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Evaluation of chitosan based coatings with microencapsulated *Lactobacillus plantarum* for the postharvest quality preservation of litchi and rambutan

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Litchi and rambutan are subtropical fruits which principal problem is the desiccation, resulting in browning of the pericarp. In order to address this issue, the applying coatings made from biopolymers, arises as a new technology in postharvest preservation. Biopolymers obtained from natural and biodegradable sources, represent an alternative to chemical methods traditionally applied to fruits, which alter the taste and create environmental problems besides of toxicological aspects. This paper proposes the microencapsulation of *Lactobacillus plantarum* (LAB) with Pectin (P) and β -lactoglobulin (β), which allowed the viability of LAB due to its anionic character. The polyelectrolyte complex P β BAL and the cationic biopolymer chitosan (Q) studied and characterized as coatings, owing to their properties as antimicrobial, biocompatible and its effect on color retention. The Q used, obtained by thermochemical heterogeneous deacetylation from chitin extracted from shrimp waste by lactic acid fermentation, with a molecular weight of 285 kDa and a percentage of acetylation of 9.91 ± 0.21 . The Q β PBAL coating applied to the fruits obtaining improved results compared to control (no treatment), thus prolonging the postharvest quality of litchi for 14 days and for 20 days in rambutan. This attributed to the in situ production of lactic acid and concomitant lowering the pH in the pericarp of the fruits. Additionally, this displayed a stabilizing effect on anthocyanins and pigments present in the pericarp of these fruits.

Biography

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