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# **Title: Polyester Micro- and Nanospheres for Controlled Drug Delivery, Nanomedicine, and Other Biomedical Applications: Progress and Challenges**

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## ***Abstract***

Different medicaments (water-soluble vitamins), silver nanoparticles, selenium nanoparticles) have been successfully encapsulated into polyester micro and nanospheres thus creating nanoparticles with the various morphological characteristic. The crucial requirements for the controlled and balanced release of the medicament in the body are their ideal spherical shape and narrow size distribution. The size and shape of particles play the key role in their adhesion and interaction with the cell. Polymer degradation, also, plays a key role in medicament release from sustained release polyester systems, therefore in order to elucidate the mechanism governing release, it appears essential to analyze the *in vitro* degradation behavior of these devices. An integrated study of the nanosphere composition and structure was carried out by combining different techniques. *In vitro* degradation process and release tests, cytotoxicity, labeling polyester particles by  $^{99m}\text{Tc}$  and biodistribution of PLGA nanoparticles without and with encapsulated medicament were examined.

## ***Biography***

Magdalena Stevanovic, Research Professor at Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, took her PhD degree in Materials Science from the Faculty of Physical Chemistry in Belgrade in December 2007 (PhD best thesis award by the Materials Research Society of Serbia, 2008). The fields of expertise covered by the thesis are nanotechnology, controlled delivery of drugs, biomaterials and polymers. She was a member of the organizing committees of several international conferences. Board member of the Association of the Scientific Institutes of Serbia for Technological and Biotechnical Sciences since December 2011. Also a member of the International Association of Physical Chemists (IAPC), Controlled Release Society (CRS), Bioencapsulation Research Group, American Nano Society, Society of Chemical Industry (SCI), Society of Physical Chemists of Serbia, Materials Research Society of Serbia, Serbian Chemical Society, Association of Italian and Serbian scientists and researchers (AIS3). She is currently leading several international research projects and cooperation (Serbian - Germany DAAD project ID 57060741- Scaffolds with therapeutic functionality-; MC member of the COST Action- Theragnostics Imaging and Therapy: An Action to Develop Novel Nanosized Systems for Imaging-Guided Drug Delivery-; leads collaboration with NIB, Slovenia; TEI Greece, University of Erlangen-Nuremberg, Germany, etc) and has been participating in several national (MESTD RS: Project No 1431, Project No. 142006, Grant No. III45004-Active) and international projects (FP6-032918). Associate Editor for a publishing house Versita (during 2012). Reviewer for the number of international journals with high impact factors. Expert evaluator for the European Commission, Research Executive Agency. Outstanding reviewer status for the Materials Research Bulletin. She is first and the corresponding author of five chapters in books, has published more than 50 papers and she has two patents (Scopus h-index 12).