



## Effect of different organic manures and inorganic fertilizers on available NPK, microbial density of the soil and nutrient uptake of brinjal (*Solanum melongena* L.)

A.B. MOHANKUMAR AND N.C. NARASE GOWDA

### ABSTRACT

Treatments with organic manures, inorganic fertilizers and their combinations showed significant difference for available NPK, microbial density of the soil and nutrient uptake of the brinjal crop. Among the treatments, application of recommended FYM N substituted through vermicompost and green manure (50% each) + recommended NPK *i.e.* 125:100:50 kg NPK/ha recorded the highest available phosphorus (48.32 kg/ha), microbial density of the soil (40.50 CFU/g bacterial, 31.00 CFU/g fungi and 27.00 CFU/g actinomycetes) and nutrient uptake of brinjal plants (60.86 kg/ha N, 7.55 kg/ha P, 66.89 kg/ha K). This treatment was at par with recommended FYM N substituted through FYM and green manure (50% each)+ recommended NPK *i.e.* 44.83 kg/ha Phosphorus, microbial density (40.00 CFU/g bacterial, 30.90 CFU/g fungi and 26.93 CFU/g actinomycetes) and nutrient uptake (54.15 kg/ha N, 6.57 kg/ha P, 56.47 kg/ha K) and this treatment recorded highest available nitrogen (400.90 kg/ha) of the soil, while the treatment 150 per cent recommended FYM N substituted through vermicompost recorded highest available Potassium (506.95 kg/ha) during late *Rabi* season of 2004-2005, these treatments were significantly superior to recommended inorganic fertilizer treatment, as well as to application different doses of organic manures alone such as FYM and vermicompost, this indicating that integration of both organic manures and inorganic fertilizers are important for improve soil physical properties and favorable microbial activity. FYM or vermicompost increase the fertilizer use efficiency to a considerable extent, and also found to be better in maintaining soil health.

Mohankumar, A.B. and Narase Gowda, N.C. (2010). Effect of different organic manures and inorganic fertilizers on available NPK, microbial density of the soil and nutrient uptake of brinjal (*Solanum melongena* L). *Asian J. Soil Sci.*, 5(2): 291-294

**Key words :** Vermicompost, FYM, NPK, Microbial density, Green manure

### INTRODUCTION

Brinjal (*Solanum melongena* L.) is one of the most common tropical fruit vegetable. It is a rich source of vitamins, minerals and organic acids. For realizing higher yields and quality produce, soil health is a critical factor. Therefore, chemical fertilizers must be integrated with organic manures such as FYM, vermicompost, crop residues and green manures which are renewable and eco friendly to achieve sustainable productivity with minimum deleterious effects of chemical fertilizers on soil health and environment. Application of organics, which improves the soil physical, chemical and biological properties and has direct impact on moisture retention, root growth and nutrient conservation etc., therefore, the

present investigation was undertaken to find out the optimum dose and best combination of organic manures and inorganic fertilizers for obtaining higher soil fertility, soil micro flora, and nutrient balance after brinjal production.

### MATERIALS AND METHODS

The field experiment was conducted at the Horticulture Research Station, University of Agricultural Sciences, Bangalore during late *Rabi* season of 2004-2005. The experimental site is located at an altitude of 930m above MSL lying in eastern dry zone of Karnataka (Zone 5). The soil was red sandy loam having organic carbon (0.360%), PH (7.12), available N (197.16 kg/ha),

#### Correspondence to :

A.B. MOHANKUMAR, Department of Horticulture, University of Agricultural Sciences, G.K.V.K. BENGALURU (KARNATAKA) INDIA

#### Authors' affiliations:

N.C. NARASEGOWDA, Department of Horticulture, University of Agricultural Sciences, GKVK. BENGALURU (KARNATAKA) INDIA