

**PENGARUH SUHU PIROLISIS DAN BAGIAN POHON TERHADAP
KARAKTERISTIK FISIKO-KIMIA ASAP CAIR JATI (*Tectona grandis*
L.f.) UNTUK PENGAWETAN BAMBU LEGI (*Gigantochloa atter*)**

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INTISARI

Jati merupakan salah satu spesies yang kayunya dimanfaatkan sebagai bahan baku di industri perkayuan. Untuk itu, maka dikembangkan berbagai varietas unggul kayu jati untuk memenuhi kebutuhan bahan baku kayu jati. Namun, cabang dan ranting yang belum dimanfaatkan secara maksimal dapat diolah menjadi produk dengan nilai jual tinggi, salah satunya adalah asap cair. Penelitian ini bertujuan untuk mengetahui karakteristik fisiko-kimia asap cair dan keefektifan dalam pengawetan bambu terhadap serangan rayap kayu kering.

Sampel penelitian ini diambil dari bagian tanaman jati varietas unggul dari RPH Kepek, BDH Playen, BPKH Yogyakarta. Rancangan penelitian berupa rancangan acak lengkap dengan dua faktor yaitu variasi suhu pirolisis (300°C, 400°C, 500°C) dan bagian pohon (cabang dan ranting). Pengujian yang dilakukan meliputi sifat fisiko-kimia (rendemen, berat jenis, indeks bias, pH, kandungan asam, kandungan fenol, kandungan karbonil, dan kandungan senyawa kimia) serta pengaplikasiannya terhadap tingkat keawetan bambu (mortalitas rayap dan kehilangan berat).

Hasil penelitian didapatkan bahwa rendemen asap cair berkisar antara 25,22-35,73%; nilai pH berkisar antara 2,87-3,47; berat jenis berkisar antara 1,00-1,02; indeks bias sebesar 1,36; kandungan asam berkisar antara 4,80-7,11%; kandungan fenol berkisar antara 4,62-5,67%; kandungan karbonil berkisar antara 3,71-5,13%; dan kandungan senyawa kimia yang terdeteksi menggunakan GC-MS didominasi oleh o-guaiacol, p-cresol, 2-methyl-2-cyclopentenone, phenol, dan 2,3-dimethyl-2-cyclopentenone. Asap cair dari cabang kayu jati efektif untuk pengawet bambu terhadap serangan rayap kayu kering karena dapat menghasilkan mortalitas 77-85% rayap dan penurunan berat sebesar 1,89%.

Kata Kunci: Asap Cair, Fisiko-Kimia, Jati, Pengawetan Bambu, Rayap Kayu Kering

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**EFFECT OF PYROLYSIS TEMPERATURE AND TREE PARTS ON
PHYSICO-CHEMICAL CHARACTERISTICS OF LIQUID SMOKE FROM
TEAK (*Tectona grandis* L.f.) FOR PRESERVATION OF BAMBU LEGI
(*Gigantochloa atter*)**

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ABSTRACT

Teak is one of the species whose wood is used as raw material in the timber industry. For this reason, various superior varieties of teak wood had been developed to meet the needs of teak wood raw materials. However, branches and twigs that have not been fully utilized can be processed with a high selling value, one of which is liquid smoke. The purpose of this study is to determine the physico-chemical characteristics of liquid smoke and its effectiveness in preserving bamboo against drywood termites.

The sample of this research was taken from the superior variety of teak plant from RPH Kepek, BDH Playen, BPKH Yogyakarta. The research design was a completely randomized design with involved two factors, namely different pyrolysis temperatures (300°C, 400°C, 500°C) and different tree components (branches and twigs). The tests carried out including physico-chemical characteristics (yield, specific gravity, refractive index, pH, acid content, phenol content, carbonyl content, and other chemical compound content) and their application to the preservation level of bamboo (termite mortality and weight loss).

The results showed that the yield of liquid smoke ranged from 25,22 to 35,73%; pH values ranged from 2,87 to 3,47; specific gravity ranged from 1,00 to 1,02; refractive index of 1,36; acid content ranged from 4,80 to 7,11%; phenol content ranged from 4,62 to 5,67%; carbonyl content ranged from 3,71 to 5,13%; and the chemical compounds detected using GC-MS were dominated by o-guaiacol, p-cresol, 2-methyl-2-cyclopentenone, phenol, dan 2,3-dimethyl-2-cyclopentenone. Liquid smoke from teak branches is effective for bamboo preservation against dry wood termites because it can produce 77-85% termite mortality and a weight loss of 1,89%.

Keywords: Liquid Smoke, Physico-Chemistry, Teak, Bamboo Preservation, Dry Wood Termites

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