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## Application of biochar to irrigated technosoils: Effects on germination and agronomic properties

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Today's agriculture faces the challenge of safely feeding a growing population. This situation generates additional pressures on the environment such as increased organic waste generation, irrigated cropland and the consumption of mineral fertilizers. Moreover, in the present context of global warming, it is necessary to transform the linear economy into a circular economy, in which organic waste should be valorized and greenhouse gas emissions reduced. During the last decade the transformation of organic waste into biochar, the carbon-rich material produced during pyrolysis of biomass to be applied as soil ameliorant [1], to increase the amount of pyrogenic C at soils have been developed [2]. Here, green compost and biochar were produced from contrasting agricultural wastes and applied at greenhouse under limited irrigation conditions.

Results showed that raw material, together with the pyrolysis conditions, determined physical properties of biochars, and thus its performance as soil amendment. In all cases, an increase in the pyrogenic carbon content and a general improvement in the physical properties of agronomic interest of the technosoils were observed. However, the use of high doses of olive-pomace biochar negatively affected the germination due to its high salinity.

Biochar, although beneficial, is therefore not a universal solution and must be characterized, have the appropriate properties and be applied in a specific way to correct specific soil deficiencies.

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