ABSTRACT

Sugar cane is an important commodity as a raw material for making sugar. As Indonesia's population increases, the need for sugar continues to increase. Therefore, we need a nursery technique that can produce quality seeds and does not require seed preparation through tiered gardens using the bud chip nursery technique. Therefore, the chip shoot seeding method is very suitable to use because it is a sugarcane seeding technique that uses one-eyed seeds. This plant can grow in various types of soil so it requires the addition of soil amendments in the form of organic materials such as eco-enzyme and NPK fertilizer to improve soil conditions and increase plant growth. The aim of the research was to determine the effect of eco-enzymes and NPK fertilizer on the growth and yield of sugar cane plants. This research was carried out at the Experimental Garden and Agroecotechnology Laboratory, Faculty of Agriculture, Malikussaleh University, Muara Batu District, North Aceh Regency from January to May 2024. This research used a two-factor randomized block design with three replications. The first eco-enzyme factors are E0 (0 ml/l), E1 (22.5 ml/l), E2 (27.5 ml/l). The second factor is NPK fertilizer N0 (0 kg/ha), N1 (100 kg/ha), N2 (150 kg/ha), N3 (200 kg/ha). The results of the research showed that the *eco-enzyme* treatment had no effect on all observed variables, the fertilization treatment had a significant effect on the variables plant height, number of leaves, leaf length, leaf width and stem diameter. *Eco-enzyme* treatment affects plant height, number of leaves, and stem diameter. There is an interaction between *eco-enzyme* and fertilizer on the variables of plant height, number of leaves, leaf length and stem diameter.

Key words: fermentation, nutrients, seedling, waste