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Research Note

Variability and association among fruit traits in palmyrah (*Borassus flabellifer* L.)

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Abstract:
One hundred and twenty nine palmyrah genotypes were collected from various parts of India and Fruit characterization was done.. Variability parameters indicated that high variability exist for fruit weight (g) and weight of shreds (g). Moderate variability was observed for weight of seed. Low variability was observed for fruit length (cm), fruit diameter (cm), length of seed (cm), circumference of seed and weight of flesh (g). Hence all the characters except seed weight are good for further improvement through selection. The correlation studies for eight fruit characters indicated that all traits namely fruit weight (g), fruit length (cm), fruit diameter (cm), weight of seed (g), length of seed (cm), circumference of seed, weight of flesh (g) and weight of shreds (g) had significant and positive correlation. Hence simultaneous selection is possible for all these traits in Palmyrah.

Key words: Palmyrah, variability, correlation

Palmyrah (*Borassus flabellifer*. L) cultivation in India is confined to southern parts peninsular regions especially dry tracts. Production of this crop is now gaining popularity. According to Fisher (1918) the continuous variation exhibited by quantitative traits with which plant breeder includes heritable and non-heritable components. Variability always provides more possibility of selecting desired types (Vavilov, 1951). Selection is effective only for variations which are heritable in nature. The choice of parents, depends upon variability and proper selection for the desirable characters. The larger the variability in the material more will be the scope for improvement. Fruit component characters are of prime importance in classifying palmyrah varieties. Studies on diversity of fruit traits in palmyrah germplasm are meagre. Leaf area and floral biology studies were conducted by various authors (Rajendran *et al.,* 1990: Nambiar, 1954). So this effort was made to document the diversity of fruit characters in palmyrah.

The material in the present study comprised 129 genotypes of palmyrah from various parts of India. The observations were recorded on fruit components such as fruit weight (g), fruit length (cm), fruit diameter (cm), weight of seed (g), length of seed (cm), circumference of seed (cm), weight of flesh (g) and weight of shreds (g). Variability and correlation studies were done for fruit traits using SAS, software version 4.0.

The mean, range and variability for various characters are presented in Table.1. Variability parameters indicated that high variability exists for fruit weight (g) and weight of shreds (g). Moderate variability was observed for weight of seed. Low variability was observed for fruit length (cm), fruit diameter (cm), length of seed (cm), circumference of seed and weight of flesh (g). Hence all the characters except seed weight are good for further improvement through selection.

Correlations analysis revealed significant and positive association between all the characters studied. So selection based on one character will lead simultaneous improvement on other correlated character also. The genotypes with desirable characters can be profitably exploited in palmyrah breeding programme.

It can be concluded that a wide range of variability and significant differences between genotypes for various traits existed in the material studied. The results presented in this paper indicate that the accessions of palmyrah collected from all over India are important genetic reservoir of variability. Some of these landraces should provide interesting base

material for inclusion in breeding programmes to obtain varieties for use in similar local environments.

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Table 1. Phenotypic variability of fruit characters of palmyrah

Characters	Mean	Range	CV%
Fruit weight (g)	673.58	125-1676.0	49.28
Fruit length (cm)	16.44	10.50-23.50	17.45
Fruit diameter (cm)	36.32	23.23-51.75	15.83
Weight of seed (g)	164.29	128.4-195.6	8.25
Length of seed (cm)	13.78	10.0-19.20	14.36
Circumference of seed (cm)	18.17	10.45-24.50	17.55
Weight of flesh (g)	123.46	93.66-146.90	11.41
Weight of shreds (g)	32.66	18.50-46.30	20.39

Table 2. Correlation of fruit traits in palmyrah

	Fruit length (cm)	Fruit diameter (cm)	Weight of seed (g)	Length of seed (cm)	Circumference of seed (cm)	Weight of flesh (g)	Fruit length (cm)
Fruit weight (g)	0.8821*	0.8742*	0.9348*	0.7685*	0.8383*	0.7297*	0.7615*
Fruit length (cm)		0.7789*	0.9248*	0.8016*	0.8582*	0.7662*	0.7893*
Fruit diameter (cm)			0.8352*	0.6691*	0.7649*	0.6815*	0.7016*
Weight of seed (g)				0.8530*	0.8880*	0.7975*	0.8109*
Length of seed (cm)					0.8754*	0.8150*	0.8155*
Circumference of seed (cm)						0.8855*	0.8431*
Weight of flesh (g)							0.9386*

* significant at 5%