

MICROALGAE

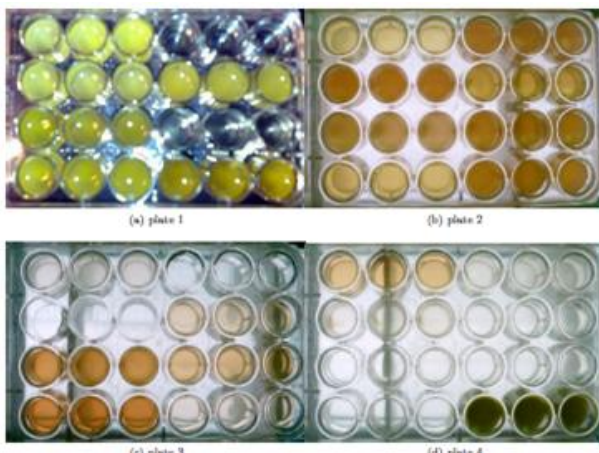
Cost efficient algal cultivation systems – A source of emission control and industrial development

Period covered: 01.02.2014 – 31.01.2015

The MICROALGAE project focuses on microalgae cultivation systems for nutrients in wastewater treatment coupled with biogas production. The main objective of the project's research is to provide innovative solutions for industrial development, abatement of eutrophication and efficient emission control in the Baltic Sea region.

The project activities started from selection of representative industrial and mixed municipal/industrial wastewaters for microalgae treatment based on the previous research and monitoring results in the Baltic Sea Area and analysis on typical concentration ranges of nutrients and micropollutants. The study results on identification of wastewater streams were published in *Report on the selection of wastewaters* (Deliverable 1.1.) and in popular scientific publication *Local runoff sources and wastewaters in the Baltic Sea Area* (Deliverable 5.1.).

After that, selected wastewaters were analysed for specific compounds in water quality laboratories in Estonia and transported to Denmark for screening a number of microalgal species (autotrophic and/or heterotrophic) for their potential to grow in the selected wastewaters and produce algal biomass for the generation of energy efficient biogas. The screening was performed using an innovative method based on microplates that allows testing of hundreds of different conditions at the same time, minimising the time of the analysis (Picture 1). The results of this research were demonstrated in *Report on selection of microalgae/wastewaters combinations* (Deliverable 1.2.).



Picture 1: Screening of different microalgal species/wastewaters combinations

Another project deliverable *Identification of local sites* was demonstrated by applying socio-economical indicators for feasible sites (Deliverable 4.1.).

All the tasks planned for the first project period were fulfilled. The project final results are expected to have large private, environmental and social benefits such as introduction of a cost efficient and innovative biotechnology to private sector, cleaner environment and higher social welfare resulting from improved water quality and production of environmentally-friendly biogas.