

B-10 Evaluation of ecotypic differentiation in *Potamogeton pectinatus* L. using isozymes

P L Hettiarachchi

(Dept. of Botany, Univ. of Sri Jayewardenepura, Nugegoda)

P.pectinatus, an aquatic weed with diverse morphology, occupies both fresh and brackish water. Several taxa within the species have been distinguished using morphological characters. Chromosome number fluctuations from $2n = 70 - 87$ were reported.

Leaf isozymes of 72 natural populations (mainly European) and 6 growing in aquaria were analyzed using Polyacrylamide Gel Electrophoresis. Gels were stained and the banding patterns were defined as genes and alleles. Data was analyzed using BioSys - 1 program. Frequency distribution of single locus similarity and distance coefficients were averaged. Cluster analysis was performed.

Peroxide (POD), Malic Enzyme (ME), Hypoxanthine dehydrogenase (XDH), Glutamate dehydrogenase (GDH) and Superoxide dismutase (SOD) were constantly expressed with good reproducibility. In POD, 4 major zones of activity corresponding to 10 gene loci were observed. There was a very clear difference between fresh and brackish water groups in all these loci. Populations were heterozygous for XDH and ME. SOD and GDH patterns were uniform within the species. Clustering resulted in 2 groups with 48% genetic distance

corresponding with the 2 habitats. About 36% of the alleles were found to be diverged between 2 habitats.

Variations found in isozymes proved to be environmentally stable. Isozymes of fresh and brackish water populations situated a few meters apart indicated the presence of a barrier for gene flow between the 2 groups.

Salt tolerance and auto-ecological studies also revealed their adaptations to habitat.

All these facts indicate that fresh and brackish water ecotypes of *Potamogeton pectinatus* L. are 2 ecodemes involved in the process of speciation.