

# International Congress and Expo on **Biofuels & Bioenergy**

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## *Chlorella sp.* microalgae suspensions rheological behaviour analyzes in different culture times

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Renewable fuels production got great incentive recently, with fuel prices increase and more environmental issues concerns. Among raw materials available for biofuels, microalgae emerge as a sustainable alternative due to high productivity and needlessness in land and water quality. Taking into account the growing interest in microalgae use as raw material for biodiesel production, this research aims to analyze rheological behavior of microalgae suspensions (*Chlorella sp.*) in different culture times, in order to estimate the energy demands of each step, aimed optimizing the continuous-feed tubular bioreactor construction. Rheological studies are important for obtaining the information needed in the elaboration of projects and equipment that will be used in various operations existing in systems of production and extraction of algal biomass. Rheological analyses were conducted with rotational concentric cylinders viscometer (LV DV2T Brookfield viscometer). The Power Law model was adjusted well to the data of shear stress as a function of strain rate. In all concentrations, the cultures showed non-Newtonian behavior.

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