



Effect of micronutrients on growth, yield and quality of turmeric cv. SALEM

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ABSTRACT

An field experiment was conducted during 2001-2002 at Agricultural Research Station, Arabhavi. The experiment consisted of 13 treatments which include both chelated and unchelated form. Among them treatment supplied with recommended dose of fertilizer + 10 kg ZnSO₄ / ha recorded higher plant height (50.60 cm), number of leaves (9.93 per plant), rhizome yield (20.66 t/ha), curing percentage (23.56%) and cured rhizome yield (4.63 t/ha).

Vishwanath, Y.C., Hanamashetti, S.I. and Nataraja, K.H. (2011). Effect of micronutrients on growth, yield and quality of turmeric cv. SALEM, *Asian J. Hort.*, 6 (1) : 167-169.

Key words : *Curcumin longa*, Recommended dose of fertilizer, FeSO₄, ZnSO₄, Farm yard manure

Turmeric (*Curcuma longa* L.) is a major rhizomatous spice produced and exported from India. Mineral nutrition is also considered as one of the important factors that influence the growth and yield of turmeric. Plants get some amount of nutrition from soil, but they are inadequate to meet the increased demand of plants for higher production. Optimum dose of fertilizer is required by the crop to increase the productivity potential and there is enough information regarding the requirement of nitrogen, phosphorus and potassium by this crop. In addition to N, P, K iron and zinc are required by most of the crop plants particularly in rhizomatous crops like turmeric for improving the yield and quality attributes. Knowing this consideration an study was made on effect of micronutrients on growth, yield and quality of turmeric.

MATERIALS AND METHODS

The experiment was carried out at the Agricultural Research Station at Arabhavi, Gokak, Belgaum District in Karnataka. The soil of the experimental plot was medium deep black soil and pH 8.03, available nitrogen 237.0 kg/ha, available phosphorus 21.0 kg/ha and available potassium 290.0 kg/ha. Arabhavi is situated in northern dry zone of Karnataka state with mean rainfall of this area is about 530 mm which is distributed between May to October. Disease free healthy rhizomes cv. Salem were planted in the fourth week of June with a spacing of 45 cm x 22.5 cm in a plot size of 2.70 m x 2.25 m. For

chelating of micronutrients, the micronutrients ZnSO₄ and FeSO₄ were thoroughly mixed with dried farm yard manure in the ratio of 1:2 and sprinkled with water just to wet the mixture and kept for a week in shady place. Sprinkling of water was done everyday to keep the mixture moist. At the end of seven days, the mixture was spread on floor and air dried. This chelated micronutrients was applied along with recommended dose of fertilizer *i.e.* 180:90:90 NPK kg/ha at 45 days after planting as per treatment details. Depending on the rainfall, irrigation was provided at an interval of eight to ten days with a total of 23 irrigations, weeding was done at 30 days interval with total of six weedings during crop growth period. For control of leaf blotch disease Diathane M45 @ 4 g/l was sprayed two times at 15 days interval (60 DAP and 75 DAP, respectively). For control of leaf eating caterpillars endosulphon 2 ml/l and monocrotophos 1 ml/l were sprayed alternatively for two times at 30 days interval (60 DAP and 90 DAP, respectively). For curing of rhizomes one kilogram of fresh rhizomes were boiled for 45 to 60 minutes and then rhizomes were sun dried for eight to ten days and curing percentage was worked out.

Dry weight of rhizomes
after curing (kg)

$$\text{Curing percentage} = \frac{\text{Dry weight of rhizomes after curing (kg)}}{\text{Fresh weight of rhizomes (kg)}} \times 100$$

Curcumin content was analysed by following the method suggested by Manjunath *et al.* (1991).