

ABSTRACT

This empirical study aimed to assess the growth and yield responses of four mung bean (*Vigna radiata* L.) varieties to the application of rice husk biochar as a soil ameliorant. Mung beans are a major source of vegetable protein in Indonesia, but their productivity is still constrained by the use of less adaptable varieties and low soil fertility, particularly on marginal land. Rice husk biochar is known to have potential as a soil amendment due to its high carbon and potassium content and its ability to improve soil physicochemical properties. The study used a two-factorial Randomized Block Design (RBD): mung bean varieties (Kutilang, Vima-2, Vima-5, and Vimil-2) and three biochar dosage levels (0, 7.5, and 15 tons/ha). Observed parameters included plant height, stem diameter, chlorophyll content, number of productive branches, flowering age, number of pods per plant, 100-seed weight, seed weight per plant, dry seed weight per plot, and estimated yield per hectare. The analysis showed that variety treatment significantly affected most growth and yield parameters, with the Vima-5 variety demonstrating the best agronomic performance. Single biochar treatment also significantly impacted several parameters, particularly plant height, stem diameter, flowering time, and yield, with the optimal dose being 15 tons/ha. However, no significant interaction between variety and biochar dose was found for any of the observed parameters, indicating that variety responses were independent of biochar treatment. Overall, the combination of the Vima-5 variety with a rice husk biochar application of 15 tons/ha is recommended as a strategy to sustainably increase mung bean productivity, especially on low-fertility land.

Keywords: green beans, plant growth, production yield, rice husk

