



3.3.1. NUMBER OF RESEARCH PAPERS PER TEACHER IN THE JOURNALS NOTIFIED ON UGC WEBSITE DURING THE YEAR

NAMES OF THE AUTHORS

DR. JYOTIKA BRARI

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1. Dr. Jyotika Brari - Zoology Department
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RESEARCH ARTICLE

Bioactivity of an Ionic Liquid against Two Major Coleopteran Stored Grain Insect Pests

Jyotika Brari, Shweta Thakur
St. Bede's College, Shimla, Himachal Pradesh, India

Received: 30 September 2021; Revised: 17 October 2021; Accepted: 15 November 2021

ABSTRACT

Introduction: Insecticidal efficacy of a monoterpene-based ionic liquid was evaluated against two Coleopteran insect pests, viz., the red flour beetle, *Tribolium castaneum* Herbst. and the drug store beetle, *Stegobium paniceum* (L). **Methods:** Bioassays for contact activity against adult insects, larvicidal activity, repellent activity, and antifeedant activity were conducted in the laboratory for the above said insect pests. **Results:** Ionic liquid at a highest concentration of 1.0 $\mu\text{l}/\text{cm}^2$ proved to be most effective against adults of *S. paniceum* producing $76.23 \pm 1.9\%$ mortality while $70.12 \pm 3.5\%$ mortality was obtained against *T. castaneum* after 72 h, respectively. *T. castaneum* larvae were most susceptible to all the doses of ionic liquid at a highest dose of 100 $\mu\text{l}/\text{ml}$ of ionic liquid $80.08 \pm 2.2\%$ mortality was obtained followed by a mortality of $68.32 \pm 1.8\%$ for *S. paniceum* among 8-10 day old larvae. Ionic liquid showed remarkable repellency at different doses of 2, 6 and 10 $\mu\text{l}/\text{cm}^2$ against both insect pests. For *S. paniceum* 75.45 ± 1.9 , 80.28 ± 2.4 and $56.35 \pm 4.8\%$ repellency was observed at 10 $\mu\text{l}/\text{cm}^2$ of ionic liquid after 3, 5 and 24 h. Ionic liquid proved to be effective seed protectant against both the insect pests. $87.99 \pm 0.14\%$ FDI was recorded with 5.10 ± 0.30 grain damage at 300 $\mu\text{l}/\text{g}$ of ionic liquid, respectively, while $72.32 \pm 0.18\%$ grain damage was observed in control for *T. castaneum*.

Keywords: Antifeedant, insect pests, ionic liquid, larvicidal, repellent activity

INTRODUCTION

Severe damage in weight and nature of the stored products is caused by many insects.^[1] Adult and juvenile insects form attack many flour factories, distribution centers and supermarkets and feed on an extremely wide assortment of dry vegetable substances, for example, processed cereal items. Interest in the utilization of monetarily accessible bio insecticide sprays and future possibilities for the improvement of new natural arrangements in plant protection has fundamentally expanded as of late. Bio insecticide sprays of business accessibility have produced a great deal of interest in the territory of plant protection with respect to new organic planning advancement. The characteristic items

dependent on plants are generally less unsafe to climate and mammalian wellbeing when contrasted with manufactured synthetic pesticides. Thusly to lessen the negative effects on human wellbeing and climate regular items are the best option in contrast to engineered pesticides. Pesticides derived from plant fundamental oils or their constituents have set up extraordinary proficiency against the expansive scope of stored product damage. Monoterpenes containing ten carbons are a class of plant obtained metabolites. As the fundamental constituents of essential oil, these impart plants their exceptional odoriferous properties. Usually containing 1-3 terpenes as significant parts and numerous others as minor segments the oil constitution is unique for each plant species.^[2] In the case of *Sitophilus oryzae*, the red flour beetle, *Tribolium castaneum* and the sawtoothed grain insect, *Oryzaephilus surinamensis* some usual monoterpenoids have been demonstrated to exhibit fumigant toxicity.^[3] Four stored product

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Bioactivity of an Ionic Liquid against Two Major Coleopteran Stored Grain Insect Pests

Jyotika Brari

DOI: <https://doi.org/10.22377/ijpba.v12i4.1963>

Abstract

Introduction: Insecticidal efficacy of a monoterpene-based ionic liquid was evaluated against two Coleopteran insect pests, viz., the red flour beetle, *Tribolium castaneum* Herbst. and the drug store beetle, *Stegobium paniceum* (L). Methods: Bioassays for contact activity against adult insects, larvicidal activity, repellent activity, and antifeedant activity were conducted in the laboratory for the above said insect pests. Results: Ionic liquid at a highest concentration of 1.0 μ l/cm² proved to be most effective against adults of *S. paniceum* producing 76.23 \pm 1.9% mortality while 70.12 \pm 3.5% mortality was obtained against *T. castaneum* after 72 h, respectively. *T. castaneum* larvae were most susceptible to all the doses of ionic liquid at a highest dose of 100 μ l/ml of ionic liquid 80.08 \pm 2.2 mortality was obtained followed by a mortality of 68.32 \pm 1.8% for *S. paniceum* among 8-10 day old larvae. Ionic liquid showed remarkable

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2. Dr. Shweta Thakur- Zoology department
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Molecular characterization and *in silico* analysis of oxalate decarboxylase of *Pseudomonas* sp. OXDC12

Shruti Gupta and Shamsheer Singh Kanwar

Department of Biotechnology, Himachal Pradesh University, Summer Hill, Shimla, India
Communicated by Ramaswamy H. Sarma

ABSTRACT
Oxalate decarboxylase (OxDC) is a Mn-dependent hexameric enzyme that is highly important in management of calcium oxalate mediated nephrolithiasis. The present study reported the production and purification of OxDC from *Pseudomonas* sp. OXDC12 up to 45.3-fold with an overall yield of 7%. The purified OxDC displayed a single band of approximately 40 kDa on SDS-PAGE and 240 kDa on Native-PAGE suggesting it to be a hexameric enzyme. The purified OxDC displayed an optimum activity at 26 °C and pH 4.5 in the presence of substrate sodium oxalate (30 mg/mL) with a K_m and V_{max} value of 43.9 mM and 8.9 $\mu\text{mol}/\text{min}$, respectively and an activation energy of 52.49 kJ/mol. The enzyme activity was significantly enhanced by adding *o*-phenylenediamine to the reaction mixture. OxDC exhibited a very low 17 haemolytic activity which suggested a relatively safer therapeutic aspect of the tested OxDC. The structure prediction studies of the OxDC revealed a tertiary structure with α/β chains that formed the β barrel structure, typical of all cupin domains. The Ramachandran plot produced by PROCHECK shows that 90.5% of the residues are in the most favoured region and hence the OxDC model produced was a good one. Docking studies revealed the binding of the metal ions and ligands to cluster of three histidine residues in the *N* terminal domain that formed the active site pocket of the enzyme. It was suggested that the histidine coordinated Mn^{2+} ion was critical for substrate recognition and binding and was also directly involved in OxDC catalyses.

KEYWORDS
Oxalate decarboxylase; purification; characterization; gene analysis; homology modelling; docking

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HIGHLIGHTS
• Oxalate decarboxylase (OxDC) was successfully purified from *Pseudomonas* sp. OXDC12 up to 45.3-fold.
• The K_m and V_{max} values of the purified OxDC were calculated as 43.9 mM and 8.9 $\mu\text{mol}/\text{min}$, respectively.
• Genre analysis and structure prediction studies revealed the presence of β barrel structure typical of all cupin domains. The model exhibited a bi-cupin domain that forms the dimer of the homo-hexameric OxDC.
• Docking experiments revealed that the cluster of three HIS residues in the *N* terminal domain of the tested enzyme formed the active site pocket for binding of Mn as well as the ligands.

Introduction
Urolithiasis or the kidney stones is a chronic disease which leads to loss of kidney function(s) and nephrectomy. Several serious diseases such as transitional cell carcinoma (TCC) or renal cell carcinoma (RCC) and kidney tumours have been related with chronic kidney stone disease, since they have been found to be more frequent among patients with kidney stones (Gupta & Kanwar, 2020). A number of factors such as age, fluid intake, infections of the urinary tract, climatic conditions, sex, genetic predisposition, ethnicity as well as diet are considered responsible for the rate and prevalence of kidney stones. In a few cases, surgery becomes imperative to remove or break the stones as they may cause extreme pain, blockage of urine flow, urinary tract infection, hydronephrosis and severe bleeding. Although a number of treatments for kidney stones such as extracorporeal shock wave lithotripsy (ESWL) and drug therapy are available but their use is limited due to the severe side effects caused by exposure to these shock waves such as acute renal injury, decreased renal function and increased stone recurrence as well as due to their expensive nature. During the removal of water from the urine, the supersaturation of calcium oxalate leads to enhanced deposition of high levels of calcium oxalate in the form of crystals inside the kidneys which leads to the formation of kidney stone or urolithiasis (Gupta & Kanwar, 2020). Various *in vivo* and *in vitro* studies along with clinical trials have proposed the use of phyto-molecules in the treatment and management of kidney stones, however, they have been unsuccessful in preventing the re-occurrence

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Research Article

Molecular characterization and *in silico* analysis of oxalate decarboxylase of *Pseudomonas* sp. OXDC12

Shruti Gupta & Shamsher Singh Kanwar

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Abstract

Oxalate decarboxylase (OxDC) is a Mn-dependent hexameric enzyme that is highly important in management of calcium oxalate mediated nephrolithiasis. The present study reported the production and purification of OxDC from *Pseudomonas* sp. OXDC12 up to 45.3-fold with an overall yield of 7%. The

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4. Dr. Kiran Thakur - Microbiology Department

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REVIEW ARTICLE

Nanocarriers-based immobilization of enzymes for industrial application

Kiran Thakur¹ · Chandrika Attri¹ · Amit Seth²

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Abstract
Nanocarriers-based immobilization strategies are a novel concept in the enhancement of enzyme stability, shelf life and efficiency. A wide range of natural and artificial supports have been assessed for their efficacy in enzyme immobilization. Nanomaterials epitomize unique and fascinating matrices for enzyme immobilization. These structures include carbon nanotubes, superparamagnetic nanoparticles and nanofibers. These nano-based supports offer stable attachment of enzymes, thus ensuring their reusability in diverse industrial applications. This review attempts to encompass recent developments in the critical role played by nanotechnology towards the improvement of the practical applicability of microbial enzymes. Nanoparticles are increasingly being used in combination with various polymers to facilitate enzyme immobilization. These endeavors are proving to be conducive for enzyme-catalyzed industrial operations. In recent years the diversity of nanomaterials has grown tremendously, thus offering endless opportunities in the form of novel combinations for various biotransformation experiments. These nanocarriers are advantageous for both free enzymes and whole-cell immobilization, thus demonstrating to be relatively effective in several fermentation procedures.

Keywords Enzyme immobilization · Nanocarriers · Nanoparticles · Carbon nanotubes · Nanofibers

Introduction
Enzymes are universal catalysts that promote the transformation of chemical species in living systems (Singh et al. 2020). Enzyme immobilization is a method used for increasing the efficiency of enzymes and the possibility of enzymes recovery (Mardani et al. 2018). Enzyme immobilization facilitates prolonged activity, improves stability, and ensures the enzyme's reusability (Tan et al. 2016). Immobilized enzymes are active over a wide pH and temperature range, have appreciable strength and simplified product down streaming (Bilal and Asgher 2015). The immobilization of enzymes is critically valuable for both industrial and biological processes. There have been numerous approaches to improving enzyme stability, substrate specificity or their successful utilization in industrial processes, such as immobilization, modification, protein designing and medium engineering (Ashok and Kumar 2017; Singh et al. 2020; Chauhan et al. 2020; Pratush et al. 2017). Industrial enzymes from microorganisms have been identified, characterized and applied for diverse industrial operations (Kumar et al. 2015; Pratush et al. 2013; Bhatia et al. 2018; Singh et al. 2019). Both free cells and immobilized cells have been utilized to manufacture commodity chemicals through biotransformation (Raj et al. 2007a, b; Pratush et al. 2010, 2011, 2012; Jyoti et al. 2017). These microbial enzymes are mesophilic and thermophilic (Kumari et al. 2016; Chauhan et al. 2015). Enzymes are expected to be used in a variety of industrial applications due to their catalytic properties. For example, β -amylase, lipase, β -galactosidase, penicillin G amidase, and other enzymes are used in the commercial production of maltose, biodiesel, lactosucrose semi-synthetic penicillin, and cephalosporin antibiotics, etc. Their objectives, however, are frequently hampered by operational consistency and reusability. Enzymes have been utilized in industrial manufacture for a long time once they were immobilized (Ashok and Kumar 2019). Enzyme immobilization addresses the attachment or consolidation of enzyme particles onto support structures. Two critical aspects of enzyme

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immobilization are using a desirable cross-linker and stable protein attachment for enzyme encapsulation (Dutta et al. 2013; Bilal and Asgher 2015) (Fig. 1). Besides, this carbodiimide coupling technique (Lasmi et al. 2018) and glutaraldehyde (GA) cross-linking method (Liu et al. 2018) are typical for immobilization of enzymes onto nanocarriers. Various inorganic and organic materials made up of silica, carbon, gold and other metals have been used as support matrices for enzyme immobilization (Escuin et al. 2017; Hajar and Vahabzadeh 2016; Liu et al. 2016; Ulu et al. 2016; Shrestha et al. 2016).

into enzyme carriers is easier to maintain and ensure stable enzyme attachment. The choice of matrix materials depends upon many factors, including the required size of nanoparticles, surface characteristics, degree of biocompatibility, biodegradability, and toxicity (Jyoti et al. 2017). Based on element order, nanocarriers are predominately grouped as carbonaceous and metallic nanocarriers discussed in detail in the subsequent sections.

Dr. Kiran Thakur



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Himalayan Fern *Cheilanthes bicolor* Mediated Fabrication and Characterization of Iron Nanoparticles with Antimicrobial Potential

Amit Seth¹ · Ena Devi² · Kiran Thakur² · Chandrika Attri² · Vijay Singh³ · Ayesha Bhandari³ · Mahavir Singh³ · M. K. Seth⁴

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Abstract
The green synthesis of nano-powders assumes great significance because of its high applicability and synthesis under ambient conditions via an amalgamation of plant-derived extracts. The formulation of small-sized iron particles using relatively underexplored curative fern *Cheilanthes bicolor* extract was investigated. The derivation of fern components was worked out, and anti-microbial efficacy was determined. This fern is rich in numerous phytochemicals like phenol, tannins, and reducing sugars which contributed in the generation of nano-iron particles. The effects of several decisive factors led to the optimal synthesis of the desired particles. The size, magnetic behavior, and physical aspects were elucidated by methods like UV–VIS spectrophotometry, Fourier-transform infrared spectroscopy (FTIR), field emission scanning electron microscopy (FESEM), dynamic light scattering (DLS), X-ray diffraction (XRD), and vibrating sample magnetometer (VSM). The findings revealed that the nanoparticles were amorphous in shape with an average size of 40–60 nm. These particles were tested against microorganisms and ultimately revealed their potency against diverse microflora. These iron nanoparticles demonstrated anti-microbial efficacy and displayed a MIC value of 6.25 µg/ml and 3.125 µg/ml against clinal pathogens *Staphylococcus aureus* and *Escherichia coli*, respectively.

Keywords Green nanotechnology · Iron nanoparticles · Ferns · *Cheilanthes bicolor* · Antimicrobial

1 Introduction
In recent times, the synthesis and formulation of nanoparticles have opened up new vistas of scientific and technological advancements in nanotechnology and its related research. The green synthesis approach helps in avoiding the use of toxic metabolites in nanoparticle synthesis. In recent years, a variety of metallic nanoparticles have been generated by adopting a plant extract mediated strategy which include copper [1], zinc [2], gold [3], and silver [4]. Over the years, iron nanoparticles (Fe NPs) have attained tremendous scientific usage with broad applications in different sciences. The main goal of nanotechnology research is to fabricate novel materials or to introduce variations in existing materials. Iron oxide has been one of the extensively investigated transition metal oxides because of its significant variable oxidation states, crystalline properties, and magnetic character [5, 6].
Fe NPs are finding increasing application in magnetic targeting [7], cancer therapy [8], stem cell sorting and manipulation [9], gene therapy [10], food-related applications [11], bioprocess intensification [12], tissue repair engineering and bioseparation [13]. In addition, iron nanoparticles have been used for groundwater remediation of heavy metals and wastewater treatment of organic or inorganic contaminations due to the higher intrinsic reactivity of their surface sites [14–16]. Iron also plays a crucial role in activating and stimulating various microbial enzymes [17–19]. The large surface area to volume ratio of these minute particles makes them highly potent against clinically significant pathogenic microorganisms.
Many diverse biological systems, both prokaryotic and eukaryotic, have displayed the capacity to cause the reduction of metallic ions into nanoparticles. This technique of nanoparticle generation is now referred to as green synthesis [20]. Plant extract is more feasible among all biological systems due to the certain typical benefits like non-requirement of intricate and costly steps of microorganism culture and storage, benign and speedy synthesis and amenable scale-up of industrial production. Green synthesis of iron oxide nanoparticles is gaining much precedence [21–23].
Metal NPs can be synthesized by both conventional as well as unconventional methods. Different methods such as chemical reactions, photochemical reactions, thermal decomposition, electrochemical routes, and sonication are commonly used to synthesize a wide array of metallic NPs [24, 25].
Plants and microorganisms are increasingly being applied in the green synthesis of nanoparticles as a practical approach due to the critical role played by the biotic components in such practices. Plants, in particular, are enriched with diverse biological compounds possessing critical antioxidative and antimicrobial properties. Plant constituents possessing antioxidant potentials such as phenols, flavonoids, tannins, and vitamins have been used to synthesize NPs [26]. Even among plant herbs and medicinal plants are attracting greater attention, whereas the lower members of the plant kingdom are being etc., were of analytical grade and purchased from Himedia Lab Pvt. Ltd., India.

2.2 Collection of Samples
Cheilanthes genus comprises approximately 180 species. Most of them inhabit rocky surfaces. They have a wide ubiquitous distribution. The leaves are enclosed in trichomes. The terminal ends tend to bear the spore-containing structures called sporangia. The leaf margins twist to provide extra protection to these sporangia.
In February, leaves of medicinal fern (*Cheilanthes bicolor*) were collected from Bajhol forest Solan, Himachal Pradesh. The fern was identified and designated as *C. bicolor* by fern taxonomist Professor Mukesh Kumar Seth (Department of Biosciences, Himachal Pradesh University, Shimla).

2.3 Preparation of Fern Extracts
Ten grams of fresh leaves were thoroughly washed with distilled water and cut into small pieces, then heated at 40 °C in a 250-ml glass beaker along with 100 ml of triple distilled water for 15 min. The heat treatment caused a change of color of the aqueous solution from watery to dark green. Then, cooling was undertaken at room temperature. The aqueous extract of *Cheilanthes bicolor* was separated by filtration with Whatman No. 1 filter paper and stored at 4 °C for further experiments [32].



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Himalayan Fern *Cheilanthes bicolor* Mediated Fabrication and Characterization of Iron Nanoparticles with Antimicrobial Potential

Amit Seth Ena Devi Kiran Thakur Chandrika Altri Vijay Singh Avesha Bhandari Mahavir Singh & M. K. Seth

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Abstract

The green synthesis of nano-powders assumes great significance because of its high applicability and synthesis under ambient conditions via an amalgamation of plant-derived extracts. The formulation of small-sized iron particles using relatively underexplored curative fern *Cheilanthes bicolor* extract was investigated. The derivation of fern components was worked out, and anti-microbial efficacy was determined. This fern is rich in numerous phytochemicals like phenol, tannins, and reducing sugars which contributed in the generation of nano-iron particles. The effects of several decisive factors led to the optimal synthesis of the desired particles. The size, magnetic behavior, and physical aspects were elucidated by methods like UV-VIS spectrophotometry, Fourier transform infrared spectroscopy (FTIR)

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Phytochem Rev
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A review on the genus *Populus*: a potential source of biologically active compounds

Ishita Galería · Amita Kumari · Marie-Aleth Lacaille-Dubois · Nishant · Vikas Kumar · Adesh K. Saini · Jyoti Dhatwalia · Sohan Lal

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Abstract Genus *Populus* (Salicaceae family) consists of dioecious, deciduous, and commercially important forest tree species which are widely spread over the Northern Hemisphere. Traditionally, *Populus* species are used in the treatment of rheumatism, arthritis, lower back pains, urinary complaints, digestive, liver disorders, debility, anorexia, fevers, and also relieve the pain of menstrual cramps. This review compiles or discusses the general morphology, ethno-medicinal uses and phytochemistry of *Populus* species

along with their pharmacological activities (anti-microbial, anti-cancer, anti-inflammatory, anti-obesity, anti-diarrhea, and anti-oxidants) covering the period of 1990–2020. The literature shows that the genus *Populus* is a rich source of phytochemicals especially phenolic compounds, flavonoids, and terpenoids, etc. A total of one hundred and fifty-nine constituents were isolated from different plant parts like leaves, bark, buds, and roots of *Populus* species. Only some of the phytochemicals were screened for their biological activities and the rest of them are unexplored. Through this review, the authors hope to attract the attention of natural product researchers throughout the world to focus on the unexplored species of *Populus* and their unique phytochemicals. This review underlines the potential of phytochemicals from *Populus* species that could lead to a new pathway in Pharma industries.

Keywords *Populus* · Ethno-medicinal uses · Phytochemistry · Pharmacological activities

Abbreviations

AlCl ₃	Aluminum chloride
ABTS	2,2'-Azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)
NF-κB p65	Blunted LPS-triggered enhanced nuclear translocation
BDNF	Brain-derived neurotrophic factor

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Abstract

Genus *Populus* (Salicaceae family) consists of dioecious, deciduous, and commercially important forest tree species which are widely spread over the Northern Hemisphere. Traditionally, *Populus* species are used in the treatment of rheumatism, arthritis, lower back pains, urinary complaints, digestive, liver disorders, debility, anorexia, fevers, and also relieve the pain of menstrual cramps. This review compiles or discusses the general morphology, ethno-medicinal uses and phytochemistry of *Populus* species along with their pharmacological activities (anti-microbial, anti-cancer, anti-inflammatory, anti-obesity, anti-diarrhea, and anti-oxidants) covering the period of 1990–2020. The literature shows that the genus *Populus* is a

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7. Dr. Kusum- Botany Department

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ON THE OCCURRENCE OF A LEAFLESS *CYMBIDIUM* IN WESTERN HIMALAYA

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⁴Department of Botany, St. Bede's College, Navbahar, Shimla- 171 002, Himachal Pradesh, India

Abstract

Cymbidiums are popular worldwide for their beautiful and long lasting flowers. They grow as epiphytes, terrestrials, lithophytes or very rarely as leafless plants. The present communication deals with one such leafless taxon, *Cymbidium macrorhizon* Lindl., and its occurrence along the Western Himalayan range.

Introduction

WESTERN HIMALAYAN part in India comprises of Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Ladakh States and Union Territories (UTs). It represents one of the most diverse orchid habitats in the country with nearly 240 documented species under 72 genera (Jalal and Jayanthi, 2015). During our surveys across this Himalayan segment, we came across many orchid species, majority of which were ground growing in habit. A few of these were observed lacking leaves throughout their whole life. One such leafless orchid was *Cymbidium macrorhizon* Lindl. We found it growing on partially shady to shady forest floors in Himachal Pradesh and Uttarakhand. Recently, it has also been reported to occur in Jammu and Kashmir (Thakur and Dutt, 2020). Here we provide notes on taxonomy, distribution, habitat characteristics, phenology and conservation of this interesting taxon in reference to its occurrence in Western Himalaya.

Material and Methods

Field surveys were conducted in Himachal Pradesh, Uttarakhand, and Jammu and Kashmir (2012-2018), and information pertaining to the morphological features, distribution, habitat characteristics, and phenology of *Cymbidium macrorhizon* was collected. Plants were described based on fresh material, and identified following standard Floras (Deva and Naithani, 1986; Duthie, 1906; Vij *et al.*, 2013). The information on this taxon was also augmented by surveying relevant literature available on its taxonomy and distribution (Chowdhery and Wadhwa, 1984; Deva and Naithani 1986, Duthie, 1906; Jalal and Jayanthi, 2013, 2015; Seidenfaden and Arora, 1982; Singh *et al.*, 2019; Thakur

and Dutt, 2020; Vij *et al.*, 2013). Seed characters (shape, size, testa cells, and per cent air space) were studied using light microscope following Vij *et al.* (1992).

Results

Cymbidium Sw. (Orchidaceae) is a genus of more than seventy species, which are distributed mainly in tropical and subtropical regions of Asia and Australia (Govaerts *et al.*, 2021). It is represented by 29 species in India, of which six species *i.e.* *Cymbidium aloifolium* (L.) Sw., *C. bicolor* subsp. *obtusum* Du Puy and P. J. Cribb, *C. cyperifolium* Wall. ex Lindl., *C. iridioides* D. Don, *C. lowianum* (Rchb. f.) Rchb. f., and *C. macrorhizon* Lindl. occur naturally in Western Himalaya (Singh *et al.*, 2019). Only one of these species, *C. macrorhizon* grows as a leafless herb exhibiting a partially mycoheterotrophic mode of nutrition.

Taxonomic Treatment

Cymbidium macrorhizon Lindl., Gen. Sp. Orchid. Pl. 162. 1833; Hook. f., Fl. Brit. India 6: 9. 1890; Duthie, Ann. Roy. Bot. Gard. (Calcutta) 9: 134. t. 114. 1906; Seidenfaden, Opera Bot. 72: 66-67. t. 35. 1983; Chowdhery & Wadhwa, Fl. Himachal Pradesh 3: 681. 1984; Deva & Naithani, Orch. Fl. N. W. Himal. 379. t. 217. 1986. *Cymbidium aphyllum* Ames & Schltr., Repert. Spec. Nov. Regni Veg. Beih. 4: 73. 1919. *nom. illeg.* *Pachyrhizantho macrorhizos* (Lindl.) Nakai, Bot. Mag. (Tokyo) 45: 109. 1931. *Cymbidium macrorhizon* var. *aberrans* (Finet) P. J. Cribb & Du Puy, Gen. Cymbidium, ed. 2: 330. 2007. *Cymbidiopsis macrorhiza* (Lindl.) H. J. Chowdhery, Indian J. Forest. 32: 155. 2009.

Terrestrial, leafless herb, partially mycoheterotrophic. Stem underground, fleshy and creeping rhizome,

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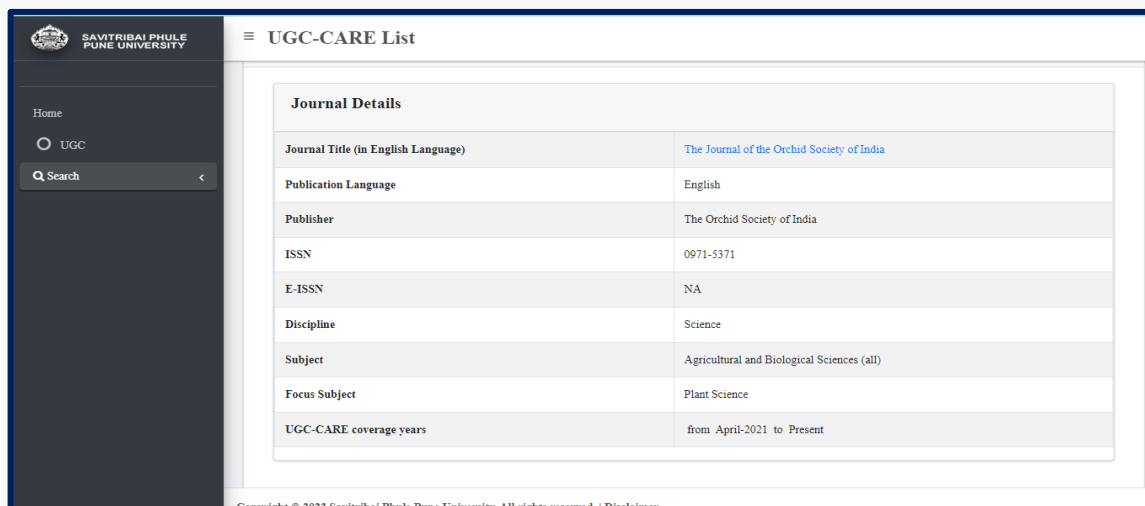
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Attitude towards physical education and sports of higher secondary school students of Maharashtra state

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Abstract

The present study was confined to the Attitude towards Physical Education and Sports of Higher Secondary School Students of Maharashtra State. The Students ranging between 15-18 years were selected for the study. The Data was collected from the Higher Secondary Student's studying in the Higher Secondary Schools of Maharashtra. Age of the student's was considered as per age-record available in the school. The data of the present study was collected from 700 students selected at stratified random sampling basis from 70 higher secondary school's (10 students from each school) of 35 districts of Maharashtra, selecting two schools from each district at random basis. After analysis the study indicates that, the students belonging to good and poor categories do not differ significantly in their attitude towards physical education and sports. Though the difference in means of the two groups is in favor of students belonging to average category, yet it can be said that observed difference could have arisen due to chance errors. There is no difference in sample means.

Keywords: Attitude, physical education, sports & higher secondary students

Introduction

Attitude- A settled mode of thinking. A 'mental set' held by an individual who affects the ways that, the person responds to events and organizes their cognitions. Attitudes are commonly held to have three essential components or dimensions: a cognitive dimension, involving the beliefs and rationalizations which explain the holding of the attitude; an affective dimension involving the emotional aspects of attitude, such as likes dislikes, feelings of distaste or affection, and a cognitive, or behavioral dimension which involves the extent to which the individual is prepared to act on the attitude that they hold. Attitude is an important psychological factor affecting behavior. According to Leuba (1961) attitudes are behavioral predispositions, which exert an enduring controlling influence over behavior. Luycock and Munro (1996) are of the viewpoints that are emotional, intellectual and motivational components of attitudes. Attitude may be considered as a state of readiness to activity (a kind of pre-motivation stage) and also as a manifested social relation showing itself in certain acts of behavior. It indicates an emotionally and cognitively structured relation towards things; beings; activities and other phenomena of reality. In the field of physical education and sports no athlete can win the condition of an environment. Right attitude and interests are as important to education as a steady steering car. It is important to know how children develop physically because physical development influences children's behavior directly by determining what they can do directly by influencing their attitude towards self and others. Attitudes are the dynamics of human action. Unless people have favorable attitudes and interests towards what they set out to learn, they couldn't drive full benefit out of which is being taught. The development of healthy, favorable attitudes is itself a phase of education. Premalata & Bhatia (2005) studied the attitude of parents towards Physical Education and Sports participation. The major objective of study is to find out the attitude of parents towards physical education and sports participation of their children. Attitude scale was used for the study. The data was collected through a questionnaire containing 50 questions to the parents of 60 girl's students of different colleges of Kurukshetra District of Haryana. The girl's were asked to bring the duly filled questionnaires from their parents. So the 60 responses were collected.

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हिंसा और दहशत की चादर तले : 'हमारा शहर उस बरस'

डॉ. देविना अय्यर



एमए, एम.फिल एवं पीएच.डी.

जवाहरलाल नेहरू विश्वविद्यालय

सहायक प्रोफेसर - सेंट बीड्स कॉलेज, शिमला

राजेंद्र यादव ने बीसवीं सदी के 'औपन्यासिक अंत' में गीतांजलि श्री के उपन्यास, 'हमारा शहर उस बरस', के बहाने एक अहम सवाल उठाया था कि 'हिंदू- मुसलमान होने से ऊपर उठकर सिर्फ मनुष्य और भारतीय होकर रहना क्या सच-मुच इतना आसान है? 'सभी मनुष्य बराबर हैं!' के भोले सपाटवादियों ने शायद ही कभी इस विस्तार में जाने की ज़हमत उठायी हो- हाँ, इस धर्मनिर्पेता की कहानी लिखी है गीतांजलि श्री ने- 'हमारा शहर उस बरस' में..।'

मगर एक इनसेक्यूरिटी और डर से पैदा हुई है, दूसरी ताकत और अहंकार से।

दोनों के चिह्नाने का फ़र्क देखना होगा। दोनों की गलतफ़हमियों से जूझना होगा।'¹⁰

इसी के आधार पर गीतांजलि श्री ने समाज के बुद्धिजीवी 'सेक्युलर' वर्ग को भी कठघरे में घसीटा है जिनकी समय आने पर 'मायनोरिटी' और 'मेजोरिटी' नामक ग्रंथ उभरकर सामने आती है। शरद और हनीफ़ साम्प्रदायिकता विरोधी हैं लेकिन ऐसा क्यों होता है कि साम्प्रदायिकता का विरोध सेक्युलर वर्ग द्वारा तभी होता है जब दंगों का माहौल खड़ा हो चुका होता है? शरद और हनीफ़ साम्प्रदायिकता के विरोध के प्रति अपनी ही निष्क्रियता को ईंगित करते हुए सवाल उठाते हैं कि 'एकदम से तो यह इंडस्ट्री नहीं बन गयी। हम कहाँ थे जब यह बन रही थी?' इस तरह लेखिका समाज में पढ़े-लिखे बुद्धिजीवी के उन खोखले विचारों और नकारपन को अड़े हाथों लेती हैं जो बहसों और मंचों पर ही सेक्युलरिज्म, सहिष्णुता, सामाजिक समता आदि की दुहाई देते हैं, पर उन्हीं मूल्यों को जब व्यवहार में लाने की बारी आती है तो वे विफल हो जाते हैं। क्यों कथा के अंत तक आते-आते ट्रेन में बलात्कृत महिलाओं की खबर पाकर शरद सोचता है- 'ये औरतें हिन्दू ना हों'? क्यों शरद के मन में मुसलमान स्त्रियों के बलात्कार का विचार डर, दुःख या आक्रोश पैदा नहीं करता? उसका एक और कथन काबिल-ए-गौर है- 'कोई मुकाबला नहीं, उनके हमारे संगठन में...'। वास्तव में शरद के ये विचार उसके दबे साम्प्रदायिक चरित्र का उभार ही है। 'उनके और हमारे' जैसे अलगाववादी विचार के आते ही इंसान अपनी मजहबों पहचान का परिचय देने लगता है।

Dr. Devina Auchoybur



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