

## Correlation and path analysis in turmeric cv. BSR-2

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### ABSTRACT

The investigations on turmeric (*Curcuma longa* L.) were carried out at the College Orchard, Department of Spices and Plantation Crops, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore to study the correlation and association analysis on yield and its components of organic turmeric. The experiment was laid out in split plot design consisting four organic manures viz., farmyard manure, vermicompost, digested coirpith compost and 50 per cent of recommended dose of fertilizer in the main plot. The sub plot treatment consists of biofertilizers like azospirillum, phosphobacteria and VAM with 32 different combinations. The association analysis revealed that all the characters showed positive and significant effect on rhizome yield. Path analysis showed total dry matter production and mother rhizome yield contributed the highest to rhizome yield. Number of tillers, number of leaves, total dry matter production, mother rhizome yield, primary rhizome yield, diameter of primary rhizome expressed significant positive direct effect on rhizome yield.

**Key words :** Correlation, Path analysis, Turmeric.

### INTRODUCTION

Turmeric (*Curcuma longa* L.) is an important rhizomatous crop belongs to the Zingiberaceae family. It is a commercial crop of tropics. It is a sacred, auspicious, dual-purpose spice for Asian countries valued for its food adjunct property and also a source of safe natural colouring agent required by pharmaceutical, confectionary and cosmetic industry. Being a rhizomatous nature of crop, it requires a heavy input of fertilizers (Balashanmugam and Chezhiyan, 1986). Due to the high cost of chemical fertilizers and sustainable soil management, necessitated the organic farming in turmeric. In addition to this, there is a great demand for the organically grown produce in Western countries. In India, turmeric is cultivated mainly in Tamilnadu, Andhra Pradesh, Kerala, Karnataka, Orissa etc. In Tamil Nadu it is restricted to Erode, Salem, Nammakkal, Perambalur, Villupuram and Coimbatore districts. So far a limited work has been standardized for organic farming practice more especially in spice like turmeric. Correlation co-efficiencies among the different yield components will give an idea about the important characters, which could be improved through the application of different combination of organic manures and biofertilizers. Hence, the study was aimed to study the correlation and association analysis on yield and its components of organic turmeric.

### MATERIALS AND METHODS

Experiment was conducted at College Orchard,

Department of Spice and Plantation crops, Coimbatore. Coimbatore is situated at latitude of 11°N and a longitude of 77°E with an elevation of 426.72 M above mean sea level. The months of April and May are the hottest with the mean temperature of 34.6°C. The mean annual rainfall is 672 mm. The relative humidity reaches maximum in March (80 per cent) and minimum in September (50 per cent). The turmeric cultivar BSR 2 was used the study. Experiment was laid in split plot design with three replications.

#### Main plot treatments :

- M<sub>1</sub> - Farmyard manure (30 t ha<sup>-1</sup>)
- M<sub>2</sub> - Vermicompost (10 t ha<sup>-1</sup>)
- M<sub>3</sub> - Digested coirpith compost (10 t ha<sup>-1</sup>)
- M<sub>4</sub> - 50 per cent of recommended dose of fertilizer (62.5:30:45 kg N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O ha<sup>-1</sup>)

#### Sub plot treatments :

- S<sub>1</sub> - Azospirillum (10 kg ha<sup>-1</sup>)
- S<sub>2</sub> - Phosphobacteria (10 kg ha<sup>-1</sup>)
- S<sub>3</sub> - VAM (500 kg ha<sup>-1</sup>)
- S<sub>4</sub> - Azospirillum (10 kg ha<sup>-1</sup>) + Phosphobacteria (10 kg ha<sup>-1</sup>)
- S<sub>5</sub> - Azospirillum (10 kg ha<sup>-1</sup>) + VAM (500 kg ha<sup>-1</sup>)
- S<sub>6</sub> - Phosphobacteria (10 kg ha<sup>-1</sup>) + VAM (500 kg ha<sup>-1</sup>)
- S<sub>7</sub> - Azospirillum (10 kg ha<sup>-1</sup>) +

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