

**PENGARUH LAMA PERENDAMAN DAN KONSENTRASI ASAP CAIR
TEMPURUNG KELAPA PADA PENGAWETAN DAN PERUBAHAN
WARNA KAYU GUBAL JATI RAKYAT DARI KABUPATEN NGAWI**

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INTISARI

Kayu jati dari hutan rakyat sering dipanen pada umur muda sehingga kualitasnya menjadi inferior dari segi keawetan dan warna. Kayu jati muda dari hutan rakyat masih rentan terhadap serangan rayap kayu kering dan berwarna putih pucat sehingga perlu tindakan pengawetan kayu yang juga dapat memberikan dampak warna kayu menjadi lebih gelap. Penelitian ini mencoba untuk meningkatkan keawetan dan kualitas warna kayu gubal jati umur 15 tahun dari hutan rakyat Kabupaten Ngawi melalui metode perendaman dalam asap cair tempurung kelapa. Tujuan penelitian ini adalah mengetahui pengaruh interaksi lama perendaman dan konsentrasi asap cair tempurung kelapa pada pengawetan dan perubahan warna kayu gubal jati rakyat.

Contoh uji dibuat dari kayu gubal dengan ukuran 4x5x5 cm (*Australian Wood Preservation Committee*). Asap cair tempurung kelapa diperoleh dari PT. Tropica Nucifera dengan kadar air 93,83%, berat jenis 1,03, viskositas 2,3 cP, pH 2,3, kadar fenol 2,73%, asam asetat 11,13%, dan karbonil 14,43%. Penelitian ini menggunakan rancangan acak lengkap dengan dua faktor, yaitu lama perendaman (0, 1, 2, dan 3 hari) dan konsentrasi asap cair tempurung kelapa (0%, 15%, 20%, dan 35%). Keawetan kayu diuji dengan menyerang contoh uji ke rayap kayu kering (*Cryptotermes cynocephalus* Light.).

Hasil penelitian menunjukkan kisaran hasil rata-rata pada parameter absorpsi 27,66–99 kg/m³, retensi aktual 1,46–5,38 kg/m³, ΔL^* 8,29–22,88, Δa^* -6,8–4,74, Δb^* -7,66–3,15, ΔE 8,42–23,83, mortalitas rayap 27,33–89,33%, pengurangan berat 0,09–1,16 gram, dan penetrasi 0,53–1,42 mm. Interaksi lama perendaman dan konsentrasi asap cair tempurung kelapa berpengaruh nyata terhadap nilai E dan pengurangan berat. Lama perendaman 3 hari dengan konsentrasi asap cair tempurung kelapa 15% memberikan nilai E terbesar sebesar 23,83. Lama perendaman 3 hari dengan konsentrasi asap cair tempurung kelapa 35% memberikan nilai pengurangan berat terkecil sebesar 0,09 gram. Kandungan asap cair berupa fenol dan asam asetat berperan mematikan rayap kayu kering dan karbonil berperan dalam memberikan efek perubahan warna kayu menjadi semakin gelap.

Kata kunci : jati rakyat, kayu gubal, pengawetan, perubahan warna, asap cair tempurung kelapa, rayap kayu kering.

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**EFFECT OF SOAKING DURATION AND COCONUT SHELL LIQUID
SMOKE CONCENTRATION ON PRESERVATION AND COLOR
CHANGE TEAK SAPWOOD FROM COMMUNITY FOREST NGAWI**

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ABSTRACT

Teak wood from community forest is often harvested in young age so the wood quality becomes inferior for its durability and color. Young teak wood from community forest is vulnerable for drywood termite attack and its color is white pale so it needs preservation treatment that give wood color becomes darker. This research tried to increase durability and color sapwood teak 15 years from community forest in Ngawi Regency by soaking in coconut shell liquid smoke. The aim was to investigate the effects of interaction between soaking duration and coconut shell liquid smoke concentration on preservation and color change teak sapwood.

Sample was made from sapwood with dimension of 4x5x5 cm (*Australian Wood Preservation Committee*). Coconut shell liquid smoke was got from PT. Tropica Nucifera with water content 93,83%, specific gravity 1,03, viscosity 2,3, pH 2,3, phenol content 2,73%, acetic acid 11,13%, and carbonyl 14,43%. A complete randomized design was arranged with factor; soaking duration (0, 1, 2, 3 days) and coconut shell liquid smoke concentration (0%, 15%, 20%, 35%). To examine durability of sample, drywood termites (*Cryptotermes cynocephalus* Light.) were used.

The results showed that absorption ranges 27,66–99 kg/m³, retention ranges 1,46–5,38 kg/m³, L* ranges 8,29–22,88, a* ranges -6,8–4,74, b* ranges -7,66–3,15, E ranges 8,42–23,83, termite mortality ranges 27,33–89,33%, mass losses ranges 0,09–1,16 grams, penetration ranges 0,53–1,42 mm. Interaction between soaking duration and coconut shell liquid smoke concentration affected significantly against the value of E and mass losses. Soaking duration of 3 days with coconut shell liquid smoke concentration 15% provided the highest result with E 23,83. Soaking duration of 3 days with coconut shell liquid smoke concentration 35% provided the smallest result with mass losses 0,09 grams. Phenol and acetic acid content in liquid smoke contributed as antitermite and carbonyl content made wood color becomes darker.

Keywords : community forest teak, sapwood, preservation, color change, coconut shell liquid smoke, drywood termite.

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