

CORRESPONDENCE

arguably the best single scalar indicator of scientific effort³.

A very recent bibliometric study⁴ of neuroscience research in India between 1992 and 2005 showed that papers originating from international collaborations are cited more often. It is tempting to revisit table 1 of the same study⁴ using the exergy criterion to see if Indian scientists published their 'best' research in international journals. If P is the number of papers and C the number of citations, the exergy value³ is computed as $X = (C/P) \times C$. The total $\sum X$ for international and Indian journals are then added

separately and compared. Table 1 here shows that for the 25 journals reported in the original table 1 of Shahabuddin⁴, 98.74% of the exergy value has appeared in international journals leaving a paltry share of 1.26% for the Indian journals.

The best research in neuroscience from India is increasingly appearing in international journals. A worrying issue is that Indian journals have not been able to cope in this highly competitive environment.

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2. Nishy, P. and Prathap, G., *Curr. Sci.*, 2011, **101**, 1516–1517.

3. Prathap, G., *Scientometrics*, 2011, **87**, 515–524.

4. Shahabuddin, S. M., *Curr. Sci.*, 2013, **104**, 1619–1626.

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Too much of 'botanization' is bad

Botanical excursion or field study – botanization – at the undergraduate (UG) and postgraduate (PG) levels is essential for practical education in botany. Through field studies, students get acquainted with live specimens in the field, understand the various forms and features of plants and their diverse natural habitats. It helps raise their interest in the subject and love for nature. During botanical excursions, students tend to collect more samples than required for their study and preservation in the herbarium. One recent experience prompted me to write this correspondence. While I was conducting B Sc Honours practical examination in a college in Kolkata, one co-examiner proudly communicated me that 'bagfuls' of *Equisetum* species (*E. diffusum* D. Don, *E. ramosissimum* Desf.) were recently collected by her and accompanying students from a botanical excursion to Sikkim. I immediately reacted, saying 'you did an injustice to nature going against your classroom lessons on conservation of plants as they are uncommon plants and in some places their population is now dwindling due to such over-collection'.

Worldwide about 25 species of *Equisetum* L. (the generic name derived from equus = horse, seta = bristle; common name horsetail, resembling it to some extent) are reported. Of these six species occur in India, mainly in the Himalaya^{1–4}. They have some medicinal uses¹. Their population is shrinking in India due to excessive institutional and commercial collections. *E. ramosissimum* and *E. hy-*

male L. are already reported as rare/uncommon in western Himalaya⁴.

My experience during field trips over the past three decades has taught me that students, from numerous plants collected by them, make only a few herbarium specimens (the required number as mentioned in the syllabus). The rest is thrown away as are the herbarium specimens after the examination. This leads to wastage of many important collections. To prevent this, students should be encouraged to donate the specimens to the herbarium of their alma mater to fulfil the objectives of herbarium methods.

Here I emphasize on judicious collection of plants, in compliance with the classroom lessons regarding conservation of plants. Indoor teaching and outdoor activities should not be contradictory. Plants need to be collected during field studies, but not indiscriminately destroying rare and uncommon plants. To learn the herbarium methods at UG and PG levels only a few (about 10–15) plant specimens may be collected by each student, from among the abundant plants or weeds only, and this should be accordingly mentioned in the syllabi. Similarly, for work in the practical class, species which are abundant should be included and the uncommon ones, e.g. *Equisetum* species, have to be excluded from the syllabi. Rare and uncommon plants may be recorded in field notes and photographs, and not through collection of live specimens. Modern-day cameras can clearly show the macro-morphological features.

Our aim is to understand plants and not to destroy them. Under the proper guidance of a teacher, the dwindling members of biodiversity can be saved from further loss or extinction. It is alarming that, according to the International Union for Conservation of Nature and Natural Resources, the current species extinction rate is between 1000 and 10,000 times higher than it would naturally be⁵. No doubt botanization is good, but too much of it must be avoided.

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