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Quality of So-Called Organic Fertilizers in Vietnam's Market

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Abstract : Organic farming is gaining interest in Vietnam. However, organic fertilizer production is not sufficiently regulated, resulting in unknown quality. This study investigated characteristics of so-called organic fertilizers in the Vietnam's market and their mineralization in soil-plant system. We collected 15 commercial products (11 domestic and 4 imported) which labelled 'organic fertilizer' in the market to analyze nutrients composition. A 20 day-incubation experiment was carried on with 80 g sandy-textured soil, amended with the fertilizer at a rate of 109.4 mgN.kg^{-1}soil in 150 mL glass bottle at 25℃. We categorized them according to nutrients content and mineralization rate, and then selected 8 samples for cultivation experiment. The experiment was conducted by growing Komatsuna (Brassica campestris) in sandy-textured soil using an automatic watering apparatus in a greenhouse. The fertilizers were applied to the top one-third of the soil stratum at a rate of 200 mgN.kg^{-1} soil. Our study also analyzed material flow of coffee husk compost in Central Highland of Vietnam. Total N, P, K, Ca, Mg and C: N ratio varied greatly cross the domestic products, whereas they were quite similar among the imported materials. The proportion of inorganic-N to T-N of domestic products was higher than 25% in 8 of 11 samples. These indicate that N concentration increased dramatically in most domestic products compared with their raw materials. Additionally, most domestic products contained less P, and their proportions of Truog-P to T-P were greatly different. These imply that some manufactures were interested in adjusting P concentration, but some ones were not. Furthermore, the compost was made by mixing with chemical substances to increase nutrients content (N, P), and also added construction surplus soil to gain weight before packing product to sell in the market as 'organic fertilizer'. There was a negative correlation between C:N ratio and mineralization rate of the fertilizers. There was a significant difference in N efficiency among the fertilizer treatments. N efficiency of most domestic products was higher than chemical fertilizer and imported organic fertilizers. These results suggest regulations on organic fertilizers production needed to support organic farming that is based on internationally accepted standards in Vietnam.

Keywords : inorganic N, mineralization, N efficiency, so-called organic fertilizers, Vietnam's market
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