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GENOMIC CLASSIFICATION OF 25 BANANA CULTIVARS OF KERALA

It was Kurz (1865) who first put forth the idea of bispecific origins of the Indo-Malayan varieties of banana. But this suggestion was ignored until Cheesman's (1948) support. Later Simmonds and Shepherd (1955) proposed a scoring method to indicate the relative contributions of the two wild species viz., *Musa acuminata* and *Musa balbisiana* for the constitution of banana cultivars. Following this scoring method, Simmonds (1959) classified a large number of banana cultivars including 57 Indian clones into five different genomes, namely, AAAB, AAA, AAB, ABB and AAAA.

So far there is no published record of any such classification of banana varieties of Kerala other than the mentioning of some of the varieties in the annotated list of banana varieties given by Simmonds (1959).

The present study was undertaken at the Banana Research Station, Kannara, Trichur, Kerala, during the cropping season of 1975-76 in the germplasm collection maintained there. A score card of 25 selected banana cultivars of Kerala was prepared based on the scoring techniques of Simmonds and Shephered (1955). The scoring was done by observing the characters of five plants in each variety at appropriate periods of growth. The cultivars were then designated with appropriate genomic symbols following the key proposed by Simmonds (1959).

The results are summarised in Table 1. Of the 25 cultivars, eleven were found to be diploid and the rest triploids. Among the eleven diploids, only two cultivars namely 'Matti' and 'Chingan' were purely of *acuminata* origin whereas the others were of hybrid origin. Among the triploids, only three, namely, 'Chetty', 'Charamonthan' and 'Neyvannan' were of the ABB type showing a predominance of *balbisiana* characteristics whereas all others were of the AAB type showing predominance of the *acuminata* characteristics.

Of the 25 cultivars scored in this study, 13 were already classified in the annotated list given by Simmonds (1959) and the rest were subjected to the scoring method for the first time. Of the 1 3 varieties already classified by Simmonds, only 9 were found to be agreeable io the groupings made in the present study. The cultivars 'Nallachakarakeli', 'Vannan', 'Thenkunnan' and 'Sannachenkadali' which were grouped respectively under the AAA, AAB, ABB and AA genomic groups by Simmonds (1959) were now found to belong respectively to the AAB, AB, AB and AAB groups in the present study. It is quite evident that 'Nallachakkarakeli' and 'Sannachenkadali', which are of Indian origin could not be of purely *acuminata* genome. Since the cultivars 'Thenkunnan' and 'Vannan' are very similar in appearance and taste to 'Gnjalipoovan', 'Neypoovan' and 'Kodappanillakunnan', which all belong to AB group, they could not be of AAB or ABB genome.

Table 1

Score card and genome symbols of 25 banana cultivars

Sl No	Variety	Pseudostem colour	Petiolar canal	Peduncle	Pedicels	Ovules	Bract shoulder	Bract curling	Bract shape	Bract apex	Bract colour	Colour fading	Bract scars	Free tepal corrugation	Male flower colour	Stigma colour	Total score	GENOME
1	Nallachakarakeli	2	1	5	4	5	5	1	3	3	3	5	3	1	1	3	45	AAB
2	Anakomban*	2	1	1	4	5	5	1	3	1	1	1	1	1	1	1	29	AAB
3	Sannachengkadaly*	1	1	1	4	5	5	1	3	3	3	5	1	1	1	1	36	AAB
4	Ambalakadaly	4	3	5	3	1	1	1	3	3	3	5	3	1	5	1	42	AAB
5	Vadakkankadaii*	4	3	5	3	1	1	1	3	3	3	5	3	1	5	1	42	AAB
6	Pachachingan*	3	3	5	3	1	5	1	3	3	3	5	3	1	5	1	45	AAB
7	Chingan	4	2	1	3	1	1	1	1	1	1	1	1	1	1	1	21	AA
8	Matti	4	1	1	3	1	1	1	1	1	1	5	1	1	1	1	24	AA
9	Palayankodan	2	3	1	4	1	5	1	3	3	3	5	3	1	5	3	43	AAB
10	Mannan*	3	3	5	4	1	5	1	3	3	3	5	3	1	4	3	47	AB
11	Vannan	3	3	5	4	1	5	4	3	3	3	5	3	1	4	3	47	AB
12	Nendravannan	3	3	5	4	1	5	1	3	3	3	5	3	1	4	3	50	AB
13	Neyvannan	5	5	5	4	5	5	1	5	5	3	5	3	1	5	5	62	ABB
14	Pachanadan*	2	2	5	3	1	5	1	3	3	3	5	3	1	4	4	45	AAB
15	Karimkadali	3	3	5	3	1	5	1	3	3	2	1	3	1	1	4	39	AAB
16	Thiruvandapuram	3	1	5	3	1	5	1	3	4	3	5	3	1	1	4	43	AAB
17	Nendrapadatti	4	3	5	3	1	5	1	4	4	3	5	3	1	5	4	51	AAB
18	Chetti*	4	5	5	4	5	5	1	4	4	3	5	3	1	5	5	59	ABB
19	Charamonthan	4	5	5	5	5	5	1	5	4	3	5	3	1	4	5	06	AB
20	Neypoovan	4	3	5	3	5	1	1	3	4	3	5	3	1	4	4	49	ABB
21	Thenkunnan	3	3	5	4	5	1	1	1	4	3	5	3	3	4	4	49	AB
22	Kodappanilla-kunnan*	3	3	5	4	5	1	1	1	4	3	5	3	3	4	4	49	AB
23	Venneettukunnan	3	3	5	4	5	1	1	1	4	3	5	3	1	4	4	47	AB
24	Adukkan*	3	4	5	3	5	1	1	1	3	3	5	3	1	4	4	47	AB
25	Gnjalipoovan*	4	3	5	3	5	1	1	1	4	3	5	5	1	4	4	49	AB

* Varieties subjected to scoring for the first time

Of the 25 banana cultivars of Kerala studied, eleven were found to be of AAB origin, nine of AB origin two of AA origin, and three of ABB origin. This shows that majority of banana cultivars under cu ltivation in Kerala belong either to the AB or the AAB group. This suggests that for genetic improvement of the banana cultivars of Kerala, addition of more *acuminata* genes from the wild *acuminata* diploids like 'Pisanglilin' and 'Paka' might be attempted. These cultivars arealready being used as male parents in breeding (Shepherd, 1974).

സംഗ്രഹം

സിമ്മൺസിന്റെയും ഷെപ്പേർഡിന്റെയും (1955) അങ്കന സങ്കേതത്തെ അടിസ്ഥാനപ്പെടുത്തി 25 കേരളീയ വാഴയിrostra ളുടെ അങ്കന കാർഡ് raiajpr>:><9«>£<fcna^o ഓരോ ഇനത്തിനും ലഭിച്ച അങ്കത്തിന്റെ അടിസ്ഥാനത്തിൽ അവയ്ക്കു അനുയോജ്യമായ ജനിതക സിംബലുകം നൽകുകയും ചെയ്തു. ഗവേഷണ വിധേയമാക്കിയ 25 വാഴയിനങ്ങളിൽ, 11 എണ്ണം ദ്വിപ്ലോയ്ഡുകളും മറ്റുള്ളവ ത്രിപ്ലോയ്ഡുകളും ആണെന്നു കണ്ടു. കേരളീയ വാഴയിനങ്ങളിൽ ബഹുരൂപകഷവും AB അല്ലെങ്കിൽ ABB ഗ്രൂപ്പിൽപ്പെടുന്നവയാണെന്നു ഈ പഠനം സൂചിപ്പിക്കുന്നു. കേരളീയ വാഴയിനങ്ങളുടെ ജനിതക അഭിവൃദ്ധിക്കു അക്യൂമിനേറ്റ ദ്വിപ്ലോയ്ഡുകളായ 'പിസാങ്ങ്ലിലി'നും 'പക്കാ'യും ഉപയോഗിക്കാവുന്നതാണെന്നു കണ്ടു.

References

Cheesman, E. E. 1948. Classification of bananas III. C. *Kew Bull.*, 1948, 145-53.

Kurz, S. 1978 The banana; a pomological contribution. *J, agric. Hort. Soc. India*, 5, 112-68.

Shepherd, K, 1974. Banana Research at ICTA. *Trop. Agriculture, Trinidad,* 51, 74-96.

Simmonds, N. W. 1959 *Bananas,* Longmans, London, 67-226.

Simmonds, N. W. and Shepherd, K, 1955. The taxonomy and origins of the cultivated bananas. *J. Linn. Soc.Lond. Bot.,* 55, 302-12,

Banana Research Station
Kannara, Trichur 680652

R. GOPIMONY*

*Present address; Department of Plant Breeding, College of Agriculture, Vellayani Trivandrum 695 522

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