

## 2<sup>nd</sup> International Conference and Exhibition on **Mechanical & Aerospace Engineering** September 08-10, 2014 Hilton Philadelphia Airport, USA

### Macroalgae as a source of energy for biojet energy feedstock

O O Sulaiman<sup>1</sup>, S Cyrile, A Magee<sup>2</sup>, A S A Kader<sup>3</sup> and K Othman<sup>4</sup>

<sup>1</sup>Universiti Malaysia Terengganu, Malaysia

<sup>2</sup>Technip Malaysia, Malaysia

<sup>3</sup>University Technology Malaysia, Malaysia

<sup>4</sup>Bureau Veritas (M) Sdn Bhd Menara Dayabumi, Malaysia

Algae are auto tropic, marine organisms that produce energy like most other plants by a way of photosynthesis. Algae are naturally capable of producing large amounts of fatty acids, and can be grown on non-arable land without competition with food crops using only sunlight and water for growth, this category of organism has long been considered to have potential for producing transportation fuels, particularly biodiesel, which is produced by the chemical trans-esterification of fatty acids. Macro-algae are more resistant to predators and environmental conditions than micro-algae. They produce energy which comes in the form of biomass or oil. Properly harvested oil can be converted into bio-fuels. Algae are aquatic. Their cultivation occurs in volume; instead of area, like land crops. Algae are also the fastest growing of all plant species on earth. These two characteristics give algae exceptional biomass output and fuel conversion potential when compared with land crops in per unit area comparisons. Properly supported, large scale algae cultivation presents an achievable opportunity to significantly replace fossil fuel usage. This paper present, open water system for production of macro algae fuel feed stock for biojet fuel and the life cycle process of biojet fuel conversion and sensitivity analysis.

[o.sulaiman@umt.edu.my](mailto:o.sulaiman@umt.edu.my)