

Accepted Manuscript

Title: Application of whey protein-pectin nano-complex carriers for loading of lactoferrin

Authors: Masoomeh Raei, Fakhri Shahidi, Majid Farhoodi, Seid Mahdi Jafari, Ali Rafe



PII: S0141-8130(17)31953-0
DOI: <http://dx.doi.org/doi:10.1016/j.ijbiomac.2017.07.037>
Reference: BIOMAC 7845

To appear in: *International Journal of Biological Macromolecules*

Received date: 31-5-2017
Revised date: 5-7-2017
Accepted date: 6-7-2017

Please cite this article as: Masoomeh Raei, Fakhri Shahidi, Majid Farhoodi, Seid Mahdi Jafari, Ali Rafe, Application of whey protein-pectin nano-complex carriers for loading of lactoferrin, *International Journal of Biological Macromolecules* <http://dx.doi.org/10.1016/j.ijbiomac.2017.07.037>

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 whey protein-pectin nano-complex carriers for loading of lactoferrin

Running title: Whey protein-pectin nano-complex for lactoferrin

Masoomeh Raei^{1,2}, Fakhri Shahidi¹, Majid Farhoodi³, Seid Mahdi Jafari^{4*}, Ali Rafe²

¹Department of Food Science, Ferdowsi University of Mashhad, Mashhad, Iran

²Research Institute of Food Science and Technology, Mashhad, Iran

³Razi Vaccine & Serum Research Institute, Mashhad, Iran

⁴Department of Food Materials and Process Design Engineering, Gorgan University of Agricultural Sciences and Natural Resources, Gorgan, Iran

Corresponding author: smjafari@gau.ac.ir

Research Highlights:

- **The complex of whey protein and pectin can be formed at pH values of 3-4.**
- **Lactoferrin was successfully loaded into WPI-pectin complex nano-particles.**
- **Complex formation was influenced by pH, WPI-HMP ratio, and acidifying method.**
- **WPI-HMP ratio of 2:1 via pre-blending at pH= 3.5 resulted in optimum LF carriers.**

Abstract

Our aim was to entrap lactoferrin (LF) in complex nano-particles of whey protein isolate (WPI)-high methoxyl pectin (HMP) with the ratios of 2:1, 1:1, and 1:2 through acidification at pH values of 3, 3.5, and 4. The zeta-potential, size, sedimentable-complex yield, LF content, encapsulation efficiency, SEM, AFM, FTIR, and DSC of nano-particles were investigated. Our results revealed that almost all

Download English Version:

<https://daneshyari.com/en/article/8329405>

Download Persian Version:

<https://daneshyari.com/article/8329405>

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