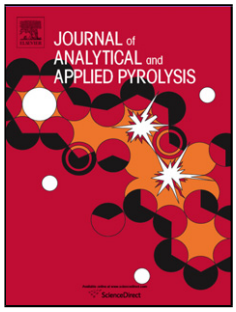

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Consistency of biochar properties over time and production scales: A characterisation of standard materials.

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Highlights

- Biochar with comparable properties can be produced by units at different scales
- Biochar with comparable properties can be produced by different types of pyrolysis units
- High consistency in biochar quality within and between production runs was achieved, demonstrating the possibility of production of engineered biochar at scale

Abstract

Users of biochar in the field require this product to reliably meet its declared specifications. For the first time, this work investigated, whether these specifications could be reproducibly obtained as a sole function of the thermal history of the biomass feedstock during slow pyrolysis, irrespective of the type and scale of the production unit. Using volatile matter content as a proxy for a wider set of biochar quality parameters, biochar from units at scales from grams to hundreds of kilograms, representing three main types of slow pyrolysis units