APPLICATION OF STARCH/ CELLULOSE NANOBIOCOMPOSITE COATING IN APPLES

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Addition of natural micro and nanoshields in the form of cellulose fibers or cellulose nanowhiskers to biopolymers matrices for the development of novel nanobiocomposites is an upcoming area of potentially high interest in food packaging science. In this work, the performances of the coatings (T1 - starch + glycerol + sodium bisulfite; T2 - starch + glycerol + sodium bisulfite + 0.5% de cellulose nanowhiskers; T3 - starch + glycerol + sodium bisulfite + 1.0% de cellulose nanowhiskers; T4 - starch + glycerol + sodium bisulfite + 1.5% de cellulose nanowhiskers) were compared to a control, without coating, applied in apples. The storage period was 9 days at 5ºC and 85% RH. The fruits were accompanied by loss of mass, firmness, total pectin, soluble pectin and solubility. The results were submitted to ANOVA and Tukey's test at 5% of significance using software Sisvar 5.1. The firmness increases during the storage period. The total pectin decreased with the addition of cellulose nanobiocomposite coating during the storage period. The soluble pectin and solubility values showed a tendency to increase with the addition of cellulose nanobiocomposite coatings during all the storage period. Low oxygen and high carbon dioxide concentrations created by coating allows retention of the firmness of fruits during storage. It can be conclude that there is potential to using nanobiocomposite coating to maintain apple quality.

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