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Assessement of Physico-Chemical Characterstics of Pomegranate

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ABSTRACT

The objective was to evaluate physical and chemical properties of pomegranate accessions For our research Ganesh variety has collected from vijayapu surrounding area and the fruit should be free from pest and diseases, dust particles and post harvest losses. The fruits should be stored at refrigerator for about 10 to 15 days. The present study was carried out in the department of Food Processing and Nutrition, Akkamahadevi Women's University, vijayapur, Karnataka. Accessions showed high variability in fruit that is Shape, Fruit color, Color (aril), Size (mm), Thousand arils weight (gm) and number of arils. Nutrient composition of Pomegranates fruitcan also evaluate in this present study. Pomegranate fruit is light yellowish red to dark red in color, round shape and width (90mm) with thousand aril weight (460g) and number of arils (400).The nutrient composition of Carbohydrate, Moisture, Protein, Fat , Iron and Vit-C is 35.3g, 1.47% , 2.83g , 0.4g , 3.31mg, 29mg respectively.

Key words: *Vit-C, Pomegranate, Apple, Balusta*

INTRODUCTION

The pomegranate has been grown since ancient times for its delicious fruit and as ornamental plant for its dwarf stature , red, orange or occasionally creamy yellow colour flowers. It is also known as "Chinese apple/apple of carthage/apple with many seeds. The word pomegranate derived from pomum (fruit) and granates (seeded) and morphologically its known as "Balusta" widely cultivated thought India.

As a commercially crop, pomegranate is widely cultivated in Maharashtra, Karnataka, Andhra Pradesh, Uttar Pradesh, Gujrat, Rajsthan, Tamil nadu and some parts of Jammu & Kashmir. It is a crop of tropical and sub – tropical regions. India ranks 1st in production with 8.07 lakh tones in world with area of 1. 09 lakh hacter with productivity of 7.40 tones/ha[3]. Maharashtra, called as a "Pome basket of India" which covers 0.82 lakh hacter area (75%) with the production of 5.50 lakh tones (68%) of the total pomegranate production in the country more than 90% of the fresh produce is utilized for domestic fresh consumption and export.

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In global market Spain (45%) and Iran (15%) competes India in international market.

The chemical composition of the fruit differs depending on the cultivars, growing region, maturity, cultivation practices, climate and storage circumstances. Plant produces low molecular weight compounds "phytochemicals" usally as a mechanism of defense. about 50% of the total fruit weight corresponds to the peel, which is an important sources of bioactive compounds such as phenolics, flavonoids, elagitannins and proanthocyanidin compounds .minerals mainly potassium, sodium, calcium, phosphorous, magnesium and nitrogen. The edible part of the pomegranate fruit (50%) consists of 40% arils and 10% seeds. Arils contain 85% water ,10% total sugars mainly fructose and glucose,1.5% pectin, organic acid such as ascorbic acid ,citric acid, malic acid and bioactive compounds such as phenolics and flavonoids. Principally anthocyanins 12-20% of the total seed weight of pomegranate comprises seed oil and is self possessed with more than 70% of the conjugated isomer unique to pomegranate oil contributes 70-76%of seed oil[14].

MATERIAL AND METHODS

The present study was carried out in the department of Food Processing and Nutrition, Akkamahadevi Women's University, vijayapur, Karnataka. The study was aimed to assess the physico-chemical characteristics of pomegranates

Procurement of pomegranate fruit.

Fresh pomegranate fruits were readily available in tropical and sub tropical area around the year. For our research Ganesh variety has collected from vijayapu surrounding area and the fruit should be free from pest and diseases, dust particles and post harvest losses. The fruits should be stored at refrigerator for about 10 to 15 days .Before preparation of any product the fruit should be cut into two halves and separate aril from rind by hand

Physical properties of pomegranate fruit.

Physical appearance of grain is an important characteristics which determines consumer acceptability, hence the physical characteristics of pomegranate fruit like, colorshape and size were visually observed. Counting of aril per fruit and moisture is evaluated in folloeing procedure.

Nutrient composition of Pomegranate fruit

Estimation of Moist: A known sample was weighed into a previously weighed moisture cup and dried in an oven at 60C to a constant weight

Estimation of protein: The nitrogen content of the grains was assessed by Kjeldahl method using Pelican Kelplus equipment. Crude protein was calculated by multiplying with a factor 6.25.

Estimation of Fat: Moisture free flour samples were weighed in moisture free thimbles and crude fat was extracted by refluxing with petroleum ether in a Soxhlet apparatus. Per cent crude fat was calculated as follows:

Estimation of Carbohydrate: Carbohydrate content was calculated by differential method.

Carbohydrate (g/100g) = 100-(protein + fat + fibre + ash + moisture)

Estimation of fibre: The sample of the fibre was estimated by using moisture and fat free samples and expressed as gram/100 g of the sample

Estimation of Iron: The iron in the mineral extract was estimated by Wong's method given by Raghu Ramulu *et al*.,

Estimation of Calcium: A simple titrimetric method is described for the estimation of Ca and Mg carbonates in soils. It involves the determination of acid-soluble Ca and Mg of the carbonate phase after the removal of soluble and exchangeable cations by ammonium acetate (NH4OAc). 26 tropical soils, which contain free carbonate, were used in this study

Estimation of Vitamin C: One way to determine the amount of vitamin C in food is to use a redox titration. The redox reaction is better than an acid-base titration since there are additional acids in a juice, but few of them interfere with the oxidation of ascorbic acid by iodine.

RESULTS AND DISCUSSION

Table 1. Physio - chemical characteristics of Pomegranate fruit

Parameter	Characteristics/quantity
Shape	Round
Fruit color	Light yellow to red color
Color (aril)	Red
Size (mm)	80 to 100
Thousand arils weight(gm)	460
Number of arils	350 to 450

Pomegranate is considered as one of the ancient fruitt.Pomegranate owing to its superior nutrient composition and nutritional quality in terms of carbodrate and iron along with health benefits. The present investigation was under taken to assess the physico chemical characteristics.

Pomegranateis a many seeded fruit exhibiting minute variation in color, weight, size and shape. Pomegranatefruit is light yellowish red to dark red in color. After separation of rind, the aril size is small with thousand aril weight .The arils are red in color.

Table 2. Nutrient composition of Pomegranates fruit

Nutrient	**Quantity**
Moisture	1.47%
Protein	2.83g
Fat	0.4g
Carbohydrate	34.5g
Iron	3.31mg
Calcium	29mg
Vitamin-C	0.2mg

All values are for 100g of sample

Pomegranate arils are good source of carbohydrate (34.5 g),and protein(2.83mg). In minerals it is the good source of calcium (29mg) and iron (3.31mg) .

Nutritive valueof provide Pomegranateessential macro and micro nutrients, the nutrient composition of carbohydrate, moisture, protein, fat , iron and vit-C is 35.3g, 1.47%, 2.83g, 0.4g, 3.31mg,29mg respectively.Pomegranate fruit hasa excellent nutritional quality ideal for inclusion in the daily diet for health benefits.

CONCLUSION

Pomegranate fruit is one the ancient fruitof the world. In India, different varieties ofpomegranatewere grown at different states at different environmental conditions. Pomegranatefruit is rich source of carbohydrate, polyphenols and antioxidant and minerals.

Pomegranate fruits were evaluated for physico chemical properties employing standard procedure. Pomegranate fruit is light yellowish red to dark red in color, round shape and width (90mm) with thousand aril weight (460g) and number of arils (400).

Nutrsient composition of pomegranate fruit provide essential macro and micro nutrients, the nutritional analysis is estimated by AOAC method.Thenutrient composition of Carbohydrate, Moisture, Protein, Fat , Iron and Vit-C is 35.3g , 1.47% , 2.83g , 0.4g , 3.31mg, 29mg respectively.

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