



EFFECT OF THE STORAGE OF SILVER NANOPARTICLES SYNTHESIZED WITH THE EXTRACT OF THE ALGAE *SARGASSUM CYMOSUM*

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INTRODUCTION

The metallic nanoparticles biosynthesis with reducing agents and non-toxic stabilizers, such as, the algae polysaccharides, can enable biomedical applications (Singh *et al.*, 2015, Afr. J. Biotechnol). In this context, this study presents the synthesis of silver nanoparticles (NPAg's) with extract of the algae *Sargassum cymosum* and the stability effect during its storage. Once an important factor related to the production and commercialization of nanoparticles is its stability in relation to the storage, since the transport and stock are important industrial factors. In addition, it was evaluated the NPAg's antimicrobial activity synthesized on the *Staphylococcus aureus* bacterium.

MATERIAL AND METHODS

A NPAg's suspended solution was synthesized with 10 mL of an aqueous solution of algae extract (0,01 g/mL) and 90 mL of an AgNO₃ aqueous solution (1 mM), at pH 6,73 and 25 °C and for 180 minutes. The NPAg's were stored in white polyethyleneterephthalate bottles, at room temperature (\pm 25 °C) and in absence of light. During a period of 160 days, the NPAg's were analysed by spectrophotometer UV-Vis, at the wavelength of 200-600 nm. The determination of the NPAg's antimicrobial activity on the *S. aureus* was performed by the microdilution in broth method.

RESULTS

On the synthesis date, the characteristic absorbance peak of the NPAg's, which is between 414 and 424 nm, was almost insignificant, however about 160 days after, this peak increased substantially with maximum absorbance of 425,5 nm. This result contributes with the few studies found in the literature about NPA's stability synthesized with algae extracts. In addition, the synthesized aqueous suspended solution presented minimal inhibitory concentration of 51,2 μ g_{Ag+}/mL.

CONCLUSIONS

During the storage, the peak increased, becoming more intense and characteristic of the NPAg's, possibly due to a slower kinetics.

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SINGH, C. R.; KATHIRESAN, K.; ANANDHAN, S. A review on marine based nanoparticles and their potential applications. African Journal of Biotechnology, v. 14, n. 18, p. 1525–1532, 2015.