

Published: 16 July 2012

Bioprospecting unearths microalga for third-gen biofuels

South Australian researchers have isolated and evaluated a 'super strain' of a native microalgae species that could form the basis of a local biofuels industry.



Credit: SARDI

The South Australian Research and Development Institute (SARDI) team, led by Dr Sasi Nayar, says the breakthrough comes after six years of 'bioprospecting' across thousands of kilometres of the State and into the waters of the Great Australian Bight followed by laboratory and small-scale outdoor raceway trials.

The success in finding this particular strain of microalgae among the hundreds of microalgal species and strains evaluated has given South Australia a head start as research into 'third generation' biofuels advances to the next level.

SARDI's production trials are part of a \$4.2 million microalgae biorefinery project funded by the South Australian Government and project partners SARDI, Flinders University, United Water, Flinders Partners and Plentex Ltd.

Dr Nayar says the research team successfully isolated 14 native strains with potential. 'The flagship strain stands head and shoulders above the rest – it is a specific strain o*Nannochloropsis* (a green alga), with an unusually high lipid and protein content.

'These attributes mean that the microalgae has tremendous commercial potential with application across the full range of oil uses from biofuels to high value co-products such as animal and human food supplements, nutraceuticals and cosmeceuticals such as skin cream and anti-ageing creams.

'We are at a stage where we now know a lot about this species and its optimal growing conditions and we are ready to scale up to commercial level to refine the production systems to be used.'

The research partners are now looking for investors to help take the research to commercial pilot scale and then full commercial scale.

As a non-food feedstock, microalgae sources do not compete with traditional agriculture for land and resources. It produces a clean, renewable fuel that opens the door to significantly reducing greenhouse gas emissions.

Researchers say the process is carbon neutral because the microalgae absorb or recycle carbon as they grow.

The mining industry is one of the largest users of diesel in Australia, and biofuel derived from microalgae provides one of the best alternatives to petroleum-derived fuel for the aviation and vehicle industries.

More than 300 delegates from 27 countries attended last week's 'Algae for the Future' conference at which the research findings were presented.

Source: SARDI

From ECOS online http://www.ecosmagazine.com/?paper=EC12357