PROCESSING CHIRONJA[1]

The chironja is a new type of citrus described by Moscoso.[2] It has its own characteristics as to color, size, outer appearance, and flavor. Aside from its use as highly desirable fresh fruit, it offers great industrial potential for utilization in the preparation of fruit bars and rind in heavy syrup. A method for canning sections of chironja was developed by Benero and Carlo.[3] The processing characteristics of chironja are superior to those of bitter orange. The sections are sweet, thus can be canned in that form, while bitter orange sections cannot be canned because of bitterness. Chironja can be harvested throughout the year, while the bitter orange is seasonal. The rind of chironja requires a shorter pre-treatment than that of bitter orange to reduce bitterness.

Preliminary studies have been conducted on the preparation of a fruit bar, and chironja rind canned in heavy syrup. Fresh fruit for this purpose was lye-peeled by dipping in a boiling 10-percent sodium hydroxide solution, for 20 seconds, then washed in a rotatory vegetable washing machine, and finished by hand using nylon brushes. The peeled chironjas were quartered and the rind removed from the sections. The rind was cooked in boiling water for 3 minutes to soften the tissues, then soaked in tap water for about 15 hours, the water being changed two or three times during this period.

The fruit bars were prepared by grinding the rinds in a meat and vegetable grinding machine using a 1/8-inch hole die, then mixed with 1.17 times its weight of sugar and the pH adjusted to 4.0 with citric acid. The resulting mixture was then cooked to 70° Brix. The fruit bars were formed in frames 9 inches by 3¾ inches and dried in a tray dryer using warm air until a thin sugary crust formed.

For the preparation of the rinds in heavy syrup, the following procedure was followed: The rinds were mixed with 3 times their weight of a 30°-Brix sugar syrup adjusted to a 4.0 pH value with citric acid, and .07 percent of cinnamon sticks were added. The mixture was then cooked until the syrup reached 55°, canned in enameled tin cans 211 × 400 and processed for 25 minutes in boiling water.

The fruit bars and the rinds were submitted to a sensory evaluation to determine their acceptability level using a simplified method of the Kramer

[1] Manuscript submitted to the Editorial Board August 16, 1971.

[2] Moscoso, C. G., The Puerto Rican Chironja: The New Type of Citrus Fruit, Tropical Products Institute International Conference, Sept. 1969, London, England.

[3] Benero, J. R., and Carlo, L. A., Canning chironja sections, J. Agr. Univ. P. R. 49 (3): 388, 1965.

and Ditman Taste Panel.[4] Each sample was evaluated on a specific scale of five points where +2 indicated "very acceptable", +1 "acceptable," 0 "questionable," −1 "slightly unacceptable," and −2 "not acceptable." The fruit bar scored 1.4 points. The rinds in heavy syrup scored 1.05 points. These scores indicate high acceptability of these two new chironja products by the panelists.

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[4] Kramer, A., and Ditman, L. P., A simplified variable taste panel method for detecting flavor changes in vegetables treated with pesticides, Food Technol. 10 (3): 155–9, 1956.