# ACUMULATION, DISTRIBUTION AND BIOCHEMICAL EFFECTS OF GREEN SYNTHESIZED SILVER NANOPARTICLES WITH ACAÍ *Euterpe oleracea* IN *C. elegans*

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**INTRODUCTION**: The green synthesis of silver nanoparticles (AgNP) has been extensively studied in recent years and has been proposed as a safer alternative to produce AgNP. However, little information exists regarding the toxicity and silver accumulation of AgNP generated by green synthesis. **OBJECTIVE:** In this study, we used AgNP synthesized with an aqueous extract of açaí *Euterpe oleracea* (Bio-AgNP) to evaluate whether worms were able to uptake nanoparticles and their relationship with their biochemical effects. **MATERIAL AND METHODS:** Bio-AgNPs were synthesized using lyophilized açaí pulp (from *Euterpe oleracea* Mart.) and characterized by UV-VIS spectroscopy, Transmission Electron Microscopy (TEM), and Dynamic Light Scattering (DLS). Subsequently, *C. elegans* N2 wild-type worms were exposed to 5 and 10 mg/L Bio-AgNPs for 52 h. After exposure, the GSH/GSSG levels were quantified using an Agilent 1290 Infinity II LC system coupled to a Sciex QTrap 6500+ triple quadrupole mass spectrometer with an electrospray ionization source in positive mode. Silver accumulation in the worms was measured using inductively coupled plasma optical emission spectrometry (ICP-OES), and silver distribution was assessed using ICP-OES following laser ablation of the worms. **RESULTS AND CONCLUSIONS:** Our results indicate that *C. elegans* can take up and accumulate Ag at both concentrations tested, with Ag distributed across nearly the entire body, particularly in the intestinal region. However, Ag accumulation did not alter GSH levels at either concentration, and led to a reduction in GSSG levels, suggesting a potential antioxidant effect at the concentrations tested. Overall, this study demonstrated that Bio-AgNPs can be taken up and accumulated in *C. elegans* without causing oxidative stress-related toxicity, even at concentrations ten times higher than those predicted to occur in the environment.

Keywords: oxidative stress; bioavailability; biosynthesis; nanotoxicology.

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