EFEKTIVITAS MIKORIZA TERHADAP PENURUNAN KANDUNGAN Cu (TEMBAGA) PADA MEDIA TANAMAN SORGUM (*Sorghum bicolor* (L.) Moench)

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INTISARI

Fitoremediasi tanah tercemar Cu merupakan upaya mengurangi konsentrasi logam Cu dalam tanah dengan memanfaatkan kemampuan tumbuhan hijau dalam memulihkan kondisi tanah tercemar dengan menyerap berbagai unsur di dalam tanah termasuk logam berat Cu. Mikoriza diketahui memiliki asosiasi yang baik dengan berbagai akar tumbuhan dan berfungsi memperluas daerah penyerapan akar tumbuhan melalui pembentukan hifa ekstramatrikular. Penelitian ini bertujuan untuk mempelajari kemungkinan adanya efektivitas mikoriza terhadap penurunan kandungan logam berat Cu (tembaga) pada media tanaman Sorgum (*Sorghum bicolor* (L.) Moench.) bermikoriza di media tercemar logam Cu.

Rancangan penelitian menggunakan kombinasi 3 faktor perlakuan yaitu inokulasi *Glomus* sp. perbedaan konsentrasi Cu, dan waktu dengan 3 ulangan. Tanaman sorgum diinokulasi *Glomus* spp. sebanyak 20 g dan dibiarkan selama 2 minggu untuk proses pengkolonisasian. Pemberian konsentrasi Cu pada media tanam sekali seminggu selama 3 minggu.. Parameter yang diukur yaitu tinggi dan biomassa tanaman, serapan Cu akar dan tajuk, dan kolonisasi mikoriza terhadap perakaran tanaman sorgum. Potensi tanaman sebagai remediator dilakukan dengan menghitung nilai serapan Cu akar dan tajuk.

Glomus spp. yang diinokulasikan pada tanaman perlakuan mampu mengkolonisasi tanaman dengan tingkat kolonisasi yang tinggi yaitu 71.1%-83.33% pada perlakuan kombinasi mikoriza dan cemaran Cu 0 ppm-20 ppm. Kolonisasi mikoriza memberi berpengaruh nyata dalam penyerapan logam Cu di media baik di akar maupun di tajuk, terutama ditajuk sampai 27.76 µg dan 50.9 µg pada perlakuan perlakuan kombinasi mikoriza dan cemaran Cu 20 ppm (M/Cu 20 ppm). Kolonisasi mikoriza juga berpengaruh nyata terhadap peningkatan biomassa kering tanaman terutama pada perlakuan kombinasi mikoriza dengan cemaran Cu 20 ppm (M/Cu20 ppm).

Kata kunci : Cu, fitoremediasi, mikoriza, sorgum, biomassa

THE EFFECTIVITY OF MYCHORRIZAL TO REDUCE CONCENTRATION OF COPPER ON THE SORGHUM PLANT (*Sorghum bicolor* (L.) Moench) MEDIA

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ABSTRACT

Phytoremediation of copper contaminated soil is an effort to decrease high concentration of copper in heavy metal polluted site using the bio-ability of a green plants to absorb various substances in soil include heavy metals. Root colonizing symbiotic microorganisms such as arbuscular mychorrizal fungi (AMF) are mainly involved in phytoremediation, that uses plants for soil remediation. AM fungi can contribute to plant growth, particularly in disturbed or heavy metal contaminated sites, by increasing plant access to relatively immobile minerals. The aims of the research are to study the effectivity of mychorrizal to reduce concentration of copper on the sorghum plant (*sorghum bicolor* (l.) moench) media.

Combination treatment in this study include inoculation *Glomus* spp., without inoculation *Glomus* spp., and the addition of Cu on media with concentration 0 ppm, 20 ppm, 40 ppm and 60 ppm, and observation time weeks 7^{th} , 9^{th} , and 11^{th} . All treatments have repeat as many as three replications. Seedlings of sorghum were inoculated with 20 g *Glomus* spp. and after two weeks old, treated by Cu using concentration of 0 ppm, 20 ppm, 40 ppm, and 60 ppm twice a week for two weeks.The parameter observed including plant height, root dry biomass weight, shoot dry biomass weight, copper content in roots and shoots, and mycorrhizal colonization percentage

The results showed that *Glomus* spp. was inoculated sorghum were able increasing colonize up to 71.1%-83.33% at the combination treatment between inoculation mychorrizal and Cu 20 ppm. The combination treatment of mycorrhizal with Cu 20 ppm is the most effective in absorbing Cu up to 27.76 µg and 50.9 µg in shoots. Combination treatment between inoculation mychorrizal with concentration Cu 20 ppm, also increases the weight of biomass plant, 0.56 g dry weight of roots and 1.18 g shoots in 7^{th} weeks, and then shoot dry weight 9.63 gr in 9^{th} weeks, and then 2.56 gr roots and 15.5 g shoots 11^{th} weeks.

Kata kunci : Cu, phytoremediation, mychorrizal, sorghum, biomass