



## Evaluation of Seedless Grape Varieties for Raisin Making

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### ABSTRACT

Physico-chemical characteristics of seven commercial seedless grape varieties were evaluated for raisin making. The raisins prepared from seven varieties recorded the berry colour greenish yellow with ovoid elongated shape and the average bunch weight ranged from 151.66 gm to 344.66 gm, average berry weight ranges 1.70 gm to 2.26 gm and the berry diameter 14.33mm to 17.66mm, total soluble solids 20.26° Brix to 23.43° Brix, Acidity 0.47% to 0.71%, Ascorbic acid 1.20 mg/100g to 1.23 mg/100g, Total sugars 18.46% to 21.42%, Reducing sugars 17.31% to 19.65% and non reducing sugars 0.49% to 1.77%. Among seven cultivars Manik Chaman followed by Thomson seedless and A18/3 were found to be superior for Raisin making.

**Key words :** Seedles grapes, Varieties

Grape (*Vitis vinifera* L.) is an important in human diet in the form of fresh and canned fruit, fruit juice, concentrate, jelly, alcoholic beverage and raisins. Raisins are utilized in cooking for special flavour and taste. India is a leading grape producing country and already achieved a great success by producing world's finest grape with higher productivity level surpassing any other countries (Arve 1997). Raisin is the second most important product from grape next to wine. Increased production of grapes is posing the problem of its effective utilization. This has also brought problems in areas where low temperature facilities for storage and transport are not available resulting in loss of 25% of total production due to spoilage (Doreyappa Gowda 1998). Raisin making is one method by which we can preserve the grape. It was therefore proposed to study the physico-chemical characteristics of different seedless grape varieties for Raisin making.

### MATERIAL AND METHODS

Grape bunches with fully matured berries of seven varieties were collected during March 2010 from grape garden Viz. Grape Research Station, Rajendranagar, Hyderabad. The varieties are Fantasy Seedless, Crimson Seedless, A17-3, A18/3, K.R.White, Manik Chaman and Thompson Seedless. The bunches were harvested by scissors. All diseased, cracked, malformed and discoloured berries were sorted out and discarded. The berries

were thoroughly washed under running water for removal of adhering dust and foreign matter. The colour and shape of the berries were recorded by visual means. The diameter of fifteen berries was measured and the mean was expressed in mm. The fresh grape berries from different varieties were analyzed for the acidity, ascorbic acid, total sugars, reducing sugars and non reducing sugars using standard procedure (AOAC, 1965). Ascorbic acid was determined by using 2, 6- dichlorophenol indophenol dye (Ranganna, 1977). The data were analyzed statistically according to the procedure given by panse and Sukhatme(1985).

### RESULTS AND DISCUSSION

The berries of seven grape varieties used in the present investigation recorded that berries colour was black in fantasy seedless, reddish in Crimson seedless, greenish yellow in A17-3, K.R.White and Manik chaman, black in A18/3, and yellowish green to green in Thompson seedless which may be due to genotypic variation (Chadha and Shikhamany 1999). The shape of berries was round to ovoid in Fantasy Seedless, round in Crimson seedless, round to ovoid in A17-3, ovoid in K.R.White, round in A18/3, ovoid elongated in Manik chaman and Thompson seedless.

The average bunch weight in Fantasy seedless (171.33g), Crimson seedless (151.66g), A17-3 (126.00g), K.R.White (164.00 g), A18/3 (321.33g), Manik Chaman (344.66g) and Thompson

Table 1. Physico-chemical characteristics of fresh grapes of different varieties for raisin making.

Varieties	Berry colour	Shape of the berry	Avg. weight of bunch (g)	Avg. berry weight (g)	Berry diameter (mm)	TSS (Brix)	Acidity (%)	Ascorbic acid (mg/100g)	Total sugars (%)	Reducing sugars (%)	Non reducing Sugars (%)
T <sub>1</sub> – Fantasy seedless	Black	Round to ovoid	171.33	1.88	14.40	20.53	0.54	1.30	20.07	19.58	0.49
T <sub>2</sub> – Crimson seedless	Reddish	Round	151.66	1.84	16.66	21.00	0.62	1.23	19.60	17.66	1.94
T <sub>3</sub> – A 17-3	Yellow colour	Round to ovoid	126.00	1.70	14.33	20.26	0.71	1.20	18.46	17.31	1.15
T <sub>4</sub> – K.R. White	Greenish yellow	Ovoid	164.00	1.70	15.33	20.76	0.59	1.20	19.71	17.88	1.82
T <sub>5</sub> – A 18/3	Black	Round	321.33	2.16	14.66	20.96	0.68	1.23	19.81	17.45	2.35
T <sub>6</sub> – Manik chaman	Greenish yellow	Ovoid elongated	344.66	2.26	17.66	23.43	0.47	1.23	21.42	19.65	1.77
T <sub>7</sub> – Thompson seedless	Yellowish green to yellow	Ovoid elongated	201.00	2.31	16.66	22.36	0.52	1.30	20.12	18.38	1.73
<b>Mean</b>			<b>211.42</b>	<b>1.98</b>	<b>15.67</b>	<b>21.32</b>	<b>0.59</b>	<b>1.24</b>	<b>19.88</b>	<b>18.27</b>	<b>1.60</b>
SE m ±			24.99	0.08	1.48	0.38	0.006	0.04	0.11	0.02	0.11
CD at 5 %			75.80	0.25	NS	1.18	0.019	0.14	0.34	0.08	0.35

seedless (201.00g). This variation is due to varietal character and may be due to climactic and soil condition of the locality reported by Wrinkle (1962). Due to genetic nature of the cultivars Thompson seedless recorded maximum berry weight (2.31 g) while K.R.White (1.70 g) and A 17-3 (1.70g) recorded minimum berry weight. The berry diameter ranged from 14.33mm to 17.66 mm.

The total soluble solids ranged from 20.26° Brix (A17-3) to 23.43° Brix (Manik Chaman) due to the presence of sugar content in the varieties. The Acidity content in these seven varieties ranged from 0.47% (Manik Chaman) to 0.71% (A17-3). This may be due to the total soluble solids of berries. The Ascorbic acid of these varieties ranged from 1.20 mg/100g (K.R.White and A17-3) to 1.30 mg/100g (Thompson seedless). All the varieties were in moderate to low ascorbic acid of recommended range (Doreyappa Gowda, 1998) for raisin making.

The total sugars, reducing and non reducing sugars ranged from 18.46% (A17-3) to 21.42% (Manik Chaman), 17.31% (A17-3) to 19.65% (Manik Chaman), 0.49% (Fantasy Seedless) to 2.35% (A18/3) respectively. This may due to the sugar content was directly proportionate to the total soluble solids of these grapes. (Mane *et al.* 2003).

The results obtained in present investigation indicated that the grape varieties were superior for raisin making by soda oil dip method.

#### LITERATURE CITED

AOAC 1965 Official method of analysis, Association of official analytical chemist, Washington. D C 12<sup>th</sup> Edition 31. Vol 54, 22:109.

- Arve V 1997** Grape Industry in India: Export strategy and constraints in: sovenir, international symposium on Recent Advances in Viticulture and Oenology. Andhra Pradesh, Grape Growers Association (APGGA), 14-17 FEB. Hyderabad, India. Pp.45-48.
- Chadha K L and Shikhamany S D 1999** 'The Grape' Improvement, production and post harvest management. Malhotra Publishing House, Delhi. 54-86.
- Doreyappa Gowda 1998** Advances in the improvement of raisin quality. *Indian food India*, 17; 218-223.
- Mane B B, Adsule R N, Charan U D and Kachare D P 2003** Evaluation of raisin making quality of some grape varieties grown in Maharashtra Agricultural University, 28 (3): 241-244.
- Panse V G and Sukhatme P V 1985** Statistical Methods for Agricultural Workers, I.C.A.R., New Delhi.
- Rangana S 1977c** Hand book of analysis and quality of fruit and vegetable product. Tata MC Graw Hill Company pp 3-13.

(Received on 10.09.2012 and revised on 20.12.2012)