

Synthesis of Nanoparticles from *Spatoglossum schroederi* with Cytotoxicity Against B16F10 Melanoma Cells

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INTRODUCTION: Marine algae are a rich source of compounds, among them sulfated polysaccharides (SP). They are important compounds because they exhibit a wide range of biological activities, as fucans from the seaweed *Spatoglossum schroederi*. These fucans showed antioxidant, antiangiogenic and antitumor activities. Because of this the marine polysaccharide-based nanoparticles have been investigated for biomedical use. **OBJECTIVES:** To synthesize and characterize silver nanoparticles using fucan-rich fraction from *S. schroederi* and evaluate their cytotoxicity activity against melanoma cell line. **MATERIALS AND METHODS:** The SP from *S. schroederi* were obtained by proteolytic digestion and sequential acetone precipitation. The most abundant fraction (F0.5v) was used to synthesize silver nanoparticles (AgNPs) during one hour without stirring. The AgNPs were evaluated by chemical composition, silver quantification by Inductively Coupled Plasma - Optic Emission Spectrometry, diameter and the surface charge by Dynamic Light Scattering (DLS) and Scanning Electron Microscopy (SEM). In addition, they were subjected to MTT cytotoxic assay and Flow Cytometric Analysis (FACS) with B16F10 melanoma cell lines. **DISCUSSION AND RESULTS:** The average diameter, zeta potential, total sugar, total proteins, phenolic compounds and silver quantification were obtained respectively $196 \pm 13\text{nm}$, $-25,9 \pm 1,8\text{ mV}$, $47,5\% \pm 6,3$, $1,3\% \pm 0,04$, $0,45\% \pm 0,1$ and $4,8\% \pm 0,06$. The SEM confirmed the diameter obtained by DLS. The AgNPs showed cytotoxic effect from 20% to 80% and higher apoptosis rate was observed in cells exposed to them. In addition, they were more potent toxic agents than F0.5v. **CONCLUSIONS:** Our study showed AgNPs improve the cytotoxic effect of F0.5v fucan-rich fraction. Further studies will show whether other fucan properties were also positively affected by nanoparticles synthesis.

Key Words: Nanotechnology, sulfated fucan, silver.

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