

ABSTRACT

Sweet potato (*Ipomoea batatas* L.) is a tuber crop with many advantages over other tubers. The increasing population and demand for Cilembu sweet potato production require a balance between supply and yield. Therefore, efforts are needed to optimize the use of dry land for sweet potato cultivation with the assistance of biochar and NPK fertilizer. This study aimed to determine the effect of biochar and NPK fertilizer on the growth and yield of Cilembu sweet potato plants. The study was conducted at the Experimental Garden of the Faculty of Agriculture and the Plant Physiology Laboratory of Malikussaleh University. The research was conducted from February to June 2026. The research use a two-factor randomized block design with three replications. The first factor was biochar, consided of three levels (0, 375, and 750 grams/bed), and the second factor was NPK fertilizer, consided of four levels (0, 15, 30, and 45 grams/bed). The observed variables were stem length, number of leaves, number of branches, chlorophyll content, number of tubers per plant, tuber diameter per plant, tuber length per plant, fresh weight of tubers per plant, tuber weight per plot, total soluble solids (°Brix), and production in tons/ha. The research showed that biochar application had a significant effect on the number of branches at 40-60 DAP. The best biochar treatment was 750 g/plot (B2). NPK fertilizer application had a significant effect on stem length, number of leaves, number of branches, tuber length per plant, fresh tuber weight per plant, tuber weight per plot, and yield in tons/ha. The best NPK fertilizer treatment was 45 g/plot (N3). There was an interaction effect between biochar and NPK fertilizer application on the number of branches at 30-60 DAP. The best treatment combination was 750 g/plot of biochar + 45 g/plot of NPK (B2N3).

Keywords: husk, inorganic, soil, sugar, sweet