



Isoenzyme electrophoretic patterns in discus fish (*Symphysodon aequifasciatus* Pellegrin, 1904 and *Symphysodon discus* Heckel, 1840) from the Central Amazon

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ABSTRACT. The discus is a very popular and expensive aquarium fish belonging to the family Cichlidae, genus *Symphysodon*, formed by three Amazon basin endemic species: *Symphysodon aequifasciatus*, *S. discus* and *S. tarzoo*. The taxonomic status of these fish is very controversial, with a paucity of molecular research on their population genetic structure and species identification. Information on molecular genetic markers, especially isoenzymes, in search of a better understanding of the population genetic structure and correct identification of fish species, has been receiving more attention when elaborating and implementing commercial fishery management programs. Aiming to contribute to a better understanding of the species taxonomic status, the present study describes the isoenzymatic patterns of 6 enzymes: esterase (Est - EC 3.1.1.1), lactate dehydrogenase (Ldh - EC 1.1.1.27), malate dehydrogenase (Mdh - EC 1.1.1.37), phosphoglucumutase (Pgm - EC 5.4.2.2), phosphoglucose isomerase (Pgi - EC 5.3.1.9), and super

oxide dismutase (Sod - EC 1.15.1.1) extracted from skeletal muscle specimens and analyzed by starch gel electrophoresis. Monomorphic patterns, presumably controlled by 11 loci: Est-1, Est-2, Est-3, Ldh-1, Ldh-2, Mdh-1, Mdh-2, Pgi-1, Pgi-2, Pgm-1, and Sod-1 were fixed for the same alleles: Est-1¹, Est-2¹, Est-3¹, Ldh-1¹, Ldh-2¹, Mdh-1¹, Mdh-2¹, Pgi-1¹, Pgi-2¹, Pgm-1¹, and Sod-1¹, respectively, and detected in all 60 specimens examined (27 *S. aequifasciatus* from Manacapuru and 33 *S. discus* from Novo Airão, Central Amazon). The failure in the present study to detect diagnostic loci, which could be very useful for differentiating *S. aequifasciatus* from *S. discus* species, and polymorphic loci, which could also be applied for possible identification and delimitation of their stocks, does not rule out the possibility of there existing in other isoenzyme gene loci to be analyzed in the future.

Key words: Discus fish; Central Amazon; Isoenzymes; Electrophoresis