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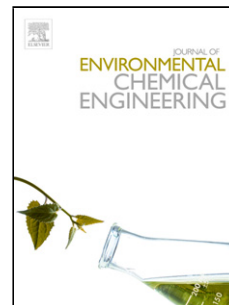
Title: Production of wrapping paper from banana fibres

Authors: Amit Ramdhonee, Pratima Jeetah

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PRODUCTION OF WRAPPING PAPER FROM BANANA FIBRES

AMIT RAMDHONEE¹ AND PRATIMA JEETAH^{*2}^{1,2} Department of Chemical and Environmental Engineering, University of Mauritius, Réduit, Mauritius* CORRESPONDING AUTHOR: *P.JEETAH@UOM.AC.MU, TEL: +230 4037891, FAX: +230 4647144**Highlights**

- The banana fibers were chemically extracted according to the Kraft Process
- For comparative evaluation, along with banana fibres, bagasse and paper were used
- Banana pseudo stem contained 12.1 % lignin, 9.5 % ash with Kappa number of 72.3
- The tensile index of wrapping paper from banana fibres and wastepaper was 29.4Nm/g
- The average bursting index of wrapping paper from banana fibres was 2.0 kPa.m²/g

ABSTRACT

The widespread availability of banana pseudo stems which do not have considerable commercial value in the country presents a potential source of non-wood raw material for paper production. This investigation determined the suitability of using banana fiber for wrapping paper production. Banana fiber was used with sugarcane bagasse and wastepaper to produce paper in 20:80, 40:60, 60:40 and 80:20 ratios. Banana and sugarcane bagasse were chemically pulped using 12% NaOH and 4% Na₂S for 1.5 hours. The mean thickness of the papers were 0.263 ± 0.04 mm. 100% banana paper and 100% bagasse paper showed nearly similar water absorbency (2.15 s and 2.17 s) and were 2.25 times more than paper from 100% wastepaper. Highest tensile index was evidenced by banana paper with 20% wastepaper (29.4 Nm/g). For banana-bagasse mix-ratios, 20% bagasse demonstrated highest tensile index (16.04 Nm/g). 100% banana paper produced a tensile index of 18.97 Nm/g. Highest bursting index was from banana paper with 20% wastepaper mix (2.00 kPa.m²/g). For banana-bagasse mix-ratios, 20% bagasse addition showed the greatest bursting index (0.88 kPa.m²/g). 100% banana paper produced a burst index of 1.05 kPa.m²/g. Highest abrasion resistance was 180 turns which was demonstrated by 100% banana paper. 20% mix bagasse and 20% mix wastepaper demonstrated the greatest abrasion resistance with 136 turns and 120 turns respectively. 20–40% of wastepaper (5.4–5.8% weight loss) and 10–30% bagasse (10.0–15.5% weight loss) were categorized as optimal mix percentages in the pulp mix for their minimal weight losses.

Keywords: Banana fibre; wrapping paper; tensile index; bursting index; abrasion resistance; sugarcane bagasse-waste paper mix

INTRODUCTION

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