International Conference on APPLIED MICROBIOLOGY AND MICROBIAL BIOTECHNOLOGY &

International Conference on MICROBIOME R&D AND BIOSTIMULANTS &

3rd International Conference on INTERNAL MEDICINE & HOSPITAL MEDICINE October 15-16, 2018 Ottawa, Canada

Influence of exopolysaccharide production in the syneresis and rheological properties of the soy-based synbiotic beverage

Olga Lucia Mondragon-Bernal University of Lavras, Brazil

The rheological behavior and syneresis of food directly influence its acceptability and processing. The exopolysaccharides producing (EPS) by lactic acid bacteria improves the texture of fermented foods as a synbiotic beverage. A central composite rotational design (CCRD) was carried out with four process variables: Soy extract concentration (%SE), fructooligosaccharides concentration (%FOS), *Lactobacillus:Bifidobacterium* ratio (L:B) (L=*L. rhamnosus sp.* + *L. paracasei sp.* + *L. acidophilus sp.* and *B=B. bifidum* sp.) and stirring (rpm) totaling 27 assays. Three response variables: EPS (g/L), syneresis (%) and rheological behavior (adjustment to models with R2>0, 99 and minor x²) were determined. After statistical analyses, only the quadratic terms of %ES, %FOS, and L:B had negative effects (p<0, 05) on EPS. Assay with soymilk 10g/100mL, FOS 2g/100mL, L:B 30:70 and stirring 50 rpm showed the highest values for EPS production (2.67g/L). However, with an average production of EPS between 0.35 and 1.05g/L, good prototypes with rheological behavior and minimum syneresis were obtained. The assay with soy extract 10g/L, FOS 4%, L:B 30:70 and 50 rpm showed no syneresis and the best rheological behavior: Hershel-Bulkley model (H-B), i.e., with higher initial shear stress (2.24 Pa), higher consistency coefficient (0.42 Pa.sn) and average fluid behavior index (0.55). Another good assay (H-B and low syneresis) contained ES between 9-11%, FOS 2-4%, L:B 10-30:90-70 and 25-50 rpm were obtained.

Biography

Olga Lucia Mondragon-Bernal is bachelor's at Food Engineering from the University of Bogota Jorge Tadeo Lozano (1994) in Bogota/Colombia, Master and Doctor in Food Engineering at State University of Campinas (2004-2009) in Campinas/Brazil. Worked in the food industry (1994-1998). She was a Professor in UPTC-Tunja/Colombia (1998-2001). She is currently Adjunct III Professor at the Federal University of Lavras at Department of Food Sciences. She has experience in Food bioengineering; Functional foods developing; lactic fermentation; industrial microbiology; food analysis; syntropy, symbiosis, and synergy in bioprocesses; process optimization; food safety; and, assurance, control and quality in the food industry.

olga@dca.ufla.br

Notes: