

عنوان مقاله:

Evaluation of the anti-bacterial activity of phytol against *Erysipelothrix pisciscarius* infection in Nile tilapia ((*Oreochromis niloticus*)

محل انتشار:

مجله بین المللی تحقیقات دامپزشکی، دوره 1، شماره 1 (سال: 1400)

تعداد صفحات اصل مقاله: 11

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خلاصه مقاله:

About 50% of fisheries are now supported by aquaculture, one of the world's fastest expanding food producing sectors. While there has been a clear decline in catch fisheries, there has been an increase in the global demand for fish, making it a sustainable business and top priority in the world. Aquaculture disease outbreaks, particularly those caused by bacteria like *Erysipelothrix pisciscarius*, are a significant barrier to profitability. Due to the high expense of antibiotics, the limited duration of protection they provided, the necessity for repeated treatments during prolonged disease outbreaks, the challenges posed by resistant strains, and the rising levels of hazardous residues in carcasses, the use of antibiotics has been discouraged. As an alternative, phytochemicals like phytol can be employed. This investigation looked at the haematology, biochemistry, immunological profiles, antioxidants, histopathology, and lifespan of Phytol-gavaged Nile tilapia, *Oreochromis niloticus*, which had been infected with *E. pisciscarius*. *E. pisciscarius* (1.4×10^6 CFU/mL/g) was intraperitoneally injected into juvenile Nile tilapia ($n=120$, mean weight= 4.22 g) before being divided among 12 $1m^3$ tanks. Ten fish were housed in each tank. The fish were gavaged with phytol solution at 0, 1.75, 3.50, or 7.00 mg/g after 24 hours of infection, and 14 days' worth of clinical changes were monitored. The outcomes demonstrated that for the first three days after infection, the fish's body did not physically change. However, on Day 4, cracks were seen on the fish's head region in both the Control and 1.75 mg/g, and on Day 10, weak traces of blood surrounding the operculum of the fish grew more obvious. The fish gavaged with 3.50 mg/g phytol experienced the highest survival rate (60.0%), while the control group experienced the lowest (20.0%). With their lowest values found in the control group, significant differences were found in PCV, Haemoglobin, Heterocytes, RBC, WBC, Platelets, Lymphocytes, MCH, MCHC, and Hetero:Lymphocyte in fish ($P < 0.05$). Fish gavaged with phytol had significantly higher superoxide dismutase, catalase, lysozyme, and respiratory burst activity than the control. The control group showed cryptal and surface enterocyte necrosis, intestinal villi atrophy, and gill lamellae hyperplasia, while the treated group, particularly at doses of 3.50 to 7.00 mg/g phytol, showed only mild to no lesions. The study came to the conclusion that *Erysipelothrix pisciscarius* infection has a significant impact on Nile tilapia survival, ... haematology, antioxidants, and immunity

کلمات کلیدی:

. ,Erysipelothrix pisciscarius, Nile tilapia, Haematology, Antioxidant, Immunity, Survival

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