Hemato-Immunological Responses of *Labeo rohita* Juveniles to Temperature and Salinity Stress: Effect of Dietary L-tryptophan

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**Abstract**

The effects of temperature and salinity stress on hemato-immunological factors in juvenile *Labeo rohita* fed normal or elevated levels of tryptophan were studied. Fish were fed diets with 0.35% (control), 0.7%, or 1.4% tryptophan for 60 days, then exposed to temperature and/or salinity stress for the next 30 days with the same feeding regime. The specific growth rate (SGR) was significantly reduced in fish fed the control diet and exposed to stress while dietary supplementation of tryptophan significantly augmented the SGR in stress-exposed fish. Red blood cell count (RBC), white blood cell count (WBC), hemoglobin (Hb), and respiratory burst activity (RBC) were significantly reduced by exposure to temperature and/or salinity stress. Dietary supplementation of tryptophan restored WBC and NBT but not RBC and Hb. Salinity and thermal stress reduced total protein, albumin, and globulin levels as well as serum lysozyme activity. Dietary supplementation of 1.4% tryptophan improved total serum protein, albumin, and globulin levels, as well as serum lysozyme activity. Results of the present study suggest that supplementation of tryptophan at a high level (1.4% of the diet) restores growth and improves the hemato-immunological status of *L. rohita* under thermal and salinity stress.

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