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Microalgae-Are they an appropriate feedstock for biofuels? What are the alternatives?

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Are microalgae derived biofuels anywhere near commercial reality? Over the past few years significant scale-up of appropriate processing technologies has been undertaken to further develop production of energy positive biofuels with carbon footprints less than fossil equivalents. Several companies have adopted hydrothermal liquefaction (HTL) as the method to convert biomass to hydrocarbon feedstocks, commonly known as green crude. A sub-critical water reaction is used to drive HTL. The true boiling point (TBP) distributions of green crude show equivalent data to fossil crude oils. The TBP for green crude derived from *Tetraselmis* sp. was found to be very similar to that of West Texas Intermediate crude oil, which can be readily fractionated to typical fuel components including approximately 30% petrol, 30% bunker fuel, 20% diesel and 20% jet fuel. Specific distillates can be blended with fossil derived distillates or used directly in the fuel supply chain. The yield and quality of green crude can be manipulated in several ways by manipulating either the biomass production protocols and/or manipulating the HTL reaction conditions. To realise commercialisation of biofuels feedstock costs must be minimal. This presentation will provide data that shows how the yield, quality and specificity of biofuel products derived from biomass generate commercial interest, but can economically viable processes be achieved?

Biography

David Lewis is the CEO of Muradel, a company commercialising the production of sustainable oils from organic feedstocks. He is an experienced Chartered Chemical Engineer with a strong background in leadership. He is proficient at motivating teams and has operated in the mining, automation, hospitality and defence industries. A calculated risk-taker with wide industry knowledge, he has spent the last 10 years developing new commercial opportunities focused on sustainable products from renewable feedstocks. He is also a tenured Professor at the University of Adelaide in the School of Chemical Engineering where he supervises postgraduate students on projects involving bioprocess technology R&D.

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