Regional biosystematic research centres

In a timely article on the future of systematics and biodiversity research in India (Pushpangadan and Narayanan Nair, *Curr. Sci.*, 2001, **80**, 631–638), the authors emphasize on the reluctance to accept and support basic scientific disciplines like systematics. While highlighting that 'the overriding importance of systematics and its creative role in fulfilling the emerging needs of science and society have been realized so greatly as at this particular point of time', the statement that 'systematic biologists have also failed to impress upon the scientific community and the governments about the creative role and potentials of basic taxonomy' is unfortunate. What is immediately needed is to identify and energize the university/college departments which have contributed substantially over the years towards the progress of taxonomic research. It is for the funding bodies to identify such taxonomists of calibre, since any initiative from individuals will only continue to fall upon deaf ears.

It is a well-known fact that systematic studies on the interrelationships of species and their classification emerged from the accurate description of species, so that basic systematic research on species diversity is of great consequence, being sought after by ecologists, conservation biologists, as well as agriculturists and medical scientists. To meet the objectives of the Systematic Agenda 2000, there has been a need to discover, describe and classify species with a view to obtain organized information that would also be useful to both science and society. Systematic knowledge plays a basic role in monitoring global change and alterations in biological communities and ecosystems due to environmental stress from time to time. A reliable benchmark to the dimensions of biodiversity crisis can be provided only by an adequate knowledge of systematics. Among many other instances, an interesting case relating to wrong species identification, published in *Current Science* (1967, **36**, 480–481) several years ago relates to the occurrence of schistosomiasis near Madurai. The publication startled the medical world, with experts swinging into immediate action with door-to-door investigation regarding cases of blood in urine. All the tests were negative and the issue was traced to wrong identification of the intermediate host!

Of equal relevance are the vectors of human, animal and plant diseases, where very accurate identification of the vector is needed. Further, the possibility exists that what is considered as one species could be a complex of several distinct species with varied ability to act as vectors. Isozyme studies have also proved that many biotypes may be present in a vector species with variable vector efficiency. The decline in the number of systematists trained to investigate different groups, more notably in the systematics of microorganisms and insects is lamentable. We are often carried away by our ability to identify groups of vertebrates, an aspect which cannot apply to lower organisms, particularly in cases such as that of insects and mites which are today playing an important vector role in the agricultural and medical fronts. Equally valid is the fact that search for useful genes and subsequent biotechnological exercises hinge on accurate determination of species by trained systematists.

The Zoological and Botanical Surveys which are at present the principal organizations which deal with systematic studies have been the principal props of systematic studies over the years. These organizations in recent years have suffered from increased load of identification work and limited expertise. Needless to emphasize that with increased inputs in biodiversity research by universities and colleges, the need for correct species identification has become acute. To overcome this exigency, the identification and establishment of Regional Systematic Research Centres in every state, housing local collections of species, with competent staff, good library and reference collections become important. There are several recognized experts in many institutions all over the country who languish for want of recognition as such centres. Major national research centres besides the Surveys should also be identified among existing institutions of research relating to agriculture, veterinary and medical sciences, besides universities. To enable proper assessment of our biodiversity such taxon-based centres are necessary and both the centre and the state governments should give serious thought to supporting such existing centres, as otherwise, the purpose behind biodiversity studies would be lost. Project-based funding by the centre and the state should concentrate on the development of such centres, so that identified material accruing in research projects could be deposited in such regional centres, enriching better understanding of the local species. The time is also opportune for every agricultural university and the forest research centres located all over the country to initiate and support taxonomic research. A more meaningful approach could be the initiation of a centre for agrobiodiversity in each of these institutions, so that the day will not be far off when this country can be proud of its identified taxonomic wealth, ably supported by the Surveys.

The discovery of new species, systematic analysis and potential economic value are aspects which can make a positive contribution to the country's economy. Biosystematic research on rapid, accurate identification of potentially beneficial organisms cannot be accomplished without a firm basis of operation. 'The broad and expanding foundation of systematic information and theory upon which areas such as biological control and many other fields of agricultural science depend are constructed to a large extent by laying taxonomic brick upon taxonomic brick and when that fact is lost from sight, the superstructures start to slip'.

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