High Permanence Paper from Jute

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ABSTRACT

Consumption of paper is an indicator of the development of the country. India being a high growth rate country requirement of paper is increasing day by day necessitating a large amount of cellulosic raw materials. To meet this challenge several alternative ligno-cellulosic raw materials can be adopted in addition to the traditional raw materials like wood and bamboo. Jute deserves a place in the list of alternative raw material for paper manufacture specially in the handmade sector. Handmade papers have high demand in value added products like greetings cards, archival documents, certificate papers, chart papers and packaging papers. More over it serves the social objective of creating gainful employment to the rural poor, since 70 % of our population live in the villages and nearly half of them are below the poverty level. Alkaline sulphite pulp of jute was bleached by four different multi-stage pulping methods and finally the bleached pulps were treated with anti-ageing chemicals and standard hand sheets were made. The bleached paper samples were subjected to accelerated ageing tests for 1, 3 and 5 days following the method adopted by Preservation Research and Testing Division, Library of Congress, USA. All the paper samples were evaluated for their optical and physical properties before and after ageing. The study showed that among the treated samples the borohydride-hydrogen peroxide bleached jute paper was resistant up to 3 days of exposure to accelerated ageing, whereas, the control sample was resistant up to 1 day of exposure. The study is based upon the values of the whiteness index, 457 nm brightness, yellowness index, tensile index, burst index and fold number. The results are corroborated by the high pH value of the treated paper samples compared to the untreated samples, indicating the absence of aliphatic acids as a result of accelerated ageing. Thus high permanence paper can be obtained from the alkaline sulphite jute pulp bleached by borohydride-hydrogen peroxide process followed by anti-ageing chemical treatment.

Key Words: Jute Fibre, alkaline sulphite pulping, accelerated ageing, bleaching of jute pulp