

Growth performance of Mission and Kyasawa grasses (*Pennisetum sp.*) under different NPK ratios as potential slope cover

ABSTRACT

The Mission (*Pennisetum polystachio*) and Kyasawa (*Pennisetum pedicellatum*) grasses are common perennial plants found in tropical regions that tolerates low nutrient soils, easily spread by wind and colonization of new areas. It is a great challenge for researchers to select plant species in terms of their performance for vegetation cover to minimize the sloppy soil erosion. Therefore, this study aimed to evaluate the growth performance of selected *Pennisetum sp.* namely *P. pedicellatum* (PPd) and *P. polystachio* (PPI) under different NPK ratio. The studied species were treated with three different treatments, F1, F2 and NF under greenhouse conditions. Hydroseeding technique was adopted for germination of the selected species in the polybags and periodically monitored for a duration of six months. Parameters measured for the growth performance of the studied species were based on plant height, total biomass and chlorophyll content. After application of the treatment F1 and F2, the soil pH changed to slightly acidic (pH 5.45) while organic content of soil was slightly increased from 3.2% to 3.9%. A similar result was also found in N and P nutrient availability of the soil. Meanwhile, available K decreased from 29.76 mg/kg to 28.41mg/kg (F1) and 23.83 mg/kg (F2) for PPI species. This trend was also observed by the PPd species. The PPd species with F1 and F2 treatments showed higher value of plant height if compared to that of PPI species. In terms of total biomass and chlorophyll content, PPI species treated with both treatments showed higher value than PPd species. Species treated with F1 showed higher value in all growth performance variables (height, dry biomass and chlorophyll content), if compared to that of F2 and NF treatments. These findings discovered *Pennisetum polystachio* (PPI species) as a potential biological material that can be used as a slope vegetation cover.