Molecular tools for the study of marine biodiversity

Narsinh L. Thakur
CSIR-National Institute of Oceanography
Dona Paula, Goa 403004

The potential applications of molecular biology are of growing importance in many areas of life sciences, including biodiversity. During the past two decades, the development of sophisticated molecular technologies and instruments for biomedical research has resulted in significant advances in the biological sciences. However, the value of these techniques for studying the biodiversity has only recently begun to be cherished. Molecular tools like phylogenetic analysis, genotyping, DNA fingerprinting can be applied to study biodiversity in the marine environment. Molecular tools in general offer the possibility to estimate biodiversity at all levels (e.g. kingdom/class/family/species), in a comparatively small environmental sample. Phylogenetic analysis of marine organisms can be carried out by using marker gene (16S rRNA, 18S rRNA, COI etc.) sequences. General assessment of comparative biodiversity in a larger number of samples can be achieved with DNA fingerprinting methods like DGGE, RAPD, RFLP, SSR, ISSR etc. Presence or absence of a known species can be monitored with species-specific probes using fluorescent *in-situ* hybridisation (FISH) technique. In this presentation different molecular techniques related to biodiversity research are discussed by giving examples.

ISBN : 978-81-923628-1-6