



In situ transesterification of microalgae

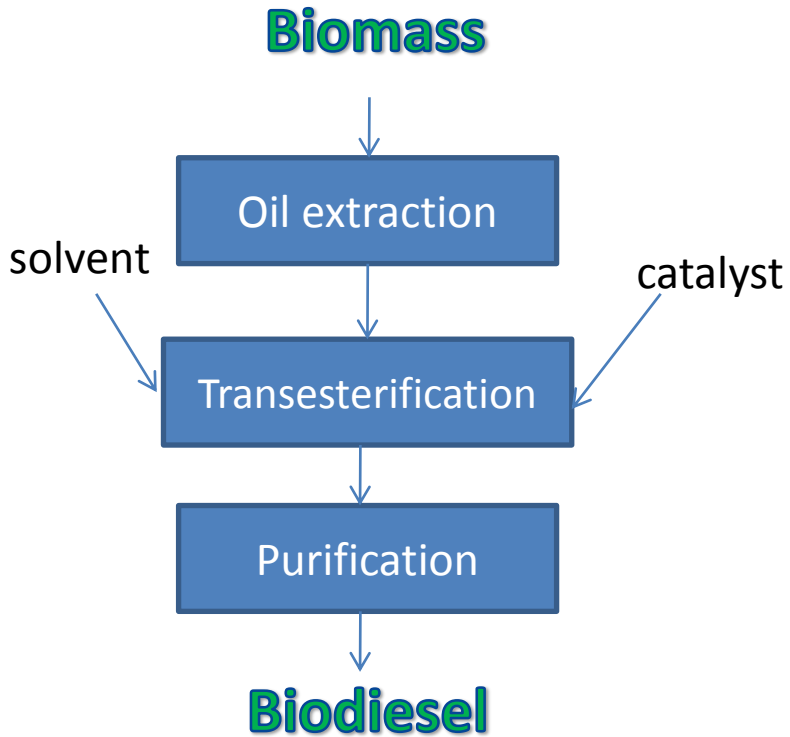
S Velasquez-Orta, J Lee, A Harvey

PIN Meeting

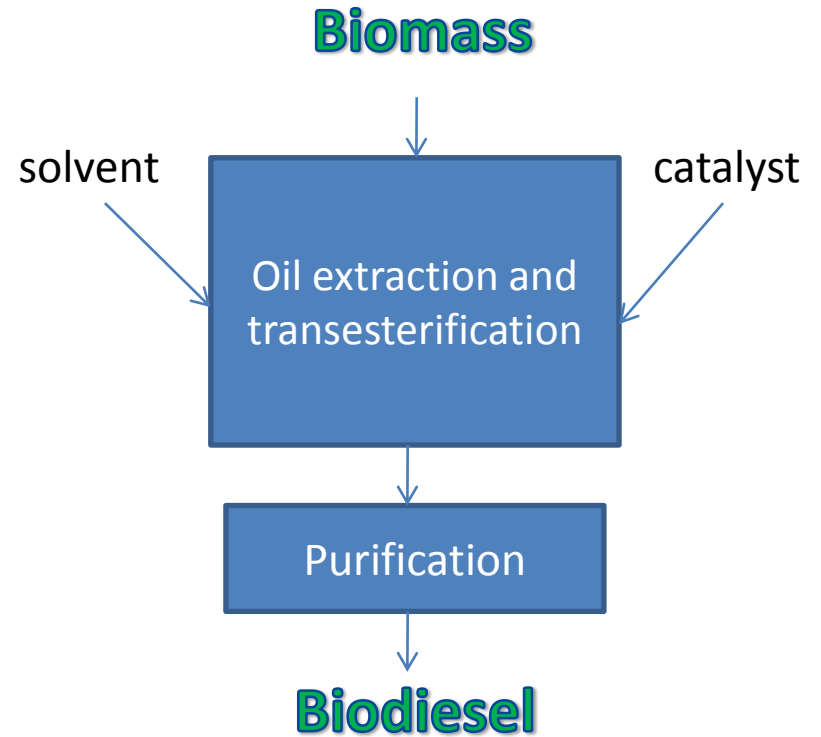
21/05/2013

FAME production using *in situ* transesterification

Conventional transesterification



In situ transesterification



Objectives

- Evaluate the relative moisture that can be used during in situ transesterification of *Nannochloropsis o.* and *Chlorella v.*
- Analyse the cell structure before and after transesterification
- Obtain the maximum FAME production from algae strains

Methods

- *In situ* transesterification methodology



Reactive extraction



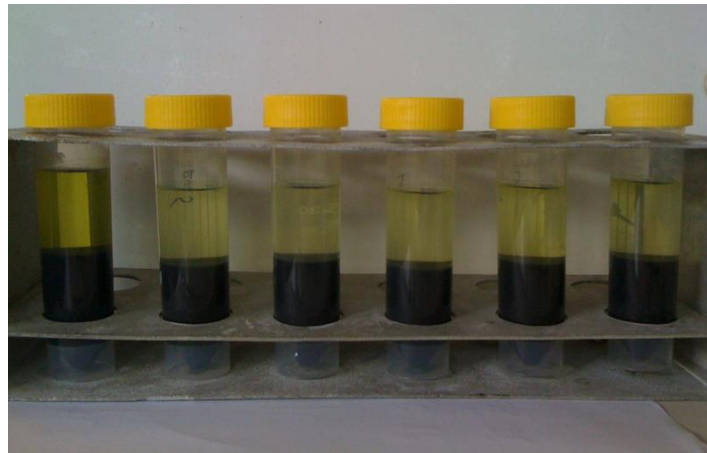
Separation of meal



Evaporation of methanol

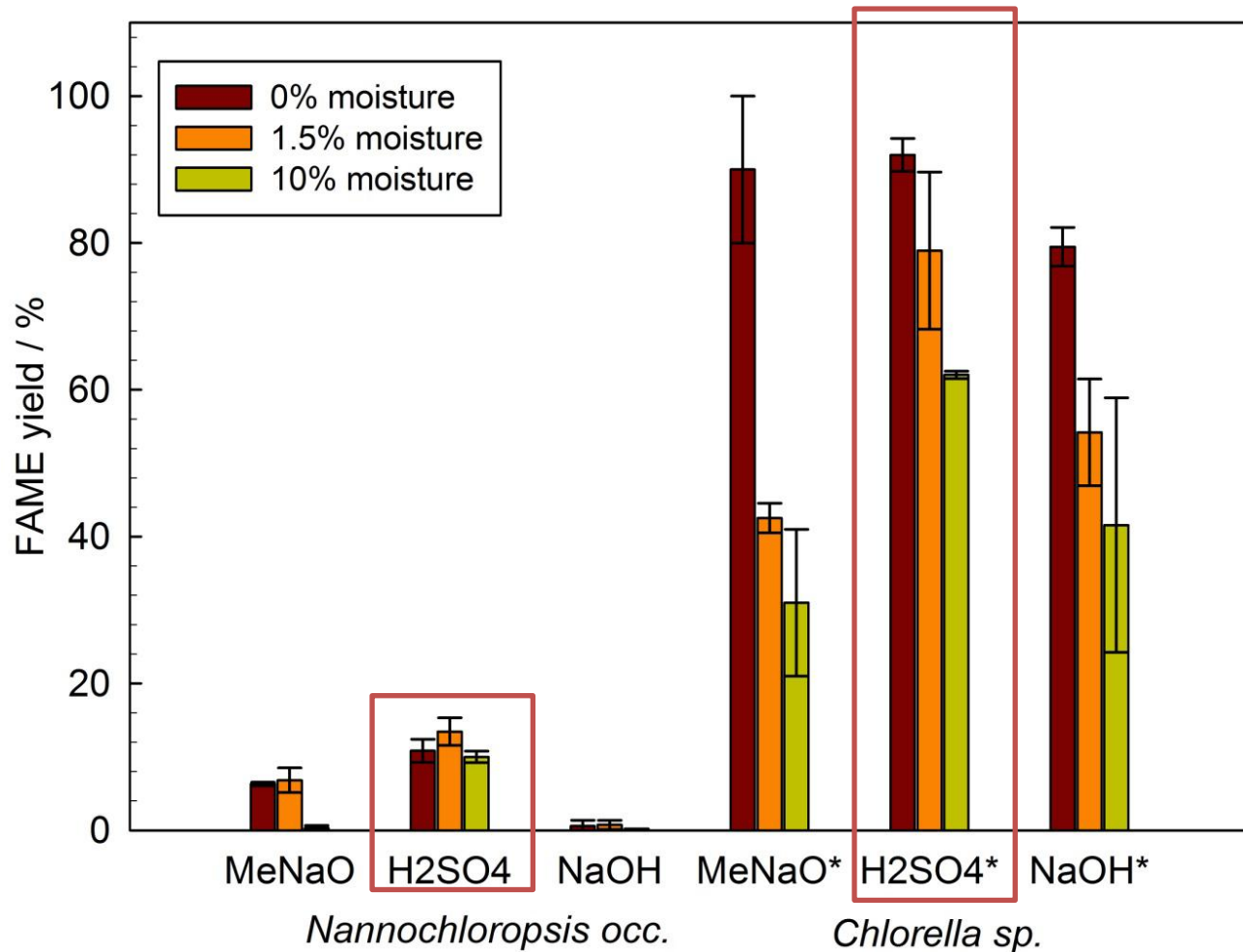


Separation of biodiesel

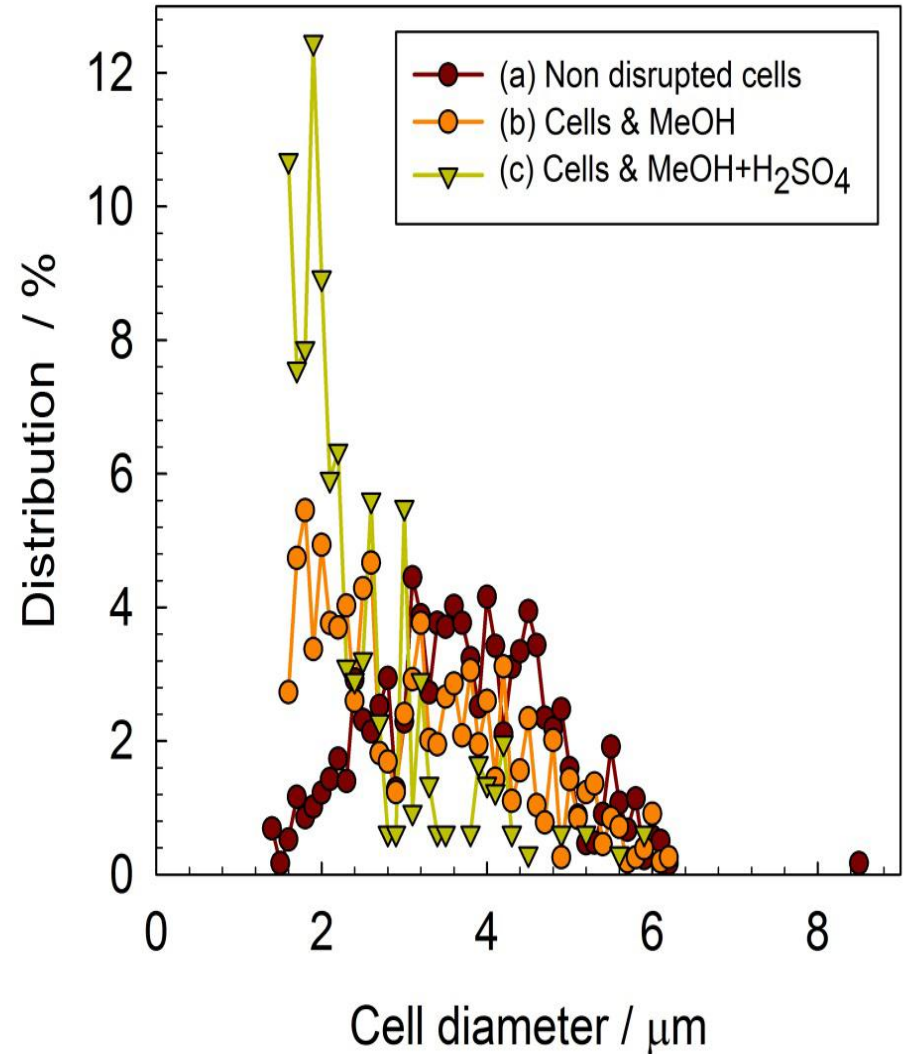
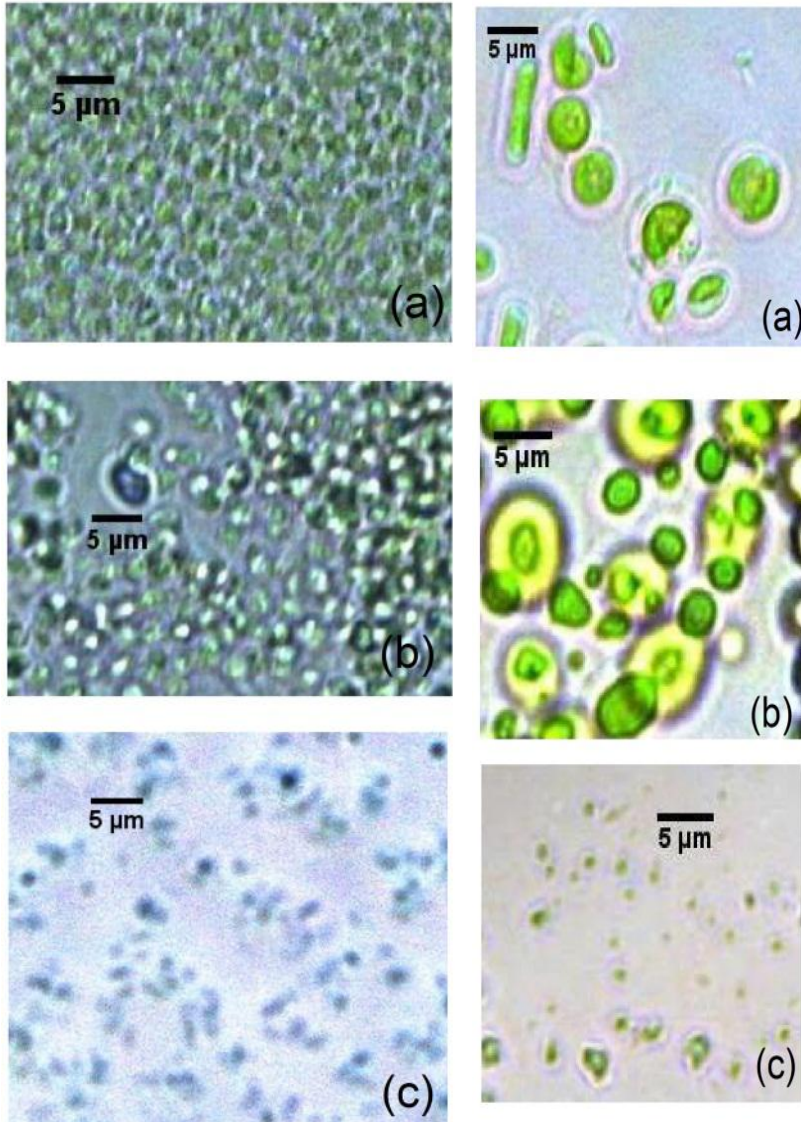


Results: effect of moisture content

- ✓ Highest recoveries were obtained when using sulphuric acid as catalyst
- ✓ Recoveries were different for Nannochloropsis vs sulphuric acid

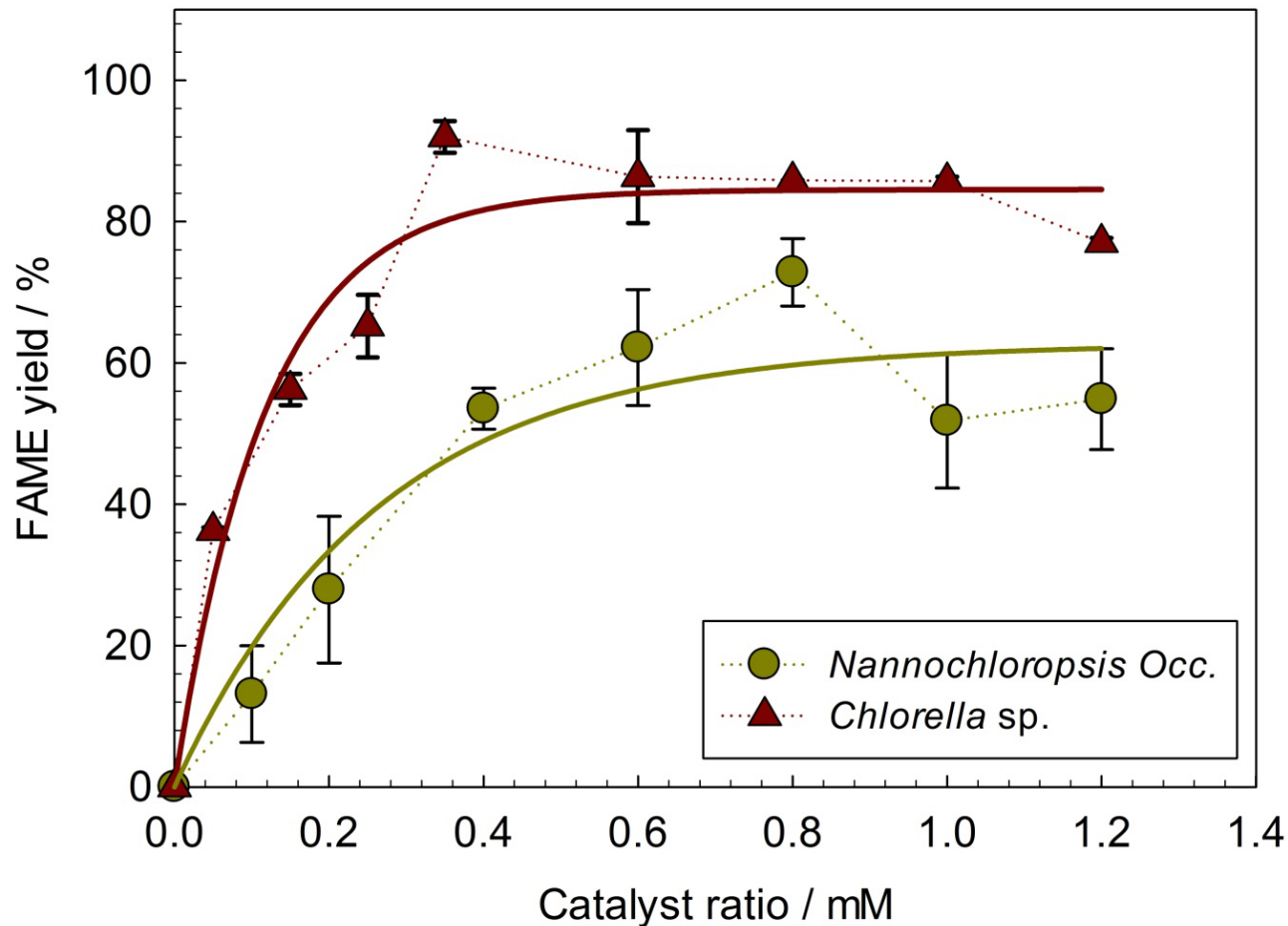


Results: change in microalgae diameter

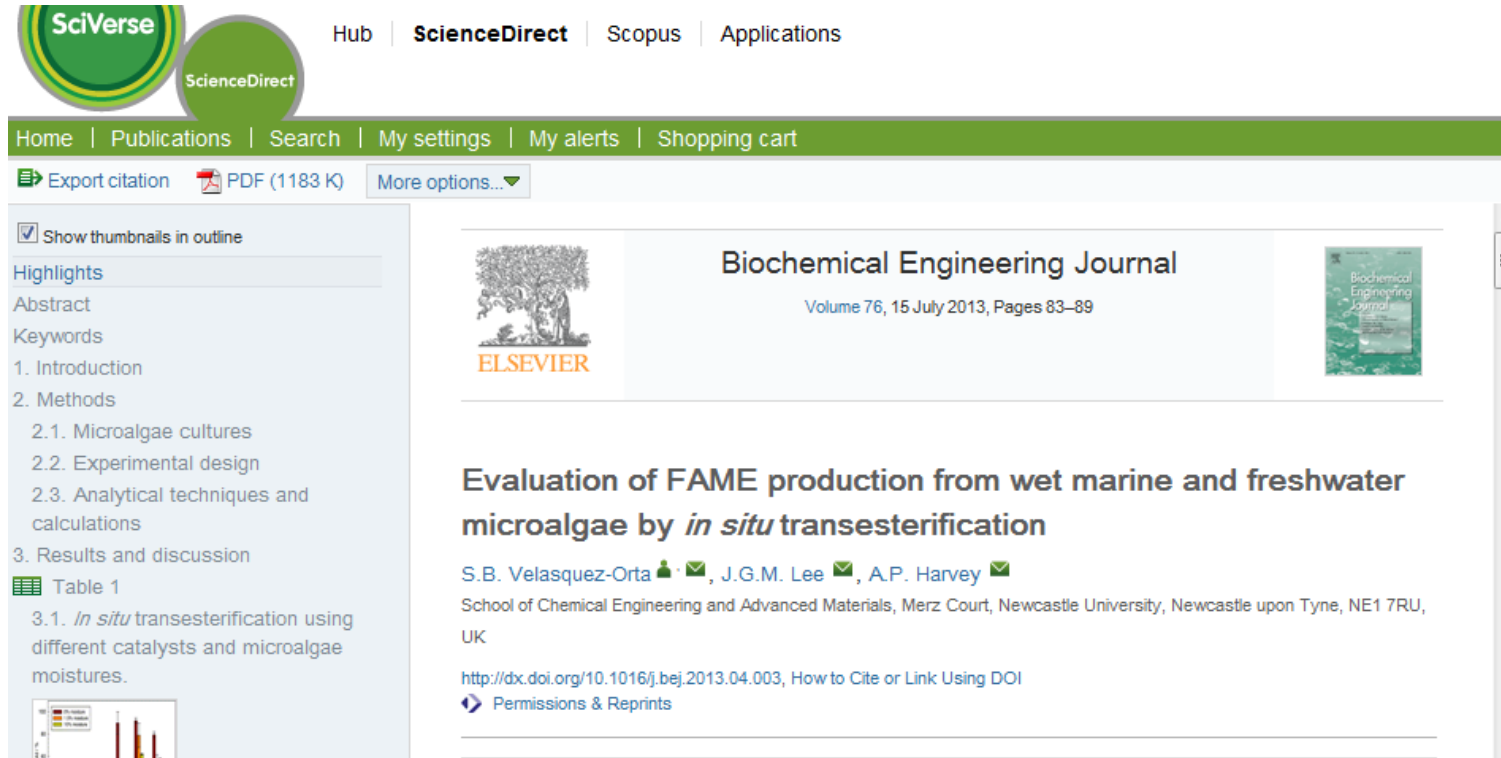


Highest yield of FAME obtained

- ✓ FAME yield values obtained were $92 \pm 2\%$ when using *Chlorella sp.* and $73 \pm 5\%$ when using *Nannochloropsis oculata*.



Thank you!



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Acknowledgements:
Miss Elinor Shilling, Dr Thea Coward