PENGARUH INOKULASI RHIZOBIUM TERHADAP PENYERAPAN Cu DAN PERTUMBUHAN KACANG TANAH (*Arachis hypogaea* L.)

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INTISARI

Penelitian ini dilakukan untuk mengetahui pengaruh Cu terhadap pertumbuhan kacang tanah (*Arachis hypogaea* L.) yang diinokulasikan dengan rhizobium. Distribusi Cu di organ tanaman juga dianalisa.

Penelitian ini dilakukan dengan menggunakan Rancangan Acak Lengkap pola faktorial, masing masing kombinasi perlakuan dengan 6 ulangan. Faktor pertama yaitu konsentrasi /dosis $CuSO_4$ yaitu aplikasi A_0: $CuSO_4$ 0 mg/ 3 kg tanah, A_1: $CuSO_4$ 60 mg/3 kg tanah, A_2 : $CuSO_4$ 90 mg/3 kg tanah dan A_3 : $CuSO_4$ 120 mg/3 kg tanah). Faktor yang kedua yaitu B_0 : tanpa inokulasi legin, B_1 : Inokulasi legin (10 g/kg benih) ,B_2 : Inokulasi legin (20 g/kg benih). Parameter pengamatan antara lain kadar Cu pada organ tanaman (batang, akar dan daun), kadar Cu pada biji kacang tanah, berat bintil akar dan pertumbuhan tanaman kacang tanah. Data hasil pengamatan dan pengukuran akan dianalisis secara statistik menggunakan analisis sidik ragam (ANOVA) dan diuji lanjut dengan DMRT (Duncan Multiple Range Test) taraf kepercayaan 95 %.

Hasil penelitian menunjukkan bahwa pemberian rhizobium yang dikombinasikan Cu memberi pengaruh yang nyata terhadap parameter pertumbuhan. Dalam jumlah sedikit (60 mg $CuSO_4$/3 kg tanah) mampu meningkatkan pertumbuhan tanaman, tetapi dalam jumlah berlebih menurunkan pertumbuhan tanaman. Cu didistribusikan kesemua organ tanaman termasuk biji. inokulasi legin secara signifikan mengurangi pengaruh hambatan pertumbuhan dan mengabsorpsi kelebihan Cu.tingginya konsentrasi Cu di rhizosfer mengurangi jumlah nodul yang terbentuk. Hasil juga memperlihatkan akumulasi Cu di akar.

Kata kunci: Rhizobium, Pertumbuhan, $CuSO_4$, *Arachis hypogaea* L.

THE EFFECTS OF RHIZOBIUM INOCULATION ON Cu ABSORPTION AND PLANT GROWTH IN PEANUT PLANT (*Arachis hypogaea* L.)

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ABSTRACT

This study was conducted to determine the effects of Cu on the growth of peanut plants (*Arachis hypogaea* L.) inoculated with rhizobium. Cu distribution in plant organs was also analyzed.

This study was carried out using factorial completely randomized design with six replications for each treatment. The first factor was $CuSO_4$ concentration, A_0: $CuSO_4$ 0 mg / 3 kg soil, A_1: $CuSO_4$ 60 mg / 3 kg soil, A_2: $CuSO_4$ 90 mg / 3 kg soil and A_3: $CuSO_4$ 120 mg / 3 kg soil). The second factor was legin inoculation B_0: without legin inoculation, B_1: legin inoculation of 10 g / kg seed, B2: legin inoculation of 20 g / kg seed. The measured parameters were Cu content in plant organs (stems, roots and leaves), Cu concentration in the seeds, the number of root nodules and plant growth. Collected data were statistically analyzed using analysis of variance (Anova) and further tested by DMRT (Duncan Multiple Range Test) at 95% level of confidence.

The results showed that Cu application combined with rhizobium give impacts on growth parameters. In small amounts (60 mg CuSO4 / 3 kg of soil) could improve plant growth, but excess amounts decreased plant growth. Cu was distributed to all plant organs, including seeds. Legin inoculation significantly reduced growth inhibition and Cu absorbtion in excess Cu. High Cu concentration in the rhizosphere reduced number of nodule formed. The results also showed accumulation of Cu in the root.

Keywords: Rhizobium, Growth, CuSO4, Arachis hypogaea L.