



Monitoring the long-term effects of fire intensity on the functional properties of soil biochar

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Climate change is expected to change the wildfire regime in Canada's boreal forest. For example, fire intensity (i.e. fire front temperature and heat duration) should vary with climate induced changes in fire seasonality, soil moisture and fuel load. In a preliminary study, we demonstrated that fire intensity had a significant and substantial effect on the physico-chemical and functional properties of biochar. In turn, biochar produced at different temperature had significant and substantial effects on soil microbial and nutrient dynamics. These past data depended, however, on a destructive sampling approach, which prevented us from continuous, long-term monitoring of these dynamic soil properties. Here, we describe a new study, using a novel non-destructive micro-dialysis approach, to reveal the interactions between "biochar quality", "soil tannins" and "time" in controlling soil microbial and nutrient dynamics. Data will be useful for predicting the effects of wildfire intensity on post disturbance soil properties in the context of future climate change scenarios.