

Growth of three microalgae strains and nutrient removal from an agro-zootechnical digestate.

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Abstract

In this paper three microalgae strains (*Neochloris oleoabundans*, *Chlorella vulgaris* and *Scenedesmus obliquus*) were cultivated on an agro-zootechnical digestate in comparable conditions. The material used as growth media was obtained from a pilot plant anaerobic digester used to digest several mixes of cattle slurry and raw cheese whey. The main aims were to compare the algae growth, their tolerance with respect to the various dilutions of digestate, their nutrient removal efficiency and their role in the transformation of nitrogen compounds. *C. vulgaris* presented the highest elimination capacity of ammonium in 1:10 digestate sample; it was also observed that only 4% of ammonia was removed with stripping, microalgal and bacterial consortium recovered the remaining 96%. The three strains almost completely removed different nitrogen forms and phosphate in 11d. The results show that microalgal biomass production offers real opportunities for addressing issues such CO₂ sequestration, biofuel production and wastewater treatment.

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