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Energy Potential of Organic Fraction of Municipal Solid Waste - Colombian Housing

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Abstract : The growing climate change, global warming and population growth have contributed to the energy crisis, aggravated by the generation of organic solid waste, as a material with high energy potential. From the context of waste generation in the Metropolitan Area of the Aburrá Valley, was evaluated the potential of energy content in organic solid waste generated in La Herradura housing complex, through anaerobic digestion process in batch reactors, with mixtures of substrate, water and inoculum 1: 3: 0.2 and 1: 3: 0, reaching a total biogas production of 0,2 m^3/Kg y 0,14 m^3/Kg respectively, in a period of 38 days under temperature conditions of 24°C. The volume of biogas obtained was equivalent to the monthly consumption of natural gas for 75 apartments or 1.856 Kw of electric power. For the Metropolitan Area of the Aburrá Valley, a production of 7.152Kw of electric power was estimated for a month, from the treatment of 22.319 tons of organic solid waste that would not be taken to the landfill. The results indicate that the treatment of organic waste from anaerobic digestion is a sustainable option to reduce pollution, contribute to the production of alternative energies and improve the efficiency of urban metabolism.

Keywords : alternative energies, anaerobic digestion, solid waste, sustainable construction, urban metabolism, waste management
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