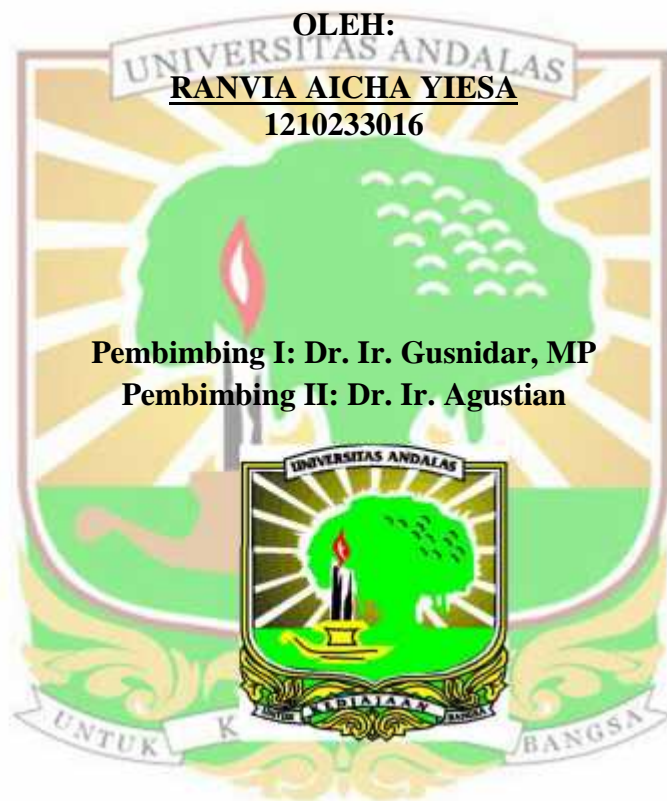


**PENGARUH BENTUK NITROGEN TERHADAP
PEMBENTUKAN BINTIL AKAR DAN SERAPAN N
TANAMAN KEDELAI
(*Glycine max L. Merril*) PADA ULTISOL YANG DI KAPUR**



**PROGRAM STUDI ILMU TANAH
FAKULTAS PERTANIAN
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ABSTRAK

Penelitian Pengaruh Bentuk Nitrogen Terhadap Pembentukan Bintil Akar dan Serapan N Tanaman Kedelai (*Glycine max* L. Merril) pada Ultisol telah dilakukan di rumah kaca dan Laboratorium Kimia Tanah Fakultas Pertanian Universitas Andalas Padang pada bulan November 2016 sampai April 2017. Tujuan penelitian untuk mengetahui pengaruh bentuk pupuk nitrogen terhadap pembentukan bintil akar dan serapan N tanaman kedelai pada Ultisol. Penelitian dalam bentuk percobaan pot dalam pola Rancangan Acak Lengkap (RAL) dengan tiga perlakuan dan empat ulangan dengan 3 tahap pengamatan (27 HST, 41 HST, dan 78 HST). Perlakuan terdiri dari tanpa perlakuan (kontrol), Urea 50 kg/ha, KNO₃ 173 kg/ha, ZA 107 kg/ha. Pengamatan tanah awal meliputi pH, C-_{Org.}, N-_{tot.}, P-_{ters.}, Al-_{dd.}, Kapasitas Tika Kation, K-_{dd.}, Ca-_{dd.}, Mg-_{dd.}, dan Na-_{dd.}. Pengamatan tanah setelah inkubasi meliputi pH, Al-_{dd.}. Pengamatan tanah awal dan setelah inkubasi di uji sesuai kriteria sifat kimia tanah. Pengamatan Tanaman meliputi jumlah bintil akar, berat akar/pot, berat brangkasan/pot (27 HST, 41 HST, 78 HST), serapan N (41 HST), berat kering biji/pot (78 HST). Data pengamatan tanaman di lanjut dengan uji Duncan's New Multiple Range Test (DNMRT) pada taraf 5%. Hasil penelitian tanah awal mempunyai ciri pH H₂O (4,44) sangat masam, Al-_{dd.} (2,69 me/100g), N-_{tot.} (0,15%) rendah, C-_{Org.} (2,37%) sedang, P-_{ters.} (18,10 ppm) sedang, KTK (4,83 me/100g), K-_{dd.} (0,15 me/100g) rendah, Ca-_{dd.} (0,56 me/100g) sangat rendah, Mg-_{dd.} (0,55 me/100g) rendah, Na-_{dd.} (0,24 me/100 g) rendah, N-_{amonium} (3,04ppm), N-_{nitrat} (7,57ppm). Pemberian kapur dapat meningkatkan pH dari sangat masam (4,44) menjadi masam (5,09) dan penurunan Al-_{dd.} tanah dari 2,69 menjadi tidak terukur. Pemberian perlakuan nitrogen tidak memberikan pengaruh terhadap jumlah bintil akar efektif sedangkan pemberian pupuk KNO₃ meningkatkan jumlah bintil akar tanaman kedelai. Pemberian pupuk Urea lebih meningkatkan serapan N tanaman kedelai dibandingkan KNO₃ dan ZA.

Kata kunci : Bentuk Nitrogen, Kapur, Kedelai, Ulti

INFLUENCE OF NITROGEN COMPOUND ON FORMATION OF ROOT NODULE AND N UPTAKE BY SOYBEAN CROPS (*Glycine Max* L. Merrill) AT LIMED ULTISOL

ABSTRACT

A research on influence of nitrogen compounds on formation of root nodule and N uptake by soybean crops (*Glycine max* L. Merrill) at Ultisol was done at glass house and Soil Chemistry Laboratory, Agriculture Faculty of Andalas University, Padang from November 2016 until April 2017. The purpose of this study was to find out the influence of nitrogen fertilizer compound on the formation of root nodule and N uptake by soybean crops at Ultisol. This research was in form of pot experiment. The experimental units were allocated based on Completely Randomized Design with three treatments and four replications with 3 stages of observation (27 DAP, 41 DAP, and 78 DAP). The treatment consists of 4 type fertilizer which were without N fertilizier (control), 50 kg Urea/ha, 173kg KNO₃/ha, 107kg ZA/ha. The initial soil sample were analyzed with the parameters pH, org-C, P-available, Al-exchangeable, CEC, cation-exchangeable and total-N. Parameter analyzed after incubation were pH, exchangeable-Al. Plants parameters analyzed were the number of root nodule, root weight/pot, stover weight/pot (27 DAP, 41 DAP, 78 DAP), uptake of N (41 DAP), seed dry weight/pot (78 DAP). The crop data collected were analyzed the variance, and then continued with the Duncan's New Multiple Range Test (DNMRT) at the 5% level if F table <F calculated. Initial soil properties showed low pH H₂O (4,44), P-avail (0,53 ppm), K-exchangeable (0,15 cmol/kg), Mg-exchangeable (0,55 cmol/kg), Na-exchangeable (0,24 cmol/kg), ammonium-N (3,04 ppm), nitrate-N (7,57 ppm), tot-N (0,15%), very low Ca-exchangeable (0,56cmol/kg), and medium Org-C (2,37%), but high Al-exchangeable (2,69 cmol/kg). Lime application increased the soil pH from very acid (4,44) to acid (5,09) and decreased Al-exchangeable from 2,69 cmol/kg to unmeasurable. However, nitrogen treatment did not give an impact on the number of effective root nodules while application of KNO₃ fertilizer increased the number of soybean plant's root nodule. Nitrogen content of soybean was higher under Urea than under KNO₃ and ZA application.

Key words: Nitrogen Fertilizer, Soybean Plants, Ultisol.