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(54) **SYSTEMS AND METHODS OF IMPROVED FERMENTATION**

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See application file for complete search history.

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(57) **ABSTRACT**

Devices, systems and methods for processing cellulosic material to produce fermentable sugars are provided. Devices, systems and methods for increasing fermentation rates of microbes via biostimulation are provided. Electrodes are preferably positioned along an interior or exterior of a tube-shaped component to administer electromagnetic/electric pulses to a solution comprising a microbe. Systems can advantageously be used in new biofuels production plants, or in existing biofuels production plants without the need for significant retrofits.

15 Claims, 16 Drawing Sheets