

PERSAINGAN *Vigna radiata* (L.) Wilezeck DAN *Cyperus rotundus* (L.) PADA LAHAN BERGARAM DENGAN INOKULASI RHIZOBIUM

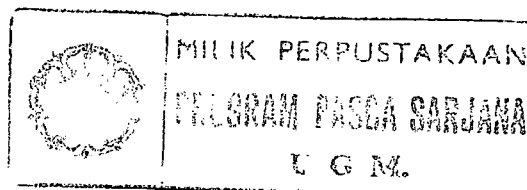
INTISARI

Kehadiran *Cyperus rotundus* (L.) di antara tanaman *Vigna radiata* (L.) dalam suatu ruang tumbuh yang terbatas menimbulkan persaingan. Pada lahan bergaram, persaingan semakin meningkat karena adanya cekaman salinitas. Tujuan penelitian ini untuk mengetahui persaingan *Vigna radiata* (L.) Wilezeck dan *Cyperus rotundus* (L.) pada lahan bergaram dengan inokulasi Rhizobium.

Penelitian dilaksanakan menggunakan Rancangan Acak Lengkap Pola Faktorial dengan 5 ulangan. Faktor pertama jenis lahan yaitu : Penambahan garam NaCl 10 g / 5 kg tanah (N_1) dan tanpa NaCl (N_0). Faktor kedua inokulasi Rhizobium yaitu : dengan inokulasi Rhizobium (P_r) dan tanpa Rhizobium (P_0). Faktor ketiga perbandingan jumlah *Vigna radiata* (L.) (V_r) dengan *Cyperus rotundus* (L.) (C_r) yang didasarkan pada *replacement series* yaitu : V_r/C_r meliputi rasio 0/4 (V_0); 1/3 (V_1); 2/2 (V_2); 3/1 (V_3); 4/0 (V_4); serta kontrol untuk *Vigna radiata* 1/0 (K_1); 2/0 (K_2); 3/0 (K_3). Analisis data menggunakan sidik ragam (ANOVA) dan uji lanjut dengan Duncan's Multiple Range Test (DMRT).

Hasil penelitian menunjukkan peningkatan jumlah *Cyperus rotundus* (L.) menekan pertumbuhan *Vigna radiata* baik pada lahan bergaram maupun pada lahan tidak bergaram. Pada kombinasi perlakuan 3/1 N_1P_0 dan 4/0 N_1P_0 pertumbuhan *Vigna radiata* lebih tinggi dibandingkan pertumbuhan *Cyperus rotundus*. Berat kering total tanaman *Vigna radiata* 4/0 N_0P_r . Penambahan garam NaCl meningkatkan akumulasi prolin *Cyperus rotundus* dan *Vigna radiata* serta mengubah profil protein *Vigna radiata* (BM protein pada lahan bergaram 25.6 kDa dan BM protein pada lahan tidak bergaram 29.8 kDa). Peningkatan jumlah *Cyperus rotundus* menurunkan efektivitas simbiosis dan pertumbuhan *Vigna radiata*.

Kata kunci : Persaingan, replacement series, Rhizobium, prolin, profil protein, pertumbuhan.



Competition of *Vigna radiata* (L.) Wilezeck and *Cyperus rotundus* (L.) in saline soil with *Rhizobium* Inoculation

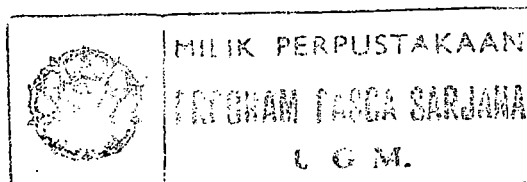
Abstract

*The existence of *Cyperus rotundus* (L.) among *Vigna radiata* (L.) in a limited growing space will create competition. In saline soil, competition increases since there is salinity stress. The aim of this study was to know the effects of *Rhizobium* inoculation on the competition of *Vigna radiata* (L.) Wilezeck and *Cyperus rotundus* (L.) in saline soil.*

*Factorial Completely Randomized Design with 5 replicates was used in this study. The first factor, was the addition of NaCl 10 g/ 5 kg soil (N_1) and without NaCl (N_0). The second factor, was *Rhizobium* inoculation : with *Rhizobium* inoculation (P_r) and without *Rhizobium* inoculation (P_0). The third factor, was the mixing ratio of *Vigna radiata* (V_r) with *Cyperus rotundus* (C_r) based on replacement series. The ratio of V_r/C_r consisted of 0/4 (V_0); 1/3 (V_1); 2/2 (V_2); 3/1 (V_3); 4/0 (V_4); as well as control for *Vigna radiata* 1/0 (K_1); 2/0 (K_2); 3/0 (K_3). The collected data were analyzed by using Standard Analysis of Variance (ANOVA) and advance test using Duncan's Multiple Range Test (DMRT).*

*The results of the study showed that in saline soil the increasing number of *Cyperus rotundus* more inhibited the growth of *Vigna radiata*. At the combination treatment of 3/1 N_1P_0 and 4/0 N_1P_0 , the growth of *Vigna radiata* was higher than *Cyperus rotundus*. The highest *Vigna radiata* total dry weight was found in the combination treatment of 4/0 N_0P_r . The addition of NaCl increased proline accumulation both in *Vigna radiata* and *Cyperus rotundus*. *Vigna radiata* protein molecular weight in saline soil was 25.6 kDa and 29.8 kDa in control soil respectively. The existence of *Cyperus rotundus* reduced both the effectivity of *Rhizobium* symbioses and the growth of *Vigna radiata*.*

Key words : *Competition, replacement series, *Rhizobium*, proline protein profile, plant growth.*





Persaingan *Vigna radiata* (L.) Wilezeck dan *Cyperus rotundus* L. pada lahan beragam dengan inokulasi

rhizobium

NURHIDAYATI, Tutik, Prof.Dr. Santosa

Universitas Gadjah Mada, 2003 | Diunduh dari <http://etd.repository.ugm.ac.id/>