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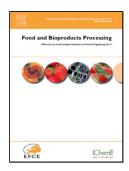
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ACCEPTED MANUSCRIPT

IMPACT OF SUPPLEMENTARY NUTRIENTS ON CODIGESTION OF

AGRICULTURAL WASTE: STUDY OF TEMPERATURES

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HIGHLIGHTS

Agricultural waste codigestion was studied at different temperatures-35, 42, 55 °C-

Addition of extra nutrients was studied in all the temperatures ranges

Adding extra nutrients improves anaerobic codigestion in biogas production

• 35 °C was the temperature with more remarkable impact after adding extra nutrients

Abstract

Different wastes treated together can be the supplement of nutritional deficiencies for the

microorganisms involved in anaerobic codigestion (AcoD). In this study, the presence of

macromolecules and trace elements on AcoD of agricultural waste was assessed. An extra

nutrients solution that plays a key role in the microbiological metabolism was used at three

different conditions: mesophilic (35 °C), intermediate (42 °C) and thermophilic (55 °C). The

main results showed that at 35 °C in the presence of nutrients, biogas production reached 1.5-

fold the production of biogas without them. Additionally, productivity was 1.9 times higher

than that for the process without nutrients.

Also, 42 °C without nutrients posed an interesting approach due to the uncommon use of this

intermediate temperature, which has been demonstrated to be worth considering (55 % of VS

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