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Antimicrobial supercritical impregnation of nanocomposites for food packaging

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Antimicrobial Active Packaging is one of the most innovative field on food packaging. It involves the incorporation of an active antimicrobial component in the polymer matrix that should be release during the period of time that food is in direct contact with plastic material. Essential oils are one of the most common antimicrobial active components that are included in polymer matrix but as they are volatile extrusion process is a great disadvantage. In the present work, the study of the supercritical operation condition (pressurization and depressurization rate was carried out in order to determine the amount of active compound impregnated and the kinetic release of the active component from the polymer matrix., comparing polymer matrix and nanocomposites. Nanocomposites of LDPE and Cloisite C20A (modified montmorillonite) 2.5 and 5% were extruded and supercritical fluid impregnation was done at different conditions pressure: 12Mpa, impregnation time: 30 and 60 min, depressurization rate: 10 and 1 MPA/min, temperature 40°C. Physico-chemical characterization of impregnated films were analyzed, and the kinetic release of the active component from the polymer matrix comparing traditional polymer matrix and nanocomposites, were analyzed.

Biography

Maria Jose Galotto is a Full Professor and Head of the Food Packaging Laboratory, in the department of Food Technology from the University of Santiago de Chile. Her undergraduate background is on chemistry and food science and technology, and she has focused on food packaging materials. Nowadays she is working on the development of active food packaging materials and nanotechnology.

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