

Effect of three different composts on the growth rate of wheat (*Triticum aestivum*)

S.S. DESHMUKH, V.S. CHAUDHARI, S.D. NARKHEDE, R.N. JADHAV AND S.B. ATTARDE

Received : June, 2010; Accepted : July, 2010

SUMMARY

Composted organic material can be used as a source of important nutrients for sustainable crop productivity. This paper examines the growth rate effect of three different composts *i.e.* vermicompost, cowdung compost and moss compost on wheat crop at the concentrations of 10, 20, 30, 40, 50 and 60 % of compost in soil matrix. Six plots for each compost sample at above concentrations and one common control were prepared. Monitoring of wheat growth was done with respect to the height, width, number of spikelets, roots and shoots for an interval of 5, 10, 15 and 20 day's period. For vermicompost and moss compost 50 % concentration whereas for cowdung 40 % concentrations were suitable for height, width and spikelet growth. Vermicompost at 30 % concentration, cowdung compost at 60 % concentration and moss compost at 50 % concentration showed higher growth of roots. Chlorophyll content estimated in wheat crop was highest in cowdung compost plot at 40 % concentration. These findings imply that the use of cowdung compost could be more effective and economical to increase the yield of crops on sustainable basis.

Deshmukh, S.S., Chaudhari, V.S., Narkhede, S.D., Jadhav, R.N. and Attarde, S.B. (2011). Effect of three different composts on the growth rate of wheat (*Triticum aestivum*). *Internat. J. Plant Sci.*, 6 (1): 22-26.

Key words : Compost, Wheat crop, Growth monitoring

Wheat crop enjoys the privileged position amongst food grain crops in the world in general and particularly in India where it serves as a staple food for the majority of the population. Now-a-days composting is becoming an increasingly important element of environmentally sound sustainable agriculture in an Indian context. Application of biofertilizer is considered today as a promising alternative for mineral fertilizers and supports an effective tool for desert agriculture development under less polluted environments, decreasing agricultural costs, maximizing crop yield due to providing them with an available nitrogen source and growth promoting substances (Hegazi *et al.*, 1998; Amer *et al.*, 2002). The various forms of organic manures are also being used in the fields for sustainable crop yield. Many studies have shown that the application of immature composts to soil causes severe damage to plant growth (Jimenez and Garcia, 1989).

The organic manures and compost are important in sustaining farming by providing plant N-supply (Korsaeth *et al.*, 2002). Alternative to chemical fertilizers, locally available organic wastes of anthropogenic and natural products were used as biofertilizers after employing earthworm as decomposers, for degradation and recycling to enhance the production of crops which are free from pollution and health hazard (Bakthvathsalam and Ramakrishnan, 2004). Vermiculture is the science of rearing of earthworms for mass propagation on organic wastes under semi-natural conditions and vermicomposting is the bioconversion of organic waste materials through earthwormic way (Senapati, 1992). They provide many benefits to agricultural soil, including increased ability to retain moisture, better nutrient-holding capacity, better soil structure and higher levels of microbial activity. A combination of organic and inorganic sources of nutrients might be helpful to obtain a good economic return with good soil health for the subsequent crop yield. The cost of inorganic fertilizers is very high and sometimes it is not available in the market for which the farmers fail to apply the inorganic fertilizers to the crop field in optimum time. The presence of heavy metals represents a limiting factor of the compost quality and of its use in agriculture, also because the concentration of heavy metals changes as a function of the starting residues, of

Correspondence to:

S.D. NARKHEDE, School of Environmental and Earth Sciences, North Maharashtra University, JALGAON (M.S.) INDIA
Email : sb.attarde@yahoo.co.in

Authors' affiliations:

S.S. DESHMUKH, V.S. CHAUDHARI AND S.B. ATTARDE, School of Environmental and Earth Sciences, North Maharashtra University, JALGAON (M.S.) INDIA