

Birbal Sahni Institute of Palaeosciences
Monthly Summary of Research Activities
(December 2024)

1. Area of Focus

The institute carries out research on fundamental as well as applied aspects of Palaeosciences that includes Evolutionary history of biota, Paleoclimate, studies of past civilization, Human history and contemporary Climate Change issues, following an integrated and multi-disciplinary approach.

Key research activities under following objectives:

- Understanding origin and evolution of life through time and space.
- Understanding climate change in recent and deep geological times.
- Understanding past civilization and human history.
- Application of Palaeosciences in exploration of fossil fuel and coal industry.

1. Important Highlights of Major Research Activity

a. Key Scientific Findings of the Month (December 2024)

Late Tithonian (Late Jurassic) palaeobotanical records from the Jaisalmer Basin are infrequent. We report the first record of an age-diagnostic palynological assemblage of the sedimentary rocks in the Bhadasar Formation from the Jaisalmer Basin, India. The study is carried out to consider the palaeoenvironmental settings in this basin based on palynological and palynofacies investigations. A well-preserved assemblage of palynomorphs with 22 species belonging to 10 genera, including spores and pollen. The palynological assemblage is characterised by the dominance of coniferous pollen of *Callialasporites* spp. *Araucariacites* spp. along with some significant taxa viz. *Cupressacites ramachandra*, *Microcachryidites antarcticus*, *Classopollis* sp. *Podocarpidites* sp. *Pityosporites* sp. *Ginkgoretectina* spp. and *Monosulcites* sp. which suggest a Late Tithonian (Late Jurassic) age. The occurrence of conifer pollen (Araucariacites and Callialasporites) represents coastal vegetation and warm climate. However, some bisaccate pollen (Podocarpidites) indicates drier upland areas. Palynofacies records suggest two distinct Palynofacies Assemblages (PA – I and PA – II) correspond to the marginal oxic to dysoxic basin and the shelf to marginal transition (Kumar et al 2024).

b. India International Science Festival (30 Nov- 03 Dec 2024)

BSIP Director, Prof Mahesh Thakkar along with team of scientists, technical officers and museum curator attended the India International Science Festival 2024 from 30 Nov to 03 December 2024 at IIT Guwahati. Prof Mahesh Thakkar delivered a plenary talk at

Young Scientist Conclave on 'Empowering Youth' at IISF 2024. BSIP stall showcasing science and innovation in the field of geosciences at BSIP was visited by honorable Minister of Science and Technology, Dr. Jitendra Singh, ISRO Chairman, Dr. S. Somnath and other dignitaries of Political, Scientific and social science fields. The stall was also visited by a large number of students of schools and colleges.

c. Fire Safety Training (06 Dec 2024)

BSIP organized a fire safety training for its entire staff including scientific, technical and administrative on 06 Dec 2024 at institute campus. All the staff members actively participated this training.

d. BSIP Hindi Magazine awarded 1st Prize (28 Nov 2024)

भारत सरकार, राजभाषा विभाग, गृह मंत्रालय के नगर राजभाषा संस्थान समिति (3), लखनऊ द्वारा बीरबल साहनी पुराविज्ञान संस्थान की राजभाषा पत्रिका "पुराविज्ञान स्मारिका" 2024 को प्रथम पुरस्कार प्रदान किया गया। पुरस्कार वितरण समारोह भारतीय गग्ना अनुसंधान संस्थान, लखनऊ में दिनांक 28 नवंबर, 2024 को आयोजित किया गया।

e. Organization of 40th IAS convention and national conference of Sedimentology

BSIP organized and hosted 40th Convention of Indian Association of Sedimentologists and National conference on "An Odyssey of Sedimentology from Precambrian to Anthropocene: Significant contributions in Environmental Climatic and Energy Research" (11 –13 December 2024). The conference hosted delegates from across the nation belonging to premier Institutes and Universities like NIO, NCPOR, GSI, IIT Roorkee, IIT Bombay, Delhi University, Pune University etc. The delegates of the conference included Senior professors, Scientists, industry professionals and research scholars. A total of 250 delegates participated in the national conference.

f. Outreach Activities and Conferences

The MSc students and faculty of the Botany Department of Feroze Gandhi College, Rae Bareli, visited the BSIP Museum and laboratories, exploring fossils and interacting with scientists on December 3, 2024.

The faculty and Students of the Botany department, Sarsuna College, Kolkata visited the research laboratories and museum of BSIP on 26 Dec 2024.

g. Quarterly Hindi Workshop (30 Dec 2024)

डॉ अंजू सक्सेना, विज्ञानी ई द्वारा दिनांक ३०/१२/२४ को हिंदी कार्यशाला के दौरान 'स्पीति घाटी, एक ऊंची हिमालय पर्वत शृंखला, जहां कभी समुद्र था: प्राकृतिक जीवाश्म संग्रहालय की उत्पत्ति एवं उसके महत्व' विषय पर एक रोचक व्याख्यान प्रस्तुत किया।

List of Research Publications (December 2024)

Original Articles/Reviews/Book Chapters

1. Kapur, V. V., Sagar, R., Kumar, K., Chaddha, A. S., Lourembam, R. S., Mishra, A., & Sharma, A. (2024). Palaeobiological and geochemical aspects of reptilian coprolites from a Maastrichtian Deccan volcano-sedimentary intertrappean deposit of central India. *Ichnos*, 31(4), 233–256. <https://doi.org/10.1080/10420940.2024.2415153>.
2. Quamar, M. F., Dubey, J., Tiwari, P., Das, P. K., Thakur, B., Javed, M., Prasad, N., Maneesha, M. E. T., & Sangode, S. J. (2024). Hydroclimatic Changes Revealed by Multiple Proxies Since the Last Glacial Maximum from the Core Monsoon Zone of India. *Quaternary*, 7(4), 52. <https://doi.org/10.3390/quat7040052>.
3. Pandey, A., Tripathi, S., Kumar, B., Singh, P., Singh, H., Shukla, A. N., & Garg, A. (2024). Spore morphology of *Adiantum* species from the Indian subcontinent using LM and FESEM: palaeoecological analysis and phylogenetic delineation. *Palynology*. <https://doi.org/10.1080/01916122.2024.2427638>.
4. Kumar, R., Pandey, B., Das, N., Aggarwal, N., Murthy, S., Kumar, K., & Pathak, D. B. (2024). Late Tithonian (Late Jurassic) palynological record from the Jaisalmer Basin (India). *Historical Biology*, 1–13. <https://doi.org/10.1080/08912963.2024.2427097>.
5. Mehrotra, N., Shah, S. K., Malsawmliana, & Kar, R. (2025). Modern pollen distribution across Mizoram, northeastern India, impacted by regional climate and anthropogenic activities. *The Holocene*, 0(0). <https://doi.org/10.1177/09596836241307299>.
6. Singh, A., & Prem Raj Uddandam. (2024). Mesozoic Oceanic Anoxic Events: Records from India and future scope. *Journal of Palaeosciences*, 73(2), 99–118. <https://doi.org/10.54991/jop.2024.1888>.
7. Santosh, S., Mathews, R., & Singh, B. D. (2024). A Preliminary Organic Geochemical and Petrographical Investigation of Neyveli lignite (mine-1) to Understand the Depositional Environment and Hydrocarbon Source Characteristics. *Journal of Palaeosciences*, 73(2), 131–148. <https://doi.org/10.54991/jop.2024.1892>.
8. Farooqui, A., & Singh, H. (2024). *Habrotrocha angusticollis* from Miocene sediments and their extant forms in the Indian sub-continent. *Journal of Palaeosciences*, 73(2), 149–156. <https://doi.org/10.54991/jop.2024.1894>.
9. Sarkar, S. (2024). Diverse geniculate coralline algae in Cenozoic fossil records: knowledge gaps and applications in palaeoecology. *Journal of Palaeosciences*, 73(2), 157–164. <https://doi.org/10.54991/jop.2024.1895>.
10. Singh, H., Pawan Kumar Singh, Mahesh Prasad, & Sanjai Kumar Singh. (2024). Fossil Leaves Belonging to Family Annonaceae from Sub-Himalayan Zone (Siwalik) of Himachal Pradesh, India and their Climatic and Phytogeographical Implication. *Journal of Palaeosciences*, 73(2), 165–180. <https://doi.org/10.54991/jop.2024.1893>.
11. Arya Pandey, Sahu, S. K., & Khan, S. . (2024). XV International Palynology Congress and XI International Organisation of Palaeobotany Conference: May 27-31, 2024, Prague, Czech Republic. *Journal of Palaeosciences*, 73(2), 181–182. <https://doi.org/10.54991/jop.2024.1902>.
12. Ahmad, S. (2024). 40th Convention of the Indian Association of Sedimentologists and

National Conference on An Odyssey of Sedimentology from Precambrian to Anthropocene: Significant Contributions in Environmental, Climatic, and Energy Research: December 11-13, 2024, Birbal Sahni Institute of Palaeosciences, Lucknow, India. Journal of Palaeosciences, 73(2), 183–186. <https://doi.org/10.54991/jop.2024.1901>.

Photographs showing important highlights of major programs/research activities organized during December 2024:



