

**PRODUKSI CUKA KAYU HASIL MODIFIKASI  
TUNGKU ARANG TERPADU  
(Production of Wood Vinegar that Resulted  
from the Integrated Kiln Modification)**

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ABSTRACT

*Research on integrated manufacture of charcoal and wood vinegar was already carried out in the modified kiln constructed of double drum combined with a condensing technique device, thereby yielding not only charcoal but also concurrently distillate liquid or the so called wood vinegar (liquid smoke). The kiln operated with a batch system, and the raw material for such was wastes from wood processing industries. This research aims to look into the manufacture as well as qualities of charcoal and wood vinegar both produced concurrently using the double drum type carbonization kiln, and scrutinize the prospective uses of the latter product.*

*Results revealed that the kiln turned out as much as 6.00 - 15.00 kg of charcoal and 2.40 - 4.40 kg of wood vinegar. Based on the input charge of raw material, the charcoal yield reached 9.90-21.08%, and wood vinegar yield 4.95 - 7.35%. The chemical components in wood vinegar as identified using high performance liquid chromatography (HPLC) and gas chromatography (GC) consisted of consecutively acetic acid (21.31 ppm - 30.05 ppm), methanol (0.44% - 1.15%) and phenol (52.41 ppm - 63.26 ppm). Results of analysis using GCMS (gas chromatography - mass spectrometry) pyrolysis exhibited that the wood vinegar yielded by each species of wood waste contained as many as 20-32 chemical components, which differed from one species to another. The nutrient elements in the resulting wood vinegar comprised C organic (6.12 - 7.35%), N total (0.62 - 0.67%), P O total (0.24 - 0.31%), and K O total (0.31 - 0.36%).*

*Uses of wood vinegar were numerous, among others as food preservative, pesticide and plant disease remedy, organic liquid fertilizer, plant fertilizer, disinfectant and inhibitor for microorganisms, and fungi and bacteria prevention.*

*Keyword : Charcoal, wood vinegar, chemical component, production, qualities.*

ABSTRAK

Penelitian pembuatan arang dan cuka kayu secara terpadu telah dilakukan dengan menggunakan tungku hasil modifikasi terbuat dari drum ganda yang dikombinasikan dengan teknik kondensasi

sehingga tidak hanya arang yang dihasilkan, tetapi juga diperoleh cairan destilat yang biasa disebut cuka kayu/asap cair. Bahan yang digunakan untuk membuat arang dan cuka kayu adalah limbah industri pengolahan kayu. Tujuan penelitian yaitu untuk menelaah produksi dan kualitas arang, cuka kayu, dan prospek pemanfaatannya dari hasil penggunaan tungku drum ganda. Dari hasil penelitian dapat diketahui bahwa produksi arang 6,00 - 15,00 kg, rendemen arang 9,90- 21,18%. Produksi cuka kayu 2,40 - 4,40 kg dan rendemen cuka kayu 4,95 - 7,35%. Komponen cuka kayu hasil analisis HPLC dan GC terdiri dari asam asetat 20,13 - 30,05 ppm, metanol 0,44 - 1,15% dan phenol 52,41 - 63,62 ppm. Hasil analisis GC-MS pirolisis menunjukkan bahwa cuka kayu dari masing-masing jenis limbah kayu mengandung jumlah komponen kimia yang berbeda antara satu jenis dengan lainnya, pada kisaran 20 - 32 komponen. Unsur hara yang terdapat dalam cuka kayu : C organik 6,12 - 7,35% ; N total 0,62 - 0,67% ; P O total 0,24 - 0,31% dan K O total 0,31 - 0,36%. Manfaat cuka kayu sangat banyak antara lain sebagai pengawet makanan, pembasmi hama dan penyakit tanaman, pupuk cair organik, penyubur tanaman, desinfektan dan inhibitor mikroorganisme serta pencegah jamur dan bakteri.

Kata kunci : Arang, cuka kayu, komponen kimia, produksi, kualitas.