



## Response of growth parameters of radish (*Raphanus sativus* L.) to various organic nutrients and biostimulants

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### ABSTRACT

An experiment was conducted to study the effect of organic nutrients and biostimulants on growth parameters in radish cv Pusa chetki. The organic manures, viz., FYM, vermicompost and consortium of biofertilizers were applied in the soil as basal application. The biostimulants like panchagavya, effective microorganism and Manchurian mushroom tea were given as foliar spray at 10 days intervals as three sprays. The results of the experiment revealed that the growth parameters viz., shoot length, number of leaves, leaf area and shoot weight were recorded the highest due to the application of FYM @ 25 t ha<sup>-1</sup> plus consortium of biofertilizers @ 2 kg ha<sup>-1</sup> combined with EM @ 1:1000 dilution ha<sup>-1</sup> and MMT @ 3 per cent for both seasons.

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**R**adish (*Raphanus sativus* L.) is an important root vegetable crop in India. Among the root vegetables, radish is the most popular and widely grown pungent one known for its fresh edible roots and it is rich in Ca, K, P and vitamin C. The edible roots can be used as raw, as salad or cooked (Roy and Seth, 1971). Radish roots are said to be useful in urinary complaints, piles and in gastrodynia and also it is considered as an appetizer. The juice of fresh leaves is diuretic and laxative. Being a short duration and quick growing crop, it is highly suited for sequence cropping and as intercrop or companion crop in the wider spaced orchard crops. Moderately high temperature, fertilization, irrigation level, season, harvesting period and other factors during long days produce premature floral stalk resulting in misshape, hollowness, poor textured, forking and toughness of the radish roots making unfit for human consumption (Park, 1983). Nutrition is one of the main factors, which governs the yield and quality of a crop. The use of organic manures like farmyard manure, vermicompost, consortium of biofertilizers and biostimulants like panchagavya, effective microorganisms, Manchurian mushroom tea were found to enhance and improve soil health, growth and yield of many crops. More over, they also help in balancing the nutrient availability to the growing plants

and boost up the production and quality of crops. (Higa, 1988). Hence, the present investigation has been aimed to study the effect of organic nutrients and biostimulants on growth parameters of radish.

### MATERIALS AND METHODS

The present investigation was conducted in the Department of Horticulture, Faculty of Agriculture, Annamalai University, Tamil Nadu, during two seasons viz., Jun-July -2009 (first season) and Jan-Feb – 2010 (second season). The experiment was laid out in Randomized Block Design with 13 treatments in three replications. The treatments consists of application of organic manures, viz., FYM @ 25 t ha<sup>-1</sup> and vermicompost @ 5 t ha<sup>-1</sup> along with combined application of consortium of biofertilizers @ 2 kg ha<sup>-1</sup> (mixed biofertilizer of N fixers P solubilizers and plant growth promoting rhizobacteria (PGPR) were applied in the soil as basal application. The biostimulants like panchagavya 3 %, effective microorganism 1:1000 dilution ha<sup>-1</sup> and Manchurian mushroom tea 3 % were given as foliar spray at 10 days intervals as three sprays. At the time of last ploughing, required quantity of farmyard manure and vermicompost were incorporated as per the treatments. The field was then thrown into ridges and furrows at a spacing of 30