

Special Issue

Biochar Production Aiming to Improve Soil Fertility and Carbon Sequestration

Message from the Guest Editors

Biochar is a solid carbonaceous product resulting from biomass carbonization. The chemical and physical structure and properties of biochar are fundamental to the entire scope of environmental applications. Biochar is determined by the operative variables of carbonization or slow pyrolysis, concerning, e.g., operative temperature, residence time, or the configuration of production reactors. The potential for biochar for uses in environmental management is very significant and hard to evaluate. For example, considering carbon sequestration, one estimation is that sustainable global implementation of biochar with effects lasting for centuries can annually offset about 12% of 1.8 Gton of CO₂-Ce of the anthropogenic emitted 15.4 Gton of CO₂-Ce. Also, the relative climate-mitigation impact of biochar compared with that of biomass combustion is greatest in regions where poor soils growing biomass crops benefit most from biochar additions. In addition, there are benefits concerning the avoidance/compensation of fossil carbon emissions. Biochar in soil also helps with improving the soil's physical, chemical, and biological fertility....

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