SYNTHESIS AND CHARACTERIZATION OF SILVER NANO- CLUSTERS STABILIZED WITH BSA/PVP

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The application of nanotechnology through the use of nanodevices, that integrate biological materials and nanometric materials, allows the development of new diagnostic tools for identifying diseases in their earliest stages. This work is based on the synthesis of stabilized silver nano- clusters with bovine serum albumin protein (BSA) and Poly- vinylpyrrolidone polymer (PVP) (NC Ag- BSA / PVP), using the metal reduction method in aqueous solution for early diagnosis fluorescence biosensors. The structural, morphological and compositional characterization was carried out using EDS, DRX and DLS techniques. Optical properties of the material, such as colloid in water, were studied using UV- Vis- NIR absorbance and photoluminescence spectroscopy. Techniques such as infrared spectroscopy (FTIR) and thermogravimetric analysis were carried out to determine the presence of the stabilizers on the metallic nano- clusters, achieving nanoparticle sizes in the range of 3 to 6 nm and a dependency of the BSA / PVP ratio with the obtained fluorescence intensity.

Keywords: Silver nano- clusters, BSA, PVP

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