

Effect of Miconazole Nitrate on Immunological Response and Its Preventive Efficacy in *Labeo rohita* Fingerlings against *Oomycetes Saprolegnia parasitica*

Authors : Mukta Singh, Ratan Kumar Saha, Himadri Saha, Paramveer Singh

Abstract : The present study evaluated the effect of sub-lethal doses of antifungal drug miconazole nitrate (MCZ) on immunological responses including immune-related gene expression and its role as a prophylactic drug against *S. parasitica* in *Labeo rohita* fingerlings. Fish were fed with sub lethal doses of MCZ i.e., T1- 6.30 mg MCZ kgBW⁻¹, T2- 12.61 mg MCZ kgBW⁻¹ and T3- 25.22 mg MCZ kgBW⁻¹ and sampling was done at different time intervals for 240 h. Immunological parameters viz. lysozyme activity, oxygen radical production and plasma anti-protease activity showed significant enhancement ($p < 0.05$) in fish fed with T2 and T3 doses. Significant reduction in plasma protein content was observed in all the dietary groups as compared to control. Expression of immune-relevant genes like TLR-22 and β -2-M showed significantly higher expression at six h and 24 h of sampling in both liver and head-kidney. However, these genes showed a down-regulation after 120 h of sampling in both the tissues. Preventive efficacy study showed that single dose of MCZ provides protection against oomycetes up to the fourth day of infection. Significantly higher mortality was observed in control diet-fed fish as compared to fish fed with MCZ medicated diet. Thus, from the study, it can be concluded that the MCZ can act as a potent antifungal agent for preventing oomycetes infection as well as to enhance the immune response.

Keywords : antifungal, immune gene, immunological, miconazole nitrate, prophylactic

Conference Title : ICFA 2018 : International Conference on Fisheries and Aquaculture

Conference Location : Toronto, Canada

Conference Dates : June 21-22, 2018