ABSTRACT


Key words: Rhizobium, Bacterial Solvents phosphate, Soy.

Public demand for soybeans continues to increase along with population growth. Increased soybean production to meet many obstacles, one of which is the less productive land so that the extension be directed to acid soils. Acid soils have characteristics of soil pH <5.5 and accompanied by the content of Al, Fe, Mn high and poor nutrients N and P. However, acidic soil constraints can be overcome by the application of technology in bio-fertilization through the utilization of bacterial inoculation. Rhizobium bacteria and bacterial microbes solvent phosphate is essential to meet the nutrition of soybean plants. Microbes can provide nutrients in improving the conditions of acid soils by contributing nutrients N and P so that plant nutrients can be fulfilled. The provision of dual inoculation of Rhizobium bacteria and bacterial phosphate solvent is expected to be the solution to accelerate the provision of plant nutrients, so the study was conducted to determine the effect of synergism between Rhizobium bacteria and bacterial phosphate dual solvent with and without fertilizer N and N + P on soybean plants in soil sour.

The study was conducted in the laboratory and in greenhouses Crops Research Institute Nuts and Tuber umbiuain (Balitkabi) Malang in February to May 2011. The treatments used were: control (without treatment), multiple isolates of Rhizobium inoculation, multiple isolates of Rhizobium inoculation and phosphate solvents M1 bacteria, Rhizobium inoculation of multiple isolates of bacteria solvent phosphate + M2, inoculation of multiple isolates of Rhizobium bacteria + M1 + phosphate solvent meal fertilizer, inoculation multiple isolates of Rhizobium bacteria + M2 + phosphate solvent meal. The study design used was Randomized Design Group (RAK) with 6 replications and 2 factors were tested further with Duncan's range test at 5% level.

Results showed that dual inoculation of Rhizobium bacteria and bacterial phosphate solvent on the M1 + Rhizobium treatment without fertilizer can increase plant height of 32.49 cm, the number of root nodules of 16:50 g, M2 + Rhizobium treatment without fertilizer can increase dry weight of 20.91 g of soybean plants, M1 + + Rhizobium treatment Dining in combination with N fertilizer can increase the weight of seeds of 2:40 g and M1 + Rhizobium treatment without fertilizer can increase the weight of 100 seeds for 8.13. So it can be concluded that the dual inoculation of Rhizobium bacteria and bacterial phosphate solvent synergism effect on growth and yield of soybean plants.