Standards of higher education

The editorial[1] touches upon a very important and fundamental issue related to the promotion/revamping of higher education including science and technology in the country. There is an urgent need to learn from experience, from elsewhere and discard the old British system, which most of our universities are still following.

While everyone agrees that the standard of higher education and the quality of science and technology research, particularly in universities, are declining at an alarming rate and remedial measures are not being taken up. First, the basic infrastructure in any average Indian university is pathetic and not conducive for any innovation. Second, there is nothing that is done to instill confidence and commitment among the faculty. On the contrary, teachers in a university are treated like glorified hired labour and not as regulatory part of the system. It is a myth if one counter argues that most of the committees in an university system consist of teachers; because in reality they hardly have any role to play and everything is decided by the administrators. In any typical Indian university, most of the teachers will either be taking a class in a room not worthy to be a classroom or running around the administrative building to get things done or they are absent. If some of them are inherently committed to science and research and ask for certain things, they are considered troublesome. Many of the talented academicians and researchers seek to become heads of institutions/vice-chancellors so that they can carry on well their research interests, resulting in further loss of quality teachers to the university system.

Yes, indeed we have to learn from what is going on elsewhere in the world. Do we really want to? In majority of the countries where education and science and technology are flourishing, how are the Presidents of the universities appointed? How are the Chairpersons for the departments appointed and in fact how is the faculty appointed? What is the status of a Professor in those universities? The Indian educationists know all this but cannot and do not wish to emulate those procedures for a variety of reasons.

Unless the people who take policy decisions on Indian science and higher education are willing to adopt successful models from other countries, quality of Indian higher education and of science and technology will remain where it is, no matter how many times the existing regulatory bodies abolished and new ones created, sometimes with the same old members!

1. Balaram, P., *Curr. Sci.*, 2009, **97**, 289–290.

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Taxonomic placement for mycelia sterilia in endophytic fungal research: a molecular approach

Traditionally a culture-dependent process has been employed in most of the endophyte studies so far[1,2]. Mycelia sterilia have been isolated as endophytes mainly from a vast range of host plants despite modifications in artificial media and different incubation conditions to sporulate[3–5]. The importance of these sterile mycelia may be answers to the famous question of 'where are the missing fungi'[6]. Mycelia sterilia cannot be given taxonomic status and are not comparable among hosts or sites. In order to appreciate the considerable diversity, mycelia sterilia have been generally categorized as sterile fungi[7], or morphotypes based on similar cultural characteristics[8,9]. Grouping this way is a useful but limited tool, as comparisons cannot be made with other studies and a few studies have used molecular techniques to identify these morphospecies further[10]. However, morphotypes do not reflect species phylogeny and isolates included in a morphotype could comprise distantly related taxa or different morphotypes belonging to the same species[11], and may disregard diversity when compared with taxonomic groups based on molecular data and will split and lump taxonomic groups with nearly equal frequency[12]. Therefore molecular techniques are considered promising methods to find new endophytic fungi. Fungal ITS sequences are now routinely used in phylogenetic studies as well as in the detection and identification of fungi[13]. Potentially successful methods include extracting entire host DNA with various methods to sequence individual taxa such as DNA cloning[14], DGGE[15] and T-RLFP[16].

However, there are some limitations in identification of sterile mycelia by means of DNA sequence analyses. Although some morphotypes had relatively high similarities in ITS region, sequences had clustered together with high bootstrap support. PCR-based errors have mainly been attributed to PCR biases and artefacts and data interpretation[17]. Different sequences from DGGE or T-RFLP may result in the same signal and without further analyses, the homogeneity of these sequences cannot be established. There is still insufficient information at present to determine whether the terminal clades include one or more species in the phylogenetic analyses and limited number of sequences in GenBank and EMBL (European Molecular Biology Laboratory)[18].

Genotypic information on isolates including ecologically relevant annotations (geographic region of origin, host plant taxonomy, microhabitat) in depositories in a format similar to that of GeneBank