

Author's Accepted Manuscript

Lysozyme immobilization onto PVC catheters grafted with NVCL and HEMA for reduction of bacterial adhesion

Yesica Guadarrama-Zempoalteca, Luis Díaz-Gómez, H. Iván Meléndez-Ortiz, Angel Concheiro, Carmen Alvarez-Lorenzo, Emilio Bucio



PII: S0969-806X(16)30133-5
DOI: <http://dx.doi.org/10.1016/j.radphyschem.2016.04.023>
Reference: RPC7137

To appear in: *Radiation Physics and Chemistry*

Received date: 7 March 2016
Revised date: 25 April 2016
Accepted date: 29 April 2016

Cite this article as: Yesica Guadarrama-Zempoalteca, Luis Díaz-Gómez, H. Iván Meléndez-Ortiz, Angel Concheiro, Carmen Alvarez-Lorenzo and Emilio Bucio Lysozyme immobilization onto PVC catheters grafted with NVCL and HEMA for reduction of bacterial adhesion, *Radiation Physics and Chemistry* <http://dx.doi.org/10.1016/j.radphyschem.2016.04.023>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain

**Lysozyme immobilization onto PVC catheters grafted with NVCL and HEMA for
reduction of bacterial adhesion**

Yesica Guadarrama-Zempoalteca^a, Luis Díaz-Gómez^b, H. Iván Meléndez-Ortiz^c, Angel
Concheiro^b, Carmen Alvarez-Lorenzo^b, Emilio Bucio^{a*}

^aDepartamento de Química de Radiaciones y Radioquímica, Instituto de Ciencias Nucleares, Universidad Nacional Autónoma de México, Circuito Exterior, Ciudad Universitaria, México D.F. 04510, México.

^bDepartamento de Farmacia y Tecnología Farmacéutica, Universidade de Santiago de Compostela, 15782-Santiago de Compostela, Spain.

^cCONACyT Research Fellow–Centro de Investigación en Química Aplicada, Blvd. Enrique Reyna Herмосillo #140, 25294 Saltillo, Coahuila, México.

*Corresponding author. Tel +52 55 56224674; fax +52 55 56224707. ebucio@nucleares.unam.mx

Abstract

The aim of the present work was to functionalize poly(vinyl chloride) (PVC) urinary catheters with grafted copolymers that can improve the biocompatibility and serve as binding points of lysozyme. PVC catheters were modified by grafting a mixture of N-vinylcaprolactam (NVCL) and 2-hydroxyethylmethacrylate (HEMA) applying a gamma-ray pre-irradiation method. The effect of absorbed dose, monomer concentration, temperature, and reaction time on the grafting percentage was evaluated. The grafted catheters were characterized regarding surface composition (FTIR-ATR spectroscopy), thermal properties (DSC and TGA) and swelling in aqueous medium. Lysozyme was directly coupled onto PVC-g-(NVCL/HEMA) previously activated using

Download English Version:

<https://daneshyari.com/en/article/8252219>

Download Persian Version:

<https://daneshyari.com/article/8252219>

[Daneshyari.com](https://daneshyari.com)