A comparative study on enzyme activities (Lysozyme, Trypsin and Alkaline phosphatase) in the epidermal mucus of four aquarium fish species

Abolfathi M. [1]*; Hajimoradloo A. [2]; Ghorbani R. [2]

1-Department of Fisheries, Faculty of Marine Science and technology, University of Hormozgan, Bandar Abbas, Iran
2-Department of Fisheries, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran
*Corresponding author's email: m.aboolfathi@yahoo.com

Abstract:
Fish epidermal mucus and its components are the first line of defense against pathogens. Little is known about the role of epidermal mucus enzymes in the innate immune system of aquarium fish such as Oscar (*Astronotus ocellatus*), gold fish (*Carassius auratus*), carnivore pangasius (*Pangasius sanitwongse*) and walking catfish (*Clarias batrachus*). In this study, the specific activities of mucus hydrolytic enzymes including lysozyme, alkaline phosphatase and trypsin were analysed and the enzyme levels were compared among the fish species. The Results showed that trypsin specific activity was not detected in the mucus samples of all the fish examined, while the specific activity of lysozyme was highest in Oscar mucus followed by goldfish, walking catfish and carnivore pangasius. Also, alkaline phosphatase activity was higher in the mucus of goldfish and Oscar compared to carnivore pangasius and walking catfish. In general, lysozyme had the highest enzymatic activity among all enzymes analyzed. These results suggest that lysozyme has a significant role in the mucosal innate immunity of these fish species.

Keywords: Enzyme activities, Trypsin, Alkaline phosphatase, mucus