

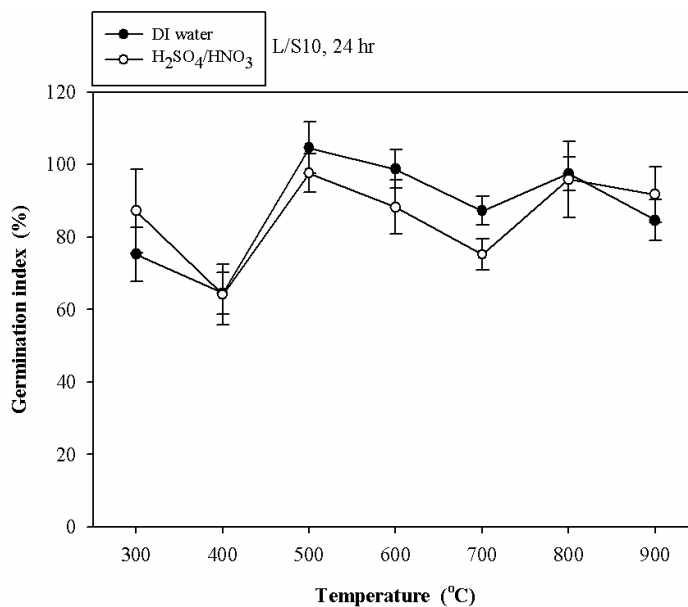
The effect of pyrolysis temperature on characteristics and leachate behaviours of sewage sludge biochar

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Physical-chemical and leachates characteristics of biochar products from sewage sludge at different of pyrolysis temperatures from 300°C to 900°C and phytotoxicity on wheat (*Triticum aestivum*) were investigated. Statistical analyses were used to evaluate the contributions of the constituents to the germination index (GI) of biochar leachates. Experimental results revealed that biochars were rich in micronutrient contents and they improved wheat germinated. Although contents of heavy metals including As, Cd, Cr, Cu, Pb and Zn were elevated in the biochars, their contents in the biochars of this study fell within the acceptable limits for land application and sewage sludge is a suitable biochar resource. The wheat germinated higher than control in the reference, especially biochar produced at 500°C corresponding to the longest final roots. This study indicated that the constituents in leachate had a dual effect of promotion and inhibition on the growth of seed wheat. GI was promoted by the constituents at lower concentrations, whereas these processes were inhibited at higher concentrations, including the suitable of pH and salinity of leachate samples.



Keywords: Sewage sludge; Biochar; Phytotoxicity; Leaching tests