

Haematological changes and light microscope study of peripheral blood cells in the European eel exposed to lead concentrations

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The increasing density of population and rapid development of industries, especially the chemical industries has created serious problems in water pollution. Trace elements introduced into the marine environment from effluents and river runoff, may be concentrated in marine organisms, this means that marine organisms can store pollutants and then transfer them even to human beings.

The extensive studies on morphological and physiological changes in the blood of fish exposed to toxic chemicals and varying degrees of environmental stressors have been documented by many authors. The purpose of this study was to determine the potential hazard of lead in water on fish which consider the end of the aquatic foodchain, and its hazardous to public health, by the determination of the pathological diagnosis of the blood.

The used material consisted of 80 specimens collected alive from Lake Edku. Plastic aquaria, contained 35 liters of sea water and 5 fish. Lead was added as a lead nitrate with concentrations of 1.0, 1.5 mg/L for 10, 20 and 30 days and 15.0 mg/L for 7 days. Blood was taken from dorsal aorta to the determination of haemoglobin, haematocrit, red and white blood cell count. The preparation or blood smears were stained with May-Grunwald Giemsa stain.

The exposure of European silver eels to lead revealed a significant decrease in haematological studies with limits; observed in control. Microscopical examination of RBCs of such poisoned fish revealed rapid and striking change among these cells. Many of these were either in early stages of hemolysis or in advanced stages. The cells membranes were removed with only ghost remaining in some cases, these cells were enlarged, assuming various shapes, pear, avoid, amorphous or circular. The presence of the red cell hypochromic, microcytes, variable number of stippled cells, many number of target cells with sickle cells and irregular poikilocytes

The leukocytes are an important part of the body's defense system, therefore, after examination of the blood collected 10 days after exposure to 1.0 and 1.5 mg/L lead, showed the lymphocytes as small mononuclear cells, an abundance of both mature and immature neutrophils, small significant change occurred in monocytes and eosinophils count. Lymphopenia and neutrophilia cells, noted during the experiment after 20 and 30 days in mature stage, the number of monocytes increased while the number of eosinophils mainly in small change.

Total leukocyte count significantly decreased when exposed to 15.0 mg/L lead and after 7 days. The responsive cell types in all experimental groups were the lymphocytes, neutrophils and monocytes.

