

## Accepted Manuscript

Title: Magnetically responsive and flexible bacterial cellulose membranes

Authors: Nipaporn Sriplai, Wiyada Mongkolthanaruk, Stephen J. Eichhorn, Supree Pinitsoontorn



PII: S0144-8617(18)30336-9  
DOI: <https://doi.org/10.1016/j.carbpol.2018.03.072>  
Reference: CARP 13422

To appear in:

Received date: 21-11-2017  
Revised date: 19-3-2018  
Accepted date: 21-3-2018

Please cite this article as: Sriplai, Nipaporn., Mongkolthanaruk, Wiyada., Eichhorn, Stephen J., & Pinitsoontorn, Supree., Magnetically responsive and flexible bacterial cellulose membranes. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2018.03.072>

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.

## Magnetically responsive and flexible bacterial cellulose membranes

Nipaporn Sriplai<sup>1</sup>, Wiyada Mongkolthanaruk<sup>2</sup>, Stephen J. Eichhorn<sup>3</sup>, Supree Pinitsoontorn<sup>1, 4\*</sup>

<sup>1</sup>*Materials Science and Nanotechnology Program, Department of Physics, Faculty of Science, Khon Kaen University, Khon Kaen 40002, THAILAND*

<sup>2</sup>*Department of Microbiology, Faculty of Science, Khon Kaen University, Khon Kaen 40002, THAILAND*

<sup>3</sup>*Bristol Composites Institute (ACCIS), University of Bristol, Queen's Building, University Walk, Bristol, BS8 1TR, UK.*

<sup>4</sup>*Integrated Nanotechnology Research Center, Department of Physics, Faculty of Science, Khon Kaen University, Khon Kaen 40002, THAILAND*

### Research Highlights

- Magnetic bacterial cellulose (BC) membranes fabricated by simple immersion.
- Highly uniform distribution of magnetic nanoparticles in BC nanofibrils.
- Highly flexible magnetic BC membranes, return to original shape after deformation.
- Highly magnetic responsive membranes once subjected to external fields.

### Abstract

Magnetically responsive and flexible bacterial cellulose (BC) membranes were successfully fabricated using a simple diffusion of a ferrofluid solution. BC hydrogels were either water-substituted by alcohol (BC-N) or freeze dried (BC-F) prior to their immersion in the ferrofluid. The presence of both crystalline BC and Fe<sub>3</sub>O<sub>4</sub> phases, and the homogeneous distribution of

Download English Version:

<https://daneshyari.com/en/article/7782757>

Download Persian Version:

<https://daneshyari.com/article/7782757>

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