

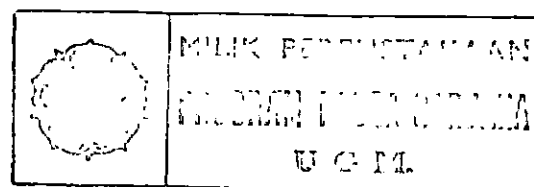
PERANAN BAHAN ORGANIK DALAM INTERAKSI RHIZOBAKTERI OSMOTOLERAN DAN PADI IR-64 PADA DUA ARAS LENGAS TANAH DI UDIPSAMENT

INTISARI

Penelitian ini dilakukan untuk mengetahui peranan bahan organik dalam interaksi rhizobakteri osmotoleran dengan padi IR-64 pada dua aras lengas tanah di Udipsament. Penelitian rumahkaca dilakukan untuk mengetahui pengaruh perlakuan pada fase vegetatif dan reproduktif. Penelitian rumahkaca menggunakan pot pada aras lengas 80% dan 40% kapasitas lapangan, dengan penambahan organik jerami padi dan *Gliricidae* yang belum terdekomposisi, bersamaan itu dilakukan inokulasi campuran isolat rhizobakteri osmotoleran Al-19 + M-7b dan campuran tiga isolat Al-19 + M-7b + A-82. Parameter yang diamati adalah sifat-sifat agronomi padi dan dinamika populasi rhizobakteri selama fase vegetatif dan reproduktif.

Hasil penelitian dari ketiga isolat rhizobakteri osmotoleran yang berbeda menunjukkan pola pertumbuhan yang serupa. Pada awal pertumbuhan, dinamika populasi ketiga rhizobakteri osmotoleran mengalami penurunan, selanjutnya mengalami peningkatan dengan saling berfluktuasi antara ketiganya. Secara umum, isolat A-82 menunjukkan populasi terbanyak pada medium dengan penambahan bahan organik *Gliricidae*, sedangkan aras lengas tanah tidak mempengaruhi pola dinamika populasi rhizobakteri.

Hasil penelitian pot menunjukkan aras lengas tanah berpengaruh terhadap tinggi tanaman, bobot trubus dan kandungan nitrogen jaringan pada fase vegetatif. Selain itu, fase reproduktif berpengaruh terhadap tinggi tanaman, berat kering trubus dan akar serta jumlah anakan. Pemberian bahan organik berpengaruh terhadap tinggi tanaman dan kandungan nitrogen jaringan pada fase vegetatif. Inokulasi rhizobakteri osmotoleran berpengaruh terhadap tinggi tanaman pada fase pertumbuhan. Interaksi terjadi antara aras lengas tanah dan pemberian bahan organik serta aras lengas tanah dan inokulasi terhadap berat kering trubus pada fase vegetatif. Pada fase reproduktif interaksi terjadi antara aras lengas tanah dan inokulasi terhadap jumlah anakan. Selain itu, pada fase reproduktif terjadi interaksi antara aras lengas tanah dan inokulasi serta penambahan bahan organik dan inokulasi rhizobakteri terhadap jumlah malai.



THE ROLE OF ORGANIC MATTERS IN THE INTERACTION BETWEEN OSMOTOLERANT RHIZOBACTERIA AND RICE UNDER DIFFERENT SOIL MOISTURES IN UDIPSAMENT

ABSTRACT

A study has been conducted to investigate the role of organic matters in the interaction between osmotolerant rhizobacteria and rice (IR-64 variety) under different soil moisture levels in udipsament. The greenhouse study was carried out by using pots under 80% and 40% of soil field capacity throughout vegetative and reproductive growth phases. Organic matters used were rice straw and *Gliricidae*, while the inocula employed were the mixtures of osmotolerant rhizobacteria isolates AI-19 plus M-7b, and isolates AI-19, M-7b, plus A-82. Parameters observed were agronomic properties of rice and population dynamics of rhizobacteria during plant growth course.

It was observed that the three different isolates of osmotolerant rhizobacteria demonstrated similar growth pattern. Initially, the rhizobacteria showed decrease of growth during the early plant growth course, followed by successive growth of the bacteria. In general, isolate A-82 had the biggest population number in *Gliricidae*-supplemented medium, while soil moisture level did not effect the pattern of bacterial population dynamics.

Pot experiments revealed that soil moisture level affected plant height, shoot weight, and nitrogen content of plant during vegetative growth phase. In addition, soil moisture level also affected plant height, shoot and root dry weight, number of tillers during reproductive phase. The addition of organic matters was found to influence the plant height and nitrogen content during vegetative phase. Rhizobacterial inoculation was found also to affect plant height. The shoot dry weight was affected by the interaction between soil moisture level and the addition of organic matters, as well as between soil moisture level and inoculation treatment. During reproductive phase, interaction between soil moisture level and inoculation was observed to affect the number of tillers. In addition, the panicle number was also affected by the interaction between soil moisture level and inoculation, as well as between the addition of organic matters and inoculation treatment.