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Morphological and allozyme electrophoresis study of two colour varieties of *Puntius dorsalis*.

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Intra-specific morphological variation and genetic variation of two colour morphs of (that are identified as red and normal colour varieties) indigenous, long-snouted barb *Puntius dorsalis* (Family Cyprinidae) from two freshwater bodies in southern Sri Lanka (Dediyagala stream and Godapitiya wewa) was studied using morphological and allozyme electrophoresis analysis. A conspicuous red colour in fins at all life stages from juveniles to adults could be seen in red colour morph while yellowish colour fins are seen at all life stages of normal colour morph. There was no black blotch in caudal peduncle and dorsal fin of red colour morph while they could be seen in normal colour morph.

Seven morphometric characteristics (CPL, HL, PROL, HD, MBD, PAL and HPDD) describing the shape of the fish were significantly different between two colour morphs of *P. dorsalis*. Significantly shorter PROL (5.84 ± 1.05 % SL in normal colour morph vs. 8.68 ± 1.12 % SL in red colour morph) of normal colour morph than red colour morph is found. PROL has the greatest power to discriminate the two colour morphs. The results of PCA showed a good separation between two colour morphs with a little overlap. Derived classification functions from morphometric characters could correctly classify an average of 85.7% individuals into two colour morphs. Considering meristic characters, there was a significant difference in number of rows of transverse scales (Tr.) between two colour morphs. In red colour morph, it was Tr. $3\frac{1}{2}$ - $2\frac{1}{2}$ and in normal colour morph, it was $4\frac{1}{2}$ - $2\frac{1}{2}$ respectively above and below the lateral line. The scales of red colour morph were large in size than normal colour morph. The shape of the scales in the normal morph was discernibly of rhomboid. The results indicate an important degree of spatial separation in morphology in *P. dorsalis* between the two studied colour morphs.

Some of the isozyme loci analysed on samples show information that can be used to differentiate two colour morphs. Normal colour morph showed high degree of polymorphism in the PGI-1 locus while red colour morph showed relatively less polymorphism at PGI-1. PGM, IDH and MDH-1 monomorphic loci showed fixed allelic differences between the two colour morphs, thus these loci are informative. Therefore, those differences cannot be considered only as intra-specific differences. Therefore, allozyme markers in general seem to adequately reveal that the two colour morphs of *P. dorsalis* do not belong to the same taxonomic group, and thus further studies are needed to confirm this finding.