Birbal Sahni Institute of Palaeosciences
Monthly summary on Research Activities
(August, 2022)

1. **Areas 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.

2. **Important Highlights of Major Research Programmes**

a) Key Scientific Findings of the Month (Aug 2022)

i) Legumes are important food crops and understanding their survival in globally warm future climate is crucial. Recently, we have discovered a legume fruit from ~56 million years old sediments of Meghalaya. This finding is important in understanding the evolutionary ecology of legumes when Earth was much warmer and CO_2 concentration was >1000 ppm than present (Bhatia et al., 2022; Plant Diversity; Fig. 1a).

ii) A palynological perspective on the advent and intensification of agricultural practices from the varied physiographic regions of India was undertaken. Based on Cerealia, and other cultural plant pollen taxa, it has been proposed that agricultural practices began in central India around 9000 yr BP and ranged from 8500 to 5300 yr BP in the Himalayas. However, in the Ganga Plain and in Northeast India, the time frames suggested for the inception of agricultural practices are 13,000 yr BP and between 12,450 and 10,810 yr BP, respectively (Quamar and Kar 2022; The Holocene; Fig. 1b).

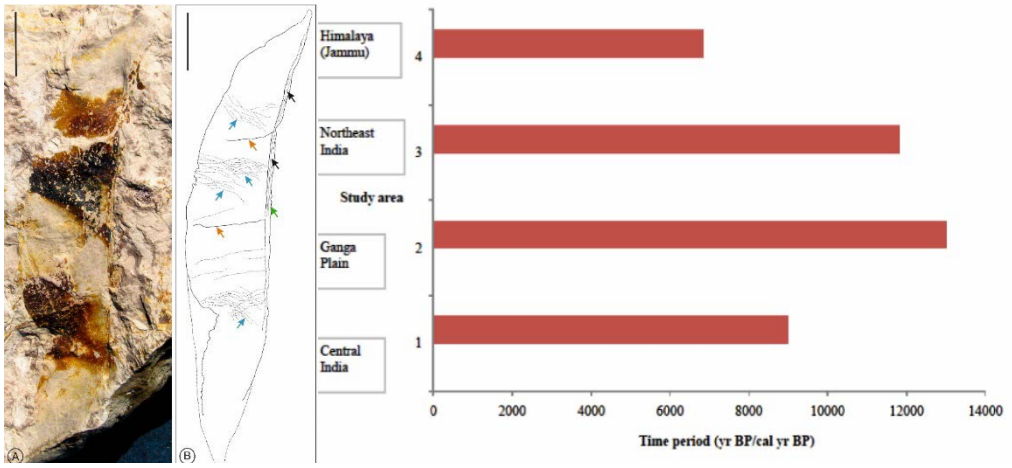

Figure 1 (a) ~56 Million years old legume fruit from Meghalaya. (b) Inception of cereal-based agricultural practices in India during the Holocene, based on palynological records.

b) Friday lecture series talks

S.No.	Speaker	Title of the talk	Date
1.	Dr. Ranveer Singh Negi, Scientist B, BSIP	Cambrian Biostratigraphy of the Tethyan Himalaya	July 29, 2022

Scientific members of the Institute and Project staff members, Research Associates and scholars attended the talk of the Friday Lecture series.

c) Independence Day Celebrations (15th August 2022)

BSIP celebrated 76th Independence Day by hoisting the national flag and singing the national anthem on 15th August 2022 within its campus followed by various cultural performances by the institute staff members. All the BSIP staff including research associates and scholars participated in flag hoisting ceremony.

List of research publications (August, 2022)

1. **Quamar, M.F., Kar, R.** (2022). Agricultural practices in India during the Holocene: A pollen view point and a critical appraisal. The Holocene. DOI.: 10.1177/09596836221114286 **(Impact factor: 3.092)**.

2. **Bhatia, H., Srivastava, G.,** Mehrotra, R.C. (2022). Legumes from the Paleocene sediments of India and their ecological significance. Plant Diversity. DOI.: 10.1016/j.pld.2022.08.001 **(Impact factor: 3.359)**.

3. **Singh V., Misra, K.G., Yadava, A.,** Yadav, R.R. **(2022).** Sub-alpine Himalayan birch in cold arid Lahaul-Spiti, Himachal Pradesh, India: a proxy of winter/early spring minimum temperature. Current Science 123, 22−25 **(Impact factor: 1.169)**.

4. Yadav, A., Mishra, P.K., Mehta, B., Ambili, A., **Misra, S.**, Jamir, T. (2022). Hydroclimatic variability in Northeast India during the last two millennia: Sedimentological and geochemical record from Shilloi Lake, Nagaland. Palaeogeography, Palaeoclimatology, Palaeoecology 602. DOI.: 10.1016/j.palaeo.2022.111151 **(Impact factor: 3.565)**.

5. Pandey, P., **Ali, S.N.**, Simon, A. (2022). Rock glacier Oasis: An alternative for agro-pastoralism in a changing environment in the Himalayan cold desert. Geographical Journal. DOI.: https://doi.org/10.1111/geoj.12468 **(Impact factor: 3.384)**.

6. Dimri, A.P., Roxy, M., **Sharma, A.**, **Pokharia, A.K.**, Gayathri, C.R., Sanwal, J., Tandon, S.K., Pattanaik, D.B., Mohanty, U.C. (2022). Monsoon in history and present. Journal of Palaeosciences 71 (1), 45−74.

7. **Phartiyal, B., Ali, S.N., Sharma, A., Agrawal, S., Nag, D., Tiwari, P., Kumar, M., Morthekai, P., Govil, P., Thakur, B.**, Bhushan, R., Jena, P.S., Shivam, A. (2022)., Palaeoclimatic variability during last eight millennia from a morainal lake in Zanskar, northwest Himalaya, India. Journal of Palaeosciences 71 (1), 75−88.

8. **Ali, S.N.**, Singh, R., **Morthekai, P.**, **Sharma, A., Phartiyal, B., Quamar, M.F.**, Kumar, R., Arora, P. (2022). Perception of climate change from the Himalayan 'cold desert' Ladakh, India. Journal of Palaeosciences 71 (1), 89−111.

9. **Saxena, A., Gupta, S., Pillai, S.S.K., Murthy, S., Agnihotri, D.,** Khnagar, R., Savita, C., Khan, M. (2022). Late Permian macrofloral remains from the Bijori Formation, Satpura Gondwana Basin and their biostratigraphic implications. Geophytology 51, 41−58.

Photographs showing important highlights of major programs/research activities organized during August, 2022: