

of old species, and 32 species among these 99 were revisited and revised either because of wrong description or for a narrow morphological distinction between the species. It is time to thank Balech, Cleve, Hasle, Faust, Fukuyo, Lundholm, Moestrup and others for their sustained taxonomic interest, invaluable contributions to HAB research and, of course, for many wishful legacies of the Linnaeus' kind.

Taxonomy no doubt is concerned with recognition and characterization of organisms and it does involve studies on life cycles, ecology and evolutionary history,

and not mere morphological description as many think. Apart from such long-term studies, obvious handicaps for the slow progress in micro-algal taxonomy are expensive cruises for sampling and involvement of very few marine biologists in the taxonomic endeavour. Now the natural slowdown is due to the advent of new molecular approaches. Though molecular approaches are gaining acceptance, some are not yet inclined to replace taxonomy based on visible and ecological characteristics by the one based on molecular/genetic details, where characters may not even be expressed in

the phenotype. No doubt that once genomics becomes more popular, and its application cheaper and easier, radical revision in the known taxonomies is bound to take place. Then what happens to the already degenerating population of taxonomists? Would that mean the end of the Linnaean legacy?

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## Age of plant galls

With reference to the article 'Insect-induced plant galls of India: unresolved questions' by Raman<sup>1</sup> and a related 'In this issue' note published under 'Plant galls' (p. 706) in the same volume, I would like to draw attention of the readers to some small but important mistakes in the abstract of the article<sup>1</sup> and the related comments on p. 706.

The statement 'Fossil records indicate that galls existed in India from the late Cenozoic period' (p. 748) is incorrect and contrary to the fact mentioned on p. 749, namely 'galls on the fossil leaves of mango ... from the Upper Palaeocene-aged flora of Tura Formation'. The age of the formation is about 55 million years. The Cenozoic period starts from 65 million years BP; obviously the above statement indicates a wrong age. Accordingly, it should read as 'Fossil records indicate that galls existed in India from the early Cenozoic period<sup>1</sup>'.

I would like to add here that galls on fossil leaves have also been reported from the late Eocene (about 35 million years) sediments of Manipur<sup>2</sup>. The available Indian records indicate that galls have continued to occur on angiosperm leaves from early Cenozoic till today, and they need more attention in view of the significance of plant-animal interaction studies.

In the note on p. 706 it is stated that 'intimacy between certain plants and certain insects commenced from leaf-mining

habit in the Eocene, and stabilized in the upper Cretaceous, coinciding with the diversification and establishment of angiosperms'. The statement regarding age is erroneous; it should have been as follows, 'intimacy between certain plants and certain insects commenced from leaf-mining habit in the upper Cretaceous, coinciding with the diversification and establishment of angiosperms and stabilized in the Eocene'.

Further, the occurrence of leaf galls has been reported<sup>3</sup> on the *Glossopteris* leaf remains of Permian age (about 270–275 million years) from Kashmir. Evidently this has great bearing on the antiquity of gall-forming insects.

1. Raman, A., *Curr. Sci.*, 2007, **92**, 748–757.
2. Guleria, J. S. *et al.*, *Palaeobotanist*, 2005, **54**, 61–77.
3. Pant, D. D. and Srivastava, P. C., Proceedings of the International Conference on Global Environment and Diversification of Plants through Geological Time, Society of Plant Taxonomists, Allahabad, *Birbal Sahni Centenary Volume*, Allahabad, 1995, pp. 317–326.

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### Response:

I acknowledge that an inaccuracy had crept into my text inadvertently with regard to the terms referring to the geological timescale. I regret the same.

I am not only aware of the two articles on the occurrence of leaf galls that Guleria has referred to in his comments, but also another<sup>1</sup> published from India in 2004. However, I refrained from referring these in my article, because they include only vague comments on 'plant galls', with no explicit pointer to the possible identity of the inducing arthropod and the nature of the galls they were suspected to be.

1. Banerji, J., *Gondwana Res.*, 2004, **7**, 205–210.

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