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Effect of bio-K and inorganic fertilizers on growth and yield parameters of tomato (*Lycopession esculantum* Mill.)

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ABSTRACT

The present study was conducted at Department of Horticulture, Marathwada Agricultural University Parbhani (M.S.) during the year 2004-05. Treatment of Bio-K 1mk/l of water + RDF of NP and 50% of K produced best results in terms of height of plant, number of leaves per plant, number of flowers per plant, days of 50% flowering, average weight of fruit, number of fruits per plant and plot, also yield parameters like marketable yield of fruits, percentage of marketable fruits and total yield per plant and per hectare as compared to treatment control and rest of the treatments under study.

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Key words : Bio-K, RDF, Tomato

INTRODUCTION

Tomato (*Lycopersicon esculatum* Mill.) is one of the most protective food both because of it's special nutritive value and also because of it's wide spread production. The role of inorganic fertilizers in increasing growth and yield of the plant is well known. Biofertilizers not only played an important role in maintaining good health of the plant but also served as natural source of plant nutrients to increase productivity. The cominiation of inorganic fertilizers and biofertilizers on tomato has been studied using biofertilizers like *Azotobacter*, phosphate solubalizing bacteria, *Azospirillum* by many workers. In the present study, use of bio-k an potassium uptake activator has been used to study the combination use of various levels of inorganic fertilizers with different levels of bio-k to know it's correct comination for obtaining good growth and yield of tomato crop.

MATERIALS AND METHODS

The present experiment was laid out in Randomized Block Design. There were thirteen treatments and three replications. The treatment details are given below: T_1 - Bio-K 1ml/l of water + RDF of NP and K, T_2 - Bio-K 1ml/l of water + RDF of NP and 75% of K, T_3 - Bio-K 1ml/l of water + RDF of NP and 50% of K, T_4 - Bio-K 1ml/l of water + RDF of NP and 25% of K, T_5 - Bio-K 2ml/l of water + RDF of NP and K, T_6 - Bio-K 1ml/l of water + RDF of NP and 75% of K, T_7 - Bio-K 2ml/l of water + RDF of NP and 50% of K, T_8 - Bio-K 2ml/l of water + RDF of NP and 25% of K, T_9 - Bio-K 3ml/l of water + RDF of NP and K, T_{10} - Bio-K 3ml/l of water + RDF of NP and 75% of K, T_{11} - Bio-K 3ml/l of water + RDF of NP and 50% of K, T_{12} - Bio-K 3ml/l of water + RDF of NP and 25% of K and T_{13} - Recommended dose of NP and K (Control).

The plot size was 3 x 2.4m^2 and spacing was 60 x 60 cm. The variety used was 'Parbhani Yashashri". The recommended dose of fertilizer 100:50:50 kg NPK ha^{-1} was considered as RDF. In this for NPK, the urea, single super phosphate and murate of potash were used, respectively. Potassium was used at four levels *i.e.* at 100, 75, 50 and 25 per cent of recommended dose of potassium and applied one day before transplanting with half dose of nitrogen and full dose of phosphorus. Amrut-Akash (Bio-K) is a homeopathic formulation by using *Adathoda vasakas* 1ml (0.01%), *Officinalis* 1ml (0.01%) *Bnbefin ribens* 1ml (0.01%) and aqua solvenent (99.97%). Bio-K was sprayed at three levels *i.e.* 1ml/l of water, 2ml/l of water and 3ml/l of water. It was applied at 15, 30 and 45 DAT.

The biometric observations on height of plant, and number of primary branches were taken at 15 days interval commencing from 30 days after transplanting

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