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Quality profiles of commonly available compost brands in the markets of Southern province, Sri Lanka

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Abstract

Compost is humus like stable product generated by an aerobic biological decomposition of organic matter. In agriculture, compost is widely used as a soil conditioner in-order to improve soil properties. But it is important to standardize compost as similar to the inorganic fertilizers. Different compost brands without proper quality assurance have been introduced to the market with the decision by the Government of Sri Lanka to shift agriculture completely from inorganic to organic inputs. The study aimed to identify the quality profile of commonly available compost brands in the market of Southern Province, Sri Lanka in order to examine their compliance with the standards of Sri Lanka Standards Institution (SLSI) for municipal solid waste compost, under schedule number SLS 1634:2019. Eight commonly available compost brands were sampled from the market in the Southern province. The laboratory analyses were performed in triplicates according to the standard methods available in SLSI standards manual and in other literature to determine physico-chemical and biological parameters including colour, odour, particle size, pH, electrical conductivity, percentages of sand, moisture, total carbon, nitrogen, phosphorus, and potassium, selected heavy metal contents (Cd, Pb), fecal coliforms and viable weed seed content. Data were analyzed by employing one sample t-test. According to the results, none of the samples was compatible in 100% with the considered quality standards. The major nutrient contents: Nitrogen ($0.45 \pm 0.01\%$ - $1.29 \pm 0.01\%$), Phosphorus ($0.79 \pm 0.01\%$ - $3.62 \pm 0.04\%$) and Potassium ($1.03 \pm 0.00\%$ - $1.38 \pm 0.01\%$) were found to be low in 62.5% of the tested brands being unsuitable to be used as fertilizers while the rest (37.5%) had all the major nutrients adequately as recommended by SLSI. The C:N ratios ranged from 17.33 to 39.46. The resulted higher C:N ratios than the prescribed upper limit of the SLSI in 62.5% of the tested brands inferred insufficient maturity of the composts or use of low-quality organic matter with high carbon content for the compost production. Therefore, the overall results of the study highlight the need of the proper assessment and standardization of the quality profile of the compost prior to being released to the market.

Keywords: Compliance, Compost, Quality, Standard

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