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Effect of organic nutrients on growth and essential oil content of sweet basil (*Ocimum basilicum* L.)

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ABSTRACT

An investigation was carried out to find out the effect of different organic manures *viz*., FYM, vermicompost, *Azospirillium*, phosphobacteria, panchagavya, neemcake and in organic fertilizers (120: 120: 100 kg of NPK ha^{-1}) on the growth and essential oil content of sweet basil. Among the different treatment combinations, application of FYM @ 25 t / ha +*Azospirillium* + phosphobacteria + panchakavya 3 per cent as foliar spray recorded highest plant height, number of branches and fresh weight of the herb per plant in sweet basil.

Key words : Sweet basil, Growth, Essential oil, FYM, Vermicompost, Panchagavya

Basil is the popular name given to any aromatic herb belonging to the genus ocimum. *Ocimum basilicium* L. is also called as sweet basil or common basil (Singh and Ramesh, 2002). It posses glandular hairs with stalked or sessile glands which secrete strongly scented volatile oils. Several chemotypes of basil are methyl cinnamate or methyl chavicol or euginol and linalool types. Methyl chavicol is used for multiple applications, like flavouring confectioneries and bever-ages. The sweet basil oil posses antibacterial, antifungal, insecticidal, antiseptic and disinfectant (Anwar *et al*., 2005). Application of organic manures along with inorganic nutrients is economic in the long run as well as environmental friendly. Hence, the present study was carried out to find out the effect of organic nutrients on growth and essential oil content of sweet basil.

MATERIALS AND METHODS

The experiment was conducted as pot study in completely randomized block design with 14 treatments in three replications during 2007-2009 at orchard, Department of Horticulture, Faculty of Agriculture, Annamalai University. The soil type was clay loam, pH of the soil was 7.5, EC of 0.67 dsm^{-1} and available N was 210.5 kg ha^{-1}, P was 10.3 kg ha^{-1} and k was 249.4 kg ha^{-1}. Treatments consisted of two organic manures, Farm yard manure and vermicompost at two different levels and bio-fertilizers (*Azospirillum* and Phosphobacteria) along with panchagavya 3 per cent and neem cake 20 per cent as foliar spray. The following are the treatments T_1 – FYM @ 12.5 t ha^{-1}+*Azospirillum* and Phosphobacteria @ 2 kg ha^{-1}, T_2 – FYM @ 25 t ha^{-1}+ *Azospirillum* and Phosphobacteria @ 2 kg ha^{-1}, T_3 – Vermicompost @ 2.5 t ha^{-1}+*Azospirillum* and Phosphobacteria @ 2kg ha^{-1}, T_4 – Vermicompost @ 5 t ha^{-1}+ *Azospirillum* and Phosphobacteria @ 2 kg ha^{-1}, T_5 – T_1 + Panchagavya @ 3% foliar spray, T_6 – T_2 + Panchagavya @ 3% foliar spray, T_7 – T_3 + Panchagavya @ 3% foliar spray, T_8 – T_4 + Panchagavya @ 3% foliar spray, T_9 – T_1 + Neemcake extract @ 20% foliar spray, T_{10} – T_2 + Neemcake extract @ 20% foliar spray, T_{11} – T_3 + Neemcake extract @ 20% foliar spray, T_{12} – T_4 + Neemcake extract @ 20% foliar spray, T_{13} – Recommended dose of inorganic fertilizer (120: 100: 100 kg ha^{-1}), T_{14} – Control. The observations recorded were plant height, number of branches and essential oil content of the herb per plant.

RESULTS AND DISCUSSION

The data on the effect of organic nutrients on the plant height of sweet basil are presented in Table 1. Statistically significant differences were observed among the treatments in season-I and season-II. In season-I among the different treatments T_6 exhibited the highest plant height of (64.11cm), followed by T_{13} (62.53 cm) and T_{12} (58.50 cm). In season-II, also the similar trend was observed with T_6 recording the highest plant height of (63.21 cm), followed by T_{13} (59.12 cm) and T_{12} (57.25 cm). The minimum plant height was recorded in T_{14} (Absolute control) 53.53 and 49.76 cm in both the seasons, respectively. Among the two seasons season–I recorded highest plant height than season –II irrespective of the