DYNAMIC OF DISSOLVED PHOSPHORUS AND PHOSPHATE SOLUBILIZING MICROBES IN POST - FIRE FOREST SOIL

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Summary

Forest fires have not only occurred and caused economic losses for forest enterprises and planters but also harmed nutrients of soil during the post - fire period. This study was conducted to determine the dynamic of dissolved phosphorus and phosphorus microorganism in soils after occurring forest fire. Soil samples were collected from a burned forest area and non - burned forest area of *Pinus massoniana* plantation in Soc Son district, Ha Noi. At A layer, the amount of dissolved inorganic phosphorus (DIP) reached the maximum value at 8 months after fire, decreased at 11 months after fire, while the amount of dissolved organic phosphorus (DOP) declined during the time. At biochar layer, there was an increase in the amount of DOP while the amount of DIP decreased during 4 to 11 months after fire. DOP is the dominant form in most of layers, except biochar layer after 4 months of fire. The amount of total dissolved phosphorus (TDP) in both A layer and biochar layer in the soil after fire are 7.29 $mgkg^{-1}$, 7.10 $mgkg^{-1}$ and 8.57 $mgkg^{-1}$ after 4 months, 8 months, 11 months of fire, respectively. Fourteen strains with phosphate solubilization activity were isolated from different soil layers. Their efficiencies in solubilizing insoluble inorganic phosphorus were from moderate to high. This finding suggests that the amount of dissolved phosphorus changed over time after forest fires.

Keywords: *Organic phosphorus, inorganic phosphorus, dissolve, undissolve, forest fires.*