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Review

Biorefinery Integration of Microalgae Production into Cassava Processing Industry: Potential and Perspectives

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Biorefinery Integration of Microalgae Production into Cassava Processing Industry:**Potential and Perspectives**

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Abstract

Cassava, the 5th most important staple crop, generates at least 600L of wastewater per ton of processed root. This residue, cassava processing wastewater (CPW) has a high chemical oxygen demand, that can reach 56g/L, and has also high concentrations of several mineral nutrients. The cultivation of microalgae such as *Chlorella*, *Spirulina* and wild strains was evaluated in the last years in raw, minimally processed and partially digested CPW. Concentrations of 2 to 4 g/L of these microalgae, comparable to those obtained in synthetic media, could be reached. The BOD of the residue was reduced up to 92%. This process can be integrated into cassava processing industries, if challenges such as the toxicity of the concentrated residue, bacterial contamination, and the isolation of robust strains are addressed. Because CPW carries about 11% of the crop energy, integrating biogas production and microalgal cultivation into the cassava processing chain is promising.

Key words: microalgae, cassava, wastewater, manipueira, biodigestion

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