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Extended Abstract

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The effect of nanoparticles on blood factors, histopathology, intestinal microbial flora and aquatic growth indicators .

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Increasing application of nanotechnology illustrate the need to understand the possibility of application and toxicity of nanoparticles. In aquaculture and in vitro studies have raised concerns about the antifungi and antibacterial effect of most nanoparticles, but there are limited data on feeding effect in fish and other aquatic organisms. Aquaculture and fisheries have provided protein sources for human consumption for a long time, but diseases have induced declines in product benefits and raised concerns, resulting in great losses to these industries in many countries.

In this work, by feeding of the sub-acute toxicity of Fe3O4-NPs in biochemical change of rainbow trout juvenile was assessed. Concerns regarding the detrimental effects of antibiotics on the environment and human health due to residual antibiotic-related issues encourage the development of reliable, environmental and health safety methods, such as vaccines, probiotics, prebiotics, synbiotics and phytobiotics, for protection against disease and for reducing and possibly eliminating disease occurrence. Iron is one of the most abundant in the earth's crust and consequently enters the food chain to some degree.

In occupational exposure of humans, iron and iron oxides are known to produce benign siderosis, but iron oxides have been implicated also as a vehicle for transporting high concentrations of carcinogens and sulfur dioxide deep into the lungs, thereby enhancing the activity of these pollutants .A limited usage of iron is used in different food production. It is used as drug capsule and in bread flour but till now there is not any or few report of the use of iron oxide instead of iron in human or animal nutrition.

In most studies on Fe3O4 toxicity in fish it is focused on the environmental and histopathology impact of this nanoparticle . comparing the use of iron and iron oxide in animal, Watanabe et al., 1997 reported that 30-170 mg iron per kg dry diet is require for fish but in vivo experiments male rats were treated once intratracheally with 1 and/or 5 mg/ml iron oxide NPs, acute intratracheal application of iron oxide nanoparticles had evident general toxic effect (altered body and lung weights) and caused specific pathomorphological damage in the treated rats' lungs.

These agents confer several benefits, including enhancing both host growth and immune responses against pathogens, while sustaining health and environmental stability, and their use is thus widely accepted.

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