ABSTRACT

Phytoremediation is a method in which plants are used to remove, stabilize, and eradicate organic and inorganic contaminant in soil, sediment, and water. This research aims to examine the effects of Pb, Cd and combinations to plant height and width, soil pH, and CO₂; the percentage of reduction of Pb and Cd-contaminated soil by *Jatropha curcas* plant; capability of *Jatropha curcas* in accumulating Pb and Cd contaminated-soil; and the percentage Pb and Cd accumulation within *Jatropha curcas*.

Pb(NO₃)₂, Cd(NO₃)₂.4H₂O, *Jatropha curcas*, and soil are used to achieve goal of the research. Several variables are involved here that include heavy metal types such as Pb and Cd, variants of Pb and Cd concentration, and a combination of Pb and Cd (Pb:Cd=50%:50%, Pb:Cd=75%:25%, and Pb:Cd=25%:75%). The parameters set include plant height and width, soil pH, CO₂, quantity of dry plants, and the concentration of Pb and Cd in plants and soil.

This research shows Pb, Cd and combinations gives an effect to plant height and width, soil pH, CO₂; the percentage of reduction of Pb and Cd-contaminated soil is 84-98% for Pb; 76-91% for Cd; and 75-92% Pb : 74-92% Cd; *Jatropha curcas* have a capability to accumulating Pb and Cd; the percentage of accumulation of Pb and Cd in *Jatropha curcas* is 1-45% for Pb; 46-125% for Cd; and 0,48-39% Pb : 16-236% Cd.

Keywords: Pb, Cd, phytoremediation, *Jatropha curcas* plant