PURIFICATION OF BSA NANOPARTICLES CROSSLINKED BY GAMMA RADIATION

Varca, G.H.C.(1); Fucase, T.(1); Fazolin, G.N.(1); Lugão, A.B.(1);
(1) IPEN;

Albumins are globular proteins that play a major role in biological processes in living organisms. In humans it corresponds to about more than 60% of blood plasma proteins. The use of albumin based systems for the delivery of drugs is of great relevance in order to allow, among other features, site-specific delivery and improved biocompatibility. In this work we address the development and purification of albumin based nanoparticles crosslinked by gamma radiation. The nanoparticles were evaluated by SDS-PAGE size exclusion chromatography and dynamic light scattering and fluorescence. Nanoparticles were synthesized in the range of 16 and 25 nm, and crosslinking was confirmed by the high molecular weight compounds identified by SDS-PAGE after irradiation. Size exclusion data confirmed the presence of different molecular weights and allowed a proper separation of such compounds. After separation, fluorescence assays revealed the presence of bityrosine linkages and thus confirmed protein crosslinking. Further studies involve the in vitro toxicity assessment and potential applications address drug loading for the delivery of radio or chemotherapeutic drugs.