

Accepted Manuscript

Zein and zein -based nano-materials for food and nutrition applications: A review

Mohammad Reza Kasaii

PII: S0924-2244(17)30645-3

DOI: [10.1016/j.tifs.2018.07.015](https://doi.org/10.1016/j.tifs.2018.07.015)

Reference: TIFS 2276

To appear in: *Trends in Food Science & Technology*

Received Date: 7 October 2017

Revised Date: 6 June 2018

Accepted Date: 2 July 2018

Please cite this article as: Kasaii, M.R., Zein and Zein -based Nano-materials for Food and Nutrition Applications: A Review, *Trends in Food Science & Technology* (2018), doi: 10.1016/j.tifs.2018.07.015.

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.



Abstract

Background: Zein, a byproduct of corn with renewable resources, unique hydrophobic/hydrophilic character, film /fiber forming and antioxidant properties, is a promising biopolymer for food and nutrition applications. The advantages in properties and efficiencies of nano materials over bulk counterparts are the basis of their unique nature in novel technologies. These advantages also expand their possible applications.

Scope and approach: An effort has been made to review on applications of zein/ zein-based nano-materials in various branches of food (except food packaging) and nutrition sectors. The effects of various parameters affecting preparations and properties of the nano-materials are also discussed. Nano-encapsulation of foods and nutrients is the major section of this study.

Key findings and conclusions: (i) the average size of zein nanoparticles reported to be 50-200 nm; (ii) the functions of zein nanomaterials were multiples: a carrier of delivery (food, beverage, and nutrient) systems; a shell or a core of encapsulated systems; or a food ingredient; (iii) zein-based nano-materials have been used for encapsulation of food and nutrient components including lipids; essential oils; fat soluble vitamins; food colorants; flavors; and natural antioxidants; (iv) the bioavailability of food and nutrient components such as folic acid, vitamin D₃, curcumin, beta- carotene, and resveratrol was improved by employing the zein-nanoparticles in comparison with the bulk counterparts; and (v) bioactive substances with potential applications for food and nutrition sectors were stabilized by zein/ zein-based nano-materials.

Download English Version:

<https://daneshyari.com/en/article/8428078>

Download Persian Version:

<https://daneshyari.com/article/8428078>

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