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Silver Nanoparticles as Stimulators in Biotechnology of *Porphyridium Cruentum*

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Silver nanoparticles (AgNPs) are one of the most actively used nanomaterials. Therefore, their release into the environment becomes inevitable. Consequently, studies regarding the harmful effects of AgNPs towards organisms are very common. In the process of investigating the effects of silver nanoparticles on living cells, other effects besides the toxic ones were revealed. Thus, different nanoparticles can stimulate biosynthetic processes, which will significantly expand their application in biotechnology. The aim of this paper was to elucidate the possibility of using small silver nanoparticles (10-20 nm) stabilized with polyethylene glycol and citrate as stimulators in the biotechnology of microalga *Porphyridium cruentum*. This red microalga is recognized as a producer of polysaccharides, proteins, polyunsaturated fatty acids. Silver nanoparticles stabilized with polyethylene glycol of 12 nm in size, as well as nanoparticles stabilized with citrate of 10 and 20 nm in size, were used in concentrations ranging from 0.01 to 1.0 μM . Concentrations were determined for each type of particles, where an increased accumulation of polysaccharides and proteins was observed in *Porphyridium cruentum* biomass. Moreover, the lack of toxicity of these nanoparticles was confirmed by maintaining a high level of productivity.