

# Studies on Physico-Chemical and Quality Materials in Fruits of Guava (*Psidium Guajava L.*) Pomace

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**Abstract**—Presents investigations revealed the physical and chemical attributes for qualities and pomace in fruits of guava cultures (I-VII). Physical parameters revealed variations in contents of different characters. Guava fruits pomace have waste material revealed to give its fibre as a useful material. It was found that waste material in considerable quantity will give profitable fibre along with the other valuable stems.

**Keywords**— Guava, waste, varieties, pomace, parameters, cultures.

## I. INTRODUCTION

Guava (*Psidium guajava* L.) belongs to the family myrtaceae. Its fruits have a lot of nutritive values of health benefits (Teaotia, 1967; Singh, 2008). Its vitamin C content is a natural promising quality with variable range in fruits. Beside, guava has a wide adaptability in soil and climatic conditions (11). Different varieties/cultures have been growing in various regions in different states of India (Teaotia, 1967; Singh, 2003; Mahur *et al.*, 2012). In fact it is an important fruit crop which gives a remunerative commercial yield as fresh fruits and its value added products are famous in Indian and foreign markets (16-19). Products have a lot of export potential scope for foreign exchange earning (7-11, 13, 14, 15-18). pH, Acidity pulp and their own role for quality of fruits and its products (Singh, 2005; Siddique and Farruqui, 1959). Total soluble solids and sugar contents in guava fruit have great importance for quality parameters which reflect its valuable value in digestibility dietary qualities (Teaotia, 1964; 1986; Singh, 2005; Pandey *et al.*, 2002). With the view of its importance of fruit characters and quality, present studies were conducted on selected cultures of guava fruits from river bed area of ganges.

Vitamin 'C' and sugar contents in fruits of different varieties brought it at promising position for its potential sources for industrial products (Shankar *et al.*, 1967; Prasad, 1970; Singh, *et al.*, 2008). In recent years guava products got tremendous importance in its use in Indian and foreign markets (Siddique and Faruqui, 1959; Pandey *et al.*, 2002; Singh and Jain, 2007). It has been advocated that the best quality of guava fruits are produced in Uttar Pradesh and maximum by product are prepared while a large quantity of waste material is discarded and thrown out which has importance for preparing useful products (Teaotia *et al.*, 1962; Singh, 2003). In fact certain quality parameters have interlinked association for their, attributing role in growth, development and proper maturity of fruits (Kumar, 2005; Singh, 2006; Singh and Rao, 2015). Dietary Fibre available in

fruits plays an important role in digestion of food in stomach (4). It promotes different physiological process. Certain juices in digestion process and metabolic functions also get positive responses to dietary fibre action (Cercea Bencins, 1986; Yaga and Gagus, 2008, 2009).

## II. MATERIAL AND METHODS

Guava fruits were collected from six years old trees of 4 cultures growing in the river bed area of Ganges in Kanpur. All fruits taken from cultures I, II, III, IV, V, VI and VII were brought and studied in state Institute of Food Processing Technology, Directorate of Horticulture and Food Processing, Lucknow during 2017. pH, sugar, T.S.S. were estimated by the method of Ranganna (1986), reducing sugar was estimated by Lane and Eynon (2013). Quality parameters were estimated by the methods of A.O.A.C. (1, 23).

## III. RESULTS AND DISCUSSION

Data recorded in observations summarized in tables I-II showed considerable important quality parameters of guava cultures. Fruit size, weight, total soluble solids, pulp content etc. traits revealed physical firmness in appearance. Pulp content with its thickness and pomace were observed variable considerably in different guava cultures. Variable physical firmness was found to give waste material for pomace which will give by product to be utilized in dietary purpose. Present results are in accordance of variation with the findings reported by Singh (2005), Singh and Jain (2007) and Teaotia (1986) in guava fruits in varieties under their climatic conditions.

Acidity, total soluble solids, reducing, non-reducing and total sugars, pH contents were also found in variation. It has been reported as quality improving attributes with other parameters for improving taste of fruit and also in certain guava products by Siddique and Farouqui (1959), Singh *et al.* (2008) and Sindhu *et al.* (2009). Variations in quality parameters has also been reported by the scientists in their investigations (Kumar, 2005; Mahur *et al.*, 2013). Different physico-chemical parameters have correlation for quantitative and qualitative aspects have also been mentioned by Singh (2006) and Singh and Rao (2015).

Pomace of guava fruits can be used as by product. Its extruded material will give certain fibre products which will be beneficial in dietary system (12, 24). It has been observed in positive in digestion as fruit fibre (Mumtaz, 1994) (Gomez and Anguler, 1981; Dehghan *et al.*, 2010).

TABLE I. Physical attributes of guava fruit.

Sl. No.	Cultures Name	Fruit Size		Fruit Weight (g)	Pulp content (%)	Pulp thickness (cm)
		Length	Diameter			
1.	Culture I	8.37	8.55	225.40	90.47	1.35
2.	Culture II	7.32	6.30	170.15	85.60	1.65
3.	Culture III	9.13	5.35	155.35	89.40	1.92
4.	Culture IV	8.97	8.82	120.30	93.25	1.31
5.	Culture V	3.70	3.75	41.15	87.35	0.86
6.	Culture VI	7.85	7.12	227.50	94.15	1.32
7.	Culture VII	6.21	6.10	161.45	92.35	1.28
	<b>C.D.</b>	<b>0.456</b>	<b>0.883</b>	<b>1.805</b>	<b>3.397</b>	<b>0.206</b>

TABLE II. Fruit quality attributes in cultures.

Sl. No.	Cultures Name	T.S.S. (%)	Acidity (%)	Total sugar (%)	Reducing sugar content (%)	Non Reducing sugar (%)
1.	Culture I	21.455	1.043	9.583	7.538	4.20
2.	Culture II	16.852	0.490	9.015	7.620	8.733
3.	Culture III	15.715	0.425	14.217	8.785	5.750
4.	Culture IV	18.470	0.457	10.325	3.682	5.515
5.	Culture V	13.950	1.313	9.727	7.833	5.690
6.	Culture VI	14.715	0.933	12.640	5.842	5.465
7.	Culture VII	14.460	0.837	12.482	7.850	5.350
	<b>C.D.</b>	<b>1.4566</b>	<b>0.2805</b>	<b>0.4832</b>	<b>0.3864</b>	<b>0.3834</b>

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