

# Synthesis and Characterization of Green Nanoparticles and its Toxicological Evaluation in Zebrafish Embryos<sup>†</sup>

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**Abstract:** Using the herbal extract of a particular compound, Silver nanoparticles are synthesized. Due to the combination of silver and herbal extract, they can be a potent compound in the medicinal field. Utilizing UV–visible spectroscopy, Field emission scanning electron microscope (FESEM), Fourier – transform infrared spectroscopy (FT-IR), zeta potential, and Energy dispersive X-Ray spectroscopy (EDAX) Particle size distribution Biophysical characters of nanoparticles were characterized. Based on the exposure of nano products from production to reusing and disposal, human exposure to nanoproducts and their toxicity has become a great concern. Zebrafish is a wide sort model organism due to its size, and egg collection is easier than other models. A large number of embryos, their transparency, and their availability are some of their highlights. Their transparency helps in easy examination of its internal organs. Since 70% of the zebrafish genomes resemble the human genome, the zebrafish findings can be translated to the human being. Hence the embryos were treated with Herbal nanoparticles, and the toxicity was checked considering their mortality rate and hatching rate up to 144 hpf. The present research work suggests that the nanoparticles affected embryo hatching at high concentrations and caused mortality at very high zebrafish concentrations. The LC<sub>50</sub> value of the compound was found to be 200 µg/ml. The results indicate that the compound has a toxic effect in a dose-dependent manner. It is not teratogenic and has no toxic effect at lower concentrations in the treated embryos

**Keywords:** silver nanoparticles; zebrafish model; toxicity; hpf; Teratogenic; LC 50 Value.

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## Conflicts of Interest

The authors declare no conflict of interest.