



Nigella sativa seed protects against 4-nonylphenol- induced haematotoxicity in *Clarias gariepinus* (Burchell, 1822): Oxidant/antioxidant rebalance

N.S. Abou Khalil1 | M. Abd-Elkareem2 | A.H. Sayed3

Abstract:

4-Nonylphenol (NP) is an emerging concern contaminant which is widely spread in the aquatic ecosystem. *Nigella sativa* seed (NSS) has multifaceted therapeutic values. This study aimed to give insight into the potential protective effect of NSS on NP-induced haematotoxicity in *Clarias gariepinus* through evaluation of haematological parameters, oxidant/antioxidant balance of blood lysate and histopathological investigation of blood smear. One hundred and fifty fish were divided into five groups (30/group). First group served as control which did not received NP exposure and fed basal diet without NSS supplementation. The other four groups were exposed to NP at a dose of 0.1 mg L⁻¹ and fed diets supplemented with NSS at levels of 0, 10, 25 and 50 g/kg diet, respectively. Macrocytic hypochromic anaemia, thrombocytopenia, leucopenia, neutrophilia, lymphopenia, monocytosis and eosinophilia were observed following NP exposure together with increase in morphological erythrocyte alterations and micronuclei formation. Elevation in total peroxide and malondialdehyde and depletion in total antioxidant capacity of blood lysate were reported. We concluded that supplementation of NSS markedly ameliorated the previously listed manifestations, and the most effective doses were 25 and 50 g/kg feed.

Keywords:

Clarias gariepinus, haematology, *Nigella sativa*, 4-nonylphenol, oxidative stress

Published In:

Aquaculture Nutrition , Vol. 1 , pp. 1-8