



# **Biofuels from Algae: Chapter 7. Production of Biofuels from Algal Biomass by Fast Pyrolysis**

*Carlos José Dalmas Neto, Eduardo Bittencourt Sydney, Ricardo Assmann, Dolivar Coraucci Neto, Carlos Ricardo Soccol*

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Biofuel production from microalgae has been gaining importance in recent years as an alternative (nonpolluting) fuel source, but the industry faces economic challenges. In this context, a feasible technology of bio-oil production from microalgal biomass through fast pyrolysis is presented in this chapter. A microalga was cultivated in a cheap ethanol-wastewater-based medium, harvested, dried, and subjected to fast pyrolysis, the conditions of which were controlled to generate high yield of bio-oil. Bio-oil yield was 17.4% (m/m), with lower heating value (LHV) of 8,071kcal/kg. Volumetric energetic density was then calculated as 9,927.33kcal/L. Besides bio-oil, coal (10.8% m/m), acid extract (32.3% m/m), and gases (39.5% m/m) were produced. This technology combined low cost and simplicity of operation, turning fast pyrolysis of microalgae into a potential alternative in the free-carbon-emission fuel production process.



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