

Predictive modeling of the synergistic effect of a microalgae-bacteria co-culture in a microfluidic system - for an improved bioenergy process (PREDICABLE)

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This project aims at studying the potential of the interaction between two types of microorganisms, bacteria (*Escherichia coli*) and microalgae (*Chlamydomonas reinhardtii*) in a dedicated novel microfluidic system. This microfluidic system will allow to culture these microorganisms and to follow in real time their growth rate as well as the effects of this co-culture on the productivity rate of the microalgae. For this study, we propose to design a predictive model that will allow us to evaluate and predict the effects of this co-culture, based on experimental measurements, at the scale of a few cells in a microsystem. It will allow us to identify the parameters of interest which could be linked to the improvement of the growth rate and the productivity of microalgae in bioenergy processes.

