

## عنوان مقاله:

Assessment of immunomodulator biomarkers (Tnf- $\alpha$ , IL- $1\beta$  and IL- $6$ ) in liver of *Capoeta umbla* for biomonitoring of (pollution in Uzuncayir Dam Lake (Tunceli, Turkey

## محل انتشار:

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## خلاصه مقاله:

This study was aimed to monitor water pollution of Uzuncayir Dam Lake using the changes of IL- $6$ , IL- $1\beta$  and TNF- $\alpha$  levels in *Capoeta umbla* (Heckel, 1843) liver tissue at ten stations in March and September 2011. In this study *C. umbla* (Heckel, 1843) was used as the indicator organism. Tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ), interleukin- $1\beta$  (IL- $1\beta$ ) and interleukin- $6$  (IL- $6$ ) levels were determined in samples of the liver tissue by ELISA kit. The lowest mean IL- $1\beta$  levels were found at station 6. The mean IL- $1\beta$  was reached its maximum level at station 2. The difference between the mean levels of IL- $6$  was found to be significant ( $p < 0.05$ ) among stations. The IL- $6$  levels were significantly increased in September at stations 1, 2, 7 and 8 ( $p < 0.01$ ) compared to the values in March. The mean levels of TNF- $\alpha$  were found to be significant ( $p < 0.05$ ) among stations. The TNF- $\alpha$  levels significantly decreased in September at stations 1 and 9 ( $p < 0.01$ ). TNF- $\alpha$ , IL- $1\beta$  and IL- $6$  levels in *C. umbla* can be used as early diagnostic indicators against adverse environmental events and useful and reliable bioindicators in determining the pollution of the aquatic ecosystem

## کلمات کلیدی:

*Capoeta umbla*, TNF- $\alpha$ , IL- $1\beta$ , IL- $6$ , Biomonitoring, Biomarker

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/1402000>

