

DGGE (DENATURING GRADIENT GEL ELECTROPHORESIS) AS A TOOL FOR THE CHARACTERISATION OF COMMERCIAL *BRACHIONUS* STRAINS

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Different molecular phylogenetic studies showed that many zooplanktonic organisms, like the cyclic parthenogenetic rotifer *Brachionus plicatilis* (Rotifera: Monogononta), are actually comprised of species and biotypes with a high degree of morphological similarity (*i.e.* cryptic species). Recent phylogenetic studies with molecular markers (ITS1, ribosomal Internal Transcribed Spacer 1, and COI, Cytochrome Oxidase subunit I) on natural *Brachionus* populations described the presence of at least nine genetically divergent *Brachionus* species or biotypes (Gómez *et al.*, 2002). Therefore, questions rise on the actual identity of the rotifer strains used in aquaculture, where *Brachionus* discrimination is still based on morphology (L-type and S-type). This study consisted in the investigation of the genetic make-up of hatchery strains and strains used in aquaculture research institutes and laboratories with the DGGE fingerprinting technique, using nucleotide sequence variation within the mitochondrial 16S rDNA gene. A large genetic diversity was found, although this diversity is considerably smaller within hatcheries than within laboratories and aquaculture research institutes. Nineteen 16S haplotypes were obtained and they all produced an unambiguous DGGE fingerprint of which a database was constructed. Since a large amount of 16S rDNA sequence data was obtained, a Neighbour Joining dendrogram was constructed to study the phylogeny of these strains. Genetic distances for the 16S rDNA marker were calculated. These calculations support the literature results, based on COI and ITS markers, that at least two biotypes, *i.e.* *B. sp.* Cayman and the Taiwan sample, are distinct biological species. As for the other biotypes more research has to be done to unravel unambiguously phylogenetic relationships.

References

Gómez A., M. Serra, G.R. Carvalho and D.H. Luna. 2002. Speciation in ancient cryptic species complexes: evidence from the molecular phylogeny of *Brachionus plicatilis* (Rotifera). *Evolution* 56:1431-1444.