



**“Gheorghe Asachi” Technical University of Iasi, Romania**



---

## HYDROGEL MICROSPHERES BASED ON ENVIRONMENTALLY FRIENDLY POLYMERS WITH POTENTIAL BIOMEDICAL APPLICATIONS

**Cătălina A. Peptu<sup>1\*</sup>, Alain Perichaud<sup>2</sup>, Marcel Popa<sup>1</sup>**

<sup>1</sup>*“Gheorghe Asachi” Technical University of Iasi, Department of Natural and Synthetic Polymers,  
73 Prof. dr. docent Dimitrie Mangeron Street, 700050 Iasi, Romania*

<sup>2</sup>*University of Provence, Department of Macromolecular Chemistry, Pl. Victor Hugo, Marseille, 13331 France*

---

### Abstract

Novel interpenetrated polymer network type microparticles of gelatin and poly(vinyl alcohol) (PVA) were prepared by reverse-emulsion crosslinking method using glutaraldehyde (GA) as crosslinking agent. Microparticles morphology, particle size, swelling behaviour and drug loading/release are discussed in respect to the preparation parameters such as the influence of the polymer concentration in the aqueous phase, pH of the aqueous phase, ratio between the total amount of polymers and the amount of crosslinking agent and the ratio between Gel and PVA in initial aqueous solution (w/w). Chloramphenicol (CLF), a model hydrosoluble drug, was successfully loaded into these microspheres.

*Key words:* covalent crosslinking, gelatin, microparticles, poly (vinyl alcohol), reverse emulsion

*Received: January, 2011; Revised final: March, 2011; Accepted: April, 2011*

---

---

\* Author to whom all correspondence should be addressed: e-mail: [catipeptu@ch.tuiasi.ro](mailto:catipeptu@ch.tuiasi.ro); [catipeptu@yahoo.co.uk](mailto:catipeptu@yahoo.co.uk); Phone +40 232 278683/int. 2332; Fax: +40 232 271311