ANTIOXIDANT ACTIVITY OF EDIBLE FILMS DEVELOPED WITH PECTIN OF TEJOCOTE

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Introduction. The edible and biodegradable films can be used to extend shelf life of food perishable. The pectin of tejocote can be used elaborate this biofilms. The objective of this work was to evaluate the antioxidant and chelating activity of edible biofilms during the storage at refrigeration temperature (4°C)

Methods. In Tlaxcala, México, 10 kg of Tecojote were collected in November and December months. Samples were taken and proximal chemical analysis was made according to the AOAC (2002). Pulp was dried at 65°C during 24 h and its size was reduced until obtaining flour. Pectin of tejocote (PT) was made putting under the flour in an acid hydrolysis process with citric acid. Elaboration of biofilms was made using pectin of tejocote (1 y 5%), glycerol as plastificant in two levels 0.5 and 1% in combination with 1% of bee wax. At the same time biofilms with commercial pectin were developed (PC) to the same conditions. To the formed biofilms they were stored to 4°C during a month and every 5 days the antioxidant and chelating activities was determined. All the evaluations were made by triplicate.

Results. In Table 1 it was show the physicochemical analysis of Tejocote. It had a high carbohydrate concentration (17.6%).

Table 1. Physicochemical analysis of Tejocote

Analysis	Porcentage
Humidity	80.4
Ash	0.7
Fat	1.0
Carbohydrates	17.6

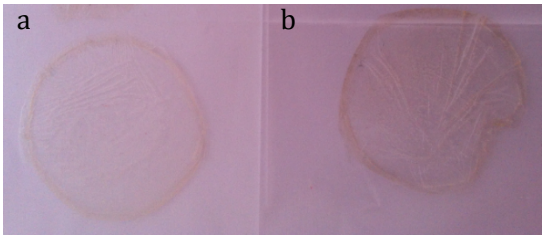

Fig 1. a) Biofilms with commercial pectin (PC) and b) pectin of tejocote (PT)

Figure 1 shows the biofilms of PC and PT. Antioxidant activity of the biofilms at the beginning of the study had initial values 20,4 and 12,2% of inhibition of the oxidation and at the end of 17,3 and 10,5% of inhibition. Whereas the chelating activity: 0,94% and 1,5% at the beginning and 1,05% and 1,48 in the end respectively. Statistical analysis showed significant differences between the initial and final values of types of pectin ($P< 0,05$). Also chelating activity showed significant differences between the types of pectin. In both treatments (biofilms of PC and PT) the levels of glycerol there were no significant differences. Nevertheless if there were them with respect to the levels of used pectin, being significantly different ($P< 0,05$).

Conclusions. The results showed evidences that the films elaborated from pectin of tejocote present greater antioxidant activity, than the made ones with commercial pectin.

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