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Changes in the viscosity of a soy-maize modified protein induced by the use of transglutaminase during storage at 4 $^{\circ}\mathrm{C}$

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Transglutaminase (TG) catalyzes acyl-transfer reactions between glutamine and lysine residues leading covalent crosslinking in proteins. TG has an optimum activity at 55 °C and is widely used in food industry, since it promotes polymerization of soybean, meat and milk proteins. Protein based products are usually highly perishable and they need refrigeration during storage. The aim of this project was to evaluate coagulation induced by TG in a soy-maize modified protein under refrigeration conditions (4 °C). Protein dispersions (10%, w/v) were homogenized before addition of TG (10 U/g protein). Treatments were evaluated with or without incubation at 55 °C (1 h) and compared with a negative control. Viscosity was analyzed after storage at 4 °C during 4, 8, 12, 24 and 48 h, using a rheometer (Physica MCR 101 Anton Paar), furnished with a plate-plate system. A 2.8 mm gap was considered during the 5 min procedure. Treatments with TG depicted a higher viscosity compared to the control group at all times. The highest viscosity was 524.32 Pa.s (TG incubated a 55 °C). This result was significantly different from TG treatment without incubation (243.37 Pa.s), both evaluated at 12 h after storage at 4 °C. Incubation at 55 °C did not showed differences on TG treatments at 48 hours. TG remains active at 4 °C over time, modifying rheological food properties and thus depicting the importance of this result on long storage protein applications.

Biography

Magda Elizabeth Vera-García has completed her M.Sc. at the age of 24 years from Medicine School of Universidad Autónoma de Nuevo León. She is researcher at Instituto Tecnológico de Estudios Superiores de Monterrey at the Department of Biotechnology and Food Engineering. She has published 4 papers in reputed journals.

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