ABSTRACT

Potato (Solanum tuberosum L.) is an important food and cash crop in Kenya. However, its production has declined over the years due to extensive nutrient mining without adequate replacement. A study was conducted to evaluate the response of potato grown under three soil types (Planosol, Andosol and Acrisol) using three fecal matter fertilizers (FMFs). This included vermicompost, normal compost and dried sludge. In addition, common fertilizer (urea and cow manure) was also used. Two greenhouse trials were laid out in a randomized complete block design with four replicates per treatment. Data collected on soil nutrient status, plant growth and yield variables were subjected to analysis of variance using Statistical Analysis Software v.9.1 and treatment means separated using Tukey's test. Results showed that fecal matter fertilizers (FMF) , vermicompost and dried sludge, were equally effective in increasing (39.2-46.5%) the potato growth compared to untreated control. Fecal matter fertilizers also contributed to high yields, where vermicompost produced (12.3 t ha-1) 3 times more than untreated control (4.2 t ha-1) but the difference was not significant at $P \leq 0.05$ from urea, normal compost and sludge. The interaction between fertilizers and soil types was not significant at $P \leq 0.05$. Fecal matter fertilizers are thus ecologically viable alternative source of mineral nutrients for sustainable potato production.

Key words: Acrisol, andosol, planosol, Solanum tuberosum, sludge, vermicompost.