

Edible coating formulated with essential oregano oil for its application in strawberries and determination of the degree of inhibition of fungus Botrytis cinerea.

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According to the Colombian Ministry of Agriculture, for the year 2020, strawberry production was 86,500 tons per year, with a yield of 43 tons/ha. Strawberry is a crop from which peasant families live throughout the national territory, approximately 2,000. However, fresh-marketed strawberries have a short shelf life of 3 to 5 days due to factors of poor post-harvest practices and attack of microorganisms, being the attack by Botrytis Cinerea is the principal generator of losses, for which it is of great importance to find alternatives for the control of the fungus and in this way achieve a greater shelf life of the strawberry. The objective of this study was to evaluate the inhibitory effect of an edible coating made from whey protein, cassava starch, and oregano essential oil (AE) on the growth of the fungus Botrytis Cinerea. The methodology included formulating two solutions: one of protein and the other of starch at (m/v). Subsequently, they were mixed at a ratio of (1/1) m/m with ultra-turrax at a speed of 1600 rpm for 2 minutes; the amounts of protein and starch used were 2.5 and 5%, respectively. Later, different percentages of oregano essential oil (0.05%, 0.1% and 0.15%) were added. To determine the inhibition of the Botrytis Cinerea fungus, the growth ring was measured in a Petri dish. The percentage of inhibition of Botrytis Cinerea was 85% and 90% for the percentages of EA addition of 0.1% and 0.15%, respectively. Concerning the application in strawberries, it has been possible to determine that the edible coating has managed to increase the shelf life of the strawberry by nine days at refrigeration conditions of $4\pm 0.2^{\circ}\text{C}$. In general, it can be concluded that it is possible to formulate an edible coating with cassava starch, whey protein, and essential oil of oregano to inhibit the growth of the fungus Botrytis cinerea, which has the potential to be applied to strawberries, to increase the yield shelf life of the same and therefore improve both the Colombian and international markets.