

*Title:* **Co-composting with biochar to improve the quality of an agricultural soil in Can Moragues**

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Mediterranean agricultural soil is example of remarkable present and futures issues soils face such as loss of structure, low fertility and soil carbon deficits. The present work is part of the project "*Divulgació de l'ús del biochar en agricultura: una metodologia versàtil i sostenible per a la regeneració i bioremediació de sòls i el filtratge d'aigua de reg*" funded by la Generalitat de Catalunya and developed by the entities Universitat de Barcelona, IDÀRIA, *Empresa d'inserció*, SCCL and Fundació Emys. The use of compost and biochar as amendments can improve plant growth by decreasing soil compaction and increasing water and nutrient retention. At the same time biochar act as a carbon sink thereby reducing the amount of soil CO<sub>2</sub> released into the atmosphere. Recent studies indicate another positive aspect of it: improve the composting process, also known as co-composting. The study of changes in the characteristics of a mature compost mixed with biochar in a period of 5 months in an aerobic composting situation, and the improvement of the quality of a soil sample from a degraded agricultural space with the application of the above amendments, will be underscored

A plant experiment under controlled chamber conditions was performed with three different treatments: soil, soil plus compost, and compost with biochar. For each treatment, two different water regimes were performed. Plant parameters such as evapotranspiration and biomass; and soil parameters such as water holding capacity, bulk density, textural class, cation exchange capacity, and micronutrient bioavailability were evaluated. In the short term the addition of amendments improved the soil properties, with a slight bigger effect for compost.

There were learning-service activities at Can Moragues Estate and an outreach workshop of biochar with primary students.

**Keywords:** Agricultural soil, co-composting, evapotranspiration, learning-service



