

POTENTIAL OF THE BLACK PEPPER CULTIVAR UTHIRENKOTTA IN THE HYBRIDIZATION PROGRAMME

The black pepper cultivar Uthirenkotta is being utilised as the female parent in the hybridization programme of pepper (*Piper nigrum* L.) more than any other cultivar, mainly because of its gynoeious nature. In addition, Uthirenkotta has long spikes, bold berries and comparative tolerance to drought. However, the number of developed berries per spike in Uthirenkotta is only a few, resulting in low yield. Because of the gynoeious nature, the open pollinated seeds collected from Uthirenkotta would be natural hybrids. As such, a large number of seeds are collected from Uthirenkotta to raise seedlings for screening later in the field. Information on the expression of yield and yield contributing characters in the plants resulting from open and artificial pollination of Uthirenkotta in comparison with the cultivar itself would be of interest to the breeders. The length of the spike, the number of berries per spike, berry yield and berry characteristics were observed from the open and artificially pollinated progenies of the cultivar. The study was carried out on the few vines available at the Pepper Research Station, Panniyur, Kerala. The number of vines studied during the different years varied. The number of seedling vines (resulting from open pollination) studied were 10, 8, 10 and 13 respectively during 1980, 1981, 1982 and 1983. During the same period, 18, 11, 13 and 11 seedlings resulting from artificial pollination were also studied. The male parents used were Balankotta, Cheriakaniakadan, Kalluvally, Karimunda, Kottanadan, Kuthiravaly and Panniyur 1. All the vines were planted during 1975 or 1976. The data on Uthirenkotta are the means of ten vines during ten years.

The data on open and artificially pollinated seedling vines of Uthirenkotta, as well as on Uthirenkotta vines are presented in Table 1. The hybrids (both natural and artificial), in general, produced shorter spikes; but with more number of berries per spike consequently giving more yield than Uthirenkotta. The volume and weight of the berries showed lower expression in the hybrids, on an average. Though majority of the hybrid seedling vines of Uthirenkotta were found to be inferior to the cultivar itself for spike length and berry size, it was possible to obtain hybrids with longer spikes and bolder berries. Some of the hybrids in the study gave greater expression of these characters than Uthirenkotta.

Path analysis conducted in pepper (Ibrahim *et al.*, 1985) has revealed that the effect of spike length on the yield was mainly through the number of berries per spike. The direct effect of the berry size on yield was considerably less than that of the number of berries per spike. Hence, the higher expression of this character observed in the hybrids in the present studies can be considered significant. Simultaneously, the breeder can search among his material for the one that combines the number of berries and berry size, as was the case with the first hybrid variety, Panniyur 1.

Table 1

Yield, spike and berry characteristics of Uthirenkotta and seedling vines of Uthirenkotta

Character		year								Mean	UK	
		1980		1981		1982		1983				
		OPS	APS	OPS	APS	OPS	APS	OPS	APS			
Spike length (cm)	Mean	8.2	9.4	8.8	11.9	8.5	10.7	10.2	10.7	8.9	10.7	12.3
	Range	7.4-	6.1-	6.9-	9.7-	5.0-	6.7-	6.6-	8.3-			
		9.4	14.9	10.3	14.2	14.9	18.0	13.4	12.8			
Developed berries per spike	Mean	27.5	30.9	29.0	39.6	29.9	34.2	34.4	38.3	30.2	35.8	5.0
	Range	14-43	15-57	9-47	17-68	10-72	11-66	23-69	21-66			
Underdeveloped berries per spike	Mean	5.8	8.4	4.5	5.1	3.1	3.3	3.0	2.9	4.1	4.9	3.6
	Range	3-8	2-26	2-7	1-13	0-10	0-12	0-7	0-8			
Green berry yield (g)	Mean	323	418	974	845	809	2184	624	1182	683	1157	310
	Range	25-790	32-2200	52-2120	125-3485	75-1885	110-8040	170-2090	110-2800			
100 berry volume (cc)	Mean	14.3	13.3	15.3	15.9	13.3	13.8	15.1	12.9	14.5	14.0	18.5
	Range	11-17	8-21	13-17	12-18	12-16	10.18	12-19	10-15			

OPS = Open pollinated seedling vines of Uthirenkotta

APS = Artificially pollinated seedling vines of Uthirenkotta

UK = Uthirenkotta

Since the breeder cannot accommodate innumerable number of plants for screening, he has to think in terms of probability of achieving results. The probability of achieving promising cultures from among the off springs of Uthirenkotta appears to be good, eventhough, the cultivar itself is characterised by low yield. Hence, the breeder will be justified in screening large number of seedlings of Uthirenkotta to achieve his goal of obtaining cultures with high yield. Uthirenkotta is seen to cross well with other cultivars to produce better hybrids. Further, the tedious process of emasculation is not necessary in this cultivar, to obtain hybrids.

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Reference

- Ibrahim, K. K., Pillai, V. S. and Sasikumaran, S. 1985. Path coefficient analysis of some yield components in black pepper (*Piper nigrum* L.) *Indian Spices*. 22 (3):21-25.