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## PRELIMINARY STUDIES ON THE PRODUCTION OF PAPER FROM MILLET HUSK AND RICE STRAW

Shreenidhi Krishnamurthy Subramaniyan\* , Johanna Rajkumar,  
Saranya Sri Santhanam, Kamalesh Raja, Gopinath Lakshmanan

Department of Biotechnology, Rajalakshmi Engineering College, Rajalakshmi Nagar, Chennai – 602105, India

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### Abstract

Rice straw and millet husk are produced globally in huge quantities as a by-product. Agricultural by-products can be used for a variety of applications, and processing agricultural solid wastes have several advantages, including reduced greenhouse gas emissions. This investigation determines the suitability of using rice straw and millet husk as raw materials in the production of paper, resulting in the reduction of virgin woods usage as the primary pulping material. Millet husk and rice straw have adequate cellulose levels and low lignin contents, making them ideal as an alternative low-cost raw material for papermaking. The initial process of softening the raw materials for pulp production was carried out with 12-15% of diluted sodium hydroxide solution. For comparative evaluation, different compositions of raw materials (100% rice straw, 100% millet husk, 50% millet husk:50% rice straw, 80% rice straw:20% millet husk) were used. The produced sheets were subjected to various analyses such as GSM, Thickness, Bulk density, Moisture content, Ash content, pH, Absorbency, and Biodegradability. The paper made of 100% millet husk had the highest GSM value, while the paper made of 100% rice straw had the highest bulk density. The moisture and the ash content of the paper made of 50% millet husk: 50% rice straw presented with the lowest values of 7.46 % and 6.45 % respectively. Based on preliminary investigation, the results indicate the eligibility of rice straw and millet husk as raw materials for paper production; a better way to recycle agricultural wastes.

*Key words:* agricultural waste management, millet husk, paper production, rice straw

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\* Author to whom all correspondence should be addressed: e-mail: [shreenidhi.ks@rajalakshmi.edu.in](mailto:shreenidhi.ks@rajalakshmi.edu.in)