

A COMPARATIVE STUDY OF CERTAIN FRUIT QUALITIES OF TWENTY PINEAPPLE VARIETIES

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The recorded cultivars of pineapple are many and varied (Collins, 1968). But commercially only one variety namely Kew' (Cayenne) is cultivated in large scale as it satisfies most of the commercial requirements such as cylindrical shape and ideal sugar acid blend of fruits, spineless nature of the leaves and better adaptability of the plants to varying climatic conditions. In spite of the above, Kew lacks certain other desirable dessert qualities viz. sweetness, flavour and crispness of the flesh. So if such qualities can be located in some other pineapple variety, there will be scope for initiating breeding programme to transfer such qualities to Kew variety to make it more cosmopolitan in commercial requirements.

Materials and methods

Eleven fruit characters in twenty pineapple varieties as listed in Table I were analysed during the fruiting season of 1975—1976 at the Pineapple Research Centre, Vellanikkara, Trichur. Five fruits from each variety from the germ plasm collection maintained in the Research Centre were selected at random for the analysis. The maturity of the selected fruits was kept at uniform level by fixing the date of harvest at 125th day after the appearance of the inflorescence bud.

Of the total eleven fruit characters studied, five namely colour of flesh, texture of flesh, sweetness, flavour and juiciness determined by conducting organoleptic test. For determining the total soluble solids (T. S. S.) and acidity, three different samples were taken, one each from top, middle and lower portion of each fruit and the average was taken as the datum for one fruit. T. S. S. was found out by using a hand refractometer and expressed as degree of Brix. Acidity was estimated by titrating 10 ml of prepared fruit juice with N/10 KOH and expressed as per centage of tartaric acid.

Results and Discussion

The results are summarised in Table I. The details on each character studied are given below:-

1. Fruit weight

Kew produced significantly heavier fruits compared to all other varieties except 'Smooth cayenne' which is considered to be a synonym for Kew (Collins, 1968). So in yielding capacity Kew remained far superior to other varieties tested.

Table 1

Mean data on certain fruit characters of twenty pineapple varieties

Variety	Weight of the fruit (kg)	L/B ratio	Taper ratio	Diameter of the core (cm)	Colour of flesh	Texture of flesh	Sweetness	Flavour	Juiciness	T.S.S. (Brix)	Acidity (%)
Mauritius	0.577	1.44	1.00	2.00	Yellow	Crisp	Very sweet	Good	Medium	17.7	0.350
McGregor	0.504	1.66	1.04	1.45	Golden Yellow	Crisp	Very sweet	Very good	Scanty	16.7	0.352
Espinola Roja	1.100	1.19	1.10	2.02	Yellow	Crisp	Sweet	Good	Medium	14.8	0.371
Alexandra	0.600	1.11	1.30	1.50	G. Yellow	Crisp	V. Sweet	V. Good	Scanty	16.6	0.384
Ripley Queen	0.451	1.23	1.03	1.74	G. Yellow	Crisp	V. Sweet	V. Good	Scanty	17.6	0.345
Queen	0.423	1.17	1.03	1.60	G. Yellow	Crisp	V. Sweet	Good	Medium	18.7	0.384
Lakhat	1.400	1.30	1.10	2.65	Pale yellow	Medium	Sweet	Good	Plenty	15.7	0.352
Valerabalanga	0.800	1.35	1.00	1.75	G. Yellow	Crisp	V. Sweet	V. Good	Scanty	20.0	0.768
Valeramorada	1.187	1.66	0.945	1.75	White	Fibrous	Sour	Poor	Plenty	13.0	0.572
Conical	0.902	2.65	1.60	0.87	Yellow	Fibrous	Sour	Poor	Plenty	10.0	0.640
Pulimath local	1.700	1.42	1.07	1.65	G. Yellow	Fibrous	Sour	Nil	Scanty	10.7	0.412
Kallara local	0.597	1.34	1.17	1.13	Yellow	Fibrous	Sour	Nil	Medium	10.0	0.260
Assam local	0.300	0.90	0.80	1.30	Yellow	Fibrous	Sour	Nil	Medium	13.0	0.384
Simhachalam	1.275	1.05	1.00	1.40	Yellow	Fibrous	Sour	Medium	Medium	13.0	0.384
Selenor Green	0.950	0.90	1.10	1.10	Yellow	Fibrous	Sweet	Medium	Medium	14.0	0.192
Smooth cayenne	2.280	1.45	1.10	2.50	Yellow	Fibrous	Sweet	Good	Plenty	15.0	0.272
Taliparamba	0.875	1.34	1.00	1.50	G. Yellow	Fibrous	Sour	Medium	Plenty	12.5	0.384
Cayennalisa	0.960	1.40	1.00	1.50	Cream	Crisp	Sweet	Good	Medium	14.0	0.384
Charlotte Rothschild	0.388	1.25	1.05	2.10	G. Yellow	Crisp	V. Sweet	Good	Medium	16.5	0.416
Kew	2.800	1.60	1.12	2.00	Yellow	Medium	Sweet	Medium	Plenty	15.0	0.692
C. D. (.05) for comparison between the mean values.	0.610	0.43	0.38	0.64	Yellow	Medium	Sweet	Medium	Plenty	2.31	0.310

2. L/B ratio

The ideal L/B ratio for most profitable canning results is 1.5. Among the twenty varieties analysed for this character Kew, Valeramorada, Mauritius Smooth Cayenne, Pulimath local and Cayenalisa gave L/B ratios closes to the ideal one.

3. Taper ratio

The ideal taper ratio for the best canning results is fixed as 1. Except one variety namely 'Conical', all others gave taper ratios not significantly different from the ideal one.

4. Diameter of core

A narrow core is always an added attraction for any pineapple variety. The maximum core diameter was shown by Lakhat and the least by Selenor Green-

5. Colour of flesh

The most attractive flesh colour of pineapple which gives the best effect in canning is considered to be golden yellow. The flesh of the present commercial variety 'Kew' is having only an ordinary yellow colour. But varieties like McGregor, Alexandra, Ripley Queen, Queen, Valerabalanga, Pulimath local, Taliparamba, and Charlotte Rothschild were found having very attractive golden yellow flesh colour.

6. Texture of flesh

The crisp texture of flesh is considered a coveted dessert quality. Among the different varieties tested Mauritius, McGregor, Espinola Roja, Alexandra, Ripley Queen, Queen, Valerabalanga, Cayennalisa and Charlotte, Rothschild were having this quality while the flesh of other varieties were fibrous or medium fibrous.

7. Sweetness

The sweetness was found to be directly correlated with the T. S. S. Varieties like Mauritius, McGregor, Alexandra, Ripley Queen, Queen, Valerabalanga, and Charlotte Rothschild having T. S. S. value above 16 were found to be very sweet and those like Valeramorada, Conical, Pulimath local, Kallara local, Assam local, Simhachalam and Taliparamba having T. S. S. value 13 and below were found to be Sour and the rest like Kew, Lakhat, Selenor Green etc having T. S. S. value in between 13 and 16 were found to be sweet.

8. Flavour

Excellence in this character was shown by four varieties namely McGregor,

Alexandra, Ripley Queen and Valerabalanga. The commercial variety Kew was only medium in flavour..

9. Total soluble solids (T. S. S.)

Results showed that there was significant difference in total soluble solids among the varieties. Mauritius, Ripley Queen, Queen, and Valerabalanga were having a significantly higher level of T. S. S. over that of Kew, Conical, Pulimath local, Kallara local and Taliparamba.

10. Acidity:

Among the twenty varieties tested only five varieties namely Valerabalanga, Valeramorada, Conical, Pulimath local and Charlotte Rothschild showed an acidity level that was on par with that of Kew. In all other varieties the acidity was found to be significantly lower than that of Kew.

11. Juiciness

All those varieties which were crisp in texture were found to be scanty in juice content and the varieties which were fibrous in nature were abundant in juiciness.

Considering all the characters together Mauritius, McGregor, Alexandra, Ripley Queen, Queen, and Valerabalanga can be grouped as good table varieties while Kew as the best commercial variety suited for canning purposes. The one table variety 'Valera balanga' was found to have a superior sugar-acid blend as denoted by higher level of T. S. S. and acidity compared to Kew. This suggests that Valerabalanga can be used as parent for hybridization works to improve the fruit quality of Kew.

Summary

A study was undertaken to evaluate the fruit quality of twenty pineapple varieties during the fruiting season of 1975-76 at the Pineapple Research Centre, Vellanikkara, Trichur. In fruit weight, Kew was found to be far superior to all other varieties except Smooth Cayenne. But in certain other dessert qualities like colour and texture of flesh, flavour, sweetness and T. S. S. varieties like Mauritius, McGregor, Ripley Queen, Queen and Valerabalanga were found to be superior to Kew. The variety Valerabalanga was found to show a superior sugar-acid blend as compared to Kew. This suggests its use as a parent material in breeding works for further improvement of Kew.

സംഗ്രഹം

1975-76ൽ വെള്ളാനിക്കരയിലെ കൈതച്ചക്ക ഗവേഷണ കേന്ദ്രത്തിൽ വച്ച് 20 വ്യത്യസ്ത കൈതച്ചക്കയിനങ്ങളിൽ നിന്നു ലഭിച്ച ഫലങ്ങളുടെ ഗുണ മൂല്യ വിശ്ലേഷണം നടത്തുകയുണ്ടായി. ക്യാനിക്കരയിലുള്ള കൈതച്ചക്ക വാണിജ്യാടിസ്ഥാനത്തിലുള്ള കൈതച്ചക്ക കൃഷിക്കു ഇപ്പോൾ ഉപയോഗിച്ചു വരുന്ന 'കൃ' ഇനം തന്നെയാണു ഏറ്റവും മെച്ചമെന്നു ഈ പഠനം തെളിയിച്ചു. എന്നാൽ തീൻ മേശയിനങ്ങളായി മൗറീഷ്യസ് മക്ഗ്രിഗർ, അലക്സാണ്ടർ, റിപ്ലിക്സ്, 'കൃൻ', വലീറബലംഗ എന്നീ ഇനങ്ങളാണു ഏറ്റവും അനുയോജ്യമായിക്കണ്ടതു്. ഇവയിൽ 'വലീറബലംഗ' എന്ന ഇനത്തിന്റെ ഫലത്തിൽ ഉയർന്ന തോതിൽ മൊത്തം ലേയ വരവസ്തുക്കളും (T. S. S.) അമ്ളാശവും അടങ്ങിയിട്ടുണ്ടെന്നു കണ്ടതിനാൽ അതിനെ 'കൃ' ഇനത്തിന്റെ അഭിവൃദ്ധിക്കായി സങ്കരണ പരിപാടികളിൽ ഉപയോഗപ്പെടുത്താൻ പാറ്റമെന്നു തെളിഞ്ഞു.

REFERENCE

Collins J. L. 1968. The pineapple, Leonard Hill, London. 78-85 and 112.

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