

Contribution to the Study of the Effect of a Biofertilizer Derived from Co-digestion on Quinoa Cultivation (*Chenopodium quinoa*)

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Abstract

Due to drought and low soil fertility, Moroccan farmers have a limited choice of crops. In this context, quinoa (*Chenopodium quinoa*) shows promise for these conditions. Organic fertilizers show significant potential for improving agricultural production. The present work investigates the effect of biofertilizing quinoa using a biofertilizer derived from the anaerobic co-digestion of olive mill wastewater (OMW), fish waste (FW) and fruit and vegetable residues (FVW). For this purpose, an experiment was conducted in a greenhouse at the experimental station of the Faculty of Science at Mohammed first University. The experimental treatments included four (4) digestates with a mixture of equal proportions (33% each) of olive wastewater, waste, and cattle dung as inoculum. These mixtures were digested through methanization using two inoculum/substrate (I/S) ratios of 2:1 and 3:1. The results obtained show that the application of digestate has a positive effect on the growth and development of quinoa. However, the combined treatments, namely T5, T6, and T8, which include both digestate and organic fertilizers, have shown a more significant effect on most morphological and physiological parameters, as well as agronomic parameters, specifically yield.

Keywords

Quinoa, Digestate, Fertilizer, OMW, FW, FVW, Growth, Yield