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Effect of packaging and storage temperature on storage behaviour of ready-to-serve beverage of fallen unripe mango fruits

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ABSTRACT : The pulp of two varieties *viz.*, Keshar and Local was used to prepare beverages with 15 per cent pulp, 15^{0}Brix TSS and 0.30 per cent acidity and this beverage was treated with three packaging materials *viz.*, glass bottle, standing pouch and PET bottle and storage temperatures *viz.*, cold (5-7^{0}C) and ambient (28-32^{0}C). The data regarding physico-chemical parameters *viz.*, TSS, acidity, pH, total sugars, reducing sugars, non reducing sugars, microbial count and organoleptic evaluation were recorded at an interval of 15 days. Increase in TSS, pH, total sugars, reducing sugars and microbial count, while decrease in acidity, non reducing sugars and ascorbic acid was observed in irrespective of variety, packaging materials and storage temperatures. The rate of decrease was found to be more in beverage stored in standing pouch and PET bottle at ambient temperature as compared to glass bottle at cold storage (5-7^{0}C). The beverage of Keshar variety packed in glass bottle and stored at 5-7^{0}C had maximum acceptability over rest of the treatments.

KEY WORDS : RTS, Packaging, Storage temp., Physico-chemical properties

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Mango is one of the few with which can be utilized in all stages of maturity, from immature unripe stage or in the fully mature and ripe stage. However, during fruiting, it has to face discouraging elements like strong winds, hail, storms, nutritional imbalance, lack of fertilization, embryo abortion, pest and disease pressure etc (Malte *et al.*, 2009), leads to heavy fruit drop before reaching maturity, which causes serious loss to grower. Such losses can be minimized to greater extent by utilizing the dropped fruits for preparation of processed products like amchur, mango slices, pickles. Preservation of mango fruits juice helps in utilizing the blown off, unripe fruits by preserving it in different ways and the grower get a good return. Availability of good quality RTS beverage fulfills the nutritional demand of consumers. Along with quality processing, value of consumption is required to minimum by reducing the cost of packaging and storage, by using proper packaging material and storage conditions. Hence, the present research work was undertaken to study the storage behaviour of unripe mango RTS beverage with respect to different packaging material and storage temperatures.

RESEARCH METHODS

The present investigation was conducted at Post Harvest Technology Unit, Department of Horticulture, Mahatma Phule Krishi Vidyapeeth, Rahuri, Dist-Ahmednagar, Maharashtra, during the year 2009-10. The fallen, unripe and uniform sized fruits of mango cultivars 'Keshar' and 'Local' cultivar were collected. The average weight of fruit was 310 g and 390 g, average pulp percentage 56 per cent and 60 per cent in Keshar and Local cultivar, respectively. Diseased, spoiled and pest infested parts of fruits were scrapped by using sharp knife. Selected fruits were washed under tap water to remove dust and foreign materials and then used for pulp extraction