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Effect of biochar and compost application on quantity, quality and stability of organic carbon in sandy soil

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Nowadays the amount of waste is increasing as a consequence of civilization development. Significant proportion of municipal waste is biodegradable. For the treatment of these wastes composting and pyrolysis can be one solution. Many studies were published on the effects of composts in soils, but on combined application of biochars and composts only a limited number of articles are available. Total carbon content, water soluble organic carbon content and organic matter quality have decisive role in the utilization of soils. In our study the effects of combined application of biochars and compost on organic carbon quality, quantity and stability were measured in sandy soil. The sandy soil was mixed with different proportions (1w/w%, 2,5w/w%, 5w/w%, 10w/w%) of biochars. Two types of biochars produced by pyrolization were used: plant origin biochar (POB) and animal origin biochar (AOB). 20w/w% urban green compost was mixed into each sample in addition to biochars. After the 30 days of wet incubation soil organic carbon (SOC) content was determined by Walkley-Black method, while for the SOC quality measurements E4/E6 method was used. The dissolved organic carbon (DOC) was extracted from the soil samples by cold water, and determined by titrimetric method. The future purpose of our study is to find the optimal compost-biochar treatment in order to improve soil fertility and maximize crop yield.