Super Seaweeds to the rescue!

PROJECT NAME: Genetic selection of high performance alga for the production of fatty acids. Reef HQ Aquarium provides algae to researcher comparing genetic stock of algae strains and optimise the production of algae

PROJECT DATES: July 2013 – February 2014.

PROJECT LEADER: Bjoern Gosch from the Macroalgal Biofuels and Bioproducts. James Cook University, Townsville, Australia.

PROJECT FOCUS: This project is focusing on *Derbesia,* a marine green macroalgae that is rich in fatty acids. Fatty acids are used across a range of applications such as diet supplement for humans and animals, biodiesels, and by the chemical industry in plastics, solvents, paints, etc. Cultivating algae to produce fatty acids is therefore a challenge with potentially high economic implications.

In order to optimize cultivation of *Derbesia*, this project aims at selecting the most productive strain and determining the best environmental conditions, such as light intensity and nutrient level, for maximum growth and best fatty acid content in terms of quantity and quality.

PROJECT CHALLENGES: *Derbesia* is actually difficult to collect in the wild as it likes dark areas and grows in cryptic corners. However, it tends to be a pest in aquaria and that's where the leader of this project collected eight different strains of *Derbesia*. Reef HQ Aquarium supplied one of the eight strains to be tested from its Deep Reef tank, which provides the low light conditions that *Derbesia* enjoys.

Derbesia collected at Reef HQ Aquarium with prominent spore sacs. © Bjoern Gosch, James Cook University.

PROJECT OUTCOMES: Tests include growing the alga to develop more biomass in the first place, then analyzing each strain for genetic information, and finally submitting the algae to various light and nutrient levels to define the strains that are most productive. The expected outcome is to select the best strains of algae.