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## BOOK OF ABSTRACT



## Quinoa Protein/Chitosan Films Crosslinked with Transglutaminase

Marilena Esposito<sup>1</sup>, Prospero Di Pierro<sup>1</sup>, Blanca Estela García Almendárez<sup>2</sup>  
Carlos Regalado González<sup>2</sup>, Astrid Saraí García Tarabay<sup>2</sup>, Monserrat  
Escamilla García <sup>2</sup>

<sup>1</sup>*Department of Chemical Sciences, University of Naples "Federico II", Naples, Italy.*

<sup>2</sup>*Departamento de Investigación y Posgrado en Alimentos, Facultad de Química, Universidad Autónoma de Querétaro, C.U., Cerro de la Campana s/n Querétaro, México*

\*Corresponding author: [monserratescamilla14@gmail.com](mailto:monserratescamilla14@gmail.com)

Hydrocolloid edible films represent an alternative to plastic packaging to preserve food quality and organoleptic properties. These biodegradable materials may be used as moisture and gas barrier, to improve sensory perceptions and to confer antimicrobial protection to the coated foods. Recent research on hydrocolloid films has been focused on minimizing some their disadvantages, such as the poor mechanical and water vapor barrier features. The aim of the present work was to prepare and characterize quinoa protein/chitosan (QP/CH) blended films. In order to choose appropriate QP/CH ratios and film processing conditions, the stability of the film forming solutions (FFSs) was evaluated by determining their zeta-potential and particle size at different pH values. QP/CH (5:1 and 10:1, w/w) films were then prepared in the absence or presence of transglutaminase (TG), a well known protein crosslinking enzyme. TG addition to FFS resulted in an increase of the diameter of the particles, with the highest value determined at 10:1 QP/CH ratio. This result suggested that the enzyme-mediated QP crosslinking in the presence of CH led to the formation of protein/polysaccharide aggregates with increased particle size obtained at higher QP concentrations. Finally, the physicochemical and mechanical properties of the crosslinked QP/CH films were determined and compared to the control ones prepared in the absence of enzyme.

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