

EVALUATION OF JACK FRUIT (TYPE 'VARIKKA') FOR PECTIN

Pectin, the methyl ester of galacturonic acid, is an important constituent of fruits and vegetables. In addition to its role in the preparation of jam and jelly the trend to utilize the galacturonic acid—the structural constituent of pectin — for the large scale synthesis of vitamin C have intensified the search for cheap raw materials popularly utilised for the preparation of pectin. Since these materials are not available in substantial quantities in tropical regions alternate sources are sought for. Damodaran and Rangachari (1945), Krishnamurti and Giri (1949) and Jain and Lal (1955) have suggested jack fruit as one among the possible sources of pectin in the tropics. However, there is no report on the content and qualities of pectin from jack fruit under tropical humid condition. Therefore, the present investigation was undertaken with an objective to evaluate the pectin in jack fruits collected from different parts of Kerala, a representative zone of tropical humid climate.

The experiment was conducted during the bearing season of 1978 and 1979, in the College of Horticulture, Kerala Agricultural University under the ICARAd-hoc Scheme on Jack. Fruits of the var. 'Varikka' (having crisp flakes) collected from five districts of Kerala namely, Trichur, Ernakulam, Idukki, Alleppey and Palghat were utilised for the study. Ripe fruits of uniform maturity were cut open and were separated into flakes, aborted flowers, seeds, skin and core. These materials were minced separately. Percentage of moisture of fruit portions, pectin (as calcium pectate), and methoxyl value of pectin were estimated by standard methods (Ranganna, 1977).

It is obvious from Table 1 that all fruit portions contained appreciable quantities of pectin, indicating that jack fruits under tropical humid condition are good sources of pectin. Jain and Lal (1955) also observed that peels, skins and cores of jack fruits are rich source of pectin. Since considerable amount of pectin is present in aborted flowers, skin and core which are practically wasted at present, it is suggested to utilize aborted flowers for the preparation of jelly whereas the skin and core may be exploited for the commercial extraction of pectin. The higher values of pectin in flakes emphasise the need for its utilization on an industrial scale for jelly making. Owing to the presence of pectin, seeds of jack fruit is likely to find alternate uses in the food processing industry in addition to its present demand for culinary purposes. Krishnamoorthy and Giri (1949) also emphasised the use of flakes and seeds for processing industries,

Based on the methoxyl values, jack fruit pectins are rated as low ester pectins (methyl content being 7%) and so are capable of forming gels in the presence of smaller quantities of divalent ions even when the solid content is very low. So the low ester pectins from jack fruit may find wide application in the preparation of low solid salads and desserts.

Table I
Moisture content and pectin characteristics of jack fruit collected from different parts or Kerala

Source of fruit (District)	Portion of fruit	Moisture (%)	Pectin characteristics	
			Pectin as calcium pectate (%)	Methoxyl value (%)
Trichur	A	80.38	3.21	2.87
	B	73.22	1.57	2.41
	C	25.02	3.06	2.06
	D	81.05	2.98	3.89
	E	76.80	1.95	2.62
Ernakulam	A	76.85	4.46	2.92
	B	70.63	2.66	2.68
	C	26.80	3.82	1.98
	D	76.86	2.86	3.16
	E	75.35	2.08	2.02
Idukki	A	83.92	5.24	2.64
	B	76.90	1.02	2.06
	C	31.08	4.14	1.92
	D	85.00	3.40	3.60
	E	80.12	2.16	2.54
Alleppey	A	79.42	5.80	2.52
	B	73.05	1.10	1.94
	C	26.28	4.60	2.10
	D	78.30	3.64	3.04
	E	76.60	2.12	1.96
Palghat	A	73.90	4.72	2.71
	B	69.48	1.68	2.12
	C	23.15	3.95	2.08
	D	74.50	3.05	3.52
	E	71.05	2.23	2.18
Mean	A	78.89	4.60	2.73
	B	72.66	1.61	2.64
	C	26.46	3.71	2.03
	D	79.12	3.19	3.44
	E	75.98	2.11	2.26
Range	A	73.90 - 83.92	3.21 - 5.80	2.52 - 2.92
	B	69.48 - 76.90	1.02 - 2.66	1.94 - 2.68
	C	23.15 - 31.08	3.06 - 4.60	1.92 - 2.10
	D	74.50 - 85.00	2.86 - 3.64	3.04 - 3.89
	E	71.05 - 80.12	1.95 - 2.23	1.96 - 2.62

A-Flakes

B-Aborted flowers

C-Seed

D-Skin

E-Core

Results of the present investigation clearly show that jack fruit under tropical humid condition, contains appreciable amount of high quality pectin. Accordingly jack fruit wastes viz., skin and core are suggested as efficient and cheap substitutes for apple pomace and citrus peel in the tropics for pectin extraction.

സംഗ്രഹം

കേരള കാർഷിക സർവ്വകലാശാലയിൽ ചക്ക ഗവേഷണ പദ്ധതി (ഐ. സി. എ. ആർ) യുടെ ആഭിമുഖ്യത്തിൽ നടത്തിയ പരീക്ഷണത്തിൽ ചുട്ടും ഈർപ്പവുമുള്ള ഉഷ്ണമേഖല പ്രദേശങ്ങളിലെ (ഉദാ: കേരളം 'വരിക്ക' ഇനം ചക്കയിൽ ചുട്ട, ചകിണി, കുരു, തൊലി, കൃഷ്ണ എന്ന് ഭാഗങ്ങളിൽ ഉയർന്ന അളവിൽ നല്ല ഗുണനിലവാരമുള്ള പെക്റ്റിൻ അടങ്ങിയിട്ടുള്ളതായി കാണുകയുണ്ടായി. തൊലിയും കൃഷ്ണതും ചകിണിയും വ്യാവസായികാടിസ്ഥാനത്തിൽ പെക്റ്റിൻ നിർമ്മിക്കുന്നതിനും ചകിണി ജെല്ലി ഉണ്ടാക്കാനും ഉപയോഗപ്പെടുത്താവുന്നതാണ്.

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