

## **Geometric morphometric analysis of selected populations of *Puntius chola* (Cyprinidae) in Sri Lanka**

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Intra specific variation of *Puntius chola* (Cyprinidae) of six geographically different populations (Nilwala River, Walawe River, Gin River, Kalu River, Malwathu Oya, Deduru Oya) of Sri Lanka was studied using landmark based geometric morphometric technique (GM) (n=20 from all rivers; n=21 from Gin River). The method is aimed to detect the variation in shape of fishes unhindered by the size factor. Procrustes ANOVA revealed significant differences among populations ( $p < 0.05$ ). The first two canonical variates (CV) explained 66.7% of the total variation in the data and the plot of the CV revealed significant separation of some of the populations. In this regard, CV1 indicated clear separation of Deduru Oya population from Malwathu Oya, Walawe River and Gin River populations while CV2 axis separates Nilwala River population from Malwathu Oya, Deduru Oya, Kalu River and Walawe River. Transformation grids indicated that head morphology and length of dorsal fin has mostly contributed for the shape variations detected. Mahalanobis distance values revealed that Deduru Oya and Gin River populations as the most separated populations while Malwathu Oya and Walawe River population as the most related populations. Some of the relationships cannot be explained using present day geographic distance, and therefore, some historical factors may have contributed for the differentiations observed. In conclusion, the present results reveal significant morphological heterogeneity among *P. chola* populations in Sri Lanka, and it is of scientific interest to investigate if these populations are genetically divergent as well.

**Key words:** Geographic isolation, geometric morphometrics, morphological heterogeneity

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