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Standardization of the suitable method of extraction of pomegranate juice

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Pomegranate (*Punica granatum* L.), a small fruit tree belongs to family punicaceae. It is one of the favourite table fruits of tropical and subtropical regions where it has enjoyed the consumers patronage for its healthy dietetic and medicinal properties. Pomegranate with hardy nature having wide adaptability, low maintenance cost and possibility to throw the plant in to rest period when irrigation potential is generally low has become most popular fruit crop among the growers of Maharashtra and adjoining states of Andhra Pradesh, Karnataka and Gujrat.

In India, post harvest losses are estimated to be more than 25per cent and only about 1 to 2% of total fruits are processed. However, with increase in area and production of pomegranate, there are often gluts in the market for wants to quick and efficient transport, communication and storage facilities. Pomogranate fruits could be processed into different products like bottle juice, syrup, jelly, anardana etc. However, the extraction method of juice of pomegranate has not yet been standardized for market purpose with this objective the present investigation entitled. "Standardization of the suitable method of extraction of pomegrahate juice" was conducted at the Department of Horticulture, Allahabad Agricultural Institute Deemed, University, Allahabad during 2006-2007.

Pomegranate fruits of Mrig bahar were obtained from instructional cum research orchards of the Department of Horticulture, Allahabad Agricultural Institute, Deemed University, Allahabad. These fruits were employed for the juice extraction which included one methods of fruit preparation and five methods of actual juice extraction. The juice was extracted by cold method *i.e.* normal temperature in which the grains were separately passed through screw type juice extractor to obtain the juice and by hot method in which grains were crushed separately and subjected to various heat treatments at 30^{0}C, 40^{0}C, 50^{0}C and 60^{0}C in order to obtain the juice recovery, sugar and pigment then the grains were passed separately through screw type juice extractor, before it cooled down, to obtain the juice. The juice and pomace obtained by various methods of extraction were weighed separately and the physico-chemical analysis of the juice was carried out. The method of extraction of juice from pomegranate fruit was standardized on the basis of yield, pigment content and acceptance point of view.

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Recoveries and losses of pomegranate juice extracted by cold and hot extraction methods :

The data on recoveries and losses of pomegranate juice extracted exclusively from the grains by cold and hot extraction method have been shown in Table 1. It was clear from the data that the juice content from the grains was comparatively higher in hot method than the cold method of juice extraction. Among the various juice extraction methods, maximum juice content and minimum pomace was found in hot extraction method at 40^{0}C followed by at 50^0 C and minimum juice contain and maximum pomace was found in cold extraction method. Uncounted losses were found more or less similar in both extraction methods except at hot extraction method at 40^{0}C in which the lowest losses were found as compared to other methods. In hot methods, the juice yield was found to be comparatively higher than cold method of juice extraction and among the various treatments (30^{0}C, 40^{0}C, 50^{0}C and 60^{0}C) given for juice extraction, the juice yield was observed to be maximum at 40°C. It was interesting to note that the juice was found to be lightly reduced at temperature higher than 40°C. Thus hot extraction method at 40°C was most effective. Similar results were also obtained by Khurdiya and Anand (1981) in case of phalsa, juice and Deshmukh (1991) in case of pomegranate fruit juice.

Table 1 : Recoveries and losses of pomegranate juice extracted exclusively from the grains by cold and hot extraction methods

Constituents	Juice extraction method				
	Cold	Hot (^{0}C)			
	(normal temp.)	30	40	50	60
Grain (%)	71.76	74.22	73.90	72.54	73.52
Rind (%)	28.24	25.78	26.10	27.46	26.48
Juice recovery (%)	49.66	54.75	60.21	56.00	55.69
Pomace (%)	13.94	10.10	5.70	8.12	8.30
Uncounted losses (%)	8.16	9.37	7.99	8.42	8.95