

**DYNAMICS OF HEMATOLOGICAL PARAMETERS OF RATS DURING THE FIRST HOUR  
AFTER CHLORPYRIFOS EXPOSURE**

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Chlorpyrifos is a common organophosphate pesticide. The main mechanism of its action is acetylcholinesterase inhibition. Thus, the pesticide is hazardous not only to target organisms, but also to other animals and even humans. Inhibition of acetylcholinesterase causes acetylcholine overload in cholinergic brain regions; this leads to various neurological disorders. Acute poisoning induces seizures, causes coma and even death. Chronic exposure to low doses of chlorpyrifos, often occurring in agriculture when using pesticides without proper following of the safety rules, can also cause serious neurologic consequences. There are data that in may increase risks of Parkinson's and Alzheimer's diseases, cognitive and behavioral problems in children, and even autism.

Anticholinesterase action of chlorpyrifos is now studied quite well, and many works on it are published every year. But there is evidence of some other mechanisms of toxicity of this compound. Particularly, it was revealed recently that chlorpyrifos can cause free radical-induced oxidative stress and other toxic effects that are not fully understood yet. There are not much data on these effects, and they make a great interest for studying.

This is why, in our work we aimed to investigate the effects of acute chlorpyrifos poisoning on main hematological indices (number of red blood cells, leucocytes, monocytes, lymphocytes, granulocytes, and platelets, hemoglobin content, packed cell volume, trombocrit, and platelet indices), in time dynamics.

We exposed rats to 50 mg/kg b. w. chlorpyrifos via the oral probe. Then, animals were sacrificed at 15, 30, 45, and 60 min after exposure, depending on the number of the group, and their blood parameters were studied. Every experimental group had appropriate control.

We found some significant changes in the blood of exposed rats. So, the acute exposure to CPF led to a decrease in the resistance of main erythrocytes pool to acid hemolysis at 15 minutes after exposure. The number of leucocytes increased by 21,9%, of red blood cells — by 9,0%, hemoglobin content — by 6,3%, compared to controls, at 15 minutes after exposure. The number of platelets decreased by 21,6% at 15 min, by 26,2% at 30 min, by 53,3% at 45 min, and by 56,0% at 60 min after exposure, compared to control means. Therefore, we may conclude that acute poisoning by chlorpyrifos affected blood cells, but the alterations changed with time, showing adaptation to poisoning.