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The Effect of pre-incubation duration of soil-biochar model mixtures on the results of determination the intensity of substrate-induced respiration (Methodological aspects of study)

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Abstract

Was studied in laboratory experiments the effect of short term (3 days) and long term (95 and 187 days) pre-incubation of soil-biochar model mixes (ratio 20:1) in optimal conditions for the microorganisms on the results of definition the intensity of substrate induced respiration. For experiments 10 biochar samples were used. The biochars were produced from the woody and herbaceous materials under different pyrolysis conditions. Is revealed the heterogeneous influence of biochar by direction and dynamics on the rate of substrate induced respiration depending on the pre-incubation time of model mixtures. It is shown that the prolonged pre-incubation of biochar with soil material under optimal levels of moisture and temperature is a prerequisite for the correct formulation of laboratory experiments and provides a reliable assessment of the impact of biochar on a soil respiration. We can recommend the duration of pre-incubation 3-5 months.

Keywords

Biochar, Laboratory experiment, Soil substrate-induced respiration