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## Biorefinery process for coffee bean fermentation and mucilage valorization for biogas production

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The production of coffee is around 7.7 million tons per year, occupying 10.5 millions of hectares in more than 50 countries. At present, Colombia is placed as the third producer of coffee, only being surpassed by Vietnam and Brazil. Whiting of three countries are produced 94x106 of coffee bags of 60 kg. The Arabica variety represents the 80% of the world coffee production. In Colombia, this variety is cultivated in altitudes between 100 to 2000 MAMSL. In Colombia, and especially in Nariño Department, the coffee production is carried out by small producers, which traditionally they have been affected by the instability of the international price of coffee. Therefore, with the aim to improve the

quality of life of small coffee producers, in this work was developed a study of coffee fermentation to improve the cup test coffee, taking into consideration, the valorization of mucilage for biogas production, with the aim improve the sustainability of the coffee processing process. From the results obtained was established the presence of organic acids, such as citric, lactic, acetic and succinic, during 48 h of fermentation. The valorization of mucilage for biogas production showed the potential of production between 35-200 mg/l of CH<sub>4</sub> as a function of the mucilage load.

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