

PENGARUH FORMULASI INOKULUM PADAT DAN BAHAN PENGEMAS TERHADAP AKTIVITAS *Rhizobacteri* INDIGENOUS MERAPI DAN PERTUMBUHAN PADI DALAM CEKAMAN KEKERINGAN

The Effects of the Solid Inoculum Formulation and Packaging Material against Rhizobacteria Indigenous Merapi Activities and Growth of Rice Plant In Drought Stress

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ABSTRACT

Repairing the limitations of water, nutrients and soil acidity on marginal land for rice cultivation can be done with the use of biological fertilizers. Rhizobacteria indigenous Merapi was osmotolerant and had the ability in nitrification, ammonification and also dissolve Phosphate. Problems in producing Rhizobacteria indigenous Merapi was needed in large quantities of liquid Luria Bertani medium so that the cost of production becomes expensive and needed proper packaging material in order to maintain the quality of biofertilizers during storage.

This study consisted of two stages. The first stage was the formulations of Rhizobacteria indigenous Merapi's solid inoculums were arranged in completely randomized design (CRD) with a factorial experimental design (4x2). The first factor was the solid inoculum formulas: 89% peat (w/w) + 1% sugar (w/w) + 10% activated charcoal (w/w), peat + Kaolin (2:1 w:w), 60% bananas skin (w/w) + 40% Zeolite (w/w), 85% Kelud volcanic ash (DVK) (w/w) + 15% coconut water (v/w). The second factor was the packaging materials: plastic and aluminum foil. The second stage was the application of Rhizobacteria indigenous Merapi's solid inoculum formulas on IR 64 seeds and test its effectiveness on rice growth in drought stress, with the same experimental design as phase one (4x2) and arranged in completely randomized block design (RBD).

The results of this experiment showed that the viability of Rhizobacteria indigenous Merapi tend to be more stable in the treatment of peat 89% (w/w) + 1% sugar (w/w) + 10% activated charcoal (w/w) with plastic packaging and peat + Kaolin (2: 1 w:w) with aluminum foil packaging and pH between 6,5-7,2 during 4 weeks storage period. All treatment of solid inoculum formulas with aluminum foil and plastic packaging had produced the highest fresh weight of root except for the treatment of 85% DVK (w/w) + 15% coconut water (v/w) with aluminum foil packaging. The formula of 85% DVK (w/w) + 15% coconut water (v/w) with plastic packaging has produced the highest plant height and was not significantly different with 89% peat (w/w) + 1% sugar (w/w) + 10% activated charcoal (w/w) with aluminum foil packaging and peat + Kaolin (2:1 w:w) with aluminum foil and plastic packaging. Various formulas of solid inoculum and packaging materials did not gave a significant effect on the root dry weight, root length, fresh weight and dry weight of the canopy, fresh weight and dry weight of plants of IR 64 rice plant.

Key word : *formulation, packaging materials, Rhizobacteri indigenous Merapi activity*