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EVALUATION OF TURMERIC TYPES FOR YIELD AND QUALITY

Turmeric is a unique, colourful and versatile natural product combining properties of a spice, colourant, cosmetic and drug. Kerala enjoys a unique position as the producer of `Alleppey turmeric' which is considered to be the best in the world with high curcumin content. Now a days a serious shortage for Alleppey turmeric is felt in trade circles and this has necessitated the evaluation of turmeric types locally cultivated in Kerala, especially in the districts of Ernakulam and Kottayam. The present study was undertaken at the College of Horticulture, Vellanikkara during 1991-93 to study the extent of variation in yield and curcumin content among the local types and identify high yielding types representative of the `Alleppey turmeric'.

A survey was conducted in Ernakulam, Kottayam and Trichur districts of Kerala and 15 local turmeric types were collected. A preliminary evaluation of these 15 types was done during 1991-92. Selection was based primarily on fresh rhizome yield and types producing more than 3 kg m^{-2} were selected for detailed evaluation. During 1992-93, an experiment was laid out in a randomised block design with 10 treatments and three replications. The treatments comprised of nine selected local types and Sugandham the variety popular throughout India served as control. The plot size was 2 m^2 with 50 cm interchannel. Seed rhizomes (720 g per plot) was planted on raised beds at a spacing of 25 x 25 cm. The cultural and manurial practices adopted were as per the recommendations of the Kerala Agricultural University (KAU, 1989). The biometric characters were recorded four months after planting. The crop was harvested when the vegetative parts withered by nine months after planting. Fresh rhizome yield was recorded and the curing percentage and curcumin content were analysed as per standard procedures.

Data on biometric characters, yield and curcumin content are presented in Table 1. Among the biometric characters, plant height alone showed significant difference depending on the turmeric types. Maximum plant height (141.67 cm) was recorded for VK 146 closely followed by VK 144 (138.00 cm) which were on par. The type VK 153 recorded the minimum plant height (84.33 cm). Though not significant, maximum number of tillers/plant, number of leaves per plant, leaf length and leaf width were recorded for VK 5.

Yield attributes were significantly high for the local types when compared to Sugandham. With regard to fresh rhizome yield VK 5 was significantly superior to all other treatments (5.85 kg m^{-2}) followed by VK 155 (5.0 kg m^{-2}). Sugandham recorded the lowest raw rhizome yield (3.20 kg m^{-2}) which was significantly inferior to all other treatments.

All the local types recorded significantly high curing percentage than the check variety Sugandham (17.85%). The type VK 141 recorded the highest curing per cent (23.25) and differed significantly from other types. Cured rhizome yield followed a similar trend as that of fresh rhizome yield. The type VK 5 recorded the highest cured rhizome yield (1.17 kg m^{-2}) closely followed by VK 155 (1.06 kg m^{-2}) which were on par. Significant and positive correlation of rhizome yield with number of leaves as observed by Reddy and Rao (1988) holds true *in* this study also. VK 5 which recorded maximum number of leaves produced significantly high rhizome yield.

Curcumin content showed wide variation among the turmeric types. However, as expected, the locally cultivated types were not uniformly superior to the check variety in curcumin content. This indicates that the turmeric types cultivated in different localities of Kerala may not be the representative `Alleppey type' having high curcumin content. VK 145, a collection from Kuruppampady area which is renowned for the production of quality turmeric recorded the highest curcumin content (7.82%) closely followed by VK 188 (7.69%) which were on par. The types VK 5, VK 144 and VK 146 also recorded significantly high curcumin content of above 6.0

Table 1. Plant height, yield of rhizomes, curing per cent and curcumin content as influenced by turmeric types

Treatments	Locality of collection	Plant height (cm)	Raw rhizome yield (kg m^{-2})	Curing (%)	Cured rhizome yield (kg m^{-2})	Curcumin (%)
VK 5	Mannuthy-Trichur district	118.67	5.85	19.29	1.17	6.27
VK 141	Chuvannamannu-Trichur District	124.00	4.10	23.25	0.96	3.76
VK 144	Manimala-Kottayam district	138.00	4.03	20.21	0.82	4.50
VK 145	Kuruppampady-Ernakulam district	131.67	4.69	20.48	0.96	7.82
VK 146	Chundakuzhy-Ernakulam district	141.67	4.84	20.42	0.99	6.98
VK 153	Anchalpetty-Ernakulam district	84.33	4.01	19.25	0.78	4.99
VK 154	Maradi-Ernakulam district	89.00	4.30	21.37	0.92	6.80
VK 155	Pampakudam-Ernakulam district	119.33	5.00	21.81	1.06	4.11
VK 188	Mupliyam-Trichur district	115.00	4.19	21.74	0.91	7.69
Sugandham	Check variety from Andhra Pradesh	104.33	3.20	17.85	0.57	5.27
CD (0.05)		19.63*	0.74*	1.09*	0.17*	0.30*

*Significant at 5% level

per cent when compared with the check variety Sugandham (5.27%). As reported elsewhere, it is to be presumed that the turmeric types cultivated at present in Kerala is an admixture of low curcumin types from Tamil Nadu and Andhra Pradesh and this may be the reason for the shortage of Alleppey turmeric noticed in trade circles.

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