

ABSTRACT

STUDY OF UTILIZATION OF DRY LEAF WASTE IN LAMPUNG UNIVERSITY CAMPUS AS RAW MATERIAL OF LIQUID SMOKE

By

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One of the solutions that can be done to reduce the leaf waste in Lampung University Campus area is by utilizing the leaf wastes as raw materials for liquid smoke. The purpose of this study is to determine the characteristics of liquid smokes out of various dry leaf waste. The research was conducted by sampling from certain type of leaves around GSG of Lampung University, Faculty of Mathematics and Natural Sciences, Faculty of Agriculture and the library of Lampung University with dry waste category. The characteristics of dry leaf waste liquid smokes were tested on the moisture content of dry leaf wastes, yield, pH value, and analysis of the components of leaf waste liquid smokes. The research data are presented in the form of tables and graphs and analyzed descriptively. The final results of pyrolysis show that, yield of leaf waste liquid smokes; dry teak 12,439%, kerai payung 13,387%, dry tanjung 12,921%, and dry bungur 35,222%. Charcoal yields of leaf wastes; dry teak 40,585%, dry kerai payung 35,871%, dry tanjung 40,723%, and dry bungur 18,797%. Tar yields of leaf wastes; dry teak 0,820%, dry kerai payung 0,869%, dry tanjung 0,790%, and dry bungur 1,774%. Total yields of leaf wastes; dry teak 53,938%, dry kerai payung 51,385%, dry tanjung 54,326%, and dry bungur 54,210%. pH values of leaf waste liquid smoke; dry teak 5,11, dry kerai payung 5,75, dry tanjung 5,43, and dry bungur 7,80. The results of GC-MS active components of liquid smoke in each sample of liquid smoke are dominated by phenolic compounds. Carbonyl and acid compounds were detected in each sample of liquid smoke. Alkaloids and alcohol compounds were found in dry teak leaf waste liquid smoke only.

Keyword : Lampung University, dry leaf waste, liquid smoke, pyrolysis

ABSTRAK

KAJIAN PEMANFAATAN SAMPAH DAUN KERING KAMPUS UNIVERSITAS LAMPUNG SEBAGAI BAHAN BAKU ASAP CAIR

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Salah satu solusi yang dapat dilakukan untuk mengurangi timbunan sampah daun di kawasan Kampus Universitas Lampung yaitu dengan memanfaatkan sampah daun tersebut sebagai bahan baku asap cair. Tujuan dilakukannya penelitian ini yaitu mengetahui karakteristik asap cair dari berbagai sampah daun kering. Penelitian dilakukan dengan melakukan sampling dari beberapa jenis daun tertentu yang berada pada lingkungan sekitar GSG Universitas Lampung, Fakultas MIPA, Fakultas Pertanian dan perpustakaan Universitas Lampung dengan kategori sampah kering. Pengujian karakteristik asap cair sampah daun kering dilakukan terhadap kadar air sampah daun kering, rendemen, nilai pH, dan analisis senyawa aktif asap cair sampah daun. Data hasil penelitian disajikan dalam bentuk tabel serta grafik dan dianalisis secara deskriptif. Hasil penelitian menunjukkan pada hasil pirolisis, rendemen asap cair sampah daun; jati kering yaitu 12,439%, kerai payung kering 13,387%, tanjung kering 12,921%, dan bungur kering 35,222%. Rendemen arang sampah daun; jati kering yaitu 40,585%, kerai payung kering, 35,871%, tanjung kering 40,723%, dan bungur kering 18,797%. Rendemen tar sampah daun; jati kering yaitu 0,820%, kerai payung kering 0,869%, tanjung kering 0,790%, dan bungur kering 1,774%. Total rendemen sampah daun; jati kering yaitu 53,938%, kerai payung kering 51,385%, tanjung kering 54,326%, dan bungur kering 54,210%. Nilai pH asap cair sampah daun; jati kering 5,11, kerai payung kering 5,75, tanjung kering 5,43, dan bungur kering 7,80. Hasil GC-MS komponen aktif asap cair pada masing-masing sampel asap cair didominasi oleh senyawa fenol. Senyawa karbonil dan senyawa asam terdeteksi pada setiap sampel asap cair. Senyawa alkaloid dan alkohol hanya terdapat pada asap cair sampah daun jati kering.

Kata kunci : Universitas Lampung, sampah daun kering, asap cair, pirolisis