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HYDROGEN STORAGE INITIATIVE SERBIA**

PROGRAM AND THE BOOK OF ABSTRACTS

**JOINT EVENT OF THE 11TH YOUNG RESEARCHERS' CONFERENCE: MATERIALS
SCIENCE AND ENGINEERING**

AND

**THE 1ST EUROPEAN EARLY STAGE RESEARCHERS' CONFERENCE ON HYDROGEN
STORAGE**

**Edited by:
Jasmina Grbović Novaković
Nenad Ignjatović**

Joint event of the 11th Young Researchers' Conference: Materials Science and Engineering and the 1st European Early Stage Researchers' Conference on Hydrogen Storage

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EFFECTS OF DIFFERENT CRYOPROTECTANTS ON MORPHOLOGY OF LYOPHILIZED POLY(ϵ -CAPROLACTONE) MICRO- AND NANOSPHERES

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A common limitation of using polymeric micro- and nanoparticles in long-term conservation is due to their poor physical and chemical stability. Freeze-drying is one of the most convenient methods that enables further reconstitution of micro- and nanoparticles for therapeutical use. Nevertheless, this process generates various stresses during freezing and desiccation steps. The aim of this study was to evaluate different cryoprotectants (protective excipients that are usually added to increase stability upon storage and protect the particles from freezing stress): sugars (glucose and sucrose) and polymers (PVA and PGA), on the outcome of freeze-dried poly(ϵ -caprolactone) micro- and nanospheres. The best freeze-drying results in terms of morphological characteristics, analyzed with SEM, were achieved with glucose at concentration of 1%. The FT-IR analysis confirmed that the molecular structure of PCL particles remained the same after the addition cryoprotectants.

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