

Removal of chromium from chromium-contaminated soil and physiological response of shallot (*Allium ascalonicum* L.) on treatments of biochar and mycorrhizae

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Abstract	<p>Food safety and soil degradation were the reasons to treat contaminated soil. Shallots are high-value commodities, so cultivation is carried out intensively. Continuous use of agrochemicals can cause heavy metal contamination. This study aimed to investigate chromium removal, physiological characters, and yield of shallot (<i>Allium ascalonicum</i> L.) on biochar and mycorrhizae application on chromium-contaminated soil. A pot experiment was conducted at the screen house ex-farm of the Faculty of Agriculture, Jenderal Soedirman University. The treatments tested consisted of two factors. The first factor was biochar dosage (B) consisting of 4 levels, i.e., B0 = without biochar, B1 = 1.2 g biochar kg⁻¹ of soil, B2 = 2.4 g biochar kg⁻¹ of soil, and B3 = 4.8 g biochar kg⁻¹ of soil. The second factor was mycorrhizae inoculation consisting of 3 levels, i.e., M0 = without mycorrhizae, M1 = 0.1 g mycorrhizae kg⁻¹ of soil, M2 = 0.2 g mycorrhizae kg⁻¹ of soil. The twelve treatments were arranged in a randomized block design with three replications. The results showed that the application of 1.2 g, 2.4 g, and 4.8 g biochar kg⁻¹ of soil had been able to increase plant height and the percentage of root infection. The application of mycorrhizae 0.1 g and 0.2 g mycorrhizae kg⁻¹ of soil was able to increase plant height, percentage of root infection, and plant tissue P uptake. Both applications of biochar and mycorrhizae increased plant height and the percentage of root infection by mycorrhizae.</p>
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