Information, New Delhi (http://indmed.nic.in) has developed a bibliographic database of 76 peer-reviewed Indian biomedical journals, IndMED, with the aim to cover those journals not covered in *MEDLINE* (on-line counterpart of *Index Medicus*). This success story can be emulated by other fields of science and technology also. Similarly, organization of workshops on electronic publishing of scientific information, like the one hosted by the Indian Academy of Sciences, Bangalore during March 2002, is another excellent effort in this endeavour. But one thing is certain. All these initiatives attempt to increase the visibility of Indian journals by making journal content available freely on the Internet.

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The sanctity of *Pedicularis bicornuta* Kl. ex Kl. & Garcke (Scrophulariaceae) in the Indian cold deserts of Lahaul-Spiti

On a survey and field trip for study and collection of botanically curious *Pedicularis* species[1] to the tough and sometimes inaccessible areas of the Himalayan cold deserts, during 1–9 August 2002, the authors, while on their way from Rohtang to Kaza, after crossing the Kunzum Pass, came across an eye-catching, beautiful, bright yellow flowered population of *Pedicularis* in Losar town situated in the Spiti valley of Himachal Pradesh at an altitude of 4000 m. The species was later identified as *Pedicularis bicornuta* Kl. ex Kl. & Garcke (Figure 1).

The climatic conditions of the Losar area in the Spiti valley were drastic for flowering plants. There were continuous, fast-blowing cold winds interrupted by frequent cold storms which were often strong enough to desiccate the flowers and even sometimes uproot delicate herbs. Hence the adverse environmental conditions of this area permitted comfortable growth of thorny herbs such as *Astragalus* spp. and others, and was primarily occupied by these. Amidst these and in association with many legumes such as *Trifolium repens*, *T. pratens* and *Medicago* spp. grew the beautiful *P. bicornuta* in abundance, under the shade of *Salix* trees, withstanding the stochastic perturbations. The plants were tough and sturdy and the corolla of these flowers was closed in a ball-like fashion to cover the delicate vital parts such as stamens and stigma from the outside pressures,

Figure 1. Flowers of *Pedicularis bicornuta* Kl. ex Kl. & Garcke.

Figure 2. Tibetan woman carrying a bunch of floral spikes towards the temple of Goddess Kali situated at Kunzum Pass.

perhaps an adaptation to the environmental stochasticity. The species was found to be restricted in the Losar town of the Spiti valley only, as it never appeared again in any other area during further survey of the Spiti valley.

While our attention was focused on scientific parameters of this *Pedicularis* species which included observations on population dynamic studies, taxonomic aspects such as leaves, flower colour, insect visitations and collection, to our amazement, we saw a group of Tibetan women in groups carrying the same beautiful *P. bicornuta* in both their hands (Figure 2) reciting some prayers and moving towards a Kali temple which was situated at the Kunzum Pass ca 20 km from Losar.

The indigenous knowledge of the local inhabitants regarding the species was gathered, which brought to light the significance of this species in socio-religious ceremonies. The inhabitants of this area considered these plants to possess sanctifiable values and used it as a remedy against evil omen. The flowers were considered an integral offering to please Goddess Kali and get their wishes fulfilled. Further, no religious ceremony was considered to be complete without the offering of these flowers in the first prayers. The women also made garlands from the flowers to greet each other on important religious occasions and to garland Goddess Kali during festivals.

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Palaeontology in India at cross roads – a comment

Science has many facets, constituting a dynamic system, and not static one. Therefore, sooner or later, a discipline reaches a plateau. The level of interest of the scientists in that discipline may be sustained for some time, followed by a gradual decline in interest, which is inevitable. The same level of interest cannot be maintained eternally for any discipline. The interest may be diverted to some other topical discipline, a normal, universal, evolutionary behaviour. It, however, does not preclude one from identifying the causes behind this state of affairs, and to take steps to resurrect the discipline, if possible.

That is what Mukund Sharma has done in his commentary 'Palaeontology in India at crossroads' (*Curr. Sci.*, 2002, **82**, 913–917), with particular reference to palaeobotany, carrying over from where Srivastava (*Curr. Sci.*, 2001, **81**, 1278–1279) left, though probably unaware of the latter work. Srivastava bemoans that 'taxonomy and systematic studies of plants fossils are being neglected due to an overemphasis on geological interpretations'. He could not have been more wrong. It is this importance of palaeobotany (as also of palaeontology) in geological interpretations that has sustained the former this long; otherwise the discipline would have become extinct by now. The reasons for this are not that obscure as to be undecipherable. Srivastava's account clearly indicates that Indian palaeobotanists have not yet broken free from the shell of traditional, descriptive palaeobotany and hence find themselves totally unprepared to keep pace with current and topical expectations, based on market economy, from the society. Mukund Sharma has sounded the alarm bells.

Palaeontology has had many ups and downs during its long history of about two hundred years. During the pre-Independence period, study of fossil collections made by naturalists and missionaries led to the concept of Tethys and of Gondwana Supercontinent. In the post-Independence period, many a geologist was specifically trained for palaeontological studies at the Geological Survey of India.

In India, palaeobotanical researches are mainly being carried out at the Birbal Sahni Institute of Palaeobotany, Lucknow. The Geological Survey of India and the Oil and Natural Gas Corporation have small service laboratories, suited to their internal needs. With retirement of individuals interested in botany-cum-palaeobotany, the situation in the universities has become precarious for palaeobotanical studies.

It is indeed sad and perturbing that during the last fifty years or so, Indian palaeobotanists have not been able to project their researches on the international scene, though the government and academies grant lakhs of rupees each year for attendance at international conferences. Most of their papers have an extremely poor citation index. Not more than a dozen research papers have merited citation in text-books published abroad during 1947 to 1996. A textbook on Indian fossils for Indian students is yet to be prepared. Now, with the exclusion of palaeobotanical studies from the syllabi of botany departments, such a book may not even be needed.

We are not aware if any technique for study of fossils has been developed or improved upon in India. Hurried reconstructions of some fossil plants have been presented, but none of these has been accepted as authentic. Though a lot of data have been generated on phytostratigraphy and phytogeography for different geological time slices in different basins, no comprehensive compilation is available for any single basin. The few vegetation scenarios that have been reconstructed look absurdly like botanical gardens.

Some of the reasons for this state of affairs may be enumerated as follows: (i)