

Utilization of wood pines and fast growing tree for pulp and paper manufacturing

In case study of : comparing a soda pulping from 4 species of fast-growing trees

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Abstract

This paper investigated a soda pulping of 4 species of fast-growing trees namely *Eucalyptus camaldulensis*, *Acacia crassicaarpa*, *Acacia mangium* and *Azadirachta indica* (Meliaceae). These varieties were selected from plantation forest. The Soda was processed in different sodium hydroxide concentration and compared the quality of paper concerning the characteristics of their fiber. The results showed that 10% and 15% sodium hydroxide concentration were suitable condition for soda pulping of these 4 species of the fast-growing trees, the highest yield of 48.42% and the highest brightness of 33.5% ISO were found from *Azadirachta indica*(Meliaceae) at 15% NaOH concentration. The formation of paper was performed for the physical testing under standard method. Then the effect of fiber strength on tearing-tensile were compared at the same basic weight. *Acacia crassicaarpa* was significant in high yield of 44.79% and higher strength of 71 g/m² basic weight. Never the less, other characteristics were found i.e. freeness of 50oSR, paper strength of 5,461.09 m, breaking length, bursting strength of 293.68 KPa and tearing strength of 58.8 cN. This study indicated that *Azadirachta indica* (Meliaceae] should be selected for high brightness pulp, while *Acacia crassicaarpa* is dominant for high strength and yield.

Keyword : Soda pulping, paper quality from some fast-growing trees