PEMBUATAN PULP DAN KERTAS KAYU BUSH MERAH (*Lophostemon suaveolens*) PADA KONSENTRASI SULFIDITAS DAN DERAJAT GILING YANG BERBEDA

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INTISARI

Kayu bush merah (*Lophostemon suaveolens*) merupakan salah satu jenis kayu *lesser known species* yang berpotensi sebagai bahan baku alternatif pulp dan kertas, terutama karena pertumbuhannya yang baik pada ekosistem gambut. Penelitian ini dilakukan untuk mengetahui pengaruh variasi sulfiditas pada proses pemasakan *kraft* serta derajat giling terhadap kualitas pulp dan sifat mekanik maupun optis kertas yang dihasilkan. Dengan demikian, diharapkan dapat diperoleh kombinasi perlakuan yang optimal untuk meningkatkan rendemen pulp, efisiensi penggunaan bahan kimia, serta mutu kertas bush merah.

Penelitian ini menggunakan kayu bush merah berumur 4 tahun yang diambil dari lahan gambut PT. Arara Abadi sebanyak 2 individu pohon sebagai ulangan. Pemasakan pulp menggunakan proses sulfat dengan alkali aktif 18%, suhu maksimum 170°C, lama waktu pemasakan 2 jam di suhu maksimum, sulfiditas 0%, 10%, 20%, 30% dan 40% serta waktu penggilingan 0 menit, 10 menit, 20 menit, 30 menit, dan 40 menit. Pengolahan data dianalisis mengunakan analisis deskriptif dan analisis regresi pada pengaruh konsentrasi sulfiditas dan derajat giling.

Hasil penelitian menunjukkan bahwa perlakuan terbaik diperoleh pada sulfiditas 20% dengan rendemen total 44,96%, rendemen tersaring 42,98%, reject 1,99%, bilangan kappa 19,92, dan sisa alkali aktif 1,4 g/L. Nilai derajat giling 30–65 mL CSF menghasilkan sifat mekanik kertas tertinggi dengan indeks tarik 60,34 N·m/g, indeks sobek 7,2 mN·m²/g, dan indeks jebol 3,7 kPa·m²/g yang telah memenuhi standar SNI. Sementara itu, sifat optis menunjukkan nilai opasitas tinggi (101,67–103,43%) namun kecerahan masih rendah (12–23). Dengan demikian, kayu bush merah dapat dipertimbangkan sebagai bahan baku alternatif yang potensial untuk industri pulp dan kertas di Indonesia.

Kata Kunci: *Lophostemon suaveolens,* sulfiditas, derajat giling, rendemen pulp, sifat kertas

PULP AND PAPER MANUFACTURING FROM BUSH MERAH WOOD (Lophostemon suaveolens) AT DIFFERENT SULFIDITY CONCENTRATION AND BEATING DEGREES

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ABSTRACT

Bush merah (*Lophostemon suaveolens*) is one of the lesser-known species with potential as an alternative raw material for pulp and paper, particularly due to its good growth performance in peatland ecosystems. This study was conducted to determine the effect of varying sulfidity concentrations in the kraft pulping process and beating degree levels on pulp quality as well as the mechanical and optical properties of the resulting paper. The research aimed to identify the optimal treatment combination to improve pulp yield, chemical efficiency, and the overall quality of bush merah paper.

This study used four-year-old bush merah harvested from the peatland concession area of PT. Arara Abadi, with two individual trees serving as replicates. Pulping was carried out using the kraft process with 18% active alkali, a maximum temperature of 170 °C, a cooking time of 2 hours at maximum temperature, sulfidity concentrations of 0%, 10%, 20%, 30%, and 40%, and beating times of 0, 10, 20, 30, and 40 minutes. Data were analyzed using descriptive analysis and regression to evaluate the effects of sulfidity concentration and beating degree.

The results showed that the best treatment was obtained at 20% sulfidity concentration, yielding a total yield of 44.96%, a screened yield of 42.98%, a reject of 1.99%, a kappa number of 19.92, and residual active alkali of 1.4 g/L. Beating at 30–65 mL CSF produced the highest mechanical properties, with tensile index of 60.34 N·m/g, tear index of 7.2 mN·m²/g, and burst index of 3.7 kPa·m²/g, all meeting SNI standards. Meanwhile, optical properties showed high opacity (101.67–103.43%) but relatively low brightness levels (12–23). Therefore, bush merah can be considered a promising alternative raw material for the pulp and paper industry in Indonesia.

Keywords: *Lophostemon suaveolens, sulfidity, beating degree, pulp yield, physical properties*

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