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Nature article on screening for oleaginous algae

Micro-algae synthesize high levels of lipids, carbohydrates and proteins photoautotrophically, thus attracting considerable interest for the biotechnological production of fuels, environmental remediation, functional foods and nutraceuticals. Currently, only a few micro-algae species are grown commercially at large-scale, primarily for “health-foods” and pigments. For “fuel to pharma” products, high lipid productivity strains are required. The authors present a screen concentrating on marine micro-algal strains, which is suitable for scale-up. Mass-Spectrophotometric analysis (MS) of nitrogen (N) and carbon (C) was subsequently validated by measurement of total fatty acids (TFA) by Gas-Chromatography (GC). This identified a rapid and accurate screening strategy based on elemental analysis. The screen identified *Nannochloropsis oceanica* and a marine isolate of *Chlorella vulgaris* as the best lipid producers. Analysis of C, N, protein, carbohydrate and Fatty Acid (FA) composition identified a suite of strains for further biotechnological applications e.g. *Dunaliella polymorpha*, significantly the most productive for carbohydrates, and *Cyclotella cryptica*.

Source: <http://www.nature.com/articles/srep09844>