

Bioremediation of Pb and Cd contaminated soil by mycorrhiza and biochar treatment and its effect on growth and yield of shallot

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Abstract	The contamination of shallots in the food chain by heavy metals such as lead (Pb) and cadmium (Cd) is caused by chemical fertilizers and pesticides. The study aimed to determine the growth and yields of shallot cultivated on soil contaminated with Pb and Cd using mycorrhiza and biochar. The study was conducted in the screen house at Jenderal Soedirman University, Faculty of Agriculture, from April to September 2020, and it was carried out using a factorial Randomized Completely Block Design that involved three replications and two factors. The first factor of mycorrhiza dosage comprised 0, 1, and 2 g/pot, and the second factor of biochar dosage comprised 0, 2.5, 5, and 10 t/ha. The plant height, leaf area, growth rate, number of leaves, total root length, net assimilation rate, leaf chlorophyll, the percentage of root infection, P uptake by plant tissue, tuber weight, harvest index, the effectiveness of absorption and removal of heavy metals were the variables recorded. The results showed that applying biochar at 2.5, 5, and 10 t/ha and mycorrhiza at 1 and 2 g/pot could increase plant height and the percentage of root infection. The application of mycorrhiza at 1 and 2 g/pot increased P uptake by plant tissue.
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