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Integrated Biorefinery from Corn Waste Biomass: A Case Study in the North of Colombia

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Abstract:This work proposes a conceptual design of a biorefinery developed in Aspen Plus software from corn residues to produce bioethanol and succinic acid as an strategy to assist in the management of solid waste, while strengthening the economic and energy sector in the Bolivar department and establishing valid scientific basis for future studies. The stages of the process were established for the production of 4,332 kg/h and 1,252 kg/h succinic acid and ethanol from 87,810 t of corn waste per year. The plant, without energy integration showed an IRR of 33 %. A heat integration analysis was performed to determine the potential energy reduction. As a result, a heat exchange network was proposed. After integration, 99% and 64% of heating and cooling utilities were reduced.

Key words:Integrated Biorefinery, Corn Waste Biomass, North of Colombia.

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