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Superoxide dismutase and oxygen transport mechanism in endemic fish *Delminichthys ghetaldii* (Steindachner, 1882) under mild hypoxia

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Hypoxia, a condition when dissolved oxygen (DO) drops down below 2 mg/L[1], is one of the most common stressors in aquatic environment. Aquatic animals often overcome this condition with a combination of physiological, behavioural, biochemical and molecular responses. In the present study, we examined the effect of moderate hypoxia on superoxide dismutase (SOD) activity and oxygen transport mechanism in *Delminichthys ghetaldii* erythrocytes. Popovo minnow (*Delminichthys ghetaldii*) is an endemic cyprinid fish which inhabits springs and streams in fields Ljubomir, Dabar and Fatnica in B&H, and Bacina lakes in Croatia. During autumn and spring floods, Popovo minnows emerge from the underground waters to surface estavelle. Withdrawal of the water to the underground basins brings them back to their underground habitat. Fishes were collected in the flood plain of Fatnica field (43°00′53″N; 18°19′24″E). Following erythrocyte lineage parameters were measured: number of red blood cells (RBC), hemoglobin concentration, Packed cell volume (PCV), Mean Corpuscular Volume (MCV), Mean Corpuscular Hemoglobin Concentration (MCHC) and MCH (Mean Corpuscular Hemoglobin). Also, the characterization of the SOD from RBC is presented for the first time. Native PAGE resolved the presence of three CuZn SOD isoforms, while isoelectrofocusing revealed the presence of two anionic SOD isoforms with pI 3.4 and 3.5. Exposure to conditions of mild hypoxia induced changes in fish SOD activity, hemoglobin concentration and MCH. Results indicate *Delminichthys ghetaldii* responds to hypoxia by enhancement of the oxygen carrying capacity and triggering SOD activity.

Keywords: Antioxidant enzymes, Karst, Popovo minnow, Reactive oxygen species, Water pollution

Hypoxia is one of the most common stressors related [illegible] substantial [illegible]