

Effect of Silver Nanoparticles on Bacterial Flora of Rainbow Trout (*Oncorhynchus mykiss*) Skin

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Abstract

Silver Nanoparticles included 56 % of total manufactured Nanomaterials due to its anti-bacterial properties in the world. Therefore, the release of Silver Nanoparticles to water ecosystems will make an irreparable damage to biota, especially to natural bacterial flora. The purpose of this study is to investigate the Silver Nanoparticles effects on the bacterial flora of rainbow trout skin. To ensure the quality of the Silver Nanoparticles, the ICP, Zetasizer, TEM, EDX, and Uv-vis Spectrophotometer sets were used. Also, the population's mesophilic bacteria, psychrophile, Enterobacteriaceae and Lactic acid bacteria (LAB) of skin after 14 days kept of fish in 1, 0.1 and control group of Silver Nanoparticle concentrations were counted by pour plate method. Results of the study showed that the fish skin LAB bacteria decreased significantly with the increase of Silver Nanoparticle concentration and mesophile and Enterobacteriaceae were less affected. Whereas, population of fish skin psychrophile bacteria significantly increased with enhancing of Silver Nanoparticles concentration. Analysis of result suggested that according to the type of studied group of bacteria, an antibacterial property of Silver Nanoparticles is selective and different.

Keywords: *Silver Nanoparticles, Bacterial flora, Rainbow trout (Oncorhynchus mykiss).*
