

Accepted Manuscript

Title: Preparation and characterization of antioxidant edible chitosan films incorporated with epigallocatechin gallate nanocapsules

Authors: Jin Liang, Hua Yan, Jiuya Zhang, Wenzhong Dai, Xueling Gao, Yibin Zhou, Xiaochun Wan, Pradeep Puligundla



PII: S0144-8617(17)30480-0
DOI: <http://dx.doi.org/doi:10.1016/j.carbpol.2017.04.081>
Reference: CARP 12269

To appear in:

Received date: 27-12-2016
Revised date: 23-4-2017
Accepted date: 25-4-2017

Please cite this article as: Liang, Jin., Yan, Hua., Zhang, Jiuya., Dai, Wenzhong., Gao, Xueling., Zhou, Yibin., Wan, Xiaochun., & Puligundla, Pradeep., Preparation and characterization of antioxidant edible chitosan films incorporated with epigallocatechin gallate nanocapsules. *Carbohydrate Polymers* <http://dx.doi.org/10.1016/j.carbpol.2017.04.081>

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.

Preparation and characterization of antioxidant edible chitosan films incorporated with epigallocatechin gallate nanocapsules

Jin Liang^{a, b}, Hua Yan^a, Jiuya Zhang^a, Wenzhong Dai^a, Xueling Gao^a, Yibin Zhou^a, Xiaochun Wan^{a,*}, Pradeep Puligundla^c

^aState Key Laboratory of Tea Plant Biology and Utilization, Anhui Agricultural University, Hefei, China

^bAnhui Agricultural Products Processing Engineering Laboratory, Anhui Agricultural University, Hefei, China

^cDepartment of Food Science & Biotechnology, Gachon University, Seongnam, 13120, South Korea

Address correspondence: State Key Laboratory of Tea Plant Biology and Utilization, Anhui Agricultural University, Hefei, China; Tel/Fax: +86-551-65786765; E-mail: xcwan@ahau.edu.cn

Highlights

- EGCG-loaded nanocapsules suspension (NCs) was successfully prepared.
- Antioxidant films based on chitosan hydrochloride and EGCG NCs were developed.
- The NCs incorporated films exhibited higher DPPH scavenging activity than control.
- The NCs incorporated films showed better mechanical properties than control .
- The obtained films can be used to protect foodstuffs against photooxidative damage.

Abstract: Antioxidant edible films based on chitosan hydrochloride (CHC) and epigallocatechin gallate (EGCG)-loaded nanocapsules (NCs) were developed. The CHC films incorporated with NCs were prepared by a casting method in three different proportions. The obtained films were characterized using the techniques including scanning electron microscopy, Fourier transform infrared spectroscopy and X-ray diffraction. Meanwhile, the mechanical and color properties, optical transmittance, EGCG release profile and antioxidant activity were also detected. The addition of NCs to CHC

Download English Version:

<https://daneshyari.com/en/article/5157604>

Download Persian Version:

<https://daneshyari.com/article/5157604>

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