

Storage root nutrient and yield enhancement in sweet potato variety vitato using empty fruit bunch compost and hexaconazole

ABSTRACT

The effectiveness of oil palm Empty Fruit Bunch (EFB) compost and hexaconazole (HEX) growth regulator in increasing the storage root yield of sweet potato variety. VitAto grown on sandy tin tailing soil was investigated. Materials and Four treatments were used namely, the recommended rate of inorganic fertilizer practice (control), EFB compost and the combination of EFB compost with 10 and 30 ppm HEX. The field experiment layout was a Randomized Complete Block Design (RCBD) with four replications. At the maturity stage, the EFB compost with 30 ppm HEX treatment significantly increased the storage root number, fresh weight, dry mass production and harvest index by 125, 35.1, 16.9 and 15.2% higher than control treatment, respectively. At this stage also, this treatment significantly increased the storage root potassium (K) concentration (69.4%) and content (106.9%) higher than the control treatment, respectively. The result showed that the K nutrient was the main nutrient that can be efficiently supplied by EFB compost to the plant. Most nutrients, in particular K uptake were enhanced by the application of HEX. Both K nutrient and HEX at 30 ppm increased the yield primarily through an increase in the storage root number. The higher storage root number and greater proportion of assimilate translocation to the storage root contributed to an increase in the fresh weight and subsequent dry mass production. The combination treatment of EFB compost with 30 ppm HEX was better than other treatments in term of increasing the storage root nutrient concentrations, contents and most of yield parameters. The combination of EFB compost and PGR could be considered as an alternative practice to the application of inorganic fertilizer in VitAto cultivation on sandy soil.