

Human Serum Albumin Nanostructures Generated by Ionizing Radiation

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Nanoparticles (NPs) are one of the most promising nanomaterials to be used in the biomedical field. Recently, the technology to encapsulate lipophilic drugs into nanostructures of albumin has been established and approved by FDA (Food and Drug Administration) for the clinical treatment of breast cancer. Here we report on the fabrication of human serum albumin (HSA) nanostructures by ionizing radiation. HSA NPs were obtained in neat HSA solution or deposited on the textile materials. The synthesis does not involve any toxic compounds for instance the cross linking agents. The NPs dimensions in the solution were measured by dynamic light scattering method. The fluorescence studies have shown that two similar kinds of NPs are generated both in solution and on the textile surface. The time-resolved fluorescence measurements also indicate the presence of nanostructures on natural fibers after radiolytic procedure. The possibility of practical applications in medicine (e.g. wound dressing, drug delivery system) will be discussed.

Biography:

Karolina Radomska graduated from Lodz University of Technology at Faculty of Chemistry with a master degree. Currently, She is a PhD student of the 3rd year at the same Department at Lodz University of Technology. Her specialization is radiation chemistry and She work in laboratory of laser photolysis. The main subject of her PhD thesis is the study of the influence of ionizing radiation on the proteins structure. Her scientific interests include radiation modification of human serum albumin and fabrication of albumin nanostructure.