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ENVIRONMENTAL FRIENDLY PULPING AND BLEACHING OF RAPESEED STALK FIBERS

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Abstract

The research focuses on the characterization and evaluation of agricultural residue as pulping raw materials with the aim of improving the production of high quality papers in which they are used. The material selected includes delignificated nonwood fibers from rapeseed stalk, a fiber little-known in the pulp and paper industry. The pulps obtained from these raw materials by soda/anthraquinone pulping, followed by a totally chlorine free (TCF) and elementary chlorine free (ECF) bleaching, were characterized by pulp yield, kappa number, viscosity and brightness of pulps. The differences between TCF and ECF bleached pulps was also examined by comparing pulps bleached with sequences containing different combinations from oxygen, hydrogen peroxide, peracetic acid and chlorine dioxide. The effects of cooking and bleaching agents on the selected raw materials were studied. This investigation offered valuable information for improving the pulping and bleaching processes by the use of environmentally friendly technologies. In addition, they contributed to reduce the high amounts of reagents used in conventional bleaching and to increase the quality and properties of the final paper products. This knowledge will lead to a better utilization of these lingo-cellulosic raw materials and to the developing of interest for these nonwood fibers. It is concluded that the rapeseed stalk have the potential for being used for obtaining cellulosic pulp.

Key words: cellulose, nonwood, pulp, rapeseed stalks

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