



Sustainable Application of Rice Straw in Electrical Energy Generation and Mineral Processing Utilizing Its Residual Ash in Heavy Metals Sequestration

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The sustainable development is nowadays the main strategy where environmental policy becomes stricter including the handling of agricultural waste. Every year in Egypt and worldwide large amounts of rice straw is burning in open air causing severe air pollution. Banning of straw burning on fields may only take place by new inventory applications.

The current study could be a positive contribution of rice straw application in many fields such as clean renewable energy source via co-burning in methanol atmosphere at a temperature > 550 degree centigrade. Moreover, rice straw has many advantages in mineral processing including dissolution of ilmenite sands and manganese ores. The adsorptive behavior of the residual silica is determined mainly by the applied burning and the chemical conditions. In all cases, the silica-rich residue possesses a valuable character in heavy metals sequestration. The behavior of residual silica resembles that of the diagenetic silica in many sedimentary environments.