SILVER SULFIDE QUANTUM DOTS STABILIZED WITH BOVINE SERUM ALBUMIN FOR FUTURE APPLICATION IN BIOSENSOR FOR BREAST CANCER

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As published by the World Health Organization, breast cancer is the first place of cancer incidence worldwide for women and the second-highest incidence of cancer considering both sexes. Most of the detection techniques are based on macroscopic tumor detection such as imaging, however, in order to significantly increase the survival rate of patients, the development of sufficiently sensitive tests to detect abnormalities at the microscopic level is essential to detect the disease at an early stage. Nanomedicine is one of the most promising fields to develop sufficiently sensitive assays, achieving this by using the extraordinary optical properties of certain nanomaterials, such as quantum dots, materials with optical and electrical properties enhanced due to the effect of quantum confinement of charge carriers. Fluorescence is an attribute in this type of nanomaterials, not observable in macroscopic materials.

This work is based on the bioconjugation and characterization of Ag\textsubscript{2}S quantum dots with biological molecules for future applications in breast cancer. Their optical properties (photoluminescence and UV-Vis-NIR absorbance), composition and crystallinity (TEM, EDS and XRD), presence of the stabilizing coating (IR), particle size distribution and colloidal stability (DLS and Zeta potential) were studied. Fluorescence emission of the bioconjugated is emphasized.

\textbf{Keywords:} Quantum dots, Bioconjugation, Fluorescence

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