

## The use of amino transferase as biomarkers in golden mullet (*Liza aurata*)

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Hematology parameters indicating metabolism, an indicator of normal or abnormal conditions, ecosystems, health and physiological status of aquatic and indicators to assess aquatic ecosystems are considered in this study. Biomarkers can be used to assess fish health status and to achieve rapid alert mark of applied environmental risks. Enzyme activity can be considered as a sensitive biochemical markers. Aminotransferase liver enzymes are an important class of enzymes where any change in this indicates changes in the structure and function of the liver which in turn is an indicator of liver damage, as proved in diagnosis. The enzyme aspartate aminotransferase in Sturgeon Bay in winter is significantly different with respect to other groups ( $p < 0.05$ ) and ALT levels in winter in both sampling were not significant different ( $p > 0.05$ ), while no significant difference was observed in autumn.

**Keywords:** fish, liver enzymes, stress, biomarkers, caspian Sea.