

QUALITY ASSESSMENT OF SOME COMMERCIAL ORGANIC AND INORGANIC FERTILIZERS MARKETING IN KERALA WITH SPECIAL REFERENCE TO HEAVY METALS

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Composite samples of twenty three organic fertilizers/manures were collected from the market and analyzed for moisture content, pH, electrical conductivity, total organic carbon, C: N ratio, total nutrients and heavy metals and the data were compared with quality control guidelines for city compost as per Fertilizer Control Order, 1985. It was observed that the extent of compliance varied widely with respect to different parameters. High nutrient contents, especially nitrogen, were observed in majority of the samples indicating possible adulteration with chemical fertilizers. Chromium content was very high in about 50 per cent of the tested samples. Lead content was above the toxic limit in four per cent of the samples. Cadmium, copper and zinc contents were within the permissible limits in all the samples. All the samples contained very high levels of iron. During the analysis of the samples by acid digestion, varying amounts of sand or powdered rock were left as residue, indicating mixing with such materials, possibly again as adulterants. The study clearly points to the need for establishing quality control parameters for organic fertilizers, and regulating the quality of various products marketed as organic fertilizers. Proper labeling of these fertilizers should be an immediate priority. Phosphorus fertilizers and other inorganic fertilizers commonly used in Kerala were also tested for their heavy metal contents what about lead, cadmium and zinc were within the limits specified by Food and Agriculture Organization/World Health Organization.

Keywords: Fertilizer, Heavy metals, Organic manure, Quality assessment

INTRODUCTION

Recently, there has been increasing concern regarding the environmental problems related to fertilizers, as they can be a non-point source of pollution in soils and waters. This has led to the rapid growth of the organic farming sector, where alternate source of nutrients can be availed. This move is so strong that majority of the states in India

are in the process of becoming fully organic in the field of agriculture. There is a strong move to make Kerala also a fully organic-agriculture state. Gadgil/Kasturirangan reports on Western Ghats which will cover almost one-third of Kerala's geographic area also encourage organic farming (Gadgil, 2013; Kasturirangan, 2013).

Increasing interest in organic agriculture has led to the exploration of various types of