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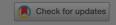
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Articles

# Ultrasound processing of *Chlorella vulgaris* and a novel functional classification of power ultrasound test systems

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# **Abstract**

This study evaluated energy transfer and efficiency in power ultrasound systems applied to processing of Chlorella vulgaris. Power transfer to a series of system combinations was characterized via calorimetry, and energy per cell ruptured was calculated from observed cell disruption. The calorimetric power transferred to solution

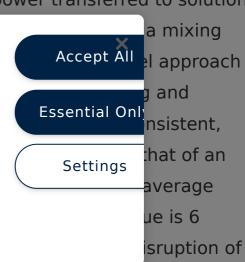
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a single algae cell with an atomic force microscope. However, the specific energy

requirement, estimated as 430 MJ per kg of dry algae cell disrupted, was within the range of values reported in the literature. This difference may be due to power transfer efficiencies inherent in existing algal pretreatment methods.

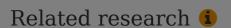
Q Keywords: Power ultrasound calorimetry horn erosion non-linear acoustics cell rupture

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# Disclosure statement

No potential conflict of interest was reported by the authors.



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