

Title Textural properties of tomatoes coated with soy, whey protein and cellulose films
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Abstract

Edible coating should have adequate mechanical strength to maintain integrity and withstand external stress that would occur during processing, handling and storage. In addition, edible coating should not have any adverse sensory properties on coated produce. The objective of this study was to evaluate the skin puncture strength and textural properties such as hardness, springiness, cohesiveness, and chewiness of coated tomatoes stored at ambient temperature for 28 d. Tomatoes were coated with soy protein (SP) / whey protein (WP) / carboxymethyl cellulose (CMC) films with the same thickness of 20 μm . Coated tomatoes were evaluated for skin puncture strength and texture profile analysis for 0, 7, 14, 21 and 28d using Texture analyzer. Soy protein and WP coating increased skin puncture strength at 0 d (19 and 18 Newton (N), respectively) compared to the uncoated tomatoes (16 N). Carboxymethyl cellulose coating decreased the skin puncture strength at 0 d (12 N). Hardness of SP and WP coated tomatoes (45 and 40 N, respectively) were higher than the control and CMC coated tomatoes (35 and 35 N, respectively). Hardness of SP film coated tomato decreased to 32 N after 7 days and no changes in the hardness was observed thereafter. Hardness of WP film coated tomatoes decreased to 24 N after 7 days and then gradually increased to 38 N during storage. Hardness of CMC coated tomatoes increased during storage. There were no significant differences in springiness and cohesiveness of the coated and uncoated tomatoes during storage. Chewiness of SP and WP film coated tomatoes (5 and 4 N, respectively) was higher than CMC coated tomatoes (3 and 3 N, respectively). These results demonstrated that coating tomatoes with SP/ WP film maintained integrity and withstood external stress that could occur during packaging and transporting.