

Research Note :**VARIETAL PERFORMANCE OF TURMERIC (*Curcuma longa* L.) UNDER SOUTHERN PARTS OF RAJASTHAN****Virendra Singh, S.K. Acharya^{*}, D.K. Sarolia and Deepesh Panchori¹***Department of Horticulture, Rajasthan College of Agriculture, MPUAT, Udaipur-313 001 India*¹*NAIP Project,***E-mail: sanjay.acharyahort@gmail.com*

ABSTRACT : Seven genotypes of turmeric (*Curcuma longa* L.) were evaluated under irrigated condition for two consecutive years at Fruit Research Station, Banswara (Rajasthan). The genotypes varied in their production potential, growth characters and curcumin content. Pooled data revealed that variety Suroma produced maximum plant height (134.17 cm), number of tillers per plant (5.39), single plant yield (0.431 kg) and yield per hectare of fresh rhizome (231.11 q/ha) and it was at par with the production of Roma (216.40 q/ha). These two varieties viz., Suroma and Roma were significantly superior among all the varieties during both the seasons and are suitable for general cultivation in the southern parts of Rajasthan, whereas, Pratibha variety exhibited highest curcumin content (3.12 g/100g) followed by Roma (2.69 g/100g).

Keywords : Turmeric, performance, varieties, curcumin.

Turmeric (*Curcuma longa* L.) is a rhizomatous herbaceous perennial plant and one of the economically important spices crops of India, belongs to the ginger family Zingiberaceae. It is being used as a condiment, dye, drug and cosmetic in addition to its use in religious ceremonies and plays a vital role in national economy (Kumar *et al.*, 6) Turmeric is native to tropical South Asia and needs temperatures between 20°C and 30°C and a considerable amount of annual rainfall to thrive best. The area under spices cultivation in India is 2.6 million ha, with a production output of 4.1 million tonnes. Spices take up 13 per cent of the area under cultivation, and account for 2 per cent of the total horticultural output of the country. In India, turmeric accounts an area of 0.67 lakh hectares with a production of 41,500 tonnes (Anon., 1) with a productivity rate of 156.32 q ha (Deshmukh *et al.*, 4) Among spices, it is fourth most important after cardamom, black pepper and ginger. Although wide genetic variability exists in this crop with regard to quantitative and qualitative attributes, however, not much work has been done on crop improvement through the selection of superior types with high yield in Southern part of Rajasthan. Hence, the present study was carried out to evaluate the performance of different varieties with regard to quantitative and qualitative traits of turmeric.

Field experiments on varietal performance of turmeric (*Curcuma longa* L.) under southern parts of Rajasthan were conducted at Fruit Research Station,

Banswara during two consecutive years in 2010-11 and 2011-12. The experimental materials was procured from the different research stations of the country. The treatments comprised seven varieties *i.e.*, Roma, Suroma, Rajendra Sonia, Prabha, Pratibha, Kedram and Local which were replicated thrice under randomized block design. Healthy seeds of crop were raised during April in 3 x 2.7 m² plot size and followed all the cultural practices as per standard package of practice as and when required. Observations pertaining to the plant height (cm), number of tillers/plant, single plant yield (kg) and yield/ha (q) were recorded on five randomly selected plants from each plot and curcumin (g/100 g) was estimated in the laboratory by the method given by Sadasivam and Manickam (9).

A perusal of data presented in Table 1 showed highly significant variations among the different varieties for plant height. Maximum plant height (136.67 cm) was recorded in Suroma during the first year of the experiment which was statistically at par with those of Roma, Prabha, Pratibha and Rajendra Sonia. During second year similar pattern was observed and mean maximum plant height (134.17 cm) and minimum (118.50 cm) were recorded in Suroma and Local variety, respectively. The results are in line with those of Choudhary *et al.* (3) and Singh *et al.* (10). The most important yield contributing character in turmeric is the number of tillers which is directly proportional to the number of rhizomes (Chadha, 2). More number of tillers per plant were produced by

Table 1: Varietal performance of turmeric for plant growth, yield and curcumin content.

Varieties	Plant height (cm)			Number of tillers/ plant			Single plant yield (kg)			Yield (q/ha)			Curcumin Content (g/100g)		
	2010-11	2011-12	Mean	2010-11	2011-12	Mean	2010-11	2011-12	Mean	2010-11	2011-12	Mean	2010-11	2011-12	Mean
Roma	135.00	130.33	132.67	4.67	4.67	4.67	0.378	0.370	0.374	218.00	214.81	216.40	2.72	2.66	2.69
Suroma	136.67	131.67	134.17	5.45	5.33	5.39	0.432	0.430	0.431	233.00	229.22	231.11	1.71	1.6	1.65
Rajendra Sonia	130.33	126.33	128.33	4.08	4.00	4.04	0.355	0.350	0.352	201.00	199.18	200.09	1.42	1.44	1.43
Prabha	134.00	130.00	132.00	4.23	3.17	3.70	0.199	0.190	0.195	163.00	162.14	162.57	2.28	2.23	2.25
Pratibha	132.33	127.67	133.00	4.17	4.10	4.14	0.318	0.320	0.319	194.67	194.24	194.62	3.26	2.98	3.12
Kedram	126.67	121.00	123.84	3.82	3.80	3.81	0.210	0.210	0.210	193.33	184.36	188.68	2.09	2.24	2.16
Local	119.00	118.00	118.50	3.06	4.50	3.78	0.257	0.260	0.259	178.67	180.66	179.83	1.78	1.75	1.76
CD (P = 0.05)	3.93	3.10	3.52	1.10	0.67	0.88	0.05	0.022	0.036	26.71	33.60	30.16	0.10	0.12	0.11

Suroma (5.39) closely followed by Roma (4.69). The pooled data of both the years (Table 1) showed significant variation among the turmeric varieties with regard to the yield of green turmeric per plant and hectare. Variety Suroma produced significantly more green turmeric per plant (0.431 kg) and per hectare (231.11 q) than all other varieties, followed by Roma (0.374 kg and 216.40 q per plant and per hectare, respectively), whereas, the variety Local produced minimum green yield per hectare (179.83 q). The similar results were obtained by Pujari *et al.* (7), Ramakrishna *et al.* (8) and Hegde *et al.* (5). Curcumin is very important compound which is found in turmeric and acts as anti-oxidant. Maximum curcumin (3.12 g/100g) content was found in the variety Pratibha which was highly significant among all the varieties evaluated whereas, minimum curcumin (1.43 g/100g) was recorded in the variety Rajendra Sonia. It was reported that varieties, Suroma and Roma were the best varieties for the characters studied like plant height (cm), number of tillers/plant, single plant yield and yield per hectare whereas, the varieties Pratibha and Roma contained highest amount of curcumin.

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