

**STABILITAS FORMULA RIZOBakteri *Bacillus* sp. galur RZ.2.2.AG2
UNTUK PENGENDALIAN *Ralstonia syzygii* subsp. *indonesiensis* DAN
PENINGKATAN PERTUMBUHAN
serta HASIL CABAI**

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ABSTRAK

Rizobakteri berfungsi sebagai agens biokontrol penyakit tanaman dan pemacu pertumbuhan tanaman. *Bacillus* sp. galur RZ.2.2.AG2 merupakan rizobakteri terbaik yang mampu mengendalikan penyakit layu bakteri, meningkatkan pertumbuhan dan hasil tanaman cabai. Penelitian bertujuan untuk memperoleh formula *Bacillus* sp. galur RZ.2.2.AG2 yang stabil untuk pengendalian penyakit layu bakteri dan peningkatan pertumbuhan serta hasil tanaman cabai. Penelitian bersifat eksperimen menggunakan Rancangan Acak Lengkap yang terdiri dari dua tahap: 1). Viabilitas *Bacillus* sp. galur RZ.2.2.AG2 dalam berbagai formula limbah padat organik (dedak, jerami, ampas tebu dan kombinasinya) dengan lama penyimpanan yang berbeda (0, 2, 4 dan 6 minggu) dan 5 ulangan , 2). Uji kestabilan formula untuk pengendalian penyakit layu bakteri. Perlakuan terdiri dari perlakuan tahap I dan ditambah 3 perlakuan (streptomisin; kontrol positif: *Ralstonia syzygii* subsp. *indonesiensis* dan tanpa formula; kontrol negatif: tanpa *R. syzygii* subsp. *indonesiensis* dan tanpa formula). Formula *Bacillus* sp. galur RZ.2.2.AG2 diintroduksi pada benih dan bibit cabai. *R. syzygii* subsp. *indonesiensis* diinokulasi pada cabai 21 hari setelah tanam metode luka akar. Parameter yang diamati yaitu viabilitas rizobakteri *Bacillus* sp. galur RZ.2.2.AG2 pada masing-masing formula; perkembangan penyakit, pertumbuhan cabai (pada bibit, fase vegetatif dan fase generatif). Hasil penelitian menunjukkan bahwa ampas tebu adalah bahan pembawa yang stabil. Dua formula *Bacillus* sp. galur RZ.2.2.AG2 mampu menekan perkembangan penyakit layu bakteri (formula ampas tebu yang disimpan 4 minggu dan dedak+ampas tebu yang disimpan 4 minggu); 2 formula meningkatkan pertumbuhan dan hasil cabai (formula dedak+jerami yang disimpan 6 minggu dan jerami+ampas tebu yang disimpan 4 minggu). Secara umum formula yang paling stabil dalam menekan perkembangan penyakit layu bakteri dan meningkatkan pertumbuhan serta hasil tanaman cabai adalah formula jerami+ampas Tebu yang disimpan 4 minggu.

Kata kunci: cabai, formula, lama penyimpanan, *Ralstonia syzygii* subsp. *indonesiensis*, rizobakteri.

**STABILITY OF RIZOBAKTERIA FORMULA *Bacillus* sp. strain
RZ.2.2.AG2 FOR CONTROL OF *Ralstonia syzygii* subsp.
Indonesiensis AND TO INCREASE THE GROWTH AS WELL
YIELD OF CHILI PLANTS**

ABSTRACT

Rhizobacteria play important role as biocontrol agents against plant diseases and plant growth promoters. *Bacillus* sp. strain RZ.2.2.AG2 is capable to suppress bacterial wilt disease, to increase the growth and the yield of chili plants. The aim of this research was to obtain the best formula of *Bacillus* sp. strain RZ.2.2.AG2 which was stable to control bacterial wilt disease and to increase the growth and yield of chili plants. The experiment was designed in completely randomized. It consisted of two stages: 1). Viability of rhizobacteria in various formulas based on solid organic carriers (rice bran, rice straw, bagasse and their combination) and they were stored at different times (0, 2, 4 and 6 weeks). 2). The stability of rhizobacterial formula to control bacterial wilt disease on chili. The treatments consisted of the same treatments in stage I and it was added 3 treatments as follow: streptomycine; positive control (*Ralstonia syzygii* subsp. *indonesiensis* and without formula); negative control (without *R. syzygii* subsp. *indonesiensis* and with formula). The formula was introduced seed treatment and seedlings. *R. syzygii* subsp. *indonesiensis* was inoculated on chilies 21 days after planting with root wounding methods. The parameters observed were the viability of the *Bacillus* sp. strain RZ.2.2.AG2 in the formula; disease development (incubation period, disease incidence and disease severity), chili growth (seedlings, vegetative phase and generative phase). The results showed that bagasse was a stable carrier. Two formulas of *Bacillus* sp. strain RZ.2.2.AG2 were able to suppress the development of bacterial wilt disease. They were bagasse formula stored for 4 weeks and bran + bagasse formula stored for 4 weeks. Two others formula increased the growth and the yield of chili, They were mixture of rice bran and rice straw formula stored for 6 weeks and mixture of rice straw and bagasse formula stored for 4 weeks). In general, the most stable formula to control bacterial wilt disease and to increase the growth and yield of chili plants was the mixture of rice straw and bagasse formula stored for 4 weeks.

Key words: chili, formulation, *Ralstonia syzygii* subsp. *indonesiensis*, storage periode, rhizobacteria