



The effect of Levamisole on the immune response and histopathological conversions in high density of rainbow trout (*Oncorhynchus mykiss*)

Meshkini, S.^{1*}; Tehrani, A.S.²; Agh, N.³

1. Assistant Professor, Department of Food Hygiene and Quality Control, Faculty of Veterinary Medicine, University of Urmia, Urmia-Iran.
2. Assistant Professor, Department of Pathobiology, Faculty of Veterinary Medicine, University of Urmia, Urmia-Iran.
3. Assistant Professor of Artemia and Aquatic Animals Institute, University of Urmia, Urmia-Iran.

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Summary

In this investigation, we evaluated the effects of Levamisole on histopathological changes and immune responses of rainbow trout. 1500 fish (average weight 150 g) were obtained from a local fish farm of Urmia and were divided in 5 treatments and were fed on a diet supplemented with Levamisole at 0 (control), 100, 250, 500 and 1000 mg kg⁻¹ diet for a period of 45 days. Then the fishes of all groups were fed on commercial diet without Levamisole and were exposed density stress by 2 folds (150 kg/m³) for the following 15 days. Blood samples were collected from all treatments on days 15, 30, 45 and 60 to evaluate the complement activity and lysozyme activity of serum; and the results were analyzed by SPSS15 software. At the end of trial, tissue samples of gill, kidney and liver were also collected to test the histopathologic effects of Levamisole. At the end of the trial period, results showed increased levels of lysozyme activity and complement activity ($P < 0/05$) in the treatment were fed at higher doses of Levamisole 1000 mg kg⁻¹ diet. According of analyzing histopathologic samples, minimum adverse effects in kidney tissues were detected at higher concentrations of Levamisole, especially in the control group and Levamisole 1000 mg kg⁻¹ diet, and the gill tissues suffered least adverse effects in the control group. At the end of trial period higher doses of Levamisole 1000 mg kg⁻¹ diet were identified the best treatment to induce immune responses and decrease of histopathologic effects in rainbow trout.

Keywords: Rainbow trout, Levamisole, Immune responses, Histopathological changes.

* Corresponding Author email: s.meshkini@gmail.com

