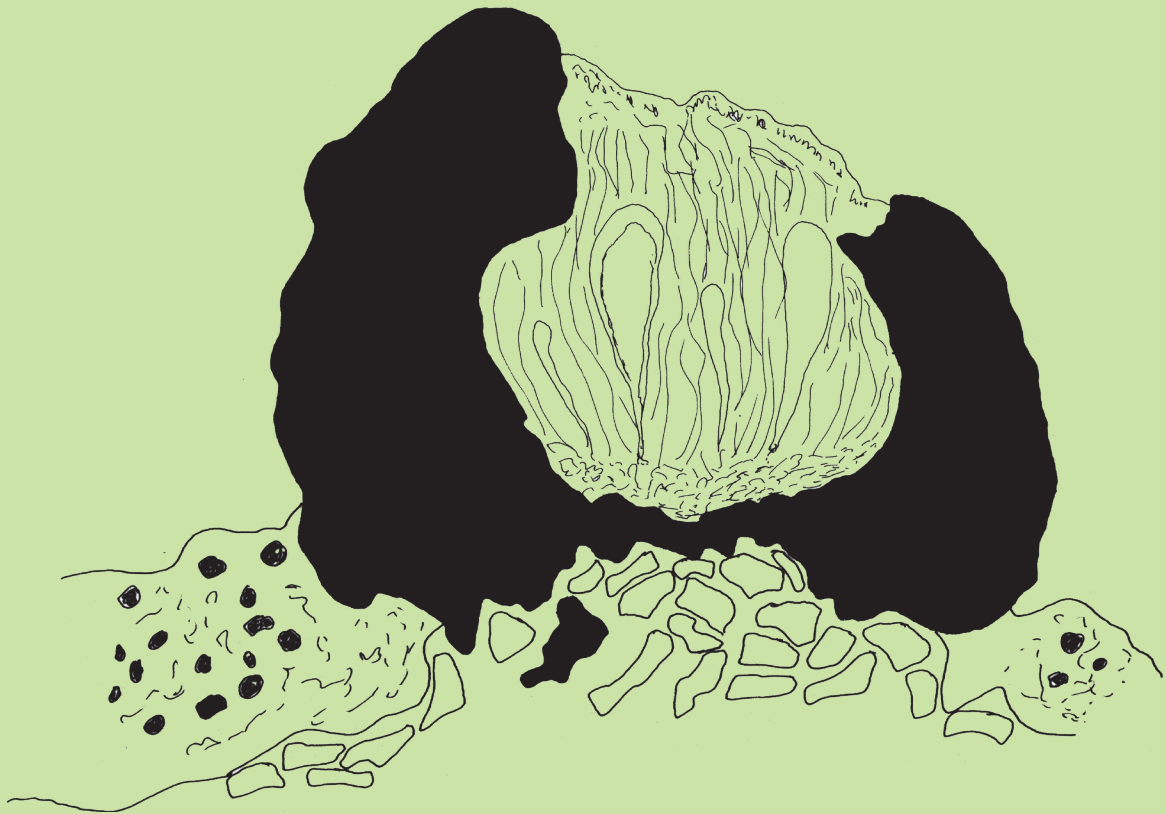


JANUARY 2025

VOL. 03 Indian Lichenological Society

ILS ELETTER

An Annual Newsletter



Lichens on Iron Railings

Lichens are known to colonize various natural substrates, but their growth on man-made materials like metal is rare and understudied. The study documents the first occurrence of three lichen species on iron railings at Doordarshan Kendra Complex, Mizoram.

..... Page 5

Bibliographic Account to Indian Lichens

This account includes a total of 409 research articles, review articles, books, and chapters related to all aspects of lichens, lichenicolous, and endolichenic fungi published between 2020 and 2024.

..... Page 10

Lichen Poem

A new poem about the lichens of Bhaderwah, Jammu & Kashmir by Pihu Gupta. It highlights their vibrant colors, their presence on trees, and their ability to endure various weather conditions, adding to the natural charm of the region.

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ILS eLETTER

An official newsletter of the Indian Lichenological Society

Volume : 03

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Cover image: Lirellae section of *Opegrapha subrimulosa* Nyl. (drawing by Siljo Joseph)

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President's Message



Dr. Dalip Kumar Upreti FNA, FNASc
President
Indian Lichenological Society

Dear Colleagues,

Indian lichenology has historically relied on classical taxonomic methods such as morphological, anatomical, and chemical analyses, for identifying and describing different lichen taxa. Different methods adopted have provided valuable insights in identification of species but remains unsuccessful in resolving cryptic species complexes and distinguish closely related taxa.

The introduction of molecular techniques, particularly DNA sequencing has revolutionized lichen systematics by offering several key benefits such as, resolving cryptic species, discovering hidden species, clarifying phylogenetic relationship and refining species delimitation. Many lichens that appear morphologically similar are, in fact, distinct evolutionary lineages. Molecular data helps accurately differentiate these species improving our understanding of lichen diversity. Molecular analyses often uncover previously unrecognized species that are morphologically identical to known taxa revealing significant "hidden diversity" in lichen distribution and richness. DNA sequencing allows the reconstruction of evolutionary relationships among lichens shedding light on their origins and diversification. Genetic data provides an objective basis for defining species boundaries resulting in a more consistent and robust classification framework.

In recent years, Indian lichenologists have increasingly adopted molecular techniques in their research and have led to the discovery of novel lichen species previously overlooked due to morphological similarities. Additionally, a number of sequences of Indian lichen taxa are contributed to the NCBI database for the first time. Molecular studies not only strengthen the evidence for the distinctiveness of newly described taxa but also enhance the credibility of species descriptions.

Integrating molecular methods is vital for a deeper understanding of India's lichen diversity. By embracing molecular taxonomy, Indian lichenologists can make significant contributions to global lichen research and play a crucial role in conserving these unique and ecologically significant organisms.



A hairy caterpillar camouflaging with lichen - Photo by Rakesh Singh Adhikari (Research Scholar, Lichenology Lab, CSIR-NBRI, Lucknow).
Locality: Uttarakhand, Almora district, Paharpani.

Editorial



Dr. Sanjeeva Nayaka
Editor
ILS eLetter

Dear Readers,

We are pleased to present the third volume of ILS eLetter, the official newsletter of the Indian Lichenological Society. This issue features a comprehensive bibliographic compilation of over 400 publications on lichenized, endolichenic, and lichenicolous fungi from India. We have been curating bibliographies on Indian lichens since 2010, with previous collections published by Joseph *et al.* (2018, 2020). It is noteworthy that, over the past 15 years, nearly 1,200 research papers have been published on the Indian lichen biota, averaging around 80 papers annually. While publication numbers have fluctuated, there has been a consistent rise since 2020 (Figure 1). Research topics have spanned areas such as taxonomy, biomonitoring, and bioprospecting. Additionally, it is encouraging to see the emergence of new and promising lichen researchers, along with the establishment of new research centers across India. Collaborative efforts among researchers have played a crucial role in this growth. Overall, the increase in the volume of publications reflects the expanding interest and progress of lichen research in India.

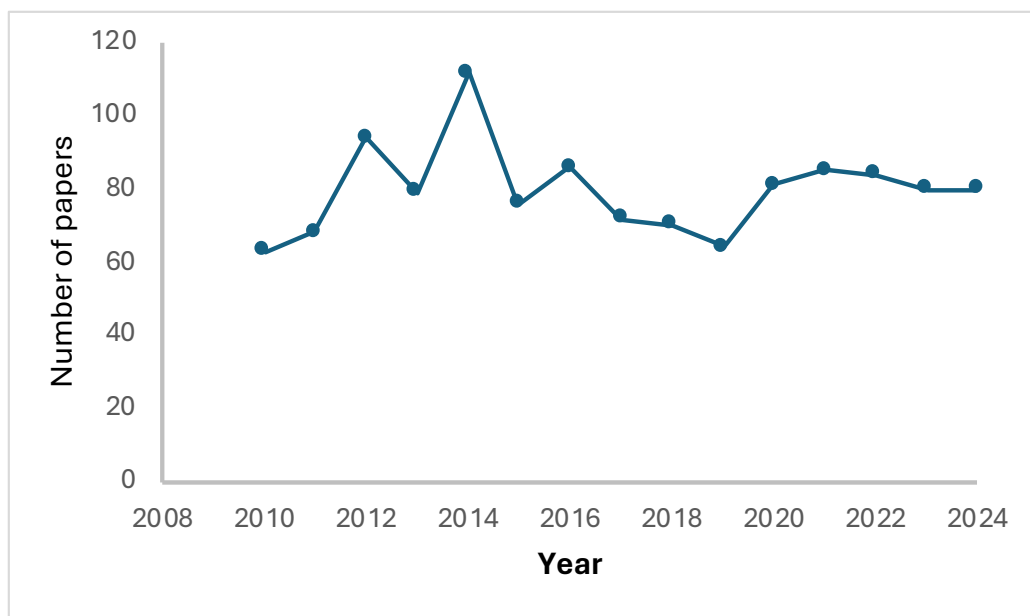


Figure 1. Number of research paper published on Indian lichenized, endolichenic and lichenicolous fungi since 2010

Literatre cited:

- Joseph, S., Nayaka, S., & Sinha, G.P. (2018). Bibliography to the Indian lichens from the year 2010 onwards. *Cryptogam Biodiversity and Assessment*, Special Issue. 207-231.
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The Secretary's Message



Dr. Gaurav Kumar Mishra
Secretary
Indian Lichenological Society

Dear colleagues,

We sincerely appreciate your cooperation and support in making the National Conference on Advances and Perspectives in Cryptogam Research, held at CSIR-NBRI from December 9th-11th, 2024, a success. Your valuable contributions have been instrumental in fostering scientific discussions and advancements in the field.

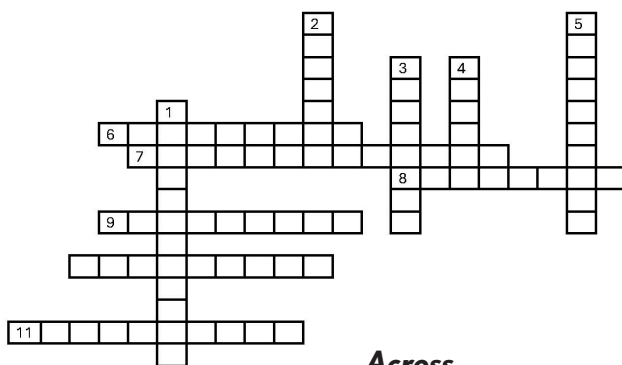
We look forward to your continued engagement and contributions towards the growth of our society. Our commitment remains strong in promoting Indian lichenological research globally through various initiatives. I also extend a warm welcome to the new life members of our society.

I would like to congratulate the editorial board for their dedication and valuable contributions. Additionally, I extend my congratulations to all contributors of this issue for their outstanding work.

I appreciate our continued collaboration and look forward to further strengthening our efforts in the coming years.

My best wishes for the success of this publication and our future endeavors.

LICHEN CROSSWORD III



Down

1. Lichen produced acid which is toxic when ingested (8, 4)
2. Lichen used in perfume industry (7)
3. Attachment organ present in fruticose lichens (8)
4. Purple dye extracted from lichens (6)
5. Elbow lichen (10)

Across

6. Hyphal branch for nutrient absorption (9)
7. Green shield lichen (13)
8. Lichen with bulbate cilia (8)
9. Small aggregation of photobiont cells surrounded by short celled hyphae (9)
10. Term for cobweb like structure usually irregularly oriented or loosely interwoven hyphae (9)
11. A vegetative propagule having both mycobiont and photobiont formed by yeast like budding (10)

Prepared by
Shweta Sharma
Lichenology Lab, CSIR-NBRI
Lucknow



From the archive



UNIVERSITY OF BERGEN

Botanical Department

Dr P.D. Awasthi
11/34, Sect. 11
Indiranagar
Lucknow 226016
INDIA

Bergen, 6 September 2002
J.nr.: 360/2002 ah

Dear Dr. Awasthi!

Thanks for letter. Concerning the two *Pannaria* species (both now in *Fuscopannaria*), I am sure that *P. leucosticta* occurs in India (in the SW) and Sri Lanka. I have seen specimens, some collected by Hale in Nilgiri Hills.

I am, however, unsure about "*P. microphylla*" (= *F. leucophaea*), as I cannot recall having seen the specimen (from Hooker) cited by Nylander. Indeed I have no notes or recollection of having seen any specimen of this species from India. As this name was used in a very general and imprecise way previously, also by Nylander, it is best to exclude it from your list – at least to move it to the uncertain part of it!

I may be able to help you with old literature. Please, send me a list of your desiderata.

My papers on new Pannariaceae (two from India) are both about to be printed. I have proof-read the one in *Nova Hedwigia* (with *Pannaria nilgherriensis*) and the one in the *Bryologist* is accepted to appear in the first volume next year (with *Parmeliella fuscata* collected by Mason Hale in India). Also the next volume of *Lichenologist* contains one new taxon based on an Indian collection made by Hale, *Kroswia coeruleascens*.

Yours sincerely

Per M. Jørgensen

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Prof. Per M. Jørgensen letter to Dr. D.D. Awasthi on 6 Sept. 2002 (found from Dr DD Awasthi's literature collections)

Rust meets resilience: Lichens colonization on iron railings

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Lichens are renowned for their ability to colonize on diverse substrates from bark and rocks to soil. However, their colonization on man-made substrates like concrete, glass and metal is uncommon and studies on such occurrences are relatively limited. In India, only a few instances such as *Heterodermia diademata* (Taylor) D.D. Awasthi, growing over iron electric poles (Bajpai and Upreti, 2015) and *Heterodermia galactophylla* (Tuck.) W.L. Culb., colonizing iron railway sleepers (Rai *et al.*, 2020) have been documented. In contrast, there are several reports related to lichen colonization on other man-made substrates in India (Upreti and Dixit, 2002; Jagtap *et al.*, 2013; Joshi *et al.*, 2014; Upadhyay *et al.* 2020; Ingle *et al.*, 2023). Iron substrates are rarely reported in lichen literature particularly in regions with high rainfall. The present study is based on lichens found colonizing iron railings at Doordarshan Kendra Complex, Mizoram, India. Lichen samples were collected from railings measuring approximately 1-2 meters in height, located in both exposed and shaded areas of the complex in July 2024. The complex is situated on a hilltop often enveloped by clouds and experiences a sub-tropical climate. The site is characterized by high humidity and frequent rainfall which could influence lichen growth on non-natural substrates. Three species of lichens were identified in the present study viz., *Physcia integrata* (Nyl.) Arnold, *Parmotrema reticulatum* (Taylor) M. Choicy, and *Usnea aciculifera* Vain.



Figure 1: Lichens on iron railings at Doordarshan Kendra Mizoram Campus. A) *Parmotrema reticulatum*;
B) Luxuriant growth of *Physcia integrata*, on railings.

The colonization of the lichen species on iron railings represents a significant shift in their known substrate preferences. Typically found on natural surfaces like bark and rocks, these lichens appear to have adapted to metal surfaces which may be a response to urban environmental conditions such as air pollution and metal deposition. Urban environments provide novel surfaces for colonization, but metal surfaces like iron can pose unique challenges due to their heat conductivity, and susceptible for corrosion as compared to natural substrates. The rust observed on the railings due to chemical weathering might have provided suitable space for lichen propagules to meet the colonizing needs and the constant weathering might have exposed new areas for colonization. Additionally, high humidity and frequent rainfall in Mizoram likely helped to mitigate desiccation stress on these metal surfaces.



Figure 2: Colonization of lichens on iron railings at Doordarshan Kendra Mizoram Campus. A) *Usnea aciculifera* (UA), *Physcia integrata* (PI); B) Magnified view of *Physcia integrata* with apothecia.

The findings raise the possibility that these lichens possess physiological mechanisms that enable them to tolerate and colonize metal substrates. Such adaptability could make them useful bioindicators for monitoring urban pollution and provide insights into the resilience of lichen communities in rapidly changing environments. Further research is needed to investigate their physiological adaptations and the potential impacts of urbanization on lichen diversity and ecology.

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Himalayan lichens: Nature's hidden powerhouses for antifungal bioactives

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The Himalayan region, celebrated for its breathtaking landscapes, diverse ecosystems, and contrasting climate, is also a remarkable reservoir of lichen diversity. Lichens, a symbiotic association between fungi (mycobionts) and algae or cyanobacteria (photobionts), thrive in this unique environment owing to the presence of novel secondary metabolites possessing biological activities. Globally, over 20,000 lichen species have been documented, with India contributing 2985 species to this diversity (Sinha, 2021). The Indian Himalayan Region alone harbours approximately 1,600 species (Nayaka and Ngangom, 2024), supported by its favourable environmental and geographical conditions. Annually, around 10,000 tons of lichens are harvested from India's central Himalayan region. These lichens are highly valued for their diverse applications, including health-promoting teas, spices, natural dyes, pH indicators, perfumes, bedding materials, folk medicine, and religious practices. The Himalayan musk deer relies heavily on the lichen *Usnea longissima* as a critical winter food source during periods of resource scarcity (Upreti *et al.*, 2015).

A subfield of ethnobotany, ethnolichenology, delves into the traditional uses of lichens for medicine, food, fodder, and industrial purposes. Indigenous communities in the Himalayan region utilize crude extracts or decoctions of lichens to treat infections, wounds, gynaecological ailments, respiratory disorders, and digestive issues. These practices are deeply rooted in traditional medical systems such as Ayurveda, Siddha, Unani, Traditional Chinese Medicine, and Amchi, which are widely practiced in Bhutan, China, India, and Nepal. Lichens have long fascinated researchers due to their versatile applications and inherent resistance to microbial infections, attributed to their production of unique secondary metabolites (Figure 1). While most bioactive compounds are produced by the fungal partner (mycobiont), some cyanobacterial photobionts also contribute to



Figure 1: Lichen collection from the Himalayan terrains of (A and B) Leh and (C and D) Ladakh, India by Dr. Mayurika Goel (B) from The Energy and Resources Institute along with Senior Professor Prem Lal Uniyal (C) from University of Delhi.

key metabolite synthesis (Agrawal *et al.*, 2020). These metabolites, synthesized across diverse habitats, exhibit distinct chemical structures and a wide range of biological activities, including antioxidant, antiviral, antibacterial, antifungal, antitumor, plant growth inhibition, and enzyme inhibition (Kalra *et al.*, 2021).

Pathogenic fungi cause significant agricultural and economic losses by damaging crops in fields and storage. Soilborne pathogens attack seeds, seedlings, and mature plants, leading to diseases such as collar rot, wilt, and damping-off. While synthetic fungicides are widely used, their environmental and health risks highlight the need for safer alternatives. Natural bioactives from lichens have emerged as a promising, eco-friendly solution that has attracted growing scientific interest. Protolichesterinic acid and atranorin from *Parmotrema reticulatum*, usnic acid from *Ramalina roesleri* and *Usnea longissima* are amongst very few bioactives that have been successfully isolated and studied by the scientific community for their antifungal activity (Dandapat and Paul, 2019; Goel *et al.*, 2011, 2021).

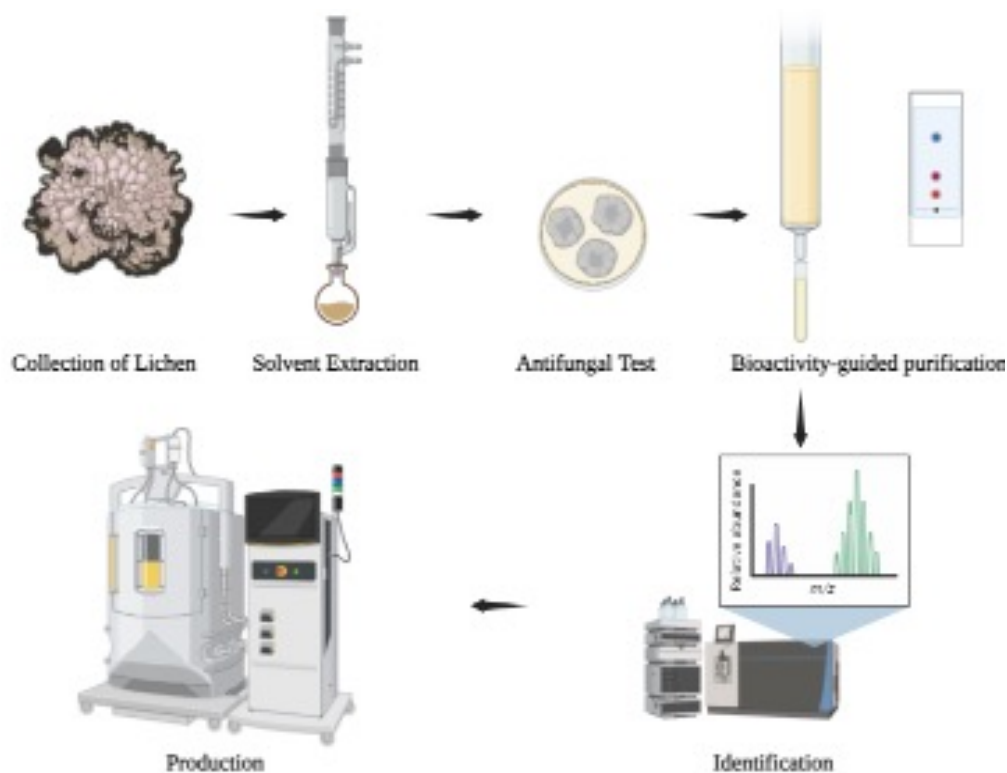


Figure 2: Work flow for isolation, purification and identification of antifungal metabolite from lichen.

The process of isolating antifungal compounds from lichens typically involves several key steps: collecting targeted lichen samples, extracting bioactive compounds using solvents, conducting bioassay-guided fractionation and purification, and finally, identifying and producing the target metabolites (Figure 2). Despite this systematic workflow, only a limited number of Himalayan lichen-derived compounds have been scientifically validated and documented for antifungal application. One major challenge lies in the inherently slow growth rate of lichens, which restricts the availability of biomass needed for metabolite studies. This slow growth not only limits the capacity to explore their full range of bioactive compounds but also makes it difficult to extract these substances in quantities sufficient for comprehensive research and application. Furthermore, ensuring a sustainable supply of these metabolites remains a significant hurdle, complicating their potential for commercial use.

Himalayan lichens stand as remarkable organisms with immense ecological, medicinal, and industrial potential. Their ability to produce unique bioactive metabolites, coupled with their role as bioindicators and their rich ethnolichenological history, underscores their significance in science and society. However, challenges such as their slow growth rate, limited exploration, and sustainable harvesting need to be addressed through innovative research and conservation strategies. By bridging traditional knowledge with modern scientific advancements, lichens could pave the way for eco-friendly solutions in agriculture, medicine, and beyond, highlighting their crucial role in promoting environmental sustainability and human well-being.

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Poem

Whispers of beauty: The lichens of Bhaderwah (Jammu and Kashmir)

Pihu Gupta

Department of Environmental Sciences, University of Jammu, Jammu - 180 006 (J&K), India

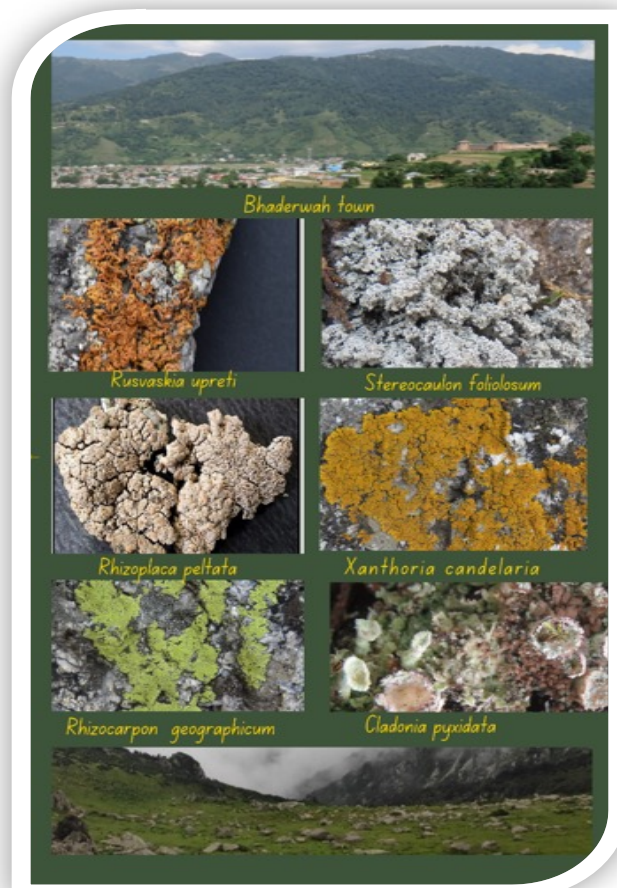
Email: pihu.gupta012@gmail.com

Oh, the lichens of Bhaderwah,
A sight that takes my breath away.
Amidst the mountains, they find their place,
Adding beauty and grace to this enchanting space.

In shades of green and hues of gold,
They cling to trees, so strong and bold.
With every step, a new discovery,
As they carpet the landscape with their tapestry.

Through rain and snow, they endure,
A testament to their resilience, for sure.
In Bhaderwah's serene and tranquil air,
Lichens thrive, creating a scene so rare.

So let's celebrate these lichens true,
In Bhaderwah, where they grew.
A testament to nature's art,
Forever etched in our hearts.



Additions to the bibliography of Indian lichens in the years 2020 to 2024

Siljo Joseph^{1*}, Gaurav Kumar Mishra² & Sanjeeva Nayaka²

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This communication continues the bibliographic account of Indian lichens previously published in the journal "Cryptogam Biodiversity and Assessment" by Joseph *et al.*, (2018 & 2020). This account includes a total of 409 research articles, review articles, books, and chapters related to all aspects of lichens, lichenicolous, and endolichenic fungi published between 2020 and 2024. Online-first articles not yet assigned to a specific journal issue were excluded. Any missing publications on this list will be included in a future volume of the ILS eLetter.

Year 2020

- Agrawal, S., Deshmukh, S.K., Reddy, M.S., Prasad, R., & Goel, M. (2020). Endolichenic fungi: a hidden source of bioactive metabolites. *South African Journal of Botany* 134: 163-186.
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New ILS Life Members (as on 31 December 2024)



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Member No: 232
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Address: Bryology Lab, CSIR-NBRI
Lucknow



Member No: 233
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Name: Ms. Rosni Jabin
Designation: PhD Scholar
Address: Department of Botany, Nowgong
College, Assam



Member No: 235
Name: Dr. Chitralekha Nag Dasgupta
Designation: Assistant Professor
Address: Amity University, Lucknow Campus
Lucknow, Uttar Pradesh



Member No: 236
Name: Dr. Ravi Upadhyay
Designation: Professor
Address: P.M.C.E. Government Narmada
College, Madhya Pradesh



Member No: 237
Name: Dr. V. Vishnu Raja
Designation: Assistant Professor
Address: Department of Microbiology, Srimad Andavan Arts
and Science College, Tamil Nadu



Member No: 238
Name: Mr. Shivam Prakash Singh Thakur
Designation: PhD Scholar
Address: Lichenology Lab, CSIR-NBRI
Lucknow



Member No: 239
Name: Dr. Belle Damodara Shenoy
Designation: Principal Scientist
Address: CSIR-NIO RC, Visakhapatnam



Member No: 240
Name: Ms. Prachi Mishra
Designation: Project Associate I
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Member No: 241
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Member No: 242
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Member No: 243
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REPORT

National Conference on Advances and Perspectives in Cryptogam Research

Jointly organized by

Indian Lichenological Society, Lucknow and CSIR-National Botanical Research Institute, Lucknow

Date: December 9-11, 2024

Venue: Lotus Auditorium, K.N. Kaul Block, CSIR - NBRI, Lucknow



The Indian Lichenological Society (ILS), in collaboration with the CSIR - National Botanical Research Institute (NBRI), Lucknow, organized a three-day national conference titled "Advances and Perspectives in Cryptogam Research" from 9th to 11th December 2024. The conference aimed to celebrate the progress made in cryptogam research in India and to explore future directions in this field. Dr. Sanjeeva Nayaka served as the convener, and Dr. Gaurav K. Mishra took on the role of organizing secretary. The event saw active participation from over 150 researchers and professionals from across the country.

The conference was inaugurated on 9th December 2024 by Chief Guest Prof. S.R. Niranjana, Vice Chairman of the Karnataka State Higher Education Council. Dr. P.A. Shirke, Chief Scientist at CSIR-NBRI, delivered the welcome address, followed by the presidential address from Dr. D.K. Upreti, President of ILS. Dr. Gaurav K. Mishra, Secretary of ILS, provided an overview of the conference. Several distinguished delegates were also recognized for their outstanding contributions to the field. The prestigious 'Dr. D.D. Awasthi Memorial Lifetime Achievement Award' was presented to Dr. G.P. Sinha, former Scientist F at BSI, Prayagraj. The 'Honor of Appreciation Awards' were conferred upon Prof. R.N. Kharwar, Prof. Anupam Dixit, Prof. P.L. Uniyal, and Prof. Jayashree Rout. Additionally, the 'Fellow of Indian Lichenological Society (FILS)' honor was awarded to 10 eminent researchers and life members of ILS. The 'Dr. D.K. Upreti Best Thesis Awards' were presented to Drs. K.C. Saini and Muthukumar S. The dignitaries also released the conference souvenir and a book titled "Environmental Studies" authored by Dr. A.K. Awasthi. The inaugural session concluded with a vote of thanks by Dr. Sanjeeva Nayaka.

The technical sessions of the conference featured a robust scientific activity including six keynote addresses, 25 invited lectures, 39 oral presentations, and 50 poster presentations, covering a wide range of topics in cryptogam research. The keynote speakers included - Prof. R.N. Kharwar, Banaras Hindu University, Varanasi; Prof. Anupam Dixit, Allahabad University, Prayagraj; Dr. D.K. Upreti, CSIR-NBRI, Lucknow; Prof. P.L. Uniyal, Delhi University, Delhi; Prof. Jayashree Rout, Assam University, Silchar, Assam; Prof. Sushil K. Shahi, Guru Ghasidas Vishwavidyalaya, Bilaspur. Additionally, young researchers presented their papers for the

'Dr. P.G. Patwardhan Award' for the best oral presentation and the 'Dr. Ajay Singh Award' for the best poster presentation in various categories.

Throughout the three-day event, there were lively discussions involving students, experts, and delegates, which furthered the academic objectives of the conference. The conference also included a General Body meeting of the ILS and a cultural program. The conference concluded with a valedictory session on 11th December 2024, where Dr. D.K. Srivastava, Joint Director of CST UP, Lucknow, was the Chief Guest. Dr. Ajit Kumar Shasany, Director of CSIR-NBRI, presided over the event, along with Dr. D.K. Upreti. Dr. Gaurav K. Mishra presented a detailed report on the proceedings of the conference. The winners of the 'Best Oral Presentation' and 'Best Poster Presentation' awards were recognized with prizes and certificates by the Chief Guest. Feedback from delegates was gathered to assess the impact of the conference and provide valuable insights for future events. The valedictory session was concluded with a vote of thanks by Dr. Vinay Sahu, Treasurer of ILS.

Awards and recognitions of the ILS conferred during conference

Dr. D.D. Awasthi Memorial Lifetime Achievement Award - Dr. Gopal P. Sinha, former Scientist F and Head of Office at Botanical Survey of India (BSI), Prayagraj.

Dr. D.K. Upreti Best Thesis Award

1. For academic year 2022-23 - Dr. Khem Chand Saini. Title of the thesis - Molecular and morphological diversity of photobionts associated with Antarctic lichens and lichens of the Indian Himalayas.

2. For academic year 2023-24 - Dr. Muthukumar S. Title of the thesis - Novel tryptethelones and phenalenones from the mycobiont culture of *Trypethelium eluteriae* Spreng. and secondary metabolite diversity from the selected mycobiont cultures.

Fellow of Indian Lichenological Society (FILS)

1. Dr. Gopal P. Sinha, BSI, Prayagraj, Uttar Pradesh
2. Dr. Farishta Yasmin, Nowgong College, Nagaon, Assam
3. Dr. A. Madhusudhana Reddy, Yogi Vemana University, Kadapa, Andhra Pradesh
4. Dr. Athokpam Pinokiyo, Dhanamanjuri University, Imphal, Manipur
5. Dr. Stephen Sequeira, Maharaj's College, Ernakulam, Kerala
6. Dr. Santosh Joshi, Raffles University, Neemrana, Rajasthan
7. Dr. Pulak Das, Dr. B. R. Ambedkar University Delhi, Delhi
8. Dr. Siljo Joseph, KSCSTE - Kerala Forest Research Institute, Peechi, Kerala
9. Dr. Biju Haridas, KSCSTE - Jawaharlal Nehru Tropical Botanic Garden & Research Institute, Palode, Kerala
10. Dr. Jeyeshkumar R. Raval, Hemchandracharya North Gujarat University, Patan, Gujarat

Dr. P. G. Patwardhan Award for best oral presentation

1. Ms. Shweta Sharma, CSIR-NBRI, Lucknow
2. Ms. Aswathi Anilkumar, Maharaja's College, Ernakulam
3. Mr. Praphool Kumar, Dr. Ram Manohar Lohiya Avadh University, Ayodhya
4. Mr. Anshul Dhyani, University of Delhi, Delhi
5. Dr. Sanjay Yadav, Banaras Hindu University, Varanasi
6. Mr. Abhinav Sharma, CSIR-NBRI, Lucknow

Dr. Ajay Singh Award for best poster presentation

1. Mr. Harsh Pant, Banaras Hindu University, Varanasi
2. Mr. Sushil Agrahari, CSIR-NBRI, Lucknow
3. Ms. Anupma Devi, CSIR-NBRI, Lucknow
4. Ms. Ankita Verma, CSIR-NBRI, Lucknow
5. Ms. Shivani, G.B. Pant University of Agriculture and Technology, Pantnagar
6. Mr. Shivendra Pratap Singh, CSIR-NBRI, Lucknow



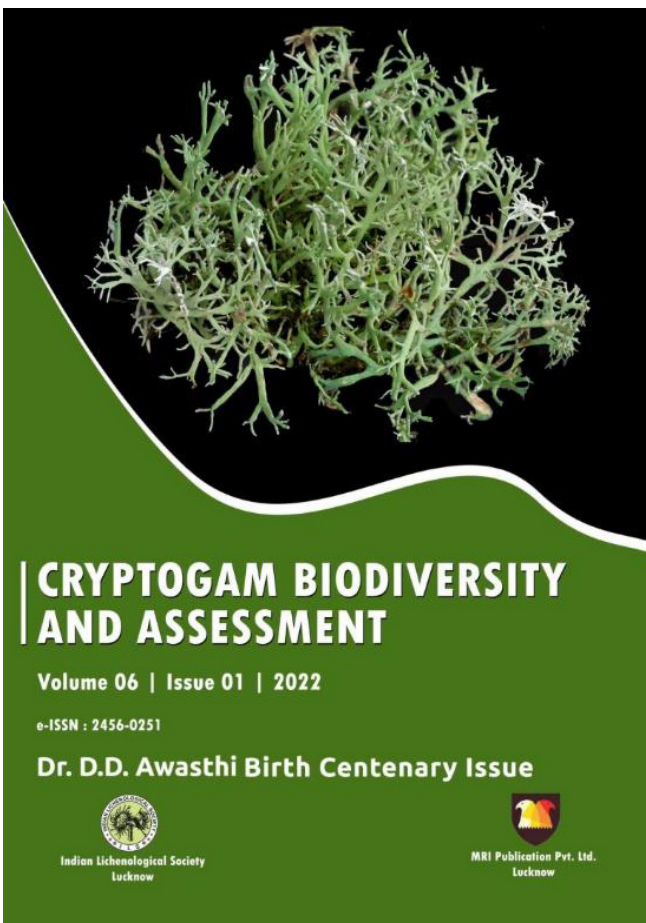
A. Inauguration of the conference by lighting the lamp by dignitaries, **B.** Dr. D.K.Upreti delivering presidential address, **C.** Dr. G.K. Mishra presenting an overview of the conference, **D.** Dr. D.D. Awasthi Memorial Lifetime Achievement Award being conferred to Dr. G.P. Sinha, **E.** Elected Fellows of Indian Lichenological Society, **F.** Dr. D.K. Upreti Best Thesis award being conferred to Dr. K.C. Saini, **G.** Release of the abstract book, **H.** Address by the Chief Guest Prof. S.R. Niranjana.



A. Dr. Sanjeeva Nayaka proposing vote of thanks, **B.** Prof. K.N. Kharwar presenting. Keynote address, **C.** Dr. Farishta Yasmin presenting invited talk, **D.** Student presenting the poster, **E.** Dr. Ajit K. Shasany felicitating the chief guest Dr. D.K. Srivastava, Joint Director of CST UP, Lucknow, **F.** Welcome address delivered by Dr. A.K. Shasnay **G.** Dr. S. Nayaka, declaring the winner of poster and oral participants, **H.** Dr. Anshul Dhyani winner of Dr. P.G. Patwardhan for best oral presentation award.

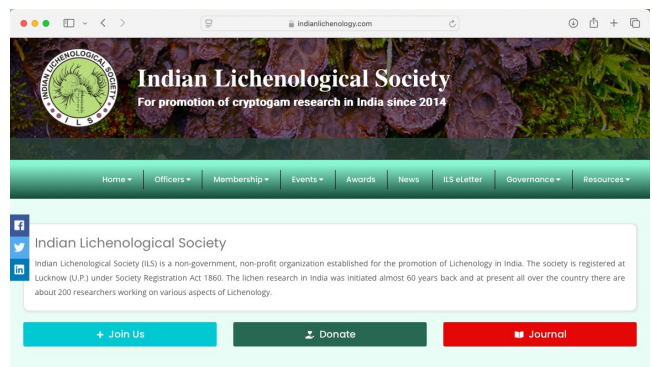


Organizing Committee Members of the National Conference on Advances and Perspectives in Cryptogam Research.



Cryptogam Biodiversity and Assessment official journal of Indian Lichenological Society, published biannually. It is a peer-reviewed journal dedicated to cryptogams (algae, fungi, lichens, bryophytes and pteridophytes) and their systematics, ecology, diversity, biomonitoring, bioprospection, conservation, climate change and other allied themes. Cryptogam Biodiversity and Assessment publishes the most significant research across the basic and applied research on cryptogam. The journal follows the standards for high-quality science set by the Indian Lichenological Society.

For more information and to submit your articles visit :<https://cbaj.in/index.php/journal>



Indian Lichenological Society - Membership information

Currently the society offers following three types of membership;

Ordinary membership

Ordinary membership is open to all individuals interested in any aspect of Indian Lichenology. The ordinary membership fee is Rs. 1000 (rupees one thousand only), valid only for the calendar year (January to December) in which the fee is deposited. The fee may be deposited anytime.

Life membership

Life Membership is open to all individuals interested in any aspect of Indian Lichenology. The Life Membership fee is Rs. 4000/- (rupees four thousand only). The fee may be paid at anytime and the membership remains valid till death of the individual or till the individual wishes to withdraw their membership from the society.

Honorary membership

Honorary Members are selected by Executive Council on the merits of the individual. No fee is levied for Honorary Membership.

Note: Membership fee is not refundable in any case.

Member's privileges

All members have right to provide feedbacks and contribute in any manner, at any time for the better management of the society and advancement of Lichenology in the country.

All members are eligible to participate and express their views in the society meetings.

Only Life Members are eligible for voting in the election of Executive Council members.

All members are can publish their articles in the society's Journal. However, the members are required to follow the journal's terms and conditions.

All members would have free access to databases of the society. However, this clause is subjected "conditions" that would set when the databases are actually developed.

The Life Members of society would be awarded or designated as 'Fellow of the Indian Lichenological Society (FILS)' after the completion of three year of their membership. The fellowship include certificate or citation only.

The Life Members and Honorary Members of the society are eligible for receiving awards constituted by the society.

Termination of membership

The Life Membership and Honorary Membership gets terminated in the event of death of the member or resignation.

As mentioned earlier Ordinary Membership gets terminated after 31st of December every year, and may be extended after payment of the dues.

Applications for membership

All the applications should be made through the Society's website where the online application form is provided:

<https://www.indianlichenology.com/MemberShipForm.aspx>

Payment of fee

Account No.: 34349534762; Name: Indian Lichenological Society; Bank: State Bank of India; Branch: NBRI Lucknow (10173); IFS Code: SBIN0010173; MICR Code: 226002051

Note: Out station of cash deposit as fee is not allowed for society's account. However, money transfer by swiping your debit/credit card is possible. There would be no or minimal charges for money transfer through internet banking (NEFT) which may be collected from transferee's account



Scan the QR code for the online application form

PUBLICATION GUIDELINES

ILS eLetter accepts writings, artworks, news, advertisements, and photographs pertaining to lichens and lichenicolous fungi. Articles can be either in English or Hindi. Popular articles, reviews, notes, observations, book reviews, poems, recommendations/suggestions are welcome. All the contributions will be peer-reviewed.

Submissions can be sent to: editorilseletter@gmail.com

Manuscript format guidelines:

1. Manuscript should be typed in word format without any fancy type setting.
2. Abstracts and keywords are not required.
3. Manuscript should include author details: names(s), affiliation(s), address and valid email.
4. All scientific binomials should be *italicized*.
5. Citations in the text should be arranged chronologically and separated by comma. For citations with more than two authors, use surname of first author followed by *et al.* E.g. (Singh, 1998; Awasthi, 2007; Singh & Sinha, 2010; Nayaka *et al.*, 2016).
6. References cited in the text should be listed alphabetically and quoted at the end of the manuscript.
7. Photographs, diagrams, charts, drawings files should be prepared in Jpeg (at least 300 dpi), TIFF or PNG formats. Editing of images is strongly discouraged.

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