

Effects of Goat manure, Compost Tea and Gliricidia Leaf Extract on Growth and Yield Performance of Sessile Joyweed (*Alternanthera sessilis*)

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Alternanthera sessilis is a popular leafy vegetable in South East Asia cultivated for food, herbal medicines and poultry feed and is commonly called as Joyweed/ Ponnangaani/Mugunuwenna. A field experiment was carried out to analyze the effects of goat manure (GM), compost tea (CT) and gliricidia leaf extract (GLE) on the growth and yield performance of the sessile joyweed at the Crop farm, Faculty of Agriculture, University of Jaffna. The treatments were arranged in a randomized complete block design and replicated in three times. The treatments were defined as follows: T1- Goat manure; T2- Compost tea; T3- Gliricidia leaf extract and T4- Control. Data was analyzed using SAS 9.4 software where ANOVA and Duncan mean separation was carried out to find the significant of variables. The highest number of leaves/plant was recorded from treatment GM (65) and the least from control (40) while, treatments CT and GLE recorded 49 and 44 respectively ($p < 0.002$). In case of leaf length, goat manure treated plants exhibited the highest length with 4.4 cm while the lowest was from treatment GLE (2.6 cm). The highest leaf width was obtained with GM as 2.7 cm and the least from the control ($p < 0.04$). The highest plant height was also obtained from GM application as 27.9 cm and the least from GLE as 25.2 cm ($p < 0.03$). The highest chlorophyll mean value in the first harvest was indicated by GM and it was 39.57. Among all harvests GM has expressed a higher chlorophyll content compared to other treatments ($p < 0.01$). Fresh and dry yield were significantly higher ($p < 0.001$) in GM treated plants as 26.47 tons/ha and 7.14 tons/ha and the least was observed from GLE applied plants as 12.31 tons/ha and 3.54 tons/ha respectively. Overall, it was clear that significantly higher number of leaves, leaf length, leaf width, plant height, chlorophyll content, fresh and dry weight were obtained in the treatment with goat manure compared to control, making it the best organic fertilizer to be used. Therefore, based on the growth and yield performance of *A. sessilis* it can be concluded that goat manure had best performance and it was followed by compost tea and gliricidia leaf extract.

Keywords: Organic fertilizer, Yield and Joyweed