

Accepted Manuscript

Title: Application of xanthan gum as polysaccharide in tissue engineering: A review

Authors: Anuj Kumar, Kummara Madhusudana Rao, Sung Soo Han



PII: S0144-8617(17)31155-4
DOI: <https://doi.org/10.1016/j.carbpol.2017.10.009>
Reference: CARP 12858

To appear in:

Received date: 20-8-2017
Revised date: 20-9-2017
Accepted date: 2-10-2017

Please cite this article as: Kumar, Anuj., Rao, Kummara Madhusudana., & Han, Sung Soo., Application of xanthan gum as polysaccharide in tissue engineering: A review. *Carbohydrate Polymers* <https://doi.org/10.1016/j.carbpol.2017.10.009>

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.

Application of xanthan gum as polysaccharide in tissue engineering: A review

Anuj Kumar^{a,b*}, Kummara Madhusudana Rao^{a,b}, Sung Soo Han^{a,b*}

^aSchool of Chemical Engineering, Yeungnam University, 280 Daehak-Ro, Gyeongsan 38541, South Korea

^bDepartment of Nano, Medical and Polymer Materials, Yeungnam University, 280 Daehak-Ro, Gyeongsan 38541, South Korea

Corresponding authors

School of Chemical Engineering and Department of Nano, Medical and Polymer Materials, Yeungnam University, 280 Daehak-Ro, Gyeongsan 38541, South Korea

*Email: anuj.budhera@gmail.com (Anuj Kumar); sshan@yu.ac.kr (Sung Soo Han)

Tel: +82-53-810-2773; Fax: +82-53-810-4686

Highlights

- Xanthan gum is a microbial high molecular weight exo-polysaccharide.
- It has excellent biocompatibility and pseudo-plastic behavior.
- Shear-thinning and gelling behaviors of XG are more beneficial in tissue engineering.
- Recent trends on XG-based biomaterials in tissue engineering are reviewed.
- It shows a quite promising future as a biopolymer in tissue engineering.

ABSTRACT

Xanthan gum is a microbial high molecular weight exo-polysaccharide produced by *Xanthomonas* bacteria (a Gram-negative bacteria genus that exhibits several different species) and it has widely been used as an additive in various industrial and biomedical applications such as food and food packaging, cosmetics, water-based paints, toiletries, petroleum, oil-recovery, construction and building materials, drug delivery. Recently, it has shown great potential in tissue engineering applications and a variety of modification methods have been employed to modify xanthan gum as polysaccharide for this purpose. However, xanthan gum-based biomaterials need further modification for several targeted applications due to some disadvantages (e.g., processing and mechanical performance of xanthan gum), where modified xanthan gum will be well suited for

Download English Version:

<https://daneshyari.com/en/article/5156365>

Download Persian Version:

<https://daneshyari.com/article/5156365>

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