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Ultrastructural details of cycloid scales for species identification

The technique of DNA characterization has been in vogue for population analysis in fishes having wide zoogeographical distribution. This technique is expensive due to the involvement of various chemicals, needs high-end instruments and expertise for analysis. An alternative, new technique has been described, i.e. the study of the ultra structural details using SEM of the regenerated part of the fish scale of one of the exotic fishes, *Cyprinus carpio communis* L. inhabiting different aquatic ecological conditions of the northern part of India. When the original scale is shed-off due to fight for food or during breeding, the new scale appears at a fast rate. The pattern of deposition of minerals, especially the calcium salts, which are the major components of the fish scale, is entirely different from the original scale. The different patterns of the calcium crystals in the regenerated part of the scale which are population-specific are helpful in identifying the populations inhabiting the different ecological conditions. As this technique does not involve any chemical process and only one instrument, i.e. SEM is required for analysis, the chances of error are negligible. Further, this technique is only applicable to the fish species having scale. Johal *et al.* (**page 744**) suggest that this technique may be applied on other widely zoogeographically distributed fish species for any modification and refining the technique.

Water quality of the Mvoti Estuary

Estuaries are often considered to be the temporary storage receptacles of landward-derived materials, including a range of contaminants that eventually may be flushed to the nearshore environment following hinterland flooding. Estuaries located in rapidly developing regions that experience infrequent flood episodes are likely to store considerable quantities of such contaminants. The Mvoti Estuary, located on South Africa's eastern seaboard, is notorious for its poor water quality and overall degraded state. Measurements of dissolved oxygen (DO), ammonium ions, nitrate, chloride, sulphate ions, sodium ions, calcium, conductivity and pH, were assessed by Sukdeo *et al.* (**page 739**) to determine the current health status of the estuary. Comparisons were made to previously published data sampled in 1964 and 2000 to assess the deterioration in the system over time. The current state of the water was also assessed against water quality guidelines for aquatic ecosystems and domestic use provided by the South African Department of Water Affairs and Forestry. The results indicate that this degradation is not new to the system and that the Mvoti system has been experiencing deterioration in its water quality over the past few decades, with the current concentrations of nutrients exceeding those recorded in 1964. Only calcium and DO levels have decreased over this period. The latter is, of course, also indicative of declining water quality. Presently, ammonium ions, nitrate and chloride exceed the acceptable limits proposed by the water quality guidelines, and DO levels are extremely low. This implies that the biotic integrity of the system is being seriously compromised and may result in detrimental effects to all other users if the local municipality does not implement urgent remedial measures.

Falling through the cracks and bridging the gap – India and USA

Many children are attracted towards science at a very early age with a dream 'to change the world' without having much idea about what, why or how. Almost everything seems to be so important and exciting. We all know how it turns out later – not so exciting for most to say the least. Surprisingly, very few still preserve that childhood curiosity, excitement and audacity to do something meaningful that would 'change the world'. Most importantly, they do it after knowing what, why and how.

Somewhere during the journey we lose vision. We get lost in mundane rituals in the name of research. Quoting Erwin Chargaff, 'When you spend your life watching a bubble chamber or running caesium chloride gradient, you may become an expert bubbler or gradient runner, but there is little likelihood of your thus acquiring much wisdom. There is, in fact, a good chance that such people will turn into a very dull fellow indeed, wasting their lives by trying to outrun ten other dull fellows with whom they are in competition.'

Many will agree that success now depends more on networking (partially indicating failure of institutions) and the ability to agree with the majority, than raw talent and ability to solve problems (scientific and social). Higher acceptance or 'agreeability' can give rise to confidence and influence with long-term consequences even in open, democratic societies. It does not take much to understand what it can lead to in any closed system. The culture of reference letter (long before a candidate is even short-listed or evaluated) is just another dynastic legacy we should get rid of to make science more open and productive while selecting people, who would practice, teach and eventually become role models.

The article by Chatterjee (**page 691**) brings the bigger picture back and establishes a lateral connection with some serious societal issues. It forces dedicated scientists and educationists to analyse the process and its outcome of science education and research for which we spend huge national and corporate resources.