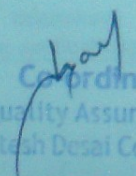
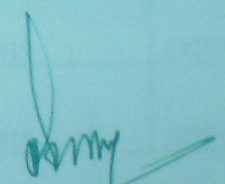


3.3.1 Number of research papers published per teacher in the Journals notified on UGC CARE list during the last five years

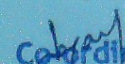
S.NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Is it listed in UGC Care list
2021-2022							
1	Diversity of wild fruit plants in Maliabad hills of Raichur, Karnataka, India	Prashant Kumar	Botany	International Journal of Home Science	2022	2395-7476	Yes
2	Design of Co3O4 / Polyaniline nanostructures for structural and electrical research	Chakradhar Sridhar	Physics	Neuro quantology	2022	1303-5150	Yes
3	Synthesis of NiO doped polyaniline nanocomposites: Structural and D and C conductivity studies	Chakradhar Sridhar	Physics	Science Direct	2022		Yes
4	Acute oral toxicity study of " Polyherbal formulation (Rosmarinus officinalis, Ashwaghandha and Amla) in Wistar rats	Dr. Shivaraj Yallappa	Zoology	Journal of Entomology and Zoology	2021	2320-7078	Yes
5	In Vitro Toxicity of Bavistin (Carbendazim 50% Wp) On Sclerotium Rolfsii Sacc.	Prashant Kumar	Botany	International Journal of Advance Research, Ideas and Innovations in Technology	2001	2454-132X	Yes
2020-2021							
6	Synthesis, characterization and DC Conductivity studies of CoCl2-PEO Doped Polyaniline Complexes	Chakradhar B	Physics	International Journal of Science and Research	2020	2319-7064	Yes
7	Micro wave: A new R package for dental micro wave analysis	Prof. Sharnagouda B H	Electronics	International Journal of scientific Development and Research	2020	2455-2631	Yes
8	Micro-wave in modern squirrels in relation to diet	Prof. Sharnagouda B H	Electronics	International Journal of Creative Research Thoughts	2020	2320-2882	Yes


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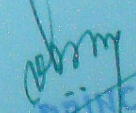



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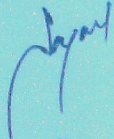
S.NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Is it listed in UGC Care list
9	Toxic effect of green synthesized silver nanoparticles on freshwater fish, <i>Oreochromis mossambicus</i> (Peters)	Dr. Shivaraj Yallappa	Zoology	International journal of fisheries and Aquatic Studies	2020	2347-5129	Yes
10	Synthesis and characterization of Moringa oleifera copper nanoparticles shows toxic effect on fish <i>Cirrhinus mrigala</i>	Dr. Shivaraj Yallappa	Zoology	International journal of Pharma and Biosciences	2020	0975-6299	Yes
11	Plant species diversity in Kolanki hills of Raichur, Karnataka, India	Prashant Kumar	Botany	International Journal of Home Science	2020	2395-7476	Yes
12	Plant species diversity in Mallikarjun rocky hills of Raichur, Karnataka, India	Prashant Kumar	Botany	Indian Journal of Plant Sciences	2020	2319-3824	Yes
2019-20							
13	<i>Bacillus thuringiensis</i> (serotype 14) crystal toxins shows non-toxic effects on fingerlings freshwater fish cyprinus carpio against the mosquito larvae	Dr. Shivaraj Yallappa	Zoology	International journal of Pharma and Biosciences	2019	0975-6299	Yes
14	Toxic effect of <i>Bacillus thuringiensis</i> (Serotype 14) bacteria shows behavioural & histological changes on mosquito larvae	Dr. Shivaraj Yallappa	Zoology	Journal of Entomology and Zoology Studies	2019	2349-6800	Yes
15	Fort epilithophytes of Gulbarga, Karnataka, India	Prashant Kumar	Botany	International Journal of Home Science	2019	2395-7476	Yes
16	Phytochemical studies in Momoridica dioica Roxb. An important wild medicinal plant of Bidar district.	Prashant Kumar	Botany	Shodhmanthan	2019	0976-5255	Yes
17	Dielectric and magnetic properties of microwave materials	Prof. Sharnagouda B H	Electronics	The international journal of analytical and experimental modal analysis	2019	0377-9254	Yes
18	A study on microwave and its Remote Sensing applications	Prof. Sharnagouda B H	Electronics	Journal of Electrical and Electronics Engineering (IOSR)	2019	2278-3331	Yes


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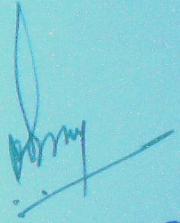



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S.NO	Title of paper	Name of the author/s	Department of the teacher	Name of journal	Calendar Year of publication	ISSN number	Is it listed in UGC Care list
2018-19							
19	Traditional Herbal remedies for human diseases of Bidar Fort, Karnataka	Prashant Kumar	Botany	International journal of science and research	2018	2319-7064	Yes
20	Bio-degradation of waste products	Dr. Vidya Patil	Microbiology	Airo National Reseach Journal	2018	2321-3914	Yes


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Diversity of wild fruit plants in Maliabad hills of Raichur, Karnataka, India

Dr. Prashantkumar and Dr. HC Shrishail

Abstract

Plant species diversity of a particular habitat depends upon the environmental factors such as rainfall, temperature, sunlight, wind and moisture. Fruit bearing is the core sign of motherhood among flowering plants. The present paper deals with the Diversity of wild fruit plants in Maliabad hills of Raichur. A total 29 species and 28 genera belonging to different 17 families have been recorded. It is observed that more number of plants in the rainy season and less number in the summer season. Hill flora shows very poor representation of monocotyledons. It is interesting to note that the Fabaceae members are dominant followed by Euphorbiaceae and Cucurbitaceae.

Keywords: Wild plants, Maliabad Hill, Diversity, Raichur, Karnataka

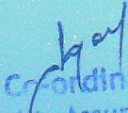
1. Introduction

To survey the plant species diversity and their status in the existing different forests of the world is an important requirement of the current time. The considerable variation taking place in the flora of a particular habitat mainly due to climate change and anthropogenic effect. In Angiosperm the development of diverse reproductive structures has been considered as one of the major factors of species specificity. Studies on such periodically occurring phenomena in plants with respect to the climate and seasonal changes are termed as phenology, Lokho and Kumar (2012) [5]. Many plant researchers in India have reported the distribution of plant species in different regions based on the natural habitats in the form of flora, among which some of them are namely Ramanjam and Kadamban (2001) [7], Bairagee and Kalita (2003) [3], Shrikanth *et al.*, (2006) [10] Anuradha Chauhan *et al.*, (2007) [2], Vinay Ranjan (2010) [12], Shiragave, P. D. (2015) [9], Patharaj. J. (2016) [6], Soosairaj. S. *et al.* (2016) [11] and Acharya Balkrishna *et al.*, 2018) [1] The Raichur Maliabad forest is located in Northern part of Karnataka and lies between 16°15'06" and 16°09'02" north latitude and 77°35'63" and 77°21'22" east longitude and altitude of 514 meters from the Sea level and the average temperature from 30 to 42 °C (Fig.1).

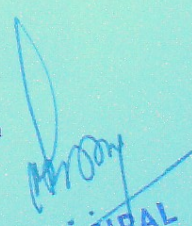


Fig.1 Map of Raichur district showing Maliabad hills in Karnataka

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Design of Co₃O₄/Polyaniline nanostructures for structural and electrical research.

Mahadeva¹, Hajeebaba K Inamdar^{2*}, Ashwajeet J S³, Chakradhar Sridhar^{4*}

Abstract

In-situ polymerization was used to create Polyaniline (PANI)/Cobalt oxide (Co₃O₄) hybrid nanostructures (NSs) utilizing Cobalt nitrate as a metal precursor, Polyaniline as a polymerizing agent, and Aloe-Vera (A.V.) gel as an organic fuel. In contrast to the unadulterated segments, PANI and Co₃O₄ nanoparticles (NPs), due to communication among the PANI and the Co₃O₄ nano particles, the electrical investigations of PANI/Co₃O₄ hybrid NCs are rather distinct.

The results of the gas sensing investigations show that the constructed NCs have an excellent reaction to gas leaking. As the Co₃O₄ NPs concentration increases from 10% to 50% wt%, AC and DC conductivity in the hybrid NCs increases from 1×10^{-5} to 5×10^{-5} (S/cm)⁻¹ at ambient temperature. Based on the results of the measurements and data collected, the synthesized hybrid nanocomposites might be employed in optoelectronic device applications and it's a semiconducting material.

Keywords: Polyaniline (PANI), Cobalt oxide (Co₃O₄), Nanocomposites (NCs), Conductivity.

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581

Introduction

Hybrid composites comprising polymer and inorganic nano oxides have been widely used in a variety of sectors, including soldierly gear, defensive sartorial, catalysis, automobiles, aircraft, and photosensitive strategies. It comes from the mixing of natural and inorganic hybrid materials, which gives them remarkable characteristics [1-2]. High mechanical characteristics, fire confrontation, chemical and radiation confrontation, environmental constancy, water repellency etc, are all required for usage of these hybrid nanocomposites in a variety of application zones. Further, in polymer and inorganic oxide nano oxide hybrid composites the components and their volume percentages, geometrical construction, incorporations of matrix and filler material, superficial communications between the matrix and inclusions are all significant variables [1-4].

The composites are made of usual foremost polymers such as PANI [2], and poly-thiophene (PTh). PANI, amongst the aforementioned polymers, has gotten a lot of attention because of its unique characteristics in comparison to others [5, 6]. Because of their prospective uses and logical interests, Inorganic oxide materials in the nano domain have been thoroughly investigated. These materials have good physical and chemical characteristics due to the influence of their size [7, 8]. NCs made up of PANI and Co₃O₄ are being studied more and more because their characteristics differ significantly from those of PANI and Co₃O₄ NPs, which can be ascribed to interfacial interactions between the PANI and Co₃O₄ NPs [9-14]. Several papers may be reviewed to learn more about an electrochemical characteristic of PANI and its NCs [15-19].

The current study focuses on dispersing Co₃O₄

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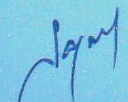
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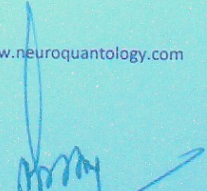
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Synthesis of NiO doped Polyaniline nanocomposites: Structural and D C conductivity studies

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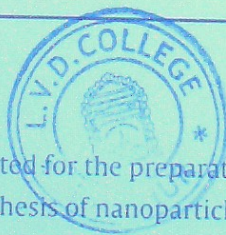
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Abstract

An eco-friendly approach is introduced for the synthesis of Nickel oxide (NiO) nanoparticles using the Aloe-vera L. plant extract. Bioinspired mediated synthesis of nanoparticles have been suggested as a very simple, inexpensive, non-toxic and environmental manner. In-situ polymerization scheme was used to create Polyaniline (PANI)/ Nickel oxide (NiO) hybrid nanostructures (NSs) Various characterizations like PXRD, SEM-EDX and TEM shows the presence of PANI and NiO nanoparticles (NPs), the electrical investigations of PANI/NiO hybrid NCs are rather distinct. As the NiO nanoparticles concentration increases from 10% to 50% wt %, DC conductivity in the hybrid nano composites increases from 0.01×10^{-8} to 0.4×10^{-8} (S/cm)⁻¹ at ambient temperature. Based on the results of the measurements and data collected, the synthesized hybrid NCs might be employed in enhancement of DC conductivity of PANI.

Introduction

An eco-accommodating methodology is presented for the preparation of NiO nanoparticles using the Aloe-vera L. plant extract. Bioinspired mediated synthesis of nanoparticles has been suggested as a very simple, inexpensive, non-harmful and environmental friendly for the synthesis of nanoparticles using plant substance act as reducing/capping/stabilizing agents. Green synthesis of metal oxide nanoparticles is important effective job in morphological structure and restricted in size and its surface area exhibiting numerous applications [2], [3]. Hybrid composites comprising polymer and inorganic nano oxides have been widely used in a variety of sectors, including soldierly gear, defensive sartorial, catalysis, automobiles, aircraft, and photosensitive strategies. It comes from the mixing of natural and inorganic hybrid materials, which gives them remarkable characteristics [1], [2]. High mechanical characteristics, fire confrontation, chemical and radiation confrontation, environmental constancy, water repellency etc. [3], are all required for usage of these hybrid NCs in a variety of application zones. Further, in polymer and inorganic oxide nano oxide hybrid composites the components and their volume percentages, geometrical construction,



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Acute oral toxicity study of “Polyherbal formulation (*Rosmarinus officinalis*, *Ashwagandha* and *Amla*) in Wistar rats”

Dr. Shivaraj Y, Kaveri KR, Dr. Asiya Nuzhat FB and Rajesh R

DOI: <https://doi.org/10.22271/j.ento.2021.v9.i4a.8752>

Abstract

Today in this present globe many part of the continents the use of herbal medicinal products and supplements has increased tremendously over the past three decades with not less than 80% of people worldwide trusting on them for some part of primary healthcare. The study was focused to evaluate the acute oral toxicity of polyherbal formulations (PHFs) and the developed polyherbal formulation includes three herbs viz. the roots of *Withania somnifera* (Ashwagandha), leaves of *R. officinalis* (Rosemary) and fruit of *Embllica officinalis* (Amla) detect the effect of this polyherbal formulation on higher mammals. The raw materials were standardized according to the WHO guidelines and the three holistic extracts were mixed in 1:1:1 ratio for further study by bio-guided method and also in combination to control and curing or managing of different diseases. However, to confirm the drug's safety and efficacy in the appropriate dosages we used healthy nulliparous and non-pregnant female Wistar Albino rats (*Rattus norvegicus*) with average body weight of 160 g - 180 g and age between 8-12 weeks were used through the experiments in the present study administered a single dose of 2000mg/kg of body weight by oral gavage in female Wistar rats the observation period of 14 days. The rats were maintained under standard laboratory conditions (room temperature of 22.1 to 24.6°C with optimal air cycle changes 12-15 per hour and relative humidity of 48-61 % with 12 hours light & dark cycle). The animals were fed with laboratory animal feed and UV sterilized drinking water was provided *ad-libitum* throughout the experimental period. Hence the present study is designed to test the acute (limit dose) toxicity of two herbal extracts of rosemary leaf and ashwagandha and amla root in Wistar rats following the OECD guidelines 423, which would help in suggesting the minimum safety level of herbal extracts.

Keywords: Acute oral toxicity, polyherbal formulation, bio-guided method, *Ad-libitum* and wistar rats

Introduction

Today in this green planet the Plants are very useful to mankind. Many of them are used exclusively for medicinal purposes. According to the World Health Organization (WHO), “a medicinal plant is a plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes, or which are pioneers for chemo-pharmaceutical semi-synthesis.” Such plants are in great demand by pharmaceutical companies for their active ingredients. Herbal care or traditional systems of medicine are used from ancient times; herbs have been the original source for most of the drugs. Today approximately 70% of the world population is depending on medicinal herbs. Medicinal plants contain so many chemical compounds which are the major source of therapeutic agents to cure human diseases and Herbal formulations have attained wide recognition in comparison to crude plant materials and extracts, due to reduction in dose levels, convenience and ease of administration. These formulations are popular worldwide as therapeutic agents, in various ailments that impact the quality of life of human beings. Recent research focus has shifted towards the use of herbal medicines due to their diverse biological activities, easy availability, cost effective in nature and safe usage. Polyphenols and flavonoids present in the medicinal plants have been shown to possess significant anticancer properties. The information of extractability of a plant provides an idea regarding the amount of extract present in a definite quantity of drug. The extractability also serves as a tool for quality control of plant-drug by ⁽¹⁾ today the Herbal medicines are traditionally given in the form of polyherbal formulations (PHFs) as each ingredient is supposed to have different pharmacological function. Polyherbal formulations are usually prescribed to be taken for a longer period and hence may cause adverse effects in the patients, thereby deserving evaluation of their efficacy and safety profile.

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In Vitro Toxicity of Bavistin (Carbendazim 50% Wp) On Sclerotium Rolfsii Sacc.

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ABSTRACT

When the hosts are susceptible and the environment is feasible the viable fungal pathogens causes many plant diseases. The diseased plant fails to produce healthy yield and also decline its viability. To inhibit the effect of fungal pathogens either natural or synthetic fungicides are applied. The present investigation deals with In vitro antifungal activity of the synthetic fungicide Bavistin (50% WP) on *Sclerotium rolfsii* Sacc. using poisoned food technique. Mainly 0.2mg, 0.4mg, 0.6mg and 0.8mg of fungicide were incorporated into four different 100ml PDA media and obtained specific concentrations such as 10ppm, 20ppm, 30ppm and 40ppm respectively and then poured into four different petriplates. It was found very toxic at 40ppm and the growth was completely inhibited where as the lower concentrations such as 30ppm, 20ppm and 10ppm showed various degrees of inhibition on soil borne fungus *Sclerotium rolfsii* Sacc.

Keywords: In Vitro, *Sclerotium Rolfsii*, Bavistin, PDA Medium, Poisoned Food Technique.

1. INTRODUCTION

For the past several years, the use of chemicals as fungicides are being tried for their efficacy in the laboratory as well as in the field. Some of them have been effective for certain period and after which they become ineffective giving way for newer and competitive ones. Several attempts have been made in recent years to control plant diseases with chemicals and achieved considerable success. The availability of sufficient evidences indicates the potentiality of systematic treatment as a more reliable means of control. Yet a knowledge of the necessary relationship between the lethal or static effect of some chemicals on certain fungi are often over looked in developing new fungicides at the time of recommendation. In vitro studies of chemicals against specific pathogens provide sufficient evidences confirming fungitoxicity as a reliable basis for field application. To be an antifungal compound, a substance has to be detrimental to the fungus. Often this is accomplished by preventing spore germination. Sometimes by preventing the growth or by the destruction of mycelium or preventing reproduction. In addition to this the puzzling phenomenon encountered by pathologists in the specificity of the fungicide against a required organism. The application of fungicides over a long period may result in plant pathogenic fungi developing resistance (Benítez et al., 2004, Agrios, 2005; Kim and Hwang, 2007). When this happens other fungicides must be used for effective disease control. Keeping this in view and the application of Bavistin (Systemic fungicide) does not seem to have been evaluated to an applicable degree against the control of root pathogen *Sclerotium rolfsii* Sacc. So, the present investigation was under taken in vitro condition in order to find out the effective concentration to control this fungal pathogen.

Sclerotium rolfsii Sacc. a common soil borne fungus is known to be a pathogenic on nearly 500 plant species (Sulladmath et al 1977) and known to cause seedling blight, root rot and wilt symptoms. In India these diseases caused by *Sclerotium rolfsii* Sacc. is known to occur on crop plants in almost all states (Aycok, 1966). The wide host range of this pathogen makes the search for resistance futile; hence there is a need for an effective chemical which is feasible for farmers. Bavistin (Carbendazim 50% WP) a broad spectrum systemic fungicide is known to prevent as well as cure a large number of diseases of field, plantation, fruit, vegetable and ornamental crops.

2. MATERIAL AND METHODS

The root rot affected plants of *Sesamum indicum* L. Were collected from the fields near Bhosga tank of Gulbarga district, Karnataka, India. The infected portions were cut in to 4cm bits and incubated on moist blotter for 3 days under laboratory part profusely it was transferred to petriplates containing PDA (Potato Dextrose Agar) medium for further growth. The fungus thus isolated from the diseased tissues were purified by subculturing the hyphal tips on to a fresh PDA medium to obtain pure cultures. The purified culture was then allowed to grow further till it produced sclerotial bodies of identification.

Synthesis, Characterization and DC Conductivity Studies of CoCl_2 -PEO Doped Polyaniline Complexes

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Abstract: The polymer electrolyte based on polyethylene oxide (PEO) complexes with conducting Polyaniline (PANI) and Cobalt Chloride (CoCl_2) has been prepared indifferent weight percentage (wt%) by insitu polymerization method. The complexation is characterized by X-ray diffractometry (XRD) and scanning electron microscopy (SEM), which confirmed the presence of polyethylene oxide complexes with conducting Polyaniline and Cobalt Chloride salt. DC conductivity studies show thermally activated behavior of all the composites. The conductivity was found to increase with the increase in temperature indicating the semiconducting behavior of all the complexes. Maximum conductivity was observed in 30 wt% of Cobalt Chloride salt complexes with conducting Polyaniline and polyethylene oxide.

Keywords: Polyaniline, Cobalt Chloride salt, Polyethylene oxide, complexes, DC conductivity

1. Introduction

Conducting polymers have been extensively studied in the last 20 years and used for technological applications in electrochromics, batteries, biosensors, gas separation membranes, enzyme immobilization matrices and metal projection against corrosion [1-4]. Polyaniline (PANI) has received much attention as a popular kind of conducting polymer with various exceptional [5]. Since the discovery of high electrical conductivity from blending poly(ethylene oxide) PEO with potassium salts by Fenton et al [6]. Polymer electrolytes have attracted a lot of interest, especially because of their potential use in thin film batteries. Polymer electrolytes consist of polar polymer and ionizable salts. PEO is the most popular polymer used, due to its high solvating power with metal ions, good processability, and outstanding mechanical properties [7-12]. Many works based on nano-composite polymer electrolyte systems have been carried out till now. Some of these systems are $\{(\text{PEO}+\text{SiO}_2): \text{NH}_4\text{SCN}\}$ [13], PVC-ZnO-LiClO_4 [14], $\text{PMMA-EC-LiCF}_3\text{SO}_3\text{-Al}_2\text{O}_3/\text{SiO}_2$ [15], $\text{PVA:NH}_4\text{SCN:DMSO:Al}_2\text{O}_3$ [16] and $\text{PMMA-PEO-LiClO}_4\text{-EC/PC-Al}_2\text{O}_3/\text{TiO}_2/\text{SBT(CIT)}$ [17], etc. wherein the effect of filler in polymer electrolyte on conductivity has been studied. The researchers have discussed different explanations for the improvement in conductivity with the incorporation of filler such as higher dissociation of salt and increment in the level of amorphous phase, space charge induced enhancement effect and increment in the dipole moment of the polymer chains, etc. depending on the filler added in the electrolyte system [18-21]. In this paper, the authors have reported the Synthesis, characterization and studies on DC conductivity of PANI: CoCl_2 :PEO complexes.

2. Materials and Method

All Chemicals used were analytical reagent (AR) grade. The monomer aniline was doubly distilled prior to use. Ammonium persulphate (APS) $(\text{NH}_4)_2\text{S}_2\text{O}_8$, Hydrochloric acid (HCl), and Cobalt Chloride salt (CoCl_2), PEO were procured from sigma and were used as received.

a) Synthesis of Polyaniline:

The synthesis was based on mixing aqueous solutions of aniline hydrochloride and ammonium persulphate at room temperature, followed by the separation of polyaniline hydrochloride precipitate by filtration and drying. Aniline hydrochloride (equi molar volumes of aniline and hydrochloric acid) was dissolved in distilled water in a volumetric flask to 100 mL of solution. Ammonium persulphate (0.25M) was dissolved in water also to 100 mL of solution. Both solutions were kept for 1 hour at room temperature (25°C), then mixed in a beaker, stirred with a mechanical stirrer, and left at rest to polymerize. Next day, the PANI precipitate was collected on a filter, washed with 300-mL portions of 0.2 M HCl, and similarly with acetone. Polyaniline (emeraldine) hydrochloride powder was dried in air and then in vacuum at 60°C to achieve the constant weight [22].

b) Synthesis of PANI: CoCl_2 : PEO Complexes

The 0.1 mole aniline monomer is dissolved in 1 mole HCl to form aniline hydrochloride. Fine graded pre-sintered CoCl_2 +PEO (AR grade, SD-Fine Chem.) powder in the weight percentages (wt %) of 10,20,30,40 and 50 wt% is added to the polymerization mixture with vigorous stirring in order to keep the CoCl_2 :PEO powder suspended in the solution. To this reaction mixture, APS as an oxidant is added slowly with continuous stirring for the period of 4 hrs at temperature 50C. Polymerization of aniline takes place over fine grade CoCl_2 : PEO particles. The resulting

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MICRO-WEAR IN MODERN SQUIRRELS IN RELATION TO DIET

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ABSTRACT

Dental micro-wear consists of microscopic damage features on the occlusal surfaces of tooth enamel and reflects physical properties of the diet, as well as enamel structure and post-mortem history of the tooth. Micro-wear analysis has been used to infer the diets of extinct mammals through comparison of features on fossil teeth with those on teeth of living mammals with known diets. A method for documenting micro-wear of large mammals using a light microscope was developed as an alternative to approaches based on scanning electron microscopy. We adapted this method for investigating micro-wear features on squirrel teeth. Both modern and fossil squirrels occur in diverse terrestrial habitats and eat a range of herbivorous to omnivorous diets.

We compared micro-wear features from upper molars of several modern species of frugivorous tree squirrels and omnivorous ground squirrels. We also examined fossil sciurid from the Miocene Siwalik sequence of India the central plains of the United States. We found significant differences in micro-wear features among modern squirrels of different diets and habitats, suggesting that micro-wear features can be used to infer the diets or preferred habitats of extinct species. Micro-wear features were preserved on some of the fossil specimens. A comparison of Pliocene *Spermophilus rexroadensis* to modern *Spermophilus* suggests a diet similar to that of the modern species examined. Micro-wear of Miocene *Eutamias* differed from the pattern in any of the living squirrels examined. The approach presented here holds strong potential for illuminating the trophic geomorphology of small-mammal fossils.

Key Words: micro-wear, squirrels, Sciuridae, paleoecology, ecomorphology

INTRODUCTION

We present here the initial results of a new approach to gathering ecological and paleoecological information from small mammals. We adapted methods of micro-wear analysis, originally developed for the study of dental micro-wear in large mammalian herbivores, to the teeth of modern and fossil squirrels (Sciuridae). Our results demonstrate that micro-wear features commonly present on large mammalian teeth are also observed on teeth of modern and



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Abstract:

Mastication of dietary items with different mechanical properties leaves distinctive microscopic marks on the surface of tooth enamel. The inspection of such marks (dental micro wear analysis) is informative about the dietary habits in fossil as well as in modern species. Dental micro wear analysis relies on the morphology, abundance, direction, and distribution of these microscopic marks. We present a new freely available software implementation, Micro Wear, that, compared to traditional dental micro wear tools, allows more rapid, observer error free, and inexpensive quantification and classification of all the microscopic marks (also including for the first time different subtypes of scars). Classification parameters and graphical rendering of the output are fully settable by the user. Micro Wear includes functions to: (a) sample the marks, (b) classify features into categories as pits or scratches and then into their respective subcategories (large pits, coarse scratches, etc.), (c) generate an output table with summary information, and (d) obtain a visual surface-map where marks are highlighted. We provide a tutorial to reproduce the steps required to perform micro wear analysis and to test tool functionalities. Then, we present two case studies to illustrate how Micro Wear works. The first regards a Miocene great ape obtained from through environmental scanning electron microscope and other a Pleistocene cervid acquired by a stereomicroscope.

Keywords:

Diet reconstruction, open-source software, paleoecology, R package, tooth micro wear.

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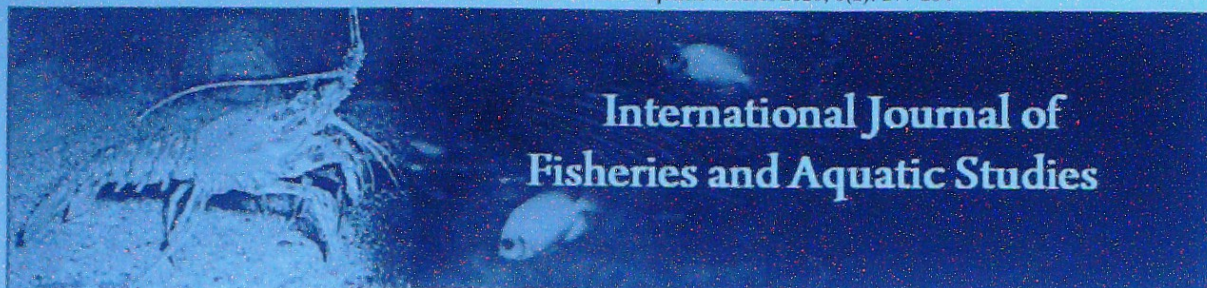
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Toxic effect of green synthesized silver nanoparticles on freshwater fish tilapia, *Oreochromis mossambicus* (Peters)

**Dr. Shivaraj Yallappa, Kaveri KR, Dr. Asiya Nuzhat FB and
Dr. Vijaykumar K**

Abstract

An eco-friendly synthesis of silver nanoparticles (AgNPs) from silver nitrate solution using aqueous Apple fruit extract was investigated. The reduction of silver ions in solution was monitored using UV-visible absorption spectroscopy and morphological analysis was studied by transmission electron microscopy. Short term definitive test by static renewal bioassay method was conducted to determine the acute toxicity (LC₅₀) of green synthesized silver nanoparticles on freshwater fish fingerlings were exposed to different concentrations and the fixed doses 50mg/L for 96hrs, 100mg/L for 96hrs, 150mg/L for 96hrs, 200mg/L for 96hrs and 250mg/L for 96hrs were selected for acute study on fish Tilapia, *Oreochromis mossambicus* procured from Fisheries Research and Information Centre (Inland) Hebbal, Bangalore, Karnataka, India. The size of the fish was (30 ± 35 g; 13 ± 14 cm) and duration 4 days respectively. Further investigation, the green synthesized silver nanoparticles on the changes in behaviour and bodyweight of a freshwater fish, Tilapia, *Oreochromis mossambicus*. The results of the study evidenced that green synthesized silver nanoparticles is non-toxic but it has led to the altered fish physiology for long term of exposure. However the exact mechanism through which this is achieved needs to be studied further.

Keywords: Green synthesis, AgNPs, characterization, toxicity studies and *Oreochromis mossambicus* (Peters)

Introduction

Nano science and technology is one of the rapidly growing fields as it has potential applications in the fields of information and communication technologies, biotechnology and medicine, optoelectronics and solar-cell. Nano science and nanotechnology primarily deal with the synthesis, characterization and exploration of various kinds of nanostructured materials. Nanostructures constitute a bridge between molecules and infinite bulk systems. Individual nanostructures include clusters, quantum dots, Nano crystals, nanowires, and nanotubes while collections of nanostructures involve arrays, assemblies, and super lattices of the individual nanostructures (Rao C N *et al.*, 2001) [40]. The uniqueness of the structural characteristics, energetics, response, dynamics and chemistry of nanostructures constitutes the basis of Nano science. In general, the nanomaterial have very large surface area to volume ratio due to their small size which brings out new physical and chemical properties compared to their bulk counterparts. The mechanisms of the property change in the material include size dependent quantum confinement effects, change of dimensionality of the system and so on. The properties of materials with nonmetric dimensions are significantly different from those of atoms or bulk materials. The Nano science and technology have grown rapidly especially from the last two decade, due to the ease of use of advanced characterization techniques as well as large number of synthesis methods for nanomaterial.

Nanoparticles can be broadly classified into two groups: Organic nanoparticles and Inorganic nanoparticles. Organic nanoparticle are carbon nanoparticle (fullerenes) and inorganic nanoparticles are magnetic nanoparticle, noble nanoparticle (Au and Ag), semiconductor nanoparticle (TiO₂ and ZnO). Especially inorganic nanoparticles have created attention towards itself due to its superior material properties with versatile functions. Due to nano size feature it is easily used for chemical imaging drug agents and drugs.

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Synthesis And Characterization Of *Moringa Oleifera* Copper Nanoparticles Shows Toxic Effect On Fish *Cirrhinus Mrigala*

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Abstract: Fish is an healthy food for humans and nutritious diet due to the presence of high protein levels, beneficial fat and various sources of vitamins and minerals. Though the fish is a healthy food, a concern about the toxic effect of copper nanoparticles on fish was reported. The objective of the present work is to study the effect of *Moringa oleifera* CuNPs on fish *Cirrhinus mrigala* fish species. *Moringa oleifera* is a fast growing and drought resistant tree which contains rich amount of nutrients and vitamins -.The initial concentration of the CuNPs colloidal solution was 350 nm by TEM Transverse Electron Microscope micrograph and UV-visible spectrum and X-Ray diffraction. The freshwater fish, *Cirrhinus mrigala* was exposed to lethal concentration of copper nanoparticles synthesized via chemical reduction method using C for a period of 4 days exposure, where the value of LC₅₀ of CuNPs was obtained 2ppm. For the static renewal of exposure, the lethal concentration of copper nanoparticles were 0.5, 1, 1.5 and 2ppm including control group. Some Changes in fish behaviour, like changes in Erratic swimming, restlessness, surfacing and hyper activity etc, were observed at the time of exposure periods. This work seems to be useful in analysing not only the disadvantages of using CuNPs but also problems related to their use.

Keywords: *Cirrhinus mrigala*, *Moringa oleifera*, LC₅₀ CuNPs, Behavioural Changes, Copper nanoparticles.

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Plant species diversity in Kolanki hills of Raichur, Karnataka, India

Dr. Prashant Kumar

Abstract

The environmental gradients such as sunlight, temperature, wind, moisture and rainfall determine the structure and composition of the vegetation of a particular habitat. The plant species diversity mainly relevant to the change of climate of the area. The present paper deals with the plant species diversity in Kolanki hills of Raichur. A total 39 species and 38 genera belonging to different 26 families have been recorded. It is observed that the number of plants was highest in the rainy season and lower in the summer season. Hill flora shows very poor representation of monocotyledons. It is interesting to note that the Fabaceae members are dominant followed by Acanthaceae, Convolvulaceae and Euphorbiaceae.

Keywords: Flora, Kolanki Hill, Diversity, Raichur, Karnataka

1. Introduction

The study of plant species diversity and their status in the existing different forests of the world is a significant need of the present time. Due to remarkable climate change and anthropogenic effect the considerable variation taking place in the vegetation of a particular habitat. In India there are many plant researchers have reported the distribution of plant species in different regions based on the natural habitats in the form of flora, among which some of them are namely Ramanjam and Kadamban (2001) [5], Bairagee and Kalita (2003) [3], Shrikanth *et al.*, (2006) [10], Anuradha Chauhan *et al.*, (2007) [2], Vinay Ranjan (2010) [12], Shiragave, P. D. (2015) [9], Patharaj, J. (2016) [5], Soosairaj, S. *et al.* (2016) [11] and Acharya Balkrishna *et al.*, (2018) [1]. The Raichur Kolanki forest is located in Northern part of Karnataka and lies between 17°35' and 18°25' north latitude and 76°42' and 77°39' east longitude and altitude of 514 meters from the Sea level and the average temperature from 30 to 42 °C (Fig.1).

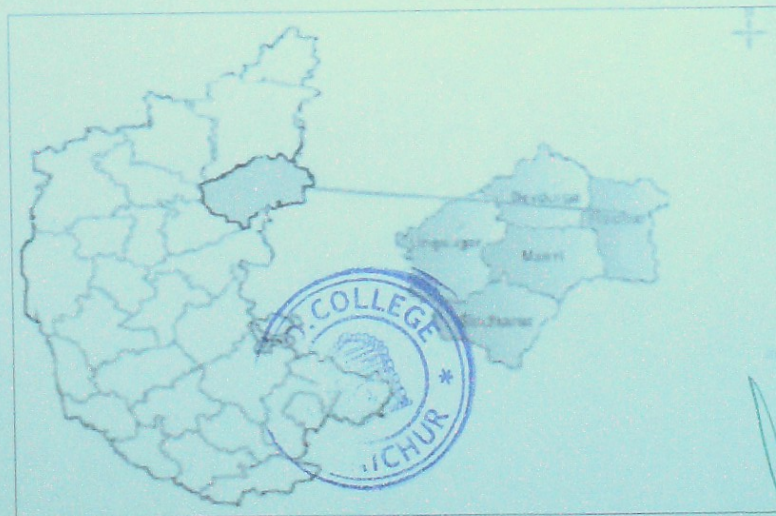


Fig 1: Map of Raichur district showing Kolanki hills in Karnataka

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PLANT SPECIES DIVERSITY IN MALLIKARJUN ROCKY HILLS OF RAICHUR, KARNATAKA, INDIA

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ABSTRACT

The abiotic factors such as sunlight, temperature, wind, moisture and rainfall determine the structure and composition of the vegetation of a particular habitat. The plant species diversity is mainly relevant to the change of climate of the area. The present study investigated the status of plant species diversity in Mallikarjun rocky hills of Raichur. A total 41 species belonging to 41 genera and 29 families have been recorded. It is observed that the number of plants was highest in the rainy season and lower in the summer season. The Rocky hill flora shows very rich representation of dicotyledons (35) as compared to monocotyledons (06). It is interesting to note that the Fabaceae and Asteraceae members are dominant followed by Amaranthaceae, Apocynaceae, Convolvulaceae, Euphorbiaceae, Lamiaceae, Malvaceae, Solanaceae and Poaceae respectively.

Keywords: Plant Species, Mallikarjun Rocky Hill, Diversity, Raichur, Karnataka

INTRODUCTION

All over the world biodiversity is in steady decline mainly due to habitat fragmentation and degradation (Fischer & Lindenmayer 2007). The considerable variation in the vegetation of a particular habitat is seen because of remarkable climate change and anthropogenic impact. It is important to restore the biodiversity rather than stopping its declination. To know the plant species diversity and their status in among different forests of the world is an urgent need of the present time. In India many plant researchers have reported the distribution of plant species in different regions among which some of them are namely Ramanjam and Kadamban (2001), Bairagee and Kalita (2003), Shrikanth *et al.*, (2006), Anuradha Chauhan *et al.*, (2007), Vinay Ranjan (2010), Shiragave, P. D. (2015), Patharaj (2016), Soosairaj *et al.*, (2016) and Balkrishna *et al.*, (2018). The Raichur Mallikarjun Rocky hill forest is located in Northern part of Karnataka and lies between 17°35' and 18°25' north latitude and 76°42' and 77°39' east longitude and altitude of 514 meters from the Sea level and the average temperature from 30 to 42 °C (Figure 1, 2).

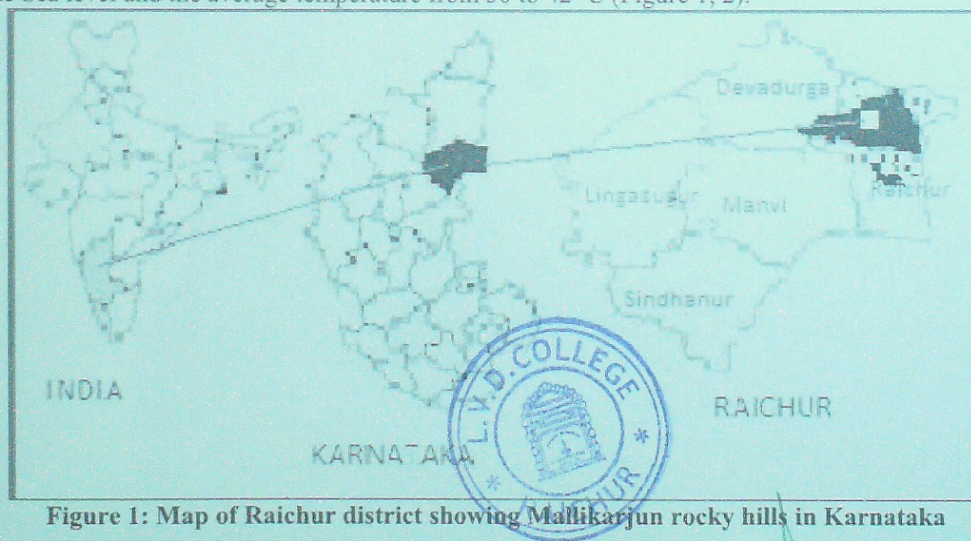


Figure 1: Map of Raichur district showing Mallikarjun rocky hills in Karnataka



BACILLUS THURINGIENSIS (SEROTYPE 14) CRYSTAL TOXINS SHOWS NON-TOXIC EFFECTS ON FINGERLINGS FRESHWATER FISH CYPRINUS CARPIO AGAINST THE MOSQUITO LARVAE.

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ABSTRACT

In the present day situations, human being suffer a lot due to the unadoptable policies of Pesticides companies that produce different bacteria strains Pesticides companies and which produced different bacteria strains like *Bacillus thuringiensis*. (Serotype 14) Crystal toxins is a gram positive, rod shaped and aerobic soil bacteria. *B. thuringiensis* is a bacterium that is not toxic to terrestrial and aquatic living organisms and other mammals but is toxic to certain insects when ingested. *B. thuringiensis* works as an insecticide by producing a crystal-shaped protein (Cry toxin) that specifically kills certain insects. These bacteria produces a proteinaceous parasporal crystal in the sporangium at the time of sporulation. These proteins possess insecticidal properties and are called Bt-toxins or delta endotoxins and also called as Insecticidal Crystal Proteins (ICPs). It is not a single toxin but a class of toxic proteins produced from protoxin that are degraded by proteolytic enzyme to form smaller toxic peptides. In this study, the mosquito larvae are considered as first predators which feed on some protozoans and bacteria, and fingerlings freshwater fishes are considered as the secondary predators which feed on *B. thuringiensis* induced mosquito larvae. The fixation of concentration levels to larva was 9 gm of (Serotype 14) *Bacillus thuringiensis* induced to 10 liter of water which contains 100 mosquito larvae and 10 fishes were consumed by the entire larva and the exposure periods were Day-1 to Day-30 and Recovery Period will be 15 days since during these days there is no toxicity of *B. thuringiensis* on fishes were conformed. When these larvae feed on Bacteria, *B. thuringiensis* show behavioral changes like erratic swimming, slow motility and the larvae move towards the surface of water and regurgitation and sudden mortality were observed because of Bt-crystals effects on enzyme present in the larvae i.e. cytochrome-c-oxidases due to oxidative stress and the liberated crystal toxin like Cry-II and Cry-IV bind into the larva gut cell membrane it shows the paralyzes the digestive tract and forming a pore in that regions and results in the death of the mosquito larvae. The current study shows that *B. thuringiensis* bacteria produces toxins in nature and it shows the effect against the mosquito larvae but (Serotype 14) Crystal toxins shows non-toxic effects on fingerlings freshwater fish *Cyprinus carpio*.

Keywords: *Bacillus thuringiensis* (Serotype 14) bacteria, Crystal toxins, Behavioral, Mosquito larvae & Fish *Cyprinus carpio*.



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Toxic effect of *Bacillus thuringiensis* (Serotype 14) bacteria shows behavioural & histological changes on mosquito larvae

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Abstract

In this current situations the bacteria, *Bacillus thuringiensis* is a gram positive, rod shaped and aerobic soil bacteria. Bt is a bacterium that is not toxic to humans or other mammals but is toxic to certain insects when ingested. Bt works as an insecticide by producing a crystal-shaped protein (Cry toxin) that specifically kills certain insects. These bacteria produces a proteinaceous parasporal crystal in the sporangium at the time of sporulation. These proteins possess insecticidal properties and are called Bt-toxins or delta endotoxins and also called as insecticidal crystal proteins (ICPs). It is not a single toxin but a class of toxic proteins produced from protoxin that are degraded by proteolytic enzyme to form smaller toxic peptides. In this study the mosquito larva are considered as predators which feed on some protozoan's and bacteria, the fixation of concentration levels to larva was 9 gm of (Serotype 14) Bt induced to 10 liter of water which contains 100 mosquito larvae. When these larvae feed on *Bacillus thuringiensis* it show behavioral changes like erratic swimming, slow motility and larva move towards the surface of water and regurgitation because of Bt-crystals effects on enzyme present in the larvae i.e. Cytochrome-c-Oxidases due to oxidative stress and the liberated crystal toxin like Cry-II and Cry-IV bind into the larva gut cell membrane it shows the slight histological changes also and it paralyzes the digestive tract and forming a pore in that regions and results in the death of the larva. This show the toxins nature of *Bacillus thuringiensis* bacteria against the mosquito larvae

Keywords: *Bacillus thuringiensis* (Serotype) bacteria, behavioural & histological changes, crystal proteins

Introduction

In this present world Mosquitoes are the main vectors conveying the many diseases like Malaria, Dengue, Chikengunia and Yellow fever etc. In our ecological surveys of mosquitoes in India, the occurrence of some species likes *Anaphillies*, *Aedes*, *Culex* are found. In these years world facing many deadly diseases caused by some insects. For controlling these insects whole world using some of the chemical insecticides that are currently used to control insect pest are extremely toxic to non-target organisms and in many causes are deleterious to the health of humans and animals, inducing important human diseases such as cancer and immune system disorders. In addition chemical insecticides are recalcitrant breaking down only slowly leading to soil and water pollution. Recent investigations have provided evidences for existence of strains of *Bacillus thuringiensis* processing a highly preferential toxicity to mosquito and black fly larvae.

Bacillus thuringiensis are gram positive, rod shaped spore producing bacteria with entomopathogenic properties. In this worldwide today Bt is naturally found on leaves and in soil and it has been used commercially in organic and other conservative farm type of agriculture since from last fifty years ago. The most important was genetically engineered technique were used and insect-resistant crops express for one to another type Bt insecticidal Cry toxins were used and mostly it has been introduced since from over two decades, the EPA (Environmental Protection Agency) and frequently the scientific bodies have consistently found that Bt and engineered Bt-crops are not harmful to humans life till today. Bt produces insecticidal proteins during sporulation phase as parasporal crystals. These crystals predominantly comprised of one or more proteins (Cry and Cyt toxins), also called delta endotoxins. Cry proteins are parasporal inclusion (crystal) proteins from Bt that exhibit experimentally verifiable toxic effect to a target organism have a significant sequence similarity to a known cry proteins. Similarly, Cyt proteins are parasporal inclusion proteins

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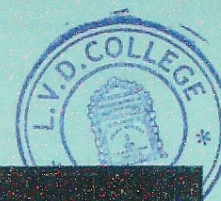
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Fort epilithophytes of Gulbarga, Karnataka, India

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Abstract

The Structure and composition of vegetation scale is shaped by environmental factors such as sunlight temperature and moisture. The diversity of plant species is strongly related to climate. The present paper deals with the epilithophytes of Gulbarga fort. A total 59 species and 47 genera belonging to different 22 families have been recorded. It is observed that the number of plants was highest in the rainy season and lower in the summer season. Fort wall flora shows very poor representation of monocotyledons. It is interesting to note that the family Poaceae occupies top position among the families and the genus *Cyperus* Linn. amongst the genera.

Keywords: Epilithophytes, fort, diversity, Gulbarga, Karnataka

Introduction

Plant study is one of the most important aspect with respect to plant diversity and its status in the existing forests of the world. Shrikanth *et al.*, (2006)^[1], Anuradha Chauhan *et al.*, (2005), Bairagee and Kalita (2003)^[2] and Ramanjam and Kadamban (2001)^[10] etc. have given account of the flora of different regions of India based on the natural habitats. However there are very meager reports on fort flora such as Gopalkrishna Bhat (2004)^[8] and Gandhe *et al.*, (2007)^[7] as compared to wall flora such as Singh and Chaudhary (1995), Sahu (1984)^[11], Pangtey and Rawat (1987)^[9], Bimal *et al.*, (1991), Chhetri (2008)^[4] etc. have thrown much light on the floristic composition of wall habitats. The Gulbarga fort has rich floristic diversity and so far no reports have been done, though it is very important for ecological point of view and the present investigation has undertaken to document the fort epilithophytes. Gulbarga fort is situated in Northern part of Karnataka and lies between 17°35' and 18°25' north latitude and 76°42' and 77°39' east longitude and altitude of 514 meters from the Sea level and the average temperature varies from 30° to 42 °C (Fig.1).

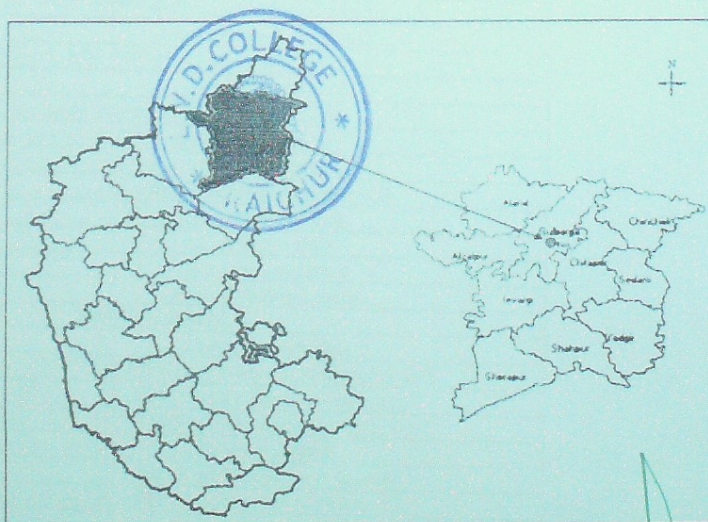


Fig 1: Map of Gulbarga district showing Gulbarga Fort in Karnataka

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PHYTOCHEMICAL STUDIES IN *MOMORDICA DIOICA* ROXB. AN IMPORTANT WILD MEDICINAL PLANT OF BIDAR DISTRICT.



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Abstract

Momordica dioica Roxb. is a very important medicinal plant belong to the family Cucurbitaceae collected from Mangalagi village of Bidar district. Traditionally this plant is mainly used for snakebite, dysentery and skin diseases. Due to its medicinal property the phytochemical screening of underground and aerial portion of both male and female plant has been carried out and found both the primary and secondary metabolites such as proteins, carbohydrates, phenols, flavonols, sterols and triterpenoids.

Key words : *Momordica dioica*, Phytochemical screening, Metabolites and Bidar district

Introduction

During the process of civilization, man interacted with several types of plants and started using them for different purposes. Accidentally, he also hit upon the idea of medicinal properties of the plants and started using them for various ailments either directly or by preparing crude extracts. With the advancement in analytical techniques and instrumentation technology in the last few decades, it has been possible to devise economically feasible techniques for the extraction and fractionation of several phytochemicals. This awakening has added impetus to multidisciplinary research such as, phytochemistry, pharmacology, pharmacognosy, biochemistry etc. to identify the active substances from plant. Phytochemistry achieved a very significant progress in the indigenous system of medicine and it is internationally acceptable. For the development of plant based new drugs, it is necessary to isolate the biologically active component present in the pure form and elucidate its structure by UV, IR, Mass, NMR and X-ray crystallography.

The extracted phytochemical compounds are classified into primary and secondary metabolites. The primary metabolites such as, carbohydrates, lipids, aminoacids, proteins, chlorophyll, and nucleic acids are common to all plants, involved in the primary metabolic processes of plant cells (Kaufman *et al.*, 1999). Where as, the secondary metabolites such as, phenolics, steroids, alkaloids etc. are not universal in occurrence, but play a pivotal role in the ecophysiology of plants. They have a defensive role against pathogen attack and interplant competition and also an attractant role towards beneficial organisms such as, pollinators or symbionts (Kaufman *et al.*, 1999).

The secondary metabolites are present in storage organs of plants such as, roots, leaves, fruits, seeds, wood, bark etc. and play a very significant role in growth and development of plants. They vary with the variation in altitude, soil conditions, climatic conditions, season of collection, habitat and other factors. For example, the bark of *Cinchona* collected in rainy season is reported to have no quinine (Yaniv and Palvetch, 1982) and the application of farm yard manure and nitrogenous fertilizers were found to increase the alkaloid contents in Solanaceous plants apart from increasing the total yield of crude drug (Chevalier, 1910).

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DIELECTRIC AND MAGNETIC PROPERTIES OF MICROWAVE MATERIALS

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ABSTRACT

Microwave technology owes its beginning to the structure and improvement of radar and increased a colossal advancement during the World War II. In the previous phases of improvement, the development of microwave generators like klystron, magnetron and so forth opened the gigahertz frequency district of electro-attractive spectrum to communication engineers. Thus the significant advancement particularly comes in the field of satellite communication. It tends to be seen that microwaves comprise just a little part of electromagnetic spectrum, however their utilizations have gotten progressively significant in the material characterization for modern, logical and clinical applications.

The dielectric data have likewise been utilized to assess the measure of moisture in wood, sand and rural products. The dielectric properties are required for the computation of inward electric fields coming about because of the introduction to non-ionizing electromagnetic (EM) fields and are

A Study on Microwave and Its Remote Sensing Applications

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Abstract: Microwave remote sensing instruments obtain data valuable for geophysical examinations by estimating signals emerging because of cooperation of microwaves with normal media. The principle preferences of microwave remote sensing are because of its capacity to infiltrate the mist, downpour, vegetation and even dry soil surfaces. The infiltration of signal is straightforwardly corresponding to wavelength of microwave signal.

What's more, microwave sensors have capacity for day/night activity autonomous of sun or brightening conditions. The instruments commonly utilized for microwave remote sensing can be named active and passive instruments. In the active system, instrument gives its own enlightenment though in passive system instrument gets signal because of emanation of signal at microwave frequency. Instances of radar remote sensing instruments incorporate Synthetic aperture radar (SAR), scatterometers, altimeters, and radar sounders.

Imaging remote sensing radars, for example, SAR produce high resolution (from sub meter to not many several meters) pictures of surfaces. The geophysical data can be gotten from these high resolution pictures by utilizing appropriate post handling procedures.

Scatterometers measure the backscattering cross segment precisely so as to infer enormous region evaluation of land/sea surfaces. Altimeters are utilized to acquire exact surface stature maps by estimating the full circle time delay from radar sensor material varieties by infiltrating profoundly into the ground. Other ordinarily utilized sensor is ground entering radar for the appraisal of subsurface highlights. The current paper highlights the microwave and its remote sensing applications.

Keywords: Microwave, Remote, Sensing

I. Introduction

Because of long wavelength, microwave signal can infiltrate through overcast spread, murkiness, residue and overwhelming precipitation. This property of microwaves helps in gaining data in practically all climate and ecological conditions so data can be gathered whenever. Active microwave sensors give their own wellspring of microwave radiation to light up the objective.

Active microwave sensors are isolated into two class in particular imaging and non-imaging. Among imaging sensors, RADAR, an abbreviation for Radio Recognition and Running, is commonly utilized in various modes. The radar system transmits a microwave signal coordinating towards the area of intrigue and identifies the signal backscattered by the surface. The strength of returned backscattered signal is a component of surface parameters like dielectric constant and surface unpleasantsness. Because of variability of these parameters, radar returns are diverse for various targets. The resolution is accomplished by time deferral and aperture combination procedure.

Radar altimeters, dissipate meters and surface infiltrating radar are in the class of non-imaging radar. As a rule these are profiling gadgets which take measurements in one linear measurement, instead of the two-dimensional portrayal of imaging sensors. Radar altimeters transmit short microwave heartbeats and measure the full circle time postponement to focuses to decide their good ways from the sensor. For the most part altimeters look straight down at nadir underneath the stage and accordingly measure tallness or rise, ocean surface stature. Altimeter is radio wave permits data in subsurface area as a result of infiltration of signal underneath the surface of a planet.

Scatterometers are additionally by and large non-imaging sensors and are utilized to make exact quantitative measurements of the measure of vitality backscattered from targets. The measure of vitality backscattered is reliant on the surface properties (unpleasantsness) and the edge at which the microwave vitality strikes the objective. Scatterometry measurements over sea surfaces can be utilized to assess wind speeds dependent on the ocean surface unpleasantsness.

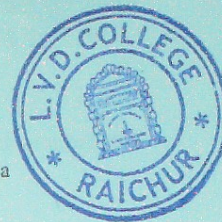
Ground-based scatterometers are utilized widely to precisely quantify the backscatter from different focuses so as to describe various materials and surface sorts. New rising strategies like polarimetry and interferometry have as of late been added as new measurements to applications like DEM, land subsidence, planetary and earth science. Passive microwave sensors called radiometers, gauges the emissive properties of the world's surface. A microwave radiometer is a delicate recipient fit for estimating low degrees of discharged microwave radiations from the surfaces under perception.

Traditional Herbal Remedies for Human Diseases of Bidar Fort, Karnataka

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Abstract: A floristic survey of Bidar Fort was made to assess the medicinal value of herbaceous flora. It is observed that surrounding people of the fort practices traditional system of medicine in their healthcare system. About 20 plant species belonging to genera and families largely used as medicine have been recorded from the fort. These plants contain valuable chemical substances and are employed in the treatment of various diseases. The present work aims at documentation of traditional uses of the Fort medicinal plants for the benefit of mankind.

Keywords: Folk medicine, Herbal remedies, medicinal plants, Bidar Fort, Ethno medicine

1. Introduction

Plants are used for medicine, fuel, timber and food. India is one of the richest floristic regions of the world. It has large number of medicinal plant diversity. People using the medicinal plants for curing the diseases since in the beginning of life. More efforts are made in India to document the traditional knowledge on the use of plants but still more knowledge is remain hidden. Bidar fort is rich in plant diversity but no so far detail studies reported. Therefore, it felt necessary to document the traditional knowledge on medicinal plants of Bidar fort.

Bidar district is located in the Northeastern corner of Karnataka state, and it is considered as one of the smaller districts in terms of both area and population. The district lies between 17° 35' to 18° 35' North latitude and 76° 2' to 77° 39' East longitudes and is located 551 meters above mean sea level. The total rain fall was 815 millimeters during the study period. Bidar fort is regarded as one of the most formidable forts in the country. It is situated in the heart of the Bidar city. The fort was built by Ahmedshah Wali in 1436 A. D. The surrounding are and irregular in shape. It has dry deciduous vegetation with many plant species. The soil of the fort is categorized into red earth comprising red loamy and red sandy soil which covers 70% of the area.

2. Methodology

The Fort is situated at the center of Bidar city. It has about 56 Acre of land and very rich heritage of herbal medicinal plants. During the period from May- 2008 to April-2009 several field trips were undertaken at different seasons. Most of the area covered by medicinal plants and People residing surrounding the fort are aware about therapeutic use of the medicinal plants.

Efforts are made to identify about eight traditional medicinal plant practitioners residing surrounding area of the fort. Information collected from them on usage of medicinal plants for curing various diseases, along with method of drug preparation, mode of administration, probable dosage and duration of treatment. Plant Photographs were taken in

the fort. And specimens brought to the laboratory for preparation of herbarium and preservation in the department of Botany, Gulbarga University, Gulbarga for further reference. These plant species were identified using the flora, Flora of Gulbarga District by (Seetharam *et al.*, 2000) flora of presidency of Madras Gambles (1935) flora of Karnataka Saldhana *et al.* (1988) Flora of presidency of Bombay (Cooke, 1967) Flora of British India (Hooker, 1984).

3. Results and Discussion

Information on 29 plant species belong to 19 genera and 10 families were used commonly as remedies for various diseases are arranged in alphabetical order of their scientific name along with family followed by local names (Kannada language), plant parts, Mode of administration, probable dosage and duration of treatment are enumerated below.

3.1 *Abrus precatorius* Linn.(Fabaceae) Kannada Guluganju

For cough, few leaves are chewed with betel pan once in a day in the night after meals for two days.

3.2 *Acalypha indica* Linn.(Euphorbiaceae) Kannada Gundayela tappalu

Equal proportion of Leaf and root paste applied to skin diseases externally till it cure.

3.3 *Aloe Vera* (L) N.Burn (Liliacee) Kannada Kumari.

For ulcer, the leaf epidermis is removed and juice is mixed with one teaspoonful of sugar and the paste taken internally for 4-5 days.

3.4 *Andrographis paniculata* Nees (Acanthaceae) Kannada Nelabeva

For stomach pain, a handful of leaves crushed with sugar and made into pills. Two pills every day taken internally for two days.

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BIO-DEGRADATION OF WASTE PRODUCTS

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ABSTRACT

In recent years, it is observed that the quantity of waste products is growing at a rapid speed. Due to accumulation of these waste products, it is spreading various harmful diseases among the dwellers. Due to production of a number of insects through these waste products, most of the people are facing problems in living. These waste products are needed to be degraded so as to lower their negative impact.

One solution is to burn all these waste products. But, it would be dangerous for the environment as this process would emit a lot of harmful gases like carbon mono-oxide in the atmosphere. Another better solution is to bio-degrade these waste products. This is the aim of this paper to describe the bio-degradation of waste products.

KEYWORDS: *Bio-degradation, Waste, Product, Environment*

INTRODUCTION

Bio-degradation is the process of the conversion of organic compounds into microbial biomass with the help of micro-organisms. It is observed that water, carbon dioxide, methane are obtained after this process of biodegradation.

Through the process of bio-degradation, toxic pollutants are removed from the soil.

There are a number of factors which decides the biodegradation rate of compounds. Some of these factors are water, temperature and oxygen etc.

It is observed that compounds having high temperature are bio-degraded easily as chemical reactions are involved in the process of bio-degradation.