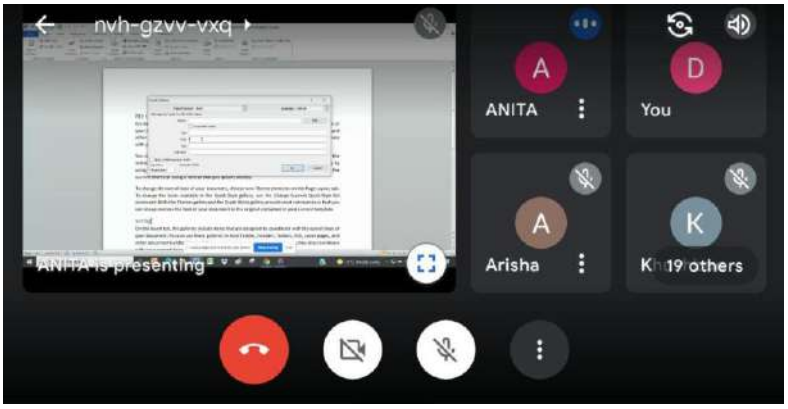
कार्यशाला की संयोजक डॉ पूनम जायसवाल ने बताया कि बी एस सी प्रथम वर्ष में एलीमेंट्री कम्प्यूटर एक अनिवार्य प्रश्न पत्र है इसलिए प्रथम वर्ष की छात्राओं के लिए यह कार्यशाला अत्यंत उपयोगी है। इस प्रशिक्षण कार्यशाला में 60 छात्राओं ने रजिस्ट्रेशन करवाया । प्रशिक्षण पूरा करने कर एक असाइनमेंट दिया गया जिसे पूरा करने पर सर्टिफिकेट प्रदान किया गया ।

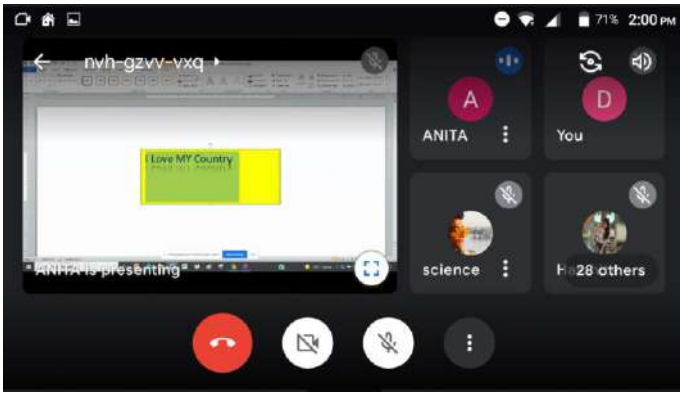




माइक्रोसॉफ्ट ऑफिस वर्ड

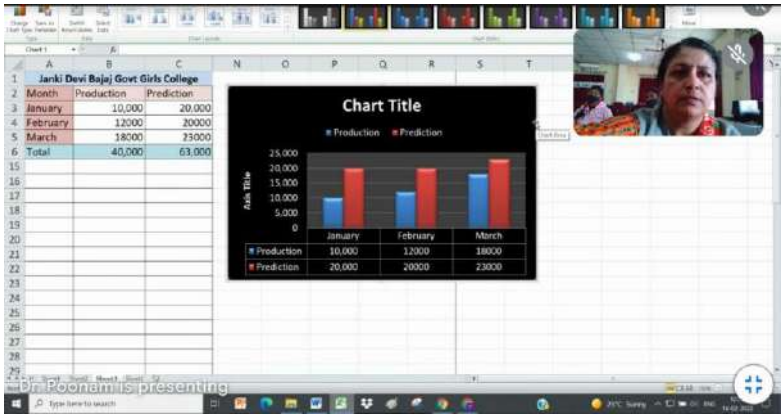
जानकी देवी बजाज राजकीय कन्या महाविद्यालय में नवाचार प्रकोष्ठ द्वारा बेसिक कम्प्यूटर एंड साफ्टवेयर स्किल विषय पर 15 दिवसीय प्रशिक्षण कार्यशाला में आज दिनांक 18 जनवरी 2022 को माइक्रोसाफ्ट आफिस वर्ड का प्रशिक्षण वनस्पति शास्त्र की सहायक आचार्य श्रीमती अनीता मालव द्वारा दिया गया। उन्होंने आफिस वर्ड में उपयोग में आने वाली एप्लीकेशन जैसे फान्ट फार्मेटिंग, बुकमार्क, हाइपरलिंक बनाना, टेबल बनाकर उसे विभिन्न ले-आउट में तैयार करना बताया। यह प्रशिक्षण महाविद्यालय में कार्यरत संकाय सदस्यों द्वारा दिया जा रहा है जिसमें माइक्रोसॉफ्ट ऑफिस वर्ड, पावरप्वाइंट तथा एक्सेल में छात्राओं को लर्निंग विद डूइंग माध्यम से प्रशिक्षित किया गया तथा यह आनलाइन व आफलाइन दोनों मोड में चलाया गया ।

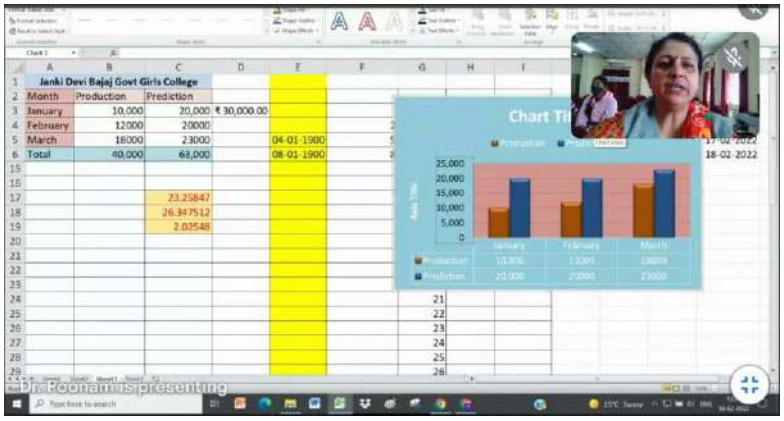




माइक्रोसॉफ्ट ऑफिस एक्सेल

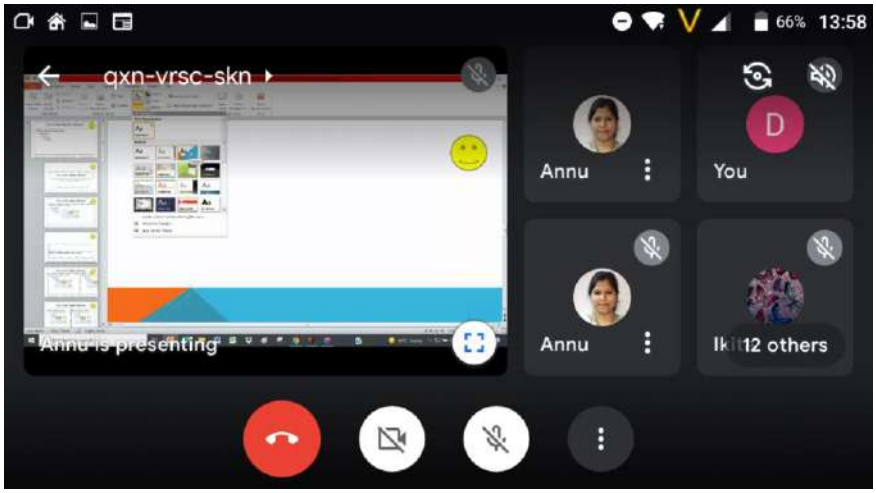
जानकी देवी बजाज राजकीय कन्या महाविद्यालय में नवाचार प्रकोष्ठ द्वारा 15 दिवसीय बेसिक कम्प्यूटर एंड साफ्टवेयर स्किल प्रशिक्षण कार्यशाला में **माइक्रोसॉफ्ट ऑफिस एक्सेल** का प्रशिक्षण दिया गया । 5 दिनों में वनस्पति शास्त्र विभाग में सहायक आचार्य डॉ पूनम जायसवाल ने माइक्रोसाफ्ट आफिस पावरप्वाइंट में उपयोग में आने वाली बेसिक से एडवांस एप्लीकेशन जैसे डाटा एंट्री, एनालिसिस, टेबल बनाना, विभिन्न प्रकार के चार्ट बनाना, बेसिक कैलकुलेशन,ऑटोफिल ऑप्शन का इस्तेमाल करना सिखाया। साथ ही अन्य तरह के टैब का इस्तेमाल करना भी बताया। इस कोर्स में विभिन्न प्रकार के फार्मूले का इस्तेमाल करना, डाटा वैलिडेट करना तथा अन्य एडवांस एप्लीकेशन के बारे में भी बताया गया ।





माइक्रोसॉफ्ट ऑफिस पावरप्वाइंट

जानकी देवी बजाज राजकीय कन्या महाविद्यालय में नवाचार प्रकोष्ठ द्वारा 15 दिवसीय बेसिक कम्प्यूटर एंड साफ्टवेयर स्किल प्रशिक्षण कार्यशाला में पावरप्वाइंट प्रशिक्षण माड्यूल पूरा किया गया। 5 दिनों में गणित विभाग में सहायक आचार्य डॉ अन्नू बंशीवाल ने माइक्रोसाफ्ट आफिस पावरप्वाइंट में उपयोग में आने वाली बेसिक से एडवांस एप्लीकेशन जैसे स्लाइड्स को डिजाइन करना, फार्मेट करना, विभिन्न प्रकार के शेप व आबजेक्ट को इन्सर्ट करना, ट्रांजिशन, एनीमेशन, तथा अन्य तरह के टैब का इस्तेमाल करना बताया। इसके साथ ही नोट्स पेज तैयार करना, स्लाइड शो करना तथा प्रेजेंटेशन को वीडियो के रूप में सेव करने का तरीका तथा उपयोग भी बताया।



स्टुडेंट डेवेलपमेन्ट प्रोग्राम का समापन

जानकी देवी बजाज राजकीय कन्या महाविद्यालय में नवाचार प्रकोष्ठ द्वारा 15 दिवसीय स्टुडेंट डेवेलपमेन्ट प्रोग्राम का समापन समारोह में आयुक्तालय, कॉलेज शिक्षा, राजस्थान, जयपुर के नवाचार प्रकोष्ठ के सदस्य डॉ ललिता यादव तथा सहायक निदेशक, कोटा क्षेत्र डॉ रघुराज परिहार ने छात्राओं को संबोधित किया। डॉ ललिता यादव ने महाविद्यालय के इस नवाचार की अत्यंत सराहना की तथा कहा कि छात्र हित में ऐसे कार्यक्रम करवाया जाना समय की मांग है। डॉ रघुराज परिहार ने छात्राओं को प्रेरित करते हुए कहा कि छात्राओं को अपने समय का सदुपयोग करते हुए लगातार कुछ नया सीखने का प्रयास करना चाहिए। ऐसे में यह कार्यशाला बहुत उपयोगी है। महाविद्यालय की प्राचार्य डॉ अनीता कोठारी ने भरोसा दिलाया कि ऐसे प्रोग्राम महाविद्यालय में निरंतर चलाएं जाएंगे। डॉ मौसमी मीणा ने छात्राओं की उपस्थिति तथा ऑनलाइन फीडबैक संकलित किया। ऑनलाइन आयोजित इस समारोह के अंत में डॉ जयश्री डावरे ने धन्यवाद ज्ञापित किया। इस कार्यक्रम के अंतर्गत बेसिक कम्प्यूटर एंड साफ्टवेयर स्किल प्रशिक्षण कार्यशाला आयोजित की गई । प्रशिक्षण के दौरान महाविद्यालय के संकाय सदस्य डॉ अन्नू बंशीवाल ने माइक्रोसाफ्ट पावरप्वाइंट, श्रीमती अनीता मालव ने ऑफिस वर्ड तथा डॉ पूनम जायसवाल ने माइक्रोसाफ्ट एक्सेल की ट्रेनिंग दी। छात्राओं को बेसिक से लेकर एडवांस सभी एप्लिकेशन के बारे में विस्तार से जानकारी दी गई। समापन के अवसर पर छात्राओं ने इस कार्यशाला को अत्यंत उपयोगी व ज्ञानवर्धक बताया तथा ऐसे कार्यक्रम भविष्य में और करवाने की भी मांग की।

List participants SDP on Basic Computers and Software Skills

S. N.	NAME	CLASS
1	Nikita Samariya	B. Sc. Part-II
2	MUSKAN SHARMA	B. Sc. Part-I
3	Arisha parveen	B. Sc. Part-I
4	Kosar	B. Sc. Part-III
5	Arisha parveen	B. Sc. Part-I
6	Yashoda Goswami	M. Sc. Final Zoology
7	Shipra meena	B. Sc. Part-I
8	Priya Nagar	B. Sc. Part-I
9	Namrata singh	B. Sc. Part-II

10	Kratika Bhargav	B. Sc. Part-I
11	Sakshi Hada	B. Sc. Part-I
12	Ikita Yadav	B. Sc. Part-I
13	Aditi Tiwari	B. Sc. Part-III
14	Anjali Yadav	B. Sc. Part-II
15	Damini Verma	B. Sc. Part-III
16	Titiksha Sharma	B. Sc. Part-II
17	Anisha Meghwal	B. Sc. Part-I
18	Harshita Mehra	B. Sc. Part-III
19	Nikita Meghwal	B. Sc. Part-I
20	Divya Pandey	B. Sc. Part-I
21	Sakshi Rathore	B. Sc. Part-II
22	Saniya Anjum	B. Sc. Part-I
23	Simran kumari	B. Sc. Part-I
24	Anushka morwal	B. Sc. Part-I
25	Anushka Jain	B. Sc. Part-II
26	MUSKAN SHARMA	B. Sc. Part-I
27	Suman Meena	B. Sc. Part-II
28	Divyanshi Verma	B. Sc. Part-I
29	Pragati Jain	B. Sc. Part-II
30	Arisha parveen	B. Sc. Part-I
31	Nikita samariya	B. Sc. Part-II
32	Mantasha	B. Sc. Part-III
33	Kashish Tiwari	B. Sc. Part-I
34	Harshita jain	B. Sc. Part-I
35	Chanchal chittora	B. Sc. Part-II
36	Anjali kashyap	B. Sc. Part-I
37	Lubna khan	B. Sc. Part-I
38	Diya Chauhan	B. Sc. Part-I
39	Ganga Kumari salvi	B. Sc. Part-I
40	Diksha Maheshwari	B. Sc. Part-III
41	Kanchan Kushwah	B. Sc. Part-III
42	Priya Nagar	B. Sc. Part-I
43	Anjali Rathor	B. Sc. Part-I
44	Mumtaj Bano	B. Sc. Part-I
45	Manisha Kumari	B. Sc. Part-I
46	Rifat fatima	B. Sc. Part-I
47	Anita Meena	B. Sc. Part-I
48	Kritika Sharma	B. Sc. Part-II
49	Sadiya kosar	B.sc 1st year sec.D1

जानकी देवी बजाज राजकीय कन्या महाविद्यालय, कोटा
बेसिक इन्स्ट्रुमेंटेशन एंड लैबोरेटरी **टेक्नीक** पर 15 दिवसीय प्रशिक्षण

दिनांक 28 मार्च 2022 से महाविद्यालय में नवाचार प्रकोष्ठ द्वारा "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" विषय पर १५ दिवसीय ट्रेनिंग कम वर्कशॉप का आयोजन किया गया । यह कोर्स महाविद्यालय की सभी नियमित छात्राओं के किये ऑफ लाइन मोड में आयोजित किया जिसमें प्रतिदिन 2 घंटे की कक्षाएं लगाई गयी । कोर्स के समापन पर एक प्रोग्राम एंड एग्जामिनेशन (PET) का आयोजन किया गया जिसको पास करने वाली छात्राओं को सर्टिफिकेट दिए गए । यह कोर्स लैब असिस्टेंट भर्ती परीक्षा में भी सहायक होगा। इस कोर्स में भौतिक, रसायन तथा जीवविज्ञान से संबंधित सभी लैब टेक्नीक की जानकारी दी गयी ।इस कार्यशाला में छात्राओं ने रसायन शास्त्र, भौतिक शास्त्र, वनस्पति शास्त्र व प्राणी शास्त्र प्रयोगशाला में काम आने वाले विभिन्न उपकरणों की कार्यपद्धति, देख-भाल व तकनीक को बारीकी से सीखा। महाविद्यालय के संकाय सदस्यों द्वारा छात्राओं को सभी तकनीक सिखाई गई।

उद्घाटन सत्र में प्राचार्य डॉ अनीता कोठारी ने छात्राओं को प्रेरित करते हुए कहा कि विज्ञान की छात्राओं को प्रायोगिक तकनीकी में कुशल होना उनके ज्ञान को सम्पूर्ण करता है। डॉ प्रतिमा श्रीवास्तव ने कहा कि छात्राओं को अपने स्किल को बढ़ाने के लिए ऐसे अवसर का लाभ उठाना चाहिए। नवाचार प्रकोष्ठ प्रभारी डॉ पूनम जायसवाल ने बताया कि इस कार्यशाला में 70 छात्राओं ने रजिस्ट्रेशन करवाया है। प्रशिक्षण के प्रथम दिन आज गणित विभाग में सहायक आचार्य डॉ अन्नू बंशीवाल ने बेसिक माप के बारे में जानकारी साझा किया। डॉ मौसमी मीणा तथा श्रीमती अनीता मालव ने 15 दिनों में करवाए जाने वाले विषयों की रूपरेखा प्रस्तुत की।

द्वितीय दिवस – विद्युत् उपकरणों का प्रयोग व् रख- रखाव (२९ मार्च) Electricity & Electrical Instruments

भौतिक शास्त्र विभाग में गेस्ट फैकल्टी श्री दुष्यंत कुमार ने विद्युत् व् विद्युत् से चलने वाले उपकरणों के बेसिक सिद्धांतों के बारे में जानकारी दी I इलेक्ट्रिकल सर्किट क्या होते है, इनको कैसे समझते है इत्यादि के

बारे मे बताया। साथ ही प्रयोगशाला में उपयोग होने वाले उपकरण जैसे वोल्ट मीटर, ऍमीटर, वर्निएर कैलीपर्स का प्रयोग करना सिखाया ।

तृतीय दिवस – उपकरणों के प्रकार (३० मार्च) Types of Physics Instruments

भौतिक शास्त्र विभाग में गेस्ट फैकल्टी श्री सतीश कुमार विभिन्न प्रयोगशालाओं में उपयोग होने वाले उपकरणों के बारे में जानकारी दी । कुछ उपकरण लाइट आधारित होते है, कुछ विद्युत् तथा कुछ तापमान आधारित । ये उपकरण किन सिद्धान्तों पर कार्य करते है, इनसे रीडिंग कैसे ली जाती है, रीडिंग को अनाल्य्से कैसे करते है ? इन सभी के बारे में बताया गया ।

चतुर्थ दिवस -रसायन प्रयोगशाला उपकरण (१ अप्रैल) Lab equipment used in Chemistry

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप में रसायन शास्त्र विभाग में वरिष्ठ सह आचार्य डॉ सरस्वती अग्रवाल ने छात्राओं ने रसायन शास्त्र प्रयोगशाला में काम आने वाले विभिन्न उपकरणों की क्रियाविधि व उपयोग के तरीके की जानकारी दी । उन्होंने उपकरणों की क्रियाविधि को प्रायोगिक कार्य करके विस्तार से समझाया। इस कार्यशाला में छात्राओं ने क्रूसिबल, डेसिकेटर, बीकर, विभिन्न प्रकार के फ्लास्क, मीजरिंग सिलिंडर, ब्यूरेट, पीपेट, सैंड बाथ, वाटर बाथ, सेपेरेटिंग फनल इत्यादि उपकरणों का उपयोग करना सीखा। साथ ही विभिन्न विलयनों के पृथक्करण, जल-तुल्यांक ज्ञात करना, पदार्थो का गलनांक निकालना, द्रव का घनत्व ज्ञात करना तथा भौतिक व रसायनिक तुला पर पदार्थ का भार ज्ञात करने की विधि के बारे में भी जाना।

<u>पंचम दिवस – स्पेक्ट्रोफोटोमीटर व मेल्टिंग पॉइंट एपरेटस (2 अप्रैल) Spectrophotometer & melting point apparatus</u>

डॉ विजय देवड़ा ने प्रायोगिक उपकरण स्पेक्ट्रोफोटोमीटर के उपयोग व क्रियाविधि को समझाया तथा विभिन्न विलयन के साथ स्पेक्ट्रोफोटोमीटर से रीडिंग लेने की विधि को विस्तार से बताया। इस कार्यशाला में स्नातक व स्नातकोत्तर छात्राएं भाग ले रही हैं। नवाचार प्रकोष्ठ प्रभारी डॉ पूनम जायसवाल ने बताया कि यह कोर्स छात्राओं को उच्च शिक्षा विशेष रूप से रिर्सच में सहायक होने के साथ साथ लैब असिस्टेंट भर्ती परीक्षा में भी सहायक होगा।

<u>षष्ठम दिवस -एनालिटिकल उपकरणों का प्रयोग (५ अप्रैल)</u> **<u>Colorimeter & Preparation of H_2S gas</u>**

रसायन शास्त्र विभाग में सहायक आचार्य डॉ जागृति मीणा और सुश्री प्रीति बैरवा ने छात्राओं को प्रशिक्षण दिया। प्रथम सत्र में डॉ जागृति मीणा ने कीप उपकरण की सहायता से हाइड्रोजन सल्फाइड गैस बनाना

सिखाया। इस गैस के भौतिक व रसायनिक गुणों की जानकारी देते हुए उन्होंने बताया कि यह गैस अत्यंत खतरनाक होती है जिससे सांस लेने में दिक्कत होती है इसलिए इस गैस को खुली जगह पर बनाना चाहिए। इस गैस को एनालिटिकल रिएजेंट, रिड्यूसिंग एजेंट के रूप में तथा मेटेलिक सल्फाइड बनाने में उपयोग किया जाता है। द्वितीय सत्र में सुश्री प्रीति बैरवा ने छात्राओं को कलरीमीटर के सिद्धांत तथा उसके उपयोग के बारे में जानकारी दी। छात्राओं ने विभिन्न सान्द्रता के विलयन बनाकर कलरीमीटर द्वारा अज्ञात विलयन की सान्द्रता ज्ञात की तथा लैम्ब्डा मैकस ज्ञात करना भी सीखा। कलरीमीटर बीयर-लैम्बर्ट सिद्धांत पर कार्य करता है तथा इसका उपयोग जैविक व रसायनिक क्षेत्र में, रक्त में, जल, मिट्टी व भोज्य पदार्थ में मिनरल्स के विश्लेषण इत्यादि में किया जाता है।

<u>सप्तम दिवस- छात्राओं ने सीखा आसुत जल बनाने की प्रक्रिया (६ अप्रैल) Distillation & Distillation Apparatus</u>

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप के सातवें दिन छात्राओं ने डिस्टिलेशन प्लांट की क्रियाविधि को समझा। रसायन शास्त्र विभाग में सह आचार्य श्री निमिष कुमार ने छात्राओं को डिस्टिलेशन उपकरण की सहायता से आसुत जल बनाना सिखाया तथा उसके उपयोग की विस्तृत जानकारी दी। छात्राओं ने भी हाथों हाथ डिस्टिल्ड वाटर बनाकर देखा। श्री निमिष कुमार ने बताया कि आसुत जल (डिस्टिल्ड वाटर) का उपयोग रसायनिक व जैविक प्रयोगों के साथ साथ गाड़ियों की बैटरी, इन्वर्टर इत्यादि में भी होता है। इसके अलावा उन्होंने माइक्रोवेव उपकरण तथा मफल फरनेस के बारे में भी विस्तार से जानकारी दी।

<u>अष्टम दिवस - विलयन बनाने व तनुकरण की प्रक्रिया सीखी (७ अप्रैल) Solutions & its dilution and Weighing Balance</u>

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप के आठवें दिन छात्राओं ने प्रायोगिक कार्य हेतु उपयोग में आने वाले विभिन्न प्रकार के विलयन जैसे स्टाक विलयन, मानक विलयन बनाने की विधि को विस्तार से सीखा। रसायन शास्त्र विभाग में वरिष्ठ सह आचार्य डॉ आरती शाह ने छात्राओं को प्रयोगशाला में उपलब्ध अम्लों के तनुकरण द्वारा अलग अलग सान्द्रता के विलयन बनाने की विधि को उदाहरण द्वारा स्पष्ट किया। इसके साथ ही इलेक्ट्रॉनिक तुला पर छात्राओं को रसायनिक पदार्थो को तोलकर विलयन बनाने की सम्पूर्ण प्रक्रिया छात्राओं को सिखाई।

<u>नवम दिवस- छात्राओं ने माइक्रोस्कोपी के बारे में जाना (८ अप्रैल) Microscopy</u>

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप के नवें दिन छात्राओं ने माइक्रोस्कोप के सिद्धांत व क्रियाविधि को समझा वनस्पति शास्त्र विभाग में सहायक आचार्य श्रीमती अनीता मालव ने छात्राओं को जीवविज्ञान प्रयोगशाला में उपयोग होने वाले बेसिक इंस्ट्रूमेंट, विभिन्न प्रकार के अभिरंजन, मॉउंटिंग एजेंट व माइक्रोस्कोप के विभिन्न भाग, सिद्धांत व क्रियाविधि को विस्तार से बताया। छात्राओं ने विभिन्न तरह के डिसेक्शन माइक्रोस्कोप, कम्पाउन्ड माइक्रोस्कोप व आधुनिक विद्युत माइक्रोस्कोप की संरचना, क्रियाविधि व रख- रखाव के बारे में जाना व इन्हे इस्तेमाल करना सीखा। छात्राओ ने पादप भागो के सेक्शन काटकर, स्लाइड्स बनाकर माइक्रोस्कोप में देखा।

<u>दशम दिवस-छात्राओं ने माइक्रोमिट्री तकनीक सीखी (२० अप्रैल) Micrometry</u>

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप के दसवें दिन छात्राओं ने माइक्रोस्कोप की सहायता से सूक्ष्म जीवों का माप लेने की तकनीक को सीखा। वनस्पति शास्त्र विभाग में वरिष्ठ सह आचार्य डॉ अल्पना जौहरी ने छात्राओं को आक्यूलर माइक्रोमीटर की सहायता से अत्यंत सूक्ष्म जीवों को मापने की विधि को विस्तार से बताया। छात्राओं ने डॉ अल्पना जौहरी के निर्देशन में परागकणों, कवक के बीजाणु, तथा पादप कोशिका का माप लेना सीखा। माइक्रोमीट्री तकनीक द्वारा सूक्ष्मदर्शी व आक्यूलर माइक्रोमीटर की सहायता से अत्यंत सूक्ष्म जीवों, परागकणों, कोशिकाओं इत्यादि की माप की जाती है।

<u>ग्यारहवां दिवस- अभिरंजन व आरोपण तकनीक (२१ अप्रैल) Staining & Mounting</u>

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप में प्राणी शास्त्र विभाग में सहायक आचार्य डॉ मौसमी मीणा ने छात्राओं को सूक्ष्म जीवों तथा कोशिकाओं के अभिरंजन व आरोपण की तकनीक (स्टेनिंग एंड माउंटिग) को विस्तार से सिखाया। उन्होंने विशेष प्रक्रिया द्वारा अस्थाई और स्थाई दोनों आरोपण तरीकों में काम आने अभिरंजकों, आरोपण तथा स्थाईकरण में काम आने वाले रसायनों जैसे जाइलिन, एसीटोकार्मीन, ग्लीसरीन, सैफ्रेनिन, पॉलिस्टिरीन इत्यादि के बारे में भी जानकारी दी। इसके साथ ही स्थाई स्लाइड बनाने, एकल व दोहरा अभिरंजन तथा अंतर-संबंधी अभिरंजन के साथ-साथ कोशिकाओं के अभिरंजन की प्रक्रिया का प्रदर्शन भी किया जिसे छात्राओं ने स्वयं भी कर के देखा।

बारहवां दिवस- सेंट्रीफ्युगेशन (२२ अप्रैल) Centrifugation

बेसिक इन्स्ट्रुमेंटेशन व लैब टेक्नीक कार्यशाला में प्राणी शास्त्र विभाग में सहायक आचार्य डॉ विकास जांगिड़ ने अपकेंद्रण मशीन के सिद्धान्त, प्रकार एवं अनुप्रयोग के बारे में बताया। डॉ जांगिड़ ने सभी प्रशिक्षणार्थियों को जन्तु एवं पादप कोशिकाओं से विभिन घटको को उक्त मशीन से विलगित व पृथक्करण करना सिखाया। यह तकनीक वृहत जैवरासायनिक अणुओं के जलगतिकी आधारित गुणों के आधार पर विश्लेषण, स्तनियों में कोशिकाओं के शोधन, फोरेंसिक एवं अनुसंधान में रूधिर व यूरीन घटको का पृथक्करण व विष्लेषण, उपकोशिकीय अंगको का विलगन, जल से चाक पाऊडर का प्रथक्करण, वृहद स्तर पर अपशिष्ट जल उपचार, दुग्ध से फैट का विलगन एवं मदिरा उद्योग में अशुद्धियों को प्रसंस्करित करने में इस तकनीक का बखूबी इस्तेमाल किया जाता है।

विश्व पृथ्वी दिवस समारोह

जा बे बा राज कन्या महाविद्यालय में आज दिनांक 22 2022 को नवाचार प्रकोष्ठ, वनस्पति शास्त्र विभाग के संयुक्त तत्वावधान में विश्व पृथ्वी दिवस समारोह मनाया गया। इस अवसर पर नवाचार प्रकोष्ठ प्रभारी डॉ पूनम जायसवाल ने छात्राओं को पृथ्वी दिवस के इतिहास संबंधित जानकारी दी तथा पृथ्वी से जुड़े तथ्यों को साझा किया। वरिष्तम संकाय सदस्य व वनस्पति शास्त्र विभाग प्रभारी डॉ प्रतिमा श्रीवास्तव ने छात्राओं को पृथ्वी को अपने मूल स्वरूप में संरक्षित करने हेतु कटिबद्ध रहने के लिए प्रेरित किया। डॉ शुचिता जैन ने पारिस्थितिकी तंत्र में पृथ्वी की जैव-विविधता को संरक्षित करने व प्राकृतिक संसाधनों के बुद्धिमत्तापूर्ण उपयोग के महत्व को रेखांकित किया। इस अवसर पर गणित विभाग में सहायक आचार्य डॉ अन्नू बंशीवाल ने पृथ्वी विज्ञान मंत्रालय, भारत सरकार द्वारा आनलाईन शपथ की लिंक साझा की गई जिसके शपथ उपरांत प्रमाण पत्र छात्राओं ने हाथों-हाथ प्राप्त किया। इसके अलावा छात्राओं को पृथ्वी व प्राकृतिक संसाधनों को बचाने, उनका सही उपयोग करने तथा समाज में पृथ्वी के संरक्षण व पुनर्स्थापित करने के लिए लोगों को जागरूक करने की शपथ ली।

तेरहवां दिवस – कंप्यूटर असेंबली तथा यू. एस. बी.(२३ अप्रैल) Computer Assembly & USBs

गणित विभाग में गेस्ट फैकल्टी श्री रोहिल शर्मा ने कंप्यूटर के विभिन्न भाग, हार्डवेयर, अलग अलग तरह के यु एस बी तथा कनेक्टर के बारे में बताया । रैम, आई सी, मदर बोर्ड, स्टोरेज क्या होता है, इनका क्या उपयोग है । साथ ही इंटरनेट कैसे कार्य करता है इसके बारे में ही छात्राओं को बताया ।

चौदहवां दिवस – प्रकाश आधारित उपकरण (२५ अप्रैल) Physics Instruments- Light

भौतिक शास्त्र विभाग में संविदा व्याख्याता डॉ अनुराधा पुरोहित ने छात्राओं को प्रकाश आधारित उपकरणों की जानकारी दी। उन्होंने प्रकाश के क्किर्नो के परावर्तन, रिफ्रेक्शन की विधि को बताया तथा माइकेल्सन एपरेटस के उपयोग के बारे में विस्तार से बताया। साथ ही इमेज कैसे बनती है, उत्तल व अवतल लेंस की मदद से इमेज कैसे बनती है, इसको भी बताया।

पन्द्रहवा दिवस- हीमैटोलॉजी तकनीक (२६ अप्रैल) Hematology

जा दे ब राज कन्या महाविद्यालय में "बेसिक इंस्ट्रूमेंटेशन एवं लेबोरेटरी टेक्निक्स" की वर्कशॉप के अन्तिम दिन प्राणी शास्त्र विभाग में सहायक आचार्य डॉ जयश्री डावरे ने छात्राओं को रक्त से संबंधित तकनीक जैसे रक्त कोशिकाओं की पहचान, रक्त समूह की पहचान करना सिखाया तथा रक्त के संगठन के बारे में विस्तार से बताया। उन्होंने एन्टीसीरम ए, बी और डी की सहायता से मानव रक्त में रक्त समूह ए, बी, एबी और ओ को ज्ञात करने की विधि बताई। साथ ही रक्त में हीमोग्लोबिन की मात्रा ज्ञात करना भी सिखाया।

समापन समारोह

समापन समारोह में आयुक्त कॉलेज शिक्षा, राजस्थान शुचि त्यागी व नवाचार एवं कौशल विकास प्रकोष्ठ के नोडल अधिकारी डॉ विनोद भारद्वाज तथा डॉ ललिता यादव भी आनलाईन जुड़े। उन्होंने इस नवाचार के लिए महाविद्यालय को बधाई दी और कहा कि ऐसे कार्यक्रम पढ़ाई में छात्राओं की रूचि बनाए रखने में सहायक है। कार्यक्रम में सबसे पहले प्राचार्य डॉ अनीता कोठारी ने स्वागत भाषण दिया तद्उपरान्त महाविद्यालय में नवाचार प्रकोष्ठ प्रभारी डॉ पूनम जायसवाल ने सारांश रिपोर्ट प्रस्तुत किया।

आयुक्त कॉलेज शिक्षा, राजस्थान शुचि त्यागी ने छात्राओं से शिक्षा में गुणवत्ता सुधार, अकादमिक उन्नयन, डिजिटाइजेशन व नवाचार के तहत छात्राएं क्या चाहतीं हैं इसके बारे में बात की। छात्राओं ने कहा कि नियमित पाठ्यक्रम के अतिरिक्त अन्य सर्टिफिकेट कोर्स भी चलाने चाहिए जिससे छात्राएं पढ़ाई के साथ साथ दूसरे स्किल भी सीख सकें। कुछ छात्राओं ने कहा कि जिस तरह से सभी क्षेत्रों में डिजीटलीकरण बढ़ रहा है उसी तरह शिक्षा के क्षेत्र में भी डिजिटल मोड को शामिल करना चाहिए।

आयुक्त शुचि त्यागी ने छात्राओं को उच्च शिक्षा के लिए राजीव गांधी स्कालरशिप फार एकेडमिक एक्सीलेंस के बारे में भी जानकारी साझा की और संकाय सदस्यों को भी कहा कि इसकी जानकारी सभी छात्राओं को दी जाए जिससे कोई भी छात्रा जानकारी या पैसे के अभाव में उच्च शिक्षा से वंचित न रहे।

नवाचार प्रकोष्ठ की प्रभारी अधिकारी डॉ पूनम जायसवाल ने बताया कि इस कार्यशाला में अभी तक 30 प्रकार की टूल तथा तकनीको की प्रायोगिक जानकारी इस कार्यशाला के माध्यम से प्रशिक्षणार्थियों को दी जा चुकी है।

List of Students who completed 15 day's training in "Basic Instrumentation and Laboratory Techniques"

S. N.	Name of Student	Class
1	Divya Gupta	M. Sc. Pre.
2	Kratika Bhargva	B. Sc. Part-I
3	ANJU kumari Lodha	B. Sc. Part-III
4	Kashish vijay	B. Sc. Part-I

5	Lakshita Gautam	B. Sc. Part-II
6	Manisha Panchal	B. Sc. Part-III
7	Meenakshi Chauhan	B. Sc. Part-III
8	Salin Pahariya	B. Sc. Part-II
9	Sayyad aqsa abid	B. Sc. Part-II
10	Saman khan	M. Sc. Pre.
11	Jaya Kanwar	B. Sc. Part-III
12	Manaswini	B. Sc. Part-I
13	Saniya Anjum	B. Sc. Part-I
14	Neha hada	B. Sc. Part-I
15	Shaily verma	B. Sc. Part-I
16	Divyanshi verma	B. Sc. Part-I
17	Sakshi Rathore	B. Sc. Part-II
18	Harshita	B. Sc. Part-II
19	Sadiya kosar	B. Sc. Part-I
20	Ritu Jadoun	B. Sc. Part-I
21	Khushboo shekh	B. Sc. Part-I
22	Harshita	B. Sc. Part-II
23	Antima mahawar	B. Sc. Part-II
24	Mevish bano	B. Sc. Part-II
25	Chhavi joshi	M. Sc. Pre.
26	Pooja Kumari	B. Sc. Part-II
27	Shivani meena	B. Sc. Part-III
28	Monika Jangid	B. Sc. Part-II
29	Soniya yadav	B. Sc. Part-III
30	Janhavi Dixit	B. Sc. Part-II
31	Bharti Mahawar	B. Sc. Part-III
32	Sanjana Jatav	B. Sc. Part-I
33	Khushboo Meena	B. Sc. Part-II
34	Aaliya khan	B. Sc. Part-II
35	Aditi tiwari	B. Sc. Part-III
36	Kamayani mahawar	B. Sc. Part-II
37	Renu jagrawal	B. Sc. Part-I
38	Simran kumari	B. Sc. Part-I
39	Dolly	B. Sc. Part-I
40	Laxmi Gurjar	B. Sc. Part-I

41	Sapna	B. Sc. Part-II
42	Neetu Dhakar	B. Sc. Part-III
43	Khushboo verma	B. Sc. Part-I
44	Shipra Meena	B. Sc. Part-I
45	Simran bhatt	B. Sc. Part-II
46	Sneha Gupta	B. Sc. Part-III
47	VARUNI SHARMA	B. Sc. Part-II
48	Payal Dangoriya	B. Sc. Part-III
49	Shweta Sharma	B. Sc. Part-III
50	Nikita goudh	B. Sc. Part-III
51	Chanchal chittora	B. Sc. Part-II
52	Shivani pahadiya	B. Sc. Part-II
53	nandini sharma	B. Sc. Part-II
54	Somya kanwar	B. Sc. Part-II
55	Fazilat Khanam	B. Sc. Part-II
56	Ajmat fatima	B. Sc. Part-II
57	Harshita	B. Sc. Part-II
58	Meghna Bohawat	B. Sc. Part-III
59	Kanchan kushwah	B. Sc. Part-III
60	Anju rathor	B. Sc. Part-III
61	Suman meena	B. Sc. Part-II
62	Darakhsha Anjum	B. Sc. Part-III
63	Srishti verma	M. Sc. Pre.
64	Khushi Singh	B. Sc. Part-III
65	Suman gocher	M. Sc. Final
66	Girija kumari	B. Sc. Part-II
67	Anjali yadav	B. Sc. Part-II
68	Saniya	B. Sc. Part-II
69	Anjali meena	M. Sc. Pre.
70	Vasundhara Hada	B. Sc. Part-I