

Buapun Puangsin 2006: Study of Chemithermomechanical Pulping (CTMP) from *Alstonia scholaris* (L) R. Br. Master of Science (Forestry), Major Field: Forest Products, Department of Forest Products. Thesis Advisor: Assistant Professor Pratuang Puthson, Dr. rer. nat. 79 pages.
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Chemithermomechanical pulping (CTMP) of *Alstonia scholaris* (L) R. Br. was investigated in this study. The effects of chip pretreatment processes (caustic soda and alkaline sulfite), chemical concentrations in chip pretreatment (10 and 20%) and wood ages (5, 7 and 9 years old) on pulp properties were evaluated. The selected pulps were subsequently bleached with QP₁P₂ sequence. The papermaking properties of unbleached and selected bleached pulps were discussed.

The CTMP pulping results indicated that pulping yield was 56.72-67.74%, shive content 0.21-2.33%, tensile index 4.99-23.14 Nm/g, tear index 1.01-3.85 mN.m²/g, brightness 22.72-26.96%ISO and opacity 97.76-98.78%. Alkaline sulfite pretreatments gave higher pulp yield, higher shive content and better beatability, but lower pulp strength than caustic soda processes. Increasing of chemical concentration in pretreatment processes resulted in decreasing of pulp yield and shive content, but improving of pulp strength. The 5-year old *Alstonia scholaris* (L) R. Br. gave the highest pulp strength.

The results of bleaching with QP₁P₂ sequence presented that pulping yield was 96.12-99.49%, tensile index 6.45-28.02 Nm/g, tear index 1.20-5.03 mN.m²/g, brightness 57.42-60.25%ISO and opacity 92.00-94.52%. The bleached pulps had lower pulp yield, better beatability, higher pulp strength, higher brightness and lower opacity. The 5-year old *Alstonia scholaris* (L) R. Br. gave CTMP bleached pulp with highest pulp strength, brightness and opacity.

Student's signature

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