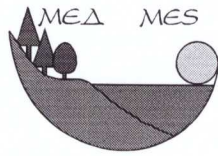


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ABSTRACT BOOK

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Morphological variation of European grayling (*Thymallus thymallus*) from three different basins (Adriatic Sea, Black Sea and Caspian Sea) based on external body morphology

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The European grayling, *Thymallus thymallus* (Linnaeus, 1758) is salmonid fish species naturally inhabiting most of European continent. In the past two decades majority of research aimed European grayling genetic structure and description of its phylogenetic lineages. In contrast, not many morphological studies of this species have been published so far. We analyzed external body morphology of *T. thymallus* from three different basins that correspond to three previously described phylogenetic lineages. Landmark-based geometric morphometric methods were applied to specimens of five European grayling populations (Adriatic Sea – Soča River, Black Sea – Sava Bohinjka and Una Rivers, Caspian Sea – Bugurla and Kana Rivers). Body size analyses disclosed statistically significant differences for all pairwise comparisons, except for those between Sava Bohinjka and Una ($P=0.0505$) and between Bugurla and Kana populations ($P=0.1016$). When comparing centroid size (CS), Soča population had the largest mean value ($CS=40.11$), while Bugurla population had the smallest one ($CS=18.67$). Using multivariate regression of shape variables onto log CS we found that allometric effect was significant ($P<0.0001$) and accounted for 6.37% of overall shape variation. Canonical variate analysis (CVA) of non-allometric shape variation showed clear separation of all populations. Specimens from Bugurla and Kana populations in comparison to those from the other three populations (separated along CV1) are characterized by heads with smaller opercle in relation to subopercle and trunks with longer dorsal and adipose fins and larger distance between anterior bases of ventral and anal fins. Individuals from Soča population compared to those from Una population (separated along CV2) have more robust heads and trunks with longer dorsal fins. These results match to genetic differences already observed for populations studied herein. Morphologically most diverged population was the one from Soča River (Adriatic basin) which is in accordance with its large genetic distinctiveness.

Keywords: Salmonidae, geometric morphometrics, allometry, shape, size