

## Effect of bioregulants on quality of turmeric (*Curcuma longa* L.) cv. BSR 2

G. SATHISH\* AND P. PARAMAGURU<sup>1</sup>

Department of Spices and Plantation Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, COIMBATORE (T.N.) INDIA

### ABSTRACT

The effect of bioregulants on quality of turmeric (*Curcuma longa* L.) was studied. The experiment was laid out in Randomized Block Design consisting of four bioregulants viz., Panchakavya, Vermiwash, Humic acid and Effective microorganism, and of recommended dose of fertilizer with 13 treatments. The treatment, foliar application of 0.05% humic acid favourably increased the curcumin (4.58% per cent), oleoresin content (9.47 per cent) essential oil content (4.94 per cent) and chlorophyll content (1.83 mg g<sup>-1</sup>).

**Key words :** Bioregulants, Turmeric, Quality.

### INTRODUCTION

Turmeric (*Curcuma longa* L.) is an important spice as well as medicinal plant belonged to the family Zingiberaceae. Turmeric carries a wide range of medicinal values such as a stomachic, blood purifier, antiseptic, useful in dropsy, purulent ophthalmia, wound healing and for inflammation. Turmeric being an exhaustive crop. requires heavy manuring. But the use of chemical fertilizer escalate the production cost and causes health and environmental hazards. On the other hands organic farming is an important and ecofriendly method of cultivation, showing promising effect on growth and yield of various crops. Therefore, it is essential to formulate an alternative cultivation strategy for high value crops like turmeric.

The present study deals with the results of the experiments on the effect of bioregulants on quality of turmeric.

### MATERIALS AND METHODS

A field experiment was conducted at Department of Spices and Plantation Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu during the year 2005-2006. The treatments were replicated thrice in Randomized Block Design. The experimented field soil is a sandy loam with EC 0.42 d s m<sup>-1</sup>, pH 7.0, available nitrogen 101 kg/ha, available phosphorus 5.6 kg/ha and available potassium 380 kg/ha. The experiment consisted thirteen treatments viz, foliar spray with Panchakavya 2% (T<sub>1</sub>), Panchakavya 3% (T<sub>2</sub>), Panchakavya 4% (T<sub>3</sub>), vermiwash 10 % (T<sub>4</sub>), vermiwash 20% (T<sub>5</sub>), humic acid 0.05 % (T<sub>6</sub>), humic acid 0.1% (T<sub>7</sub>) humic acid 0.15% (T<sub>8</sub>), extended Effective

microorganism 1% (T<sub>9</sub>) extended Effective microorganism 2% (T<sub>10</sub>), extended Effective microorganism 3% (T<sub>11</sub>), 100 per cent recommended dose of NPK fertilizers (T<sub>12</sub>) and control (T<sub>13</sub>). The treatments were imposed from 30 days after planting. Observations on curcumin content, oleoresin content, essential oil content, chlorophyll were recorded from randomly selected plants and are presented in the Table 1.

### RESULTS AND DISCUSSION

Quality parameters like curcumin, essential oil and oleoresin contents showed significant difference among the treatments. The result showed the significant effects for all the characters studied. Characters such as curcumin content, oleoresin content, essential oil content, chlorophyll were significantly influenced by the foliar application of 0.05 per cent humic acid (T<sub>6</sub>) in the Table 1.

The curcumin content of different treatment showed that there was significant difference in the curcumin content due to the application of bioregulants. The highest curcumin content was recorded (4.57 %) in the treatment T<sub>6</sub> (humic acid 0.05 per cent foliar sprays). Application of T<sub>2</sub> (panchakavya 3 per cent foliar spray) showed 4.36 per cent increase in curcumin content over control. The lowest value was recorded by T<sub>13</sub> (control) with a curcumin content of 2.21 per cent (Table 1). The main reason for the availability of more quantity of nitrogen in the form of NH<sub>4</sub>-N, which could have promoted the hormonal activity of plants. This would have increased the curcumin content of rhizomes. This is in continuation with earlier findings of Reddy and Rao (1978). The highest oleoresin content recorded was 9.47% in the treatment T<sub>6</sub> (humic acid 0.05% foliar spray) while it was followed by T<sub>2</sub>

\* Author for correspondence. <sup>1</sup> Department of Horticulture, Horticultural College and Research Institute, Tamil Nadu Agricultural University, COIMBATORE (T.N.) INDIA