

INTISARI

Penelitian berjudul "Kajian Penyiapan Benih dan Umur Bibit terhadap Dinamika Populasi *Rhizobakteri* Pada Padi Merah-Putih" bertujuan (1) Mengetahui pengaruh penyiapan benih dan umur bibit terhadap jumlah populasi *Rhizobakteri* (2) Mengidentifikasi dan karakterisasi *Rhizobakteri* yang berasosiasi pada rhizosfer Padi Merah-Putih (3) Mengetahui pengaruh penyiapan benih dan umur bibit terhadap pertumbuhan dan hasil Padi Merah-Putih (4) Mengetahui hubungan pertumbuhan tanaman Padi Merah-Putih dengan jumlah *Rhizobakteri*

Penelitian ini menggunakan metode rancangan acak lengkap kelompok dengan faktorial 3x4 yang terdiri dari 2 faktor yaitu faktor pertama, Penyiapan benih, terdiri atas 3 aras yaitu (1) Seleksi air, perendaman air; (2) Seleksi air, perendaman pupuk; (3) Seleksi garam, perendaman pupuk. Faktor kedua yaitu (1) Benih langsung ditanam; (2) Bibit ditanam umur satu minggu; (3) Bibit ditanam umur dua minggu; (4) Bibit ditanam umur tiga minggu. Pengamatan dilakukan terhadap (1) Dinamika populasi *Rhizobakteri* meliputi jumlah dan macam *Rhizobakteri* (2) Pertumbuhan tanaman meliputi berat kering tanaman, laju pertumbuhan tanaman dan rasio tajuk akar, berat 100 biji dan hasil gabah; (3) Hubungan pertumbuhan tanaman dan jumlah populasi *Rhizobakteri*.

Hasil penelitian menunjukkan bahwa Jumlah *Rhizobakteri* tertinggi dicapai minggu ke-6 pada perlakuan seleksi dengan larutan garam yang disertai perendaman pupuk. Pada perlakuan umur bibit umur bibit tiga minggu jumlah populasi *Rhizobakteri* tertinggi dicapai pada minggu ke-6. Pengaruh penyiapan benih dengan seleksi garam dan air serta perendaman pupuk relatif sama terhadap pertumbuhan dan hasil tanaman padi Merah-Putih sedangkan pada umur bibit mempengaruhi pertumbuhan dan hasil tanaman.

Hasil karakterisasi *Rhizobakteri* pada perakaran padi Merah-Putih diperoleh empat isolat *Rhizobakteri* yaitu Rh-MP1, Rh-MP2, Rh-MP3 dan Rh-MP4. Pada isolat Rh-MP2, Rh-MP3 dan Rh-MP4 merupakan *Rhizobakteri* yang memiliki sifat khemoautotrof dan bakteri penambat N, sedangkan pada Rh-MP1 bukan bakteri penambat N. Macam *Rhizobakteri* yang selalu tumbuh baik pada perlakuan penyiapan benih dan umur bibit adalah Rh-MP3.

Pertumbuhan tanaman dan jumlah *Rhizobakteri* mempunyai interaksi yang saling menguntungkan. *Rhizobakteri* hidup dengan memanfaatkan hasil fotosintesis sedangkan tanaman hidup dengan memanfaatkan unsur hara yang berhasil dimobilisasi oleh *Rhizobakteri*. Selain itu, simbiosis antara tanaman dan *Rhizobakteri* juga dapat meningkatkan hasil gabah tanaman padi

ABSTRACT

A research to study the seed preparation and seedling age on dynamics of Rhizobacteria population, growth and yield of red-white rice plant was aiming at : (1) to observe the dynamics of Rhizobacteria population as it affected by seed preparation and seedling age; (2) to indentify and to characterize the Rhizobacteria associated with the red-white rice rhizosphere; (3) to observe the effects on growth and yield; (4) to observe the correlation between plant growth rate and Rhizobacteria dynamics.

A field experiment was arranged in a 3x4 factorial randomized completely block design with three replications. The first factor, seed preparation, consisted of 3 levels: (1) seed selection and soaking in water; (2) water selection and then soaking in liquid fertilizer; (3) salt selection and then soaking in liquid fertilizer. The second factor, seedling age to transplant, consisted of 4 levels: (1) direct seed transplanting; (2) one week seed transplanting (3) two weeks seed transplanting; and (4) three weeks seed transplanting. Observations were conducted on: (1) the dynamics of Rhizobacteria kind and number; (2) plant growth and yield; and (3) the correlation between plant growth rate and Rhizobacteria dynamics.

The quickest and highest Rhizobacteria number is achieved within 6 weeks when the seeds are salt selected and soaked in liquid fertilizer instead of the other seed preparation treatments. It is also achieved within 6 weeks on the three weeks seedling transplanting instead of the other seedling age treatments. There are four Rhizobacteria isolates, namely Rh-MP1, Rh-MP2, Rh-MP3 and Rh-MP4. All the bacteria are chemoautotrophic. The Rh-MP2, Rh-MP3, and Rh-MP4 are Nitrogen Fixing Bacteria, while the Rh-MP1 is not. The Rh-MP-3 is abundant in all stages of plant life, in both seed preparation and soaking age treatments.

There are no interaction between seed preparation and seedling age on growth and yield of the red-white rice plants. The seedling age treatment significantly influenced the plant growth and yield, but the seed preparation treatment is not. It is found that there are some mutual interactions between plant growth and Rhizobacteria population. This interaction form mutual symbiotic since the bacteria use plant exudates and the plant receive some nutrients mobilized by the Rhizobacteria. The mutual symbiotic eventually raised the grain yield of the