ABSTRAK

EKSTRAKSI SELULOSA POHON PISANG KEPOK (*Musa Paradisiaca*) DENGAN METODE SODA SEBAGAI BAHAN BAKU PEMBUATAN KERTAS

M. Arfan Rasyid Lubis, 2026, 56 Halaman, 13 Gambar, 6 Tabel, 3 Lampiran

Kebutuhan kertas di Indonesia yang terus meningkat menyebabkan eksploitasi kayu sebagai bahan baku utama pulp semakin tinggi, sehingga diperlukan alternatif bahan baku non-kayu yang ramah lingkungan. Batang pisang kepok (*Musa paradisiaca*) merupakan limbah pertanian yang melimpah dan memiliki kandungan selulosa cukup tinggi (40–60%), sehingga berpotensi dimanfaatkan sebagai bahan baku pembuatan kertas. Penelitian ini bertujuan untuk mengetahui pengaruh konsentrasi NaOH dan waktu pemasakan terhadap karakteristik pulp dan kertas yang dihasilkan, serta menentukan kondisi terbaik prosesnya. Proses ekstraksi selulosa dilakukan menggunakan metode soda dengan variasi konsentrasi NaOH (20, 25, 30, 35, dan 40%) dan waktu pemasakan (60, 90, dan 120 menit) pada suhu 120°C, diikuti proses bleaching menggunakan H_2O_2 10% serta penambahan tepung tapioka sebagai bahan aditif untuk isian atau perekat struktur kertas. Karakterisasi dilakukan melalui uji kadar selulosa, kadar lignin, gramatur, dan kadar air berdasarkan standar SNI. Hasil penelitian menunjukkan bahwa semakin tinggi konsentrasi NaOH dan semakin lama waktu pemasakan, kadar selulosa dan gramatur kertas semakin meningkat, sedangkan kadar lignin dan kadar air semakin menurun. Kondisi terbaik diperoleh pada konsentrasi NaOH 40% dengan waktu pemasakan 120 menit, menghasilkan kadar selulosa 84,71%, kadar lignin 33,88%, gramatur 75 g/m², dan kadar air 4,48%, yang telah memenuhi standar SNI 7274:2008 untuk produk kertas.

Kata kunci: batang pisang kepok, metode soda, NaOH, selulosa, kertas

ABSTRACT

CELLULOSE EXTRACTION FROM BANANA KEPOK STEM USING THE SODA METHOD AS RAW MATERIAL FOR PAPER PRODUCTION

M. Arfan Rasyid Lubis, 2026, 56 *Pages*, 13 *Pictures*, 6 *Tabels*, 3 Appendixs

The increasing demand for paper in Indonesia has led to greater exploitation of wood as the primary raw material for pulp production, creating a need for environmentally friendly alternative non-wood raw materials. Kepok banana stem (Musa paradisiaca) is an abundant agricultural waste with a relatively high cellulose content (40–60%), making it a potential raw material for the production of handmade paper. This study aimed to determine the effect of NaOH concentration and cooking time on the characteristics of the resulting pulp and handmade paper, as well as to identify the optimum processing conditions. Cellulose extraction was carried out using the soda pulping method with variations in NaOH concentration (20, 25, 30, 35, and 40%) and cooking time (60, 90, and 120 minutes) at a temperature of 120°C, followed by a bleaching process using 10% H_2O_2 and the addition of tapioca starch as an additive. Characterization was conducted through cellulose content, lignin content, grammage, and moisture content analyses based on Indonesian National Standards (SNI). The results showed that increasing NaOH concentration and extending cooking time led to higher cellulose content and paper grammage, while lignin content and moisture content decreased. The optimum condition was obtained at a NaOH concentration of 40% and a cooking time of 120 minutes, resulting in a cellulose content of 84.71%, lignin content of 33.88%, grammage of 75 g/m², and moisture content of 4.48%, all of which met the applicable SNI 7274:2008 standards for paper products.

***Keywords**: banana kepok stem, soda method, NaOH, cellulose,paper*