

Effect of various levels of pasteurization, preservative and their combination on organoleptic evaluation of pomegranate juice stored at room temperature

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ABSTRACT

An experiment was conducted to study the effect of various levels of pasteurization, preservative and their combination on organoleptic evaluation of pomegranate juice during storage. The organoleptic evaluation for colour, flavour, taste and overall acceptability was carried out at 60 days of storage. It was observed that among the various levels of pasteurization maximum organoleptic score for colour, flavour, taste and overall acceptability was obtained with T_2 -70°C pasteurization, while among the various levels of preservative maximum organoleptic score was obtained with P_2 - sodium benzoate at 500 ppm and among the interaction effect maximum score was observed with T_2P_2 - 70°C pasteurization + sodium benzoate at 500 ppm.

Key words : Pasteurization, Preservation, Organoleptic evaluation, Pomegranate juice.

The fruits of pomegranate are mainly used for dessert and juice purpose. Pomegranate fruits are processed into various products like juice, syrup, beverage, confectionery and anardana. The seeds along with aril is crushed and juice is extracted and marketed as a fresh juice due to its excellent flavour, attractive fragrance, delicious taste and high nutritive and medicinal value. Production of juice from juicy arils of pomegranate proved to be one of the important method of value addition.

Preservation of fruit juice by heat is the most popular method. The method consists essentially heating juice to 100°C or slightly below for a sufficient time to kill microorganisms. Pasteurized juice and squashes have a cooked flavour. After the container is opened they ferment and spoil within a short period while juice preserved with chemical *i.e.* sodium benzoate can be kept for a fairly long time even after opening of the seal of the containers and there are large variation in sensory quality in each preservation method which ultimately causes a great set back to a pomegranate industry.

Therefore, it was felt necessary to study the effect of various levels of pasteurization, preservative and their combination on organoleptic evaluation of pomegranate juice during storage.

MATERIALS AND METHODS

The hand picked, firm and healthy fruits of uniform size and maturity, free from pests and diseases injuries, bruises and blemishes were obtained from instructional cum Research Orchard of the Department of Horticulture, Allahabad Agricultural Institute-Deemed University,

Allahabad. The fresh fruits obtained from the garden were subjected to physico-chemical analysis as per the procedure. These fruits were employed for the juice extraction.

The experiment was laid out in 4 x 4 factorial design with three replications in P.G. Research laboratory, Department of Horticulture, Allahabad Agricultural Institute Deemed-University, Allahabad during the year 2006-2007 to study the effect of various levels of pasteurization, preservation and their combination on organoleptic evaluation of pomegranate juice during storage at room temperature. There were sixteen treatments and comprising of two factors with each of four levels one is pasteurization *viz.* T_0 - without pasteurization, T_1 -60°C pasteurization, T_2 -70°C pasteurization, T_3 -80°C pasteurization and another is preservative *viz.* P_0 -Sodium benzoate at 0 ppm, P_1 -Sodium benzoate at 400 ppm, P_2 -Sodium benzoate at 500 ppm and P_3 -Sodium benzoate at 600 ppm. The treated juice was kept for 60 days of storage and juice was used as such for organoleptic evaluation. The colour, flavour, taste and overall acceptability were recorded by the panel of minimum 7 judges using a 9 points Hedonic Scale (Amerine *et al.*, 1965) as : 9. Like extremely, 8. Like very much, 7. Like moderately, 6. Like slightly, 5. Neither like nor dislike, 4 Dislike lightly, 3. Dislike moderately, 2. Dislike very much, 1. Dislike extremely. The overall rating was calculated by averaging the score. Samples obtaining a score of 5.5 and above were considered as acceptable.

The data recorded during the course of the investigation were subjected to statistical analysis as per