



Research Paper

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Studies on organic nutrition in growth and yield of Japanese mint (*Mentha arvensis* L.)

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ABSTRACT : The experiment was conducted as a pot culture study in a completely randomized design with 13 treatments in three replications. The treatments consisted of three organic manures (farmyard manure @ 12.5 t ha⁻¹, pressmud @ 6.25 t ha⁻¹ and vermicompost @ 2.5 t ha⁻¹) along with foliar spray of humic acid (0.2 %) and panchagavya (3 %). The results of the study revealed that application of vermicompost @ 2.5 t ha⁻¹ plus humic acid 0.2 per cent plus panchagavya 3 per cent resulted in improving the growth characters like plant height, plant spread, number of laterals, number of leaves and leaf area. The herbage yield, dry matter production, chlorophyll content and essential oil content were also favorably influenced by the treatment T₁₃ (vermicompost @ 2.5 t ha⁻¹ + humic acid 0.2 per cent + panchagavya 3 %). Similar trend was also observed with regard to plant nutrient uptake. Thus, it may be concluded that combined application of vermicompost @ 2.5 t ha⁻¹ + humic acid 0.2 per cent + panchagavya 3 per cent had beneficial effect on the growth, yield and oil content of mint.

KEY WORDS : Organic manures, Pressmud, Vermicompost, Panchagavya, Humic acid, Japanese mint

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Mentha is a commercially important medicinal and aromatic perennial herb belonging to the family Labiatae (Lamiaceae). The evergreen herb (foliage) on distillation yields essential oil containing a large variety of aroma-chemicals in varying composition. These oils and their aroma-chemicals in pure form command a large and worldwide demand in trade. Four species are commercially cultivated in India viz., Japanese mint (*Mentha arvensis* L.), pepper mint (*Mentha piperata* L.), spear mint (*Mentha spicata* L.) and bergamot mint (*Mentha citrata* Ehrh.). These are now the main sources of aroma compounds viz., menthol, carvone, linalyl acetate and linalool for use in pharmaceutical, food flavour, cosmetics, beverages and allied industries. In recent years, a number of minor constituents of these oils have also come to generate demand for several uses.

The organic manures like vermicompost, press mud and farm yard manure partly substitute chemical fertilizers and also reduce the cost of production. Vermicompost is a rich and recognized source of mineral nutrient. Besides, it also acts as a chelating agent and regulates the availability of metallic micronutrients to the plants. Farm yard manure is the

commonly used organic manure but its availability is becoming limited. Farm yard manure increases the crop yield by accelerating respiratory process with increasing cell permeability and hormonal action. Panchagavya is the single organic input, which can act as a growth promoter and immunity booster. It has a significant role in providing resistance to pests and diseases and in increasing the overall yield (Natarajan, 2002).

RESEARCH METHODS

The experiment on Japanese mint (*Mentha arvensis* L.) was carried out at Department of Horticulture, Faculty of Agriculture, Annamalai university. The pot culture was used, the soil type was sandy clay loam soil. which consisted of 56.1 per cent sand, 27.7 per cent clay, 16.2 per cent silt, available nitrogen 224.5 kg ha⁻¹, available phosphorus 27.5 kg ha⁻¹ and available potassium 227.0 kg ha⁻¹, with a pH of 7.8 and EC of 0.56 dSm⁻¹. Healthy cuttings of 15-20 cm long with 3-4 pairs of leaves were collected from a farmer's field at Salem. The cuttings were transported carefully without damaging the stem and stored temporarily in a cool dry shady place. The experiment