

Co-composting of urban biochar with food waste decreases its efficacy as a soil amendment

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A composting experiment was conducted to artificially age biochar where food waste was composted alone and also with 10% urban biochar (UB) produced from urban wastes (2:1 ratio of biosolids and green waste) for 10 weeks. UB was also placed in litterbags inside compost mix to assess changes in biochar due to composting. Co-composting UB with food waste accelerates the composting process and increases biochar CEC, pH, EC and nutrient loading, however, this co-composting process also reduces the surface area and porosity of UB. To assess the agronomic value of the finished composts, those composted materials were mixed at the rate of 10% (V/V) with top soil of Semiaquic Podzol for a greenhouse experiment where sorghum plants were grown and plant performance was assessed along with weekly gaseous emissions. Results of the greenhouse experiment showed higher plant growth, lower emission of N₂O and higher plant nutrient uptake in soil amended with fresh urban biochar than compared to co-composted biochar treatment.