



“Gheorghe Asachi” Technical University of Iasi, Romania



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## NEW NATURAL BIOCOMPATIBLE MATERIALS OBTAINED BY AN ENVIRONMENTALLY FRIENDLY TECHNOLOGY, WITH APPLICATIONS IN WOUND-HEALING

Călin Vasile Andrițoiu<sup>1</sup>, Anca Niculina Cadinoiu<sup>1,2</sup>, Anca Irina Prisăcaru<sup>1</sup>,  
Doina Mihăilă<sup>3</sup>, Marcel Popa<sup>2,4\*</sup>, Ionel Marcel Popa<sup>5</sup>

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

<sup>2</sup>“Apollonia” University of Iași, Faculty of Dental Medicine, “Academician Ioan Hăulică” Research Institute,  
2 Muzicii Avenue, 700399, Iasi, Romania

<sup>3</sup>The Pathology Department, Sf. Maria Emergency Pediatric Hospital, 62 Vasile Lupu Str., 700309, Iasi, Romania

<sup>4</sup>Academy of Romanian Scientists, 54 Splaiul Independentei, District 5, 050094, Bucharest, Romania

<sup>5</sup>Department of Chemical Engineering, „Gheorghe Asachi” Technical University of Iasi,  
73 Prof. dr. docent Dimitrie Mangeron Rd., 700050, Iasi, Romania

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### Abstract

In rural areas of Romania and other developing countries wounds and dermal affections represent one of the five most common reasons for people seeking medical care. The use of traditional medicines to treat many of these conditions has received little research or policy attention. The present work addresses the discovery of non-toxic treatments for dermal affections, and aims to prepare – based on an environmentally friendly technology, and characterize hydrogels based on gelatin and chitosan, single or in combination with propolis (gelatin/chitosan-propolis 10% v/w, gelatin/chitosan-propolis 20% v/w) and vegetal extracts (gelatin/chitosan-propolis 20% v/w-vegetal extract 20% v/w). The wound healing effect of the four hydrogel-active principles systems is evaluated on Wistar rats, using a dermal circular excision wound model. Clinical and macroscopic evaluation, wound contraction rate, period of epithelialization, and histopathological examination are performed. The hydrogels with propolis 20% (v/w) and propolis 20% (v/w) - vegetal extract 20% (v/w) reveal the best results regarding the formation of granulation tissue, wound contraction rate and re-epithelialization process, being followed with non-significant differences by the hydrogel-propolis 10% v/w system.

*Key words:* hydrogels, propolis, vegetal extracts, wound-healing

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