PENGARUH PERBEDAAN KONSENTRASI NaOH DALAM PROSES DELIGNIFIKASI LIMBAH TEH

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ABSTRAK

Limbah teh merupakan bahan baku alternatif yang dapat dimanfaatkan untuk mengurangi ketergantungan pada kayu sebagai bahan baku pembuatan *pulp*. Limbah teh mengandung selulosa yang merupakan bahan baku utama pembuatan *pulp*. Penelitian bertujuan untuk mengkaji pengaruh perbedaan konsentrasi NaOH dalam delignifikasi limbah teh, menentukan konsentrasi NaOH yang tepat untuk pembuatan *pulp* limbah teh dan menganalisa harga pokok produksi (HPP) terhadap *pulp* yang dihasilkan. Penelitian ini menggunakan Rancangan Acak Lengkap (RAL) dengan 5 perlakuan dan 3 kali ulangan. Data di analisis secara statistik menggunakan ANOVA dan dilanjutkan dengan *Duncan's New Multiple Range* (DNMRT) pada taraf 5%. Perlakuan yang diberikan yaitu perbedaan persentase NaOH yang digunakan sebesar 0,5%, 1%, 1,5%, 2%, dan 2,5% pada proses delignifikasi limbah teh. Perbedaan konsentrasi NaOH memberikan pengaruh nyata terhadap kadar air, kadar abu, kadar hemiselulosa, kadar selulosa, kadar lignin, perolehan *pulp* dan bilangan kappa. Berdasarkan hasil pengamatan yang telah dilakukan perlakuan E dengan NaOH 2,5% dipilih sebagai perlakuan terbaik dengan karakteristik kimia yaitu pada kadar air 10,24%, kadar abu 1,68%, perolehan 52,09%, hemiselulosa 9,35%, selulosa 50,64%, lignin 15,63%, dan bilangan kappa 10,82%. Nilai harga jual serat *pulp* dalam satu kali produksi adalah Rp.24.000,00/100 gram.

Kata Kunci: Delignifikasi; Limbah Teh; NaOH; *Pulp*

THE EFFECT OF DIFFERENT CONCENTRATIONS OF NaOH IN THE DELIGNIFYING PROCESS OF TEA LEAVES

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ABSTRACT

Tea waste is an alternative raw material that can be used to reduce dependence on wood as a raw material for pulp making. Tea waste contains cellulose which is the main raw material for pulp making. The study aims to examine the effect of different NaOH concentrations in delignification of tea waste, determine the right NaOH concentration for making tea waste pulp and analyze the cost of production (HPP) of the pulp produced. This study used a Completely Randomized Design (CRD) with 5 treatments and 3 replications. Data were analyzed statistically using ANOVA and continued with Duncan's New Multiple Range (DNMRT) at the 5% level. The treatments given were differences in the percentage of NaOH used by 0.5%, 1%, 1.5%, 2%, and 2.5% in the tea waste delignification process. Differences in NaOH concentrations had a significant effect on water content, ash content, hemicellulose content, cellulose content, lignin content, pulp yield and kappa number. Based on the results of observations that have been carried out, treatment E with 2.5% NaOH was chosen as the best treatment with chemical characteristics, namely at a water content of 10.24%, ash content of 1,68%, yield of 52.09%, hemicellulose of 9.35%, cellulose of 50.64%, lignin of 15.63%, and kappa number of 10.82%. The selling price of pulp fiber in one production is Rp. 24,000.00/100 gram.

Keywords: Delignification; Tea Waste; NaOH; *Pulp*