

# **Effects of Organic Amendment on Heavy Metal and Macronutrient Contents in Paddy Soil**

## **ABSTRACT**

The enormous use of chemical fertilizers recently has contributed to negative impacts on soil quality for agriculture purposes. However, if we use the fertilizer along with the organic amendment, it would offer a good approach for sustainable agriculture practice. Therefore, this study examined the effects of HT Organic Compound (HTOC) application on heavy metal and macronutrient content of the soil in a 2-season cultivated paddy field from 2016 to 2017. The sampling period was carried out after the harvest period and this study included three treatments: Chemical fertilizer or NPK (CF), chemical fertilizer and 250 kg organic amendment (CF+HTOC250), and chemical fertilizer and 500 kg organic amendment (CF+HTOC500). Several soil parameters were analyzed for this study such as soil organic matter content, pH, available P, available K, total N, and some heavy metals like As, Cd, Cr, Cu, Pb, and Zn. The results showed that the treated soil (CF+HTOC treatment) showed significantly higher soil organic matter content, pH, available P, available K, and total N than the chemical fertilizer treatment (CF). In the long-term application, the treated soils with HTOC tended to have lower Cd, Cr, Cu and Pb concentrations as compared with the chemical fertilizer treatment (CF). As a whole, this study concluded the application of chemical fertilizer along with HTOC could be an alternative method to improving soil quality in a paddy field area.