

Influence of Palm Oil Mill Effluent (POME) on growth and yield performance of Brazilian spinach (*Alternanthera sissoo*)

ABSTRACT

The presence of abundant oil palm residues in Malaysia prompted the need to utilize this waste to avoid environmental pollution. Palm oil mill effluent (POME) is a thick, brownish liquid effluent comprising large amounts of solids and high organic content, convertible into a valuable source of biomass. Based on the nutrient content of POME, this waste has the potential to be utilised as an alternative source of plant nutrients and organic medium in different agricultural crop production. Very recent Brazilian spinach (*Alternanthera sissoo*) is getting rapid interest among scientists and nutritionists for its easy growing and great nutritional values. But growing this spinach in Malaysia is still unfamiliar and no information about growing it using POME. Therefore, a study was conducted to determine the effects of different ratios of POME on growth and yield performance of Brazilian spinach (*Alternanthera sissoo*). The experiment was conducted at Faculty of Sustainable Agriculture, Universiti Malaysia Sabah, Sandakan campus, Sabah, Malaysia. The stem cuttings of Brazilian spinach were transplanted into polybags containing different ratios of POME, cocopeat and sands as T1 (70% POME + 15% cocopeat + 15% sand), T2 (60% POME + 20% cocopeat + 20% sand), T3 (50% POME + 25% cocopeat + 25% sand) and T4 (normal soils) as control treatment following randomized complete block design (RCBD) with four replications. Among all the measured parameters significantly ($P \leq 0.05$) the highest plant height (30.68 cm), maximum numbers of branches (14.50), maximum numbers of leaves (60.50), canopy coverage area (29.13 cm²), highest growth rate (78.0%), maximum fresh weight (330 g) and maximum dry weight (79.63 g) all were achieved from the Brazilian spinach grown under T1, followed by T2 and T3. So, from the overall findings undoubtedly it can be concluded that T1 was the best treatment for overall growth and yield of Brazilian spinach.