



**Michigan
Technological
University**

Chemical Engineering

Environmental progress & sustainable Energy Journal

Editorial Board

February 28, 2017

Dear Editor,

I am excited to submit this research manuscript, on behalf of my co-authors and myself, on the “Carbon footprint and energy analysis of Bio-CH₄ from a mixture of food waste and dairy manure in Denver, Colorado”. In this work, we determined the life cycle greenhouse gas (GHG) emissions and Net Energy Return on Investment of Bio-CH₄ produced from anaerobic digestion of a mixture of food waste and dairy manure in a facility near LaSalle, Colorado. The analysis compares a business-as-usual (BAU) case involving composting with an anaerobic digestion (AD) case. The BAU case includes the composting of food waste with manure plus the production and use of fossil natural gas. The AD case includes production of Bio-CH₄ through an advanced AD process as well as production and use of peat moss in an amount that represents the difference in compost production between the two cases. A second case models a more general situation of AD avoiding landfilling of food waste and conventional manure management.

This work is appropriate to publish in the Environmental progress & sustainable Energy Journal because this research looks at environmental analysis of Bio-CH₄ production with anaerobic digestion of food waste and dairy manure as an alternative approach for waste management and as a renewable source of methane.

This work was previously presented at the 2016 AIChE Annual Meeting at San Francisco, titled “(35b) Carbon Footprint Analysis of Biomethane from Anaerobic Digestion of a Food Waste / Manure Mixture in Colorado” in Session, Life Cycle Analysis of Bio-Based Fuels, Energy, and Chemicals. It was recommended by the session chairs for submission to the journal. Thank you for your time and consideration. We look forward to publishing this article in the Environmental progress & sustainable Energy Journal.

Sincerely,

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Title: “Carbon footprint and energy analysis of Bio-CH₄ from a mixture of food waste and dairy manure in Denver, Colorado”

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