

## Accepted Manuscript

Antibacterial and antioxidant electrospun materials from poly(3-hydroxybutyrate) and polyvinylpyrrolidone containing caffeic acid phenethyl ester – “in” and “on” strategies for enhanced solubility

Milena Ignatova, Nevena Manolova, Iliya Rashkov, Nadya Markova

PII: S0378-5173(18)30305-3

DOI: <https://doi.org/10.1016/j.ijpharm.2018.05.013>

Reference: IJP 17484

To appear in: *International Journal of Pharmaceutics*

Received Date: 5 January 2018

Revised Date: 3 May 2018

Accepted Date: 4 May 2018



Please cite this article as: M. Ignatova, N. Manolova, I. Rashkov, N. Markova, Antibacterial and antioxidant electrospun materials from poly(3-hydroxybutyrate) and polyvinylpyrrolidone containing caffeic acid phenethyl ester – “in” and “on” strategies for enhanced solubility, *International Journal of Pharmaceutics* (2018), doi: <https://doi.org/10.1016/j.ijpharm.2018.05.013>

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 review of the resulting proof before it is published in its final 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.

# Antibacterial and antioxidant electrospun materials from poly(3-hydroxybutyrate) and polyvinylpyrrolidone containing caffeic acid phenethyl ester – “in” and “on” strategies for enhanced solubility

Milena Ignatova<sup>a,\*</sup>, Nevena Manolova<sup>a,\*</sup>, Iliya Rashkov<sup>a</sup>, Nadya Markova<sup>b</sup>

<sup>a</sup>*Laboratory of Bioactive Polymers, Institute of Polymers, Bulgarian Academy of Sciences, Acad. G. Bonchev St, Bl. 103A, BG-1113 Sofia, Bulgaria*

<sup>b</sup>*Institute of Microbiology, Bulgarian Academy of Sciences, Acad. G. Bonchev Bl. 26, BG-1113 Sofia, Bulgaria*

\* Corresponding authors: Tel.: +359 (0)2 9793289; fax: +359 (0)2 8700309.

E-mail address: [ignatova@polymer.bas.bg](mailto:ignatova@polymer.bas.bg) (M. Ignatova),

[manolova@polymer.bas.bg](mailto:manolova@polymer.bas.bg) (N. Manolova)

## ABSTRACT

Caffeic acid phenethyl ester (CAPE) possesses a set of valuable biological properties: antioxidant, antibacterial, antitumor, anti-inflammatory, antiviral, etc. However, CAPE is poorly soluble in aqueous environment which is limiting its possible therapeutic applications. In the present study novel fibrous materials enhancing CAPE solubility and accelerating CAPE release were developed. The materials were prepared from poly(3-hydroxybutyrate) (PHB) by electrospinning and by electrospinning combined with dip-coating. The effects of the composition - without/with addition of polyvinylpyrrolidone (PVP) and of the design of fiber (CAPE in the bulk of the fiber or incorporated in the PVP coating) on some of the properties of these materials were studied. X-ray diffraction and differential scanning calorimetry analyses revealed that CAPE

Download English Version:

<https://daneshyari.com/en/article/8519789>

Download Persian Version:

<https://daneshyari.com/article/8519789>

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