

ABSTRACT

This study aimed to determine the growth and yield response of peanut plants (*Arachis hypogaea* L.) to the application of rice husk biochar and mycorrhizal biofertilizer, both individually and in combination. The research was conducted at the Experimental Garden and Plant Physiology Laboratory of Malikussaleh University from April to June 2025. This study used two factors a randomized block design (RBD) and 3 replications, so that 36 treatments were obtained. First factor biochar (0 kg/plot, 1.1 kg/plot, 1.5 kg/plot). Second factor mycorrhiza (0 g/plant, 5 g/plant, 10 g/plant, 15 g/plant). There were 12 treatment combinations, each repeated three times, resulting in 36 treatments. The parameters observed included vegetative growth, generative phase, and root characteristics. Observed parameters included plant height, stem diameter, number of branches, leaf chlorophyll content, flowering age, number of pods, pod weight, number of seeds, seed weight per plot, weight of 100 dry seeds, yield per hectare, root volume and root infection. The results showed that the sole application of rice husk biochar had a significant effect on flowering age and root volume but did not significantly affect most growth and yield parameters. The sole application of mycorrhizal biofertilizer had a significant to highly significant effect on plant height, stem diameter, flowering age, number of pods, pod weight, seed weight per plot, weight of 100 dry seeds, yield per hectare, and root volume. The interaction between biochar and mycorrhizal biofertilizer significantly affected the number of seeds and pod weight. The best results were obtained from the combination of 1.5 kg/plot biochar and 15 g/plant mycorrhizal biofertilizer, which produced more optimal vegetative and generative growth.

Keywords: Biofertilizer, growth, mycorrhiza, peanut, husk biochar, yield.