Exploring the use of inorganic nitrogen fertilizer at different levels to improve The yield, nutrient content and in-vitro gas production of immature kenaf (hibiscus cannabinus)

ABSTRACT

Kenaf (Hibiscus cannabinus L.) is a herbaceous plant in the family of Malvaceae, native to Africa and India and primarily produced for its fibre. It has been suggested that the immature kenaf is suitable to be used as fodder for ruminants. The crude protein content of the kenaf depends on the soil nutrient levels and other environmental and management factors. The study aims to evaluate the use of inorganic nitrogen fertilizer at different levels on the plant height, yield, nutrient content and in vitro gas production of immature kenaf. There were five different levels of additional inorganic nitrogen fertilizer (urea: 0, 20, 40, 60, 80 kg/ha) and were given to Kenaf V36 which was initially fertilized with NPK (15:15:15). Kenaf V36 seeds were obtained from National Kenaf and Tobacco Board and used as planting materials. The kenaf plants were watered twice daily and fertilized with inorganic fertilizer on day 10 and 20 after planting. On day 35 after planting, the dry matter yield (DM yield), plant height, proximate analysis, Neutral detergent fibre (NDF), acid detergent fibre (ADF), acid detergent lignin (ADL) and in vitro gas production were determined. The result shows that the DM yield ranged from 0.55 to 0.62 tonnes per hectare. There was a significant difference ($P<0.05$) in CP, NDF and ash of kenaf fertilized with different levels of inorganic nitrogen fertilizer. There are highly significant differences ($P<0.01$) in plant height, DM content and gas production of kenaf fertilized with different levels of inorganic fertilizer application of immature kenaf fertilised with 40 kg/ha and harvested on day 35 post-planting was observed to reach the optimum performance and suitable as ruminant feed.