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Agronomic valorization of the active sludge from the waste-water microalgae-bacterial treatment and of the digestate produced in the anaerobic digestion of this sludge for obtaining biogas

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The MICROALBAC project aims to integrate the cultivation of microalgae in conventional wastewater treatment plants to reduce the energy costs of the systems of oxygenation and agitation of the aerobic reactors as well as the revaluation of the "algal biomass" micro-algae/bacteria through its use as a fertilizer and production of biogas as co-substrate. The effect of the "algal biomass" on plant yield (ryegrass and barley) and soil properties has been evaluated at microcosmos level in comparison with conventional sewage sludge. Five different doses of each organic material have been assayed in quadruplicate. Plants have been grown for two months in a growth chamber and then the aerial part of the plant has been cut and fresh and dry weight as well as nutrients and heavy metal plant content have been determined. Different physical (water holding capacity) chemical (pH, EC, nutrients, heavy metals...) and microbiological parameters (basal respiration dehydrogenase and hydrolase activities) were determined in soils. The effect of this "algal biomass" on lettuce growth has also been evaluated in greenhouse conditions in comparison with the addition of anaerobic sludge and conventional inorganic fertilization.

Biography

Teresa Hernandez is Professor of Research of the Spanish National Research Council (CSIC). She has more than 190 indexed publications has been Responsible Researcher of different National and European Projects and has conducted 16 PhD thesis. She is Professor of Master's and Doctoral courses at the University of Murcia and Cartagena (Spain) and Co-Founder and President of the Spanish Group of Soil Enzymology (1998-2005). She has been Vice-Director of the CEBAS-CSIC for five years (March 1989 — June 1994).

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