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Grape Stalk Briquettes as an Alternative Feedstock of Biomass Gasifiers

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Abstract

Biomass gasifiers are used for sustainable development by using the agricultural waste as a feedstock. Grape stalk are the major agricultural by product available from the grapes garden. Hence thousands tons of grape stalk are available as agricultural waste, which can be used as feedstock to the biomass gasifiers. But the grape stalks cannot be used directly because of their low energy value. So these grape stalks are to be converted into some other suitable form of fuel which has comparable high energy value. This suitable form may be the briquettes from grape stalk. This paper reports the development of a low-density biomass gasification system (92.048 MJ/hr) for direct thermal applications. Initially, ultimate and proximate analysis of grape stalk is carried out in order to determine the calorific value of stalk. Analysis was done to determine its gross calorific value. The system was tested under laboratory conditions and the Gross Calorific Value of the gas produced was within the range 5-6MJ/Nm³. The GCV of briquette was found to be greater than that of grape stalks. Gasification output capacity, especially in the high output ranges, was controlled only by availability of adequate feed materials rather than other technical consideration.

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