IJPPHT International Journal of Processing and Post Harvest Technology
Volume 3 | Issue 1 | June, 2012 | 137-141
RESEARCH PAPER

Effect of different juice extraction methods on the quality of pomegranate juice

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SUMMARY : Effects of different pomegranate juice extraction methods on quality and stability of pomegranate juice were evaluated. Hand press method, mechanical extraction using screw type hand juicer and electrically operated fruit juicer and machine extraction using electrically operated hydraulic basket press methods were used for extraction from manually separated arils of pomegranate fruit cv. BHAGWA. Extracted juice was analyzed for physicochemical and sensorial parameters *viz.*, juice recovery, specific gravity, pH, TSS, acidity, sugars, phenols anthocyanins, antioxidant activity, colour, flavour, taste and overall acceptability. Microbial limit tests were also carried out. Screw type hand fruit juicer with fiber molded crusher gave highest per cent juice recovery on fruit and aril weight basis. It also recorded maximum anthocyanin content (85.815mg per 100 g fruit wt.) and sugars (16.818 %) in juice. Highest overall acceptability score (8.607) with low microbial population (7.95 x 10^3cfu/ml juice) was observed with this method. Hand press method recorded maximum acidity (0.42%), TSS (15.75^{0}Brix) and specific gravity (1.136) in juice. Juice extraction by electrically operated basket press gave the maximum percentage (0.290%) of total polyphenols. The lowest pH of juice was recorded in hand press extraction.

Key Words : Pomegranate juice, Extraction methods, Anthocyanin, Polyphenol, Antioxidant activity

How to cite this paper : Dhumal, S.S., Karale, A.R., Chavan, U.D., Masalkar, S.D., Mangave, K.K. and Jadhav, S.B. (2012). Effect of different juice extraction methods on the quality of pomegranate juice, *Internat. J. Proc. & Post Harvest Technol.,* **3** (1) : 137-141.

Research chronicle : Received : *09.05.2012;* Sent for revision : *24.05.2012;* Accepted : *10.06.2012*

Pomegranate (*Punica granatum* L.) is a highly seasonal, favourite table fruit with a high level of production and is referred as 'superfruit' because of its high nutritive value, antioxidant capacity, bioactive compounds and high consumer appeal. Pomegranate fruit has been regarded as a food medicine of great importance for therapeutic purposes (Sadeghi *et al.,* 2009). Globally, there has been remarkable increase in the commercial farming of pomegranate due to the potential health benefits of the fruit. Excellent flavour, nutritive value and medicinal properties of pomegranate fruit indicates its good potentiality for processing into value added products having extended shelf life. Minimally processed pomegranate and the pomegranate juice presents a more appealing produce to consumers than whole fruit. The juice from the pomegranate is one of the nature's most powerful antioxidants. It can be used in beverages, for jellies, as flavouring and colouring agents and for dietetic and prophylactic treatment purposes (Magerramov, 2007). Though there is a great potential of pomegranate derived products like juice, the industrial processing of the pomegranate is scarce due to lack of technological development. Hence, the present investigation was undertaken to develop the pomegranate juice processing technology by using different juice extraction methods and studying their effect on the quality and stability of the pomegranate juice.

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EXPERIMENTAL METHODS

Pomegranate fruits cv. Bhagwa were washed under tap