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Histophysiology of Head Kidney and Blood Lymphatic System in *Acipenser persicus* in Cold and Warm Seasons

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Abstract

In this research, the histophysiology of the renal apical part as a lymphoid organ and structure of blood safety in the Persian sturgeon, *Acipenser persicus* in two cold and hot seasons were studied. For this purpose, 10 healthy Persian sturgeons with same size were taken from pools with water temperature of 7.30 and 27.90 °C in winter and summer. 0.5 centimeter samples of head of kidney were taken and prepared with standard methods. After blood sampling, white blood cells and immunity, including lysozyme and complement, were studied. Results showed that in the differential count of white blood cells, lymphocytes had highest percentage and density in both cold and warm seasons, with a significant difference ($P<0.05$). The density of lymphocytes in the cold season was more in blood and head of kidney. Also, lysozyme concentrations and C3 and C4 complement decreased in winter significantly. The low level of these three agents in the serum in winter may be due to a decrease in the activity of the immune system and the reduction of their cells producing in the cold environment. According to the above given, the immune system is affected by temperature changes in cold and warm season.

Keywords: *Lymphocyte, Lysosome, Acipenser persicus, Cold and warm seasons.*