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APPLICABILITY OF CLEAN AND FERTILITY INDICES AS TOOLS IN DETERMINING COMPOST QUALITY

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With the increasing demand, the release of low-quality compost to the market under different brand names has become a significant issue. Since different inputs, such as agricultural waste, and municipal solid waste, are used in composting, there is a potential threat of containing heavy metals in compost. Therefore, it is crucial to have a mechanism to assess the nutrient composition and heavy metal contents to determine the quality of products. The study examined the applicability of the clean index (CI) and fertility index (FI) as tools to ensure the quality of compost in the market. Based on the results of a preliminary survey, eight commonly available compost brands in the market of the Southern Province, Sri Lanka, were collected and analyzed. The FI was calculated on the basis of the chemical properties, total organic carbon (TC), total nitrogen (TN), total phosphorus (TP), total potassium (TK) and carbon to nitrogen ratio (C: N), which were determined according to the standard methods. The CI was calculated by considering heavy metal contents (Zn, Cu, Cd and Pb), which were determined using Atomic Absorption Spectroscopy (AAS). To assure the quality, either a marketable class (A, B, C and D) or a restricted use class (RU-1, RU-2 and RU-3) was determined by considering both FI and CI values. The FI values varied from 2.10 to 4.50 with a mean value of 3.19, while CI values varied from 3.64 to 5.0 with a mean value of 4.55 (on a scale of 5). According to the results, 37.5% of tested brands were categorized under the restricted use class, RU-1, due to low fertilizing potential or low FI values, while 62.5% of brands were categorized under marketable classes due to their acceptable levels of heavy metals and fertilizing potentials. Hence, overall results highlight the significance of using FI and CI as tools in ensuring the quality of compost before being released to the market.

Keywords: Clean index, Compost, Fertility index, Quality