

Neem (*Azadirachta indica*) extract as an immunostimulant in fresh water fish, *Catla catla*

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ABSTRACT

Azadirachta indica is widely prevalent and highly esteemed wonder tree of the Indian subcontinent and several of its beneficial properties are reported. The Neem tree has been in use for ages and Ayurveda regards this as 'Sarvaroga nivarini' which means "cure for all diseases". Biomedical research has shown that *A. indica* possesses anti HIV, anti-tumor and anti-microbial activities. In an attempt to find the possible immunostimulatory effect of medicinal plant, the present study was carried out to determine the effect of azadirachtin, a triterpenoid derived from neem seed kernel on the immune response in the fresh water fish, *Catla catla*. *Aeromonas hydrophila*, fish pathogenic bacteria was used as an antigen to evoke immune response. A range of sub lethal dose of 0.1, 0.01 and 0.001 % LD₅₀ of azadirachtin were administered to the experimental fishes. After a week control and experimental fishes were immunized with *A. hydrophila* through intraperitoneal route. An untreated immunization control group was also maintained. A booster injection was given on 16th day post immunization with the same doses of antigen. The immune response in fish was measured by quantifying antibodies produced in the fishes by using haemagglutination assay. Azadirachtin at the level of 0.001 % significantly enhanced the maximum primary (3.67±0.58) and secondary (6.33±0.58) antibody response and an inverse relationship was observed between the dose of leaf extract and the degree of immunostimulation. The observed immunostimulatory property of azadirachtin has an implication in the maintenance of fish health in fresh water intensive aquaculture practices.