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The immunostimulatory effects of sulfated polysaccharide extracted from the phaeophycean macroalgae MA 04 and MA 10 in Nile Tilapia, *Oreochromis niloticus*

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The sulfated polysaccharide fraction was extracted from 11 macroalgal candidates collected from Vadakadu, Rameswaram District, Tamil Nadu. The total sulfated polysaccharide fractionated from eleven macroalgal candidates was screened based on the yield and biochemical characterization of sulfate content, polysaccharide content and HPLC analysis, in order to examine the sulfated polysaccharide-rich candidate. Based on the result MA 04-SPF and MA 10-SPF was selected as a macroalgal candidate for measuring its immunomodulatory effect in Nile Tilapia, *Oreochromis niloticus*. The fish (n=10, each) were intraperitoneally administered with 2, 20 and 200mg mL⁻¹ doses of Sulfated polysaccharide fraction (SPF) of either MA 04-SPF or MA 10-SPF and a control set was injected with saline and the nonspecific (Humoral and Cellular) immune parameters were measured. In general, all the doses of both MA 04-SPF and MA 10-SPF administered groups showed significantly (P≤0.05) enhanced the humoral non-specific immune response of serum lysozyme and myeloperoxidase activity. Regarding, cellular ROS production the lowest dose MA 04-SPF 2mg mL⁻¹ administered group alone showed significantly enhanced response, whereas MA 10-SPF at the dose of 200 mg mL⁻¹ showed suppression in ROS production than the control. It was surprisingly evident that both MA 04-SPF and MA 10-SPF does not show any modulation of cellular reactive nitrogen species production. Thus it is evident that the total sulfated polysaccharide fraction of MA 04 and MA 10 could serve as an efficacious immunostimulant to treat finfish diseases thereby boost up the aquaculture production.

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