ABSTRACT

Edamame soybean (*Glycine max* (L.) Merrill) is a legume crop that is a rich source of vegetable protein.One of the constraints in edamame soybean production is the intensive use of synthetic pesticides and inorganic fertilizers that cause soil degradation. Efforts to improve poor soil quality and increase edamame soybean production are by adding biovermicompost-SMS organic fertilizer and biofertilizer PGPR (Plant Growth Promoting Rhizobacteria). The purpose of this study was to determine the effect of biovermicompost-SMS fertilizer, PGPR fertilizer and also the interaction between these fertilizers on the growth and yield of edamame soybeans. This research was conducted in the Experimental Garden and Laboratory of the Faculty of Agriculture, Malikussaleh University, using the experimental method of Randomized Block Design. The results showed that Application of Biovermicompost-SMS fertilizer can increase plant height, stem diameter, number of leaves, leaf chlorophyll, plant fresh weight, number of young pods per plant, total weight of young pods per plant weight per 100 young pods, root length, root volume, effective root nodules, plant dry weight. The best single dose treatment is at fertilizer application of 200 g/polybag (B3). Application of PGPR fertilizer concentration can increase plant height, stem diameter, number of leaves, leaf chlorophyll, number of branches, flowering ageplant fresh weight, number of young pods per plant, Weight of young pods per plant, weight per 100 young pods, root length, root volume, effective root nodules, plant dry weight. The best single concentration treatment is 150 ml/l (P2). Biovermicompost-SMS fertilizer application and PGPR fertilizer concentration showed an interaction that could increase plant height, stem diameter, total pod weight per plant, root length, and number of effective root nodules. The best treatment was the combination of 200 g/polybag + 150 ml/l (B3P2).

Keywords: biovermicompost-SMS, chlorophyll, edamame, nodules, plant