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Alkaline Pulping and Bleaching of *Acacia auriculiformis* Grown in Bangladesh

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Abstract: The physical, chemical, and morphological characteristics of *Acacia auriculiformis* were evaluated in terms of its suitability for papermaking. The fiber length (1.1 mm) of *A. auriculiformis* in this study was within the range of tropical hardwoods. The lignin content in *A. auriculiformis* was 19.4% and α -cellulose 44.1%, which was within the range of other acacias, but that of extractives was higher. Soda, soda-AQ, and kraft processes were studied in pulping. Screened pulp yield was increased with increasing active alkali. Acceptable pulp yield (43%-44%) and kappa number (22-24) were obtained at 20% alkali and 2.5 h of cooking in soda, 16% alkali and 2.5 h of cooking in soda-AQ, and 18% alkali in 2 h of cooking in kraft process. Soda-AQ pulp showed better strength properties than soda and kraft pulp. Soda, soda-AQ, and kraft pulps were bleached in DEpD and DEpDEpD (where D denotes Chlorine dioxide, E denotes peroxide reinforced alkaline extraction) bleaching in different kappa factors. In DEpD bleaching, kraft pulp showed better bleachability as compared to soda and soda-AQ pulp. However, in case of DEpDEpD bleaching, all pulps exhibited almost the same brightness. At the same kappa factor, final brightness of pulp increased from 72%-75% to 85%-86% with splitting DEpD and DEpDEpD sequences, respectively.

Key Words: *Acacia auriculiformis*, pulp yield, kappa number, strength properties, bleachability, viscosity

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