

Accepted Manuscript

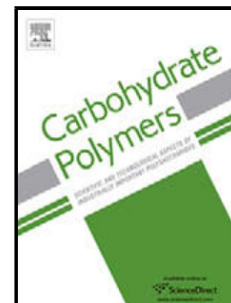
Title: Evolution of morphology of bacterial cellulose scaffolds during early culture

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PII: S0144-8617(14)00461-5

DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2014.04.097>

Reference: CARP 8858



To appear in:

Received date: 28-11-2013

Revised date: 3-3-2014

Accepted date: 28-4-2014

Please cite this article as: Luo, H., Zhang, J., Xiong, G., & Wan, Y., Evolution of morphology of bacterial cellulose scaffolds during early culture, *Carbohydrate Polymers* (2014), <http://dx.doi.org/10.1016/j.carbpol.2014.04.097>

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1 **Evolution of morphology of bacterial cellulose scaffolds during early culture**

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7

8 **Abstract**

9 Morphological characteristics of a fibrous tissue engineering (TE) scaffold are key
10 parameters affecting cell behavior. However, no study regarding the evolution of
11 morphology of bacterial cellulose (BC) scaffolds during the culture process has been
12 reported to date. In this work, BC scaffolds cultured for different times starting from
13 0.5 h were characterized. The results demonstrated that the formation of an integrated
14 scaffold and its 3D network structure, porosity, fiber diameter, light transmittance, and
15 the morphology of hydroxyapatite (HAp)-deposited BC scaffolds changed with
16 culture time. However, the surface and crystal structure of BC fibers did not change
17 with culture time and no difference was found in the crystal structure of HAp
18 deposited on BC templates regardless of BC culture time. The findings presented
19 herein suggest that proper selection of culture time can potentially enhance the
20 biological function of BC TE scaffold by optimizing its morphological characteristics.

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