The Effect of Serotonin in Hypoxia Induced Hemoglobin Producing Pathway in Water Fleas (*Daphnia magna)*

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Environmental factors such as increasing population, illumination period and hypoxia affect the phenotype of water fleas (*Daphnia magna*). Increasing hemoglobin amounts in water fleas' that are subjected to hypoxia result in visible red pigmentation. According to literature, serotonin shows a reducing effect to methyl farnesoat (juvenile hormone) synthesis, in studies on serotonin (5-HT) in different crustaceans and methyl farnesoat provides hemoglobin production by activating the globin 2 (hb2) gene. The hemoglobin ratio in water fleas change according to the oxygen level in the environment. Our hypothesis suggest that serotonin has suppressive effect on hypoxia induced hemoglobin pathway in *Daphnia magna*. Therefore, we demonstrate an experiment to test our hypothesis with using both agonist and antagonist of serotonin receptor (5HT-2) which is probably related with hemoglobin producing pathway on *Daphnia magna*, in different satiety of oxygen concentration as both hypoxic and normal environment.