

عنوان مقاله:

Cotton spinning waste as useful compost for organic Indian Spinach (Basella alba) production in Bangladesh

محل انتشار:

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خلاصه مقاله:

Purpose This study aims to ascertain the physiochemical characteristics of the compost made from recycled cotton spinning waste (CSW) for Indian Spinach cultivation in Bangladesh. **Method** The physiochemical characteristics of the compost made of fresh cotton spinning waste (CSW), cotton spinning waste ash (CSWA), rice husk (RH), rice husk ash (RHA) with varying ratios following open air composting method was determined. The utility of the resulting compost was justified by applying it to Indian Spinach cultivation compared with chemical fertilizer and control (no-compost) treatments. **Results** Among the several composting options, the compost prepared by mixing ۸۷% CSW + ۱۳% CSW ash (C۳) and ۸۷% CSW + ۱۳% rice husk (C۴) was found to be the quality compost with a higher C/N ratio, P, K, S and a lower Pb content. The vegetative growth, yield and nutritional qualities were significantly affected by the compost characteristics compared to chemical fertilizer because of increased nutrient uptake and biostimulation functions. Moreover, Indian Spinach cultivated with CSW compost provided ۶۴ BDTk. profits compared to ۲۸ BDTk. in case of control that indicates ۱۲۸% increase in profit for the compost than that of control. **Conclusion** The compost derived from the mixture of CSW+CSWA+RH+RHA substrates possesses an optimum moisture content (۳۱.۲%), pH (۷.۵), C/N ratio (۱۶.۸:۱), macronutrients, and micronutrients that enable it to act as an alternative to chemical fertilizer. When it comes to yield and nutrition quality of the grown Indian Spinach, CSW based compost fared much better than .chemical fertilizer in field test

کلمات کلیدی:

Basella alba, compost, Cotton waste, Heavy metals, Plant nutrients, Yield

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