

Lectotypification of plant names

Many publications on lectotypification of 'species' are coming up in different periodicals. We would like to point out that 'species' do not have type(s); they have circumscription and only the names have types. What is circumscription? It is an attribute or a set of attributes that characterize the taxon, and exclude it from all other taxa. Thus, a heading such as 'lectotypification of species' is not correct. This was first pointed out to one of us (S.B.) by late Dan H. Nicolson in 1992. However, such inappropriate titles appear even in reputed taxonomic journals.

Lectotypification is essential to fix the application of a name but in a proper manner. It helps us ascertain the identity of a plant. We often receive manuscripts on lectotypification for review, where the authors state 'As part of the revisionary studies in India... lectotypification of some "species" is necessary'. Unfortunately in many cases we have noticed that no revisionary study was actually carried out by the authors. In reality, it takes several years to revise even a small taxonomic group. Lectotypification of names should be carried out only after detailed taxonomic studies, preferably after revising a plant group. Without in-depth taxonomic studies one cannot have a clear concept on the morphological

variations of a taxon and to judge which 'original material' would be the best for designating a lectotype. Simply lectotypifying a name when there are more than one specimens used by the author of a name is not of much importance, because it does not affect application of the name. The prime importance of lectotypification of a name lies when the 'original material' consists of heterogeneous elements, or there is complexity in typification. In such cases, a designated lectotype fixes the correct application of the name. One should refer to *Taxonomic Literature* (2nd edn; TL-2) and its supplements (http://www.sil.si.edu/Digital_Collections/tl-2/search.cfm) to find out where the types of the author of a name can be found and communicate with the curators of all the herbaria concerned. Sometimes, 'original material' can also be found in some other herbaria not mentioned in TL-2. Simply looking at the images in a few virtual herbaria to lectotypify a name is not desirable. Further, authors should keep in mind that the images available on-line may not include all the type specimens available in that particular herbarium. They should also communicate and find out whether the images of the uploaded type specimens are the only ones available in that par-

ticular herbarium, or there are more images that are yet to be uploaded. Besides, they should have proper concept on 'original material' while lectotypifying a name, because in some cases lectotype can be designated from the uncited specimens and cited and uncited illustrations that comprise the remaining 'original material', if such exist.

Thus lectotypification should be carried out cautiously after a comprehensive study of a particular plant group and after a thorough search of type specimens in all the relevant herbaria.

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Role of Ph Ds in India

This is with reference to the letter titled 'A Ph D may not be enough' by Mahanty¹. The author has provided a baseline analysis about the scope and prospects of Ph Ds in India with special reference to job opportunities in the changing global scenario. He has further cautioned aspirants about the pros and cons of a Ph D degree in the industrial world and has mentioned that industrial firms often do not hire Ph Ds and instead consider/prefer lower qualified aspirants. Agreed that there might be challenges for Ph Ds in getting employment opportunities according to their expertise, especially in the industrial world, but it is also true that globally employment chances are becoming limited in every field/area due

to multiple factors, including population pressure, urbanization, inflation, resource depletion, conflicts, changing needs and necessities, etc. and this is irrespective of one's academic credentials. But there is always enormous scope for Ph Ds, especially in countries like India which are going through an evolving phase, particularly in the research domain.

Gupta and Dhawan² found that there is a strong need to encourage industry participation in research in different fields of science and technology (S&T) by involving it in the national network and sectoral programmes of the country; and both research and development (R&D) institutions and universities as well as the Indian industry need to work in tan-

dem and be encouraged to undertake programmes of relevance.

According to the vision document prepared by the Science Advisory Council to the Prime Minister, Department of Science and Technology, Government of India³, India can become a leading global force in science only when a massive increase in S&T education, both in quality and quantity is ensured and we need to produce at least 15 lakhs graduate scientists, 3 lakhs post-graduate scientists and 30,000 Ph Ds per year by 2025.

The report of the National Knowledge Commission⁴ that India needs 1500 new universities by 2015 also justifies the importance of having more Ph Ds because higher qualified human resource