Screening microalgae species for wastewater phosphate removal/recovery and high value chemicals production

funded by a Business Interaction Voucher awarded through the High Value Chemicals from Plants Network by the Biotechnology and Biological Sciences Research Council (BBSRC)

The challenge
Microalgae are a promising source of biofuel, high value chemicals and nutraceuticals but there are major technological challenges which currently limit the extent to which they can be used. This Project set out to identify a suitable microalgal strain to use as a feedstock in an integrated microalgal-based waste water treatment system and test its ability to remove phosphate contamination from waste water while producing viable quantities of high value lipids and biochar.

Project goals
Short-term: To investigate the bioremediation potential of microalgae grown in waste water.
Long-term: TeeGene has a long-term interest in building its own integrated biomanufacturing facility in the North to make use of organic waste streams.
Project outputs

- The project identified useful microalgae strains and provided evidence that there is technical viability for the recovery of phosphorus from waste water and the production of lipids that are of value to the biofuels and nutraceutical industries using an integrated biorefinery approach.

Six months on

- TeeGene has attracted local news interest including http://www.thenorthernecho.co.uk/business/news/13318866.Tech_firm_s_plant_chemical_work/ and http://www.chroniclelive.co.uk/business/business-news/teegene-biotech-take-part-research-10807068
- TeeGene was short-listed as a finalist for the Best Business Start Up, IChemE Global Awards, 2015
- TeeGene was selected to take part in a prestigious international networking visit to New Zealand sponsored by the Department for Business, Innovation & Skills (BIS) in March 2016 to establish collaborative R&D links in algal biotechnology with New Zealand’s Crown Research Institutes, leading universities and specialist biotech firms.
- Samples from TeeGene’s R&D work were displayed at the Teesside World Exposition of Art and Technology, Middlesbrough Institute of Modern Art, drawing attention to opportunities for bioscience and technology to make a positive contribution to the future of industry in the North East region.

This Project has established the viability in principle of an integrated biorefinery based upon a hydrothermal enabling technology.”

BIV final report, February 2016.

This [BIV] funding is an excellent outcome and the work proposed in this project will pump-prime one of the arms of TeeGene’s business model, the development of integrated biorefinery technology based on organic waste streams.

Pattanathu Rahman,
Director, TeeGene Biotech Ltd.

High Value Chemicals from Plants Network, a BBSRC-funded Network in Industrial Biotechnology and Bioenergy, is co-ordinated by the University of York and John Innes Centre

For more information or to apply for a HVCfP BIV, see: https://hvcfp.net/business-interaction-vouchers