

**ASSESSMENT OF THE INFLUENCE OF CHLORAMPHENICOL
AND OXYTETRACYCLINE ON HAEMOPOIESIS OF KOI CARP,
*Cyprinus Carpio.***

By

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1. ABSTRACT

Chloramphenicol and oxytetracycline are antibiotics used in aquaculture as therapeutic agents to treat bacterial infections in cultured finfish. The present study was aimed at evaluating the effects of different doses of chloramphenicol (2 mg l^{-1} , 5 mg l^{-1} , 10 mg l^{-1} for 10 days) and oxytetracycline (20 mg l^{-1} for 3 and 10 days, 100 mg l^{-1} for 3 days) on the haemopoiesis of koi carp, *Cyprinus carpio*. The fish not exposed to these antibiotics served as controls. The haemopoiesis status of the fish were assessed using survival rate, haematocrit, erythrocyte count, hemoglobin concentration, mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), mean corpuscular hemoglobin concentration (MCHC), leukocrit, leukocyte count, leukocyte differential count, thrombocyte percentage, thrombocyte count, phagocytic index, phagocytic activity and histology of the main haemopoietic organs such as head kidney, spleen and liver.

Result showed that chloramphenicol and oxytetracycline had no effect on the survival of the fish. The chloramphenicol had reduced haematocrit level significantly. Erythrocyte count, hemoglobin concentration and MCV in the fish exposed to 10 mg l^{-1} chloramphenicol were lower than that of control, although the difference were not significant. Chloramphenicol induced thrombocytosis and leucocytosis coupled with lymphocytosis of the exposed fish after 10 days. The chloramphenicol (10 mg l^{-1}) had significantly induced phagocytic index but had no effect on phagocytic capacity. The oxytetracycline had no effect either on

haematocrit, erythrocyte count, hemoglobin concentration or secondary erythrocyte indices. The fish were treated with 100 mg l⁻¹ oxytetracycline induced neutropenia coupled with leucopenia. The phagocytic capacity was not affected but phagocytic index was reduced in fish exposed to oxytetracycline 100 mg l⁻¹ although the difference was not significant.

The ellipsoids of the spleen tissue and sinusoids in liver tissue of the fish exposed to chloramphenicol 10 mg l⁻¹ for 10 days showed vacuolar degeneration. In these fish, melanomacrophage centers were abundant in spleen and anterior kidney. However no prominent histopathological change was observed in the fish treated with oxytetracycline.

Results revealed that haemopoiesis of koi carp could be altered by chloramphenicol at a dose of 10 mg l⁻¹ for 10 days and oxytetracycline at a dose of 100 mg l⁻¹ for 3 days. The prolong exposure of chloramphenicol cause anemia whereas oxytetracycline could cause impaired phagocytic activity. Hence precautions should be taken when high doses of these drugs are used as antibiotics in koi carp culture especially for long-term treatment.