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QUALITY OF HABANERO CHILI BY TEXTURE MEASUREMENTS: FRESH-CUT AND POST-HARVEST STUDY

Ramirez-Sucre M O¹, Baeza-Melchor T¹, Echevarria I² and Rodriguez-Buenfil I M¹

¹CIATEJ, Mexico

²CICY, Mexico

Texture is one of the most critical attribute when referring to crops maturation. In Mexico the Habanero chili (*Capsicum chinense*) of the Yucatan Peninsula achieves the appellation of origin (2010) which makes it susceptible for exportation. The compounds (like capsaicinoids) vary depending on the variety of chili, climate, maturation stage and type of soil. The aim of this study was to measure the texture in terms of hardness of 1) habanero chili fruits cultivated in three types of soils (lu'um): brown (Ch'ich), black (Box) and red (K'áankab) during the development of the plant/fruit, and of 2) orange chilies in a post-harvest study, for later correlation to the maturity state.

Materials & Methods: The hardness was measured using a downward compression polarity and a displacement and speed limit of 2.0 cm and 1.0 cm/min respectively, to chili fruits from greenhouse plants.

Results: Hardness was greater in fresh-cut orange chilies than in coloring (semi-mature) and green chilies, reaching average values of 50.0, 30.7 and 33.7 respectively, without significant differences between soils. However, a major production was observed in red soils (14 orange chilies vs. 8 of black and brown soils) (Fig. 1). The major hardness during storage was presented in 2nd week for black and red soils, rapidly than in brown soil (Fig. 2) Hardness of post-harvest study in commercial chilies showed a maximum of 52.2N in orange chilies, most of them remained green (Fig. 3). The hardness incremented even in old chilies (up to 98N) with an elastic and hard-to-penetrate skin.

Conclusion: Habanero plants develop texture with time in fresh-cut fruits. Two weeks were enough for the fruit hardness development (>50N). Hardness is recommended to measure chili texture until it reaches 50-60N; hardness more than 70N should be measured with a more sophisticated technique, registering the elasticity of the chili skin like texture profile analysis (TPA).

Biography

Ramírez-Sucre M O works on rheological/physicochemical evaluations. He was a member of the National Research System (Mexico) from 2013 to 2016. He is a Coordinator of the Strategic Alliance for the Sustainable Development of the South Pacific Region (ADESUR) in Acapulco, Mexico in 2016 which deals with added value of tropical fruits. He has been four years in charge of the food pilot plant in the Southeast Unit of CIATEJ. He held responsibility of 5 projects, two with technological developments. He has 8 international publications related to rheological and mechanical properties, one patent application (MX/a/2014/015444: Microaspiration Drying Process of the Hesperidin/Cyclodextrin complex) and one academic exchange (Institute of Agrochemistry and Food Technology, Valencia, Spain) for the study of protein-hydrocolloid interactions. He guided 4 theses and he is coordinator of various subjects (Food Physics, Food Chemistry, and Economic Engineering).

oramirez@ciatej.mx