

**Pengawetan Kayu Gubal Jati Secara Rendaman Dingin Dengan
Pengawet Boron Untuk Mencegah Serangan Rayap Kayu Kering
(*Cryptotermes cynocephalus* Light.)**

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INTISARI

Kayu jati merupakan jenis kayu yang paling diminati sebagai bahan baku berbagai produk mebel maupun keperluan konstruksi. Kayu jati mudah dikerjakan dan memiliki penampang yang indah sehingga termasuk golongan kayu mewah. Minat terhadap kayu jati yang semakin meningkat menyebabkan persediaan bahan baku jati masak tebang berkurang. Untuk memenuhi kebutuhan tersebut dilakukan penebangan jati umur muda yang umumnya mempunyai proporsi kayu gubal yang besar. Pengalaman di lapangan menunjukkan bahwa bagian gubal kayu jati banyak diserang oleh rayap kayu kering karena keawetan alaminya yang rendah. Sehingga perlu diawetkan dengan bahan pengawet yang dapat mencegah serangan serangga perusak kayu. Asam borat dan boraks merupakan salah satu pengawet yang mengandung bahan aktif boron yang murah, mudah didapat dan digunakan, tidak berbau, dan tidak merubah warna kayu.

Bahan yang digunakan adalah bagian gubal papan jati yang diperoleh dari tebangan jati hutan rakyat di Kecamatan Kali Bawang, Kulon Progo. Penelitian ini menggunakan rancangan acak lengkap yang disusun secara faktorial dengan dua faktor yaitu faktor jenis bahan pengawet yaitu asam borat dan boraks dengan konsentrasi 5% dan faktor lama perendaman 12, 24, 36, dan 48 jam. Rayap yang digunakan untuk pengujian keawetan contoh uji pada penelitian ini adalah rayap kayu kering (*Cryptotermes cynocephalus* Light.) sebanyak 50 ekor pada setiap contoh uji. Rayap diumpankan pada contoh uji yang sudah diberi tabung kaca sebagai tempat rayap dan diamati selama 4 minggu. Parameter yang diamati pada penelitian ini yaitu absorpsi, retensi, penetrasi bahan pengawet, mortalitas rayap kayu kering, pengurangan berat, dan derajat kerusakan contoh uji.

Hasil penelitian menunjukkan kisaran hasil rata-rata nilai pada parameter absorpsi sebesar 33,09 – 70,77 kg/m³, nilai retensi sebesar 3,81 – 10,77 kg/m³, kedalaman penetrasi 2,34 – 3,86 mm, mortalitas rayap sebesar 46,33 – 53 % selama 2 minggu dan 82,67 – 94,33 % selama 4 minggu pengumpulan, pengurangan berat sampel sebesar 0,56 – 0,57 gram, serta derajat kerusakan sebesar 30,34 – 31,27 %. Hasil analisis sidik ragam menunjukan bahwa terdapat interaksi antara faktor jenis bahan pengawet dan lama perendaman berpengaruh nyata terhadap mortalitas rayap. Faktor jenis bahan pengawet berbeda sangat nyata terhadap absorpsi dan penetrasi. Sedangkan untuk faktor lama perendaman berbeda sangat nyata terhadap absorpsi, retensi, penetrasi.

Kata Kunci : *Tectona grandis* L.f., gubal, pengawetan kayu, boraks, rendaman dingin, *Cryptotermes cynocephalus* Light.

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**Preservation of Teak Sapwood
by Cold Soaking Method With Boron to Prevent
Dry Wood Termites Attack (*Cryptotermes cynocephalus* light.)**

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ABSTRACT

Teak wood is the most attractive timber as basic materials to produce many furnitures and contructions. Teak wood is easy machining and has a good appearance so that it is classified as fancy wood. The increasing interest of teak wood causes the decreasing raw of material stocks. To fulfill the demand, people usually cut the younger teak wood which has a high proportion of sapwoods. The field observation showed that the sapwood is susceptible to dry wood termite as it has less natural durability. Therefore it is necessary to overcome the attack of wood insect destroyer with preservative materials. Boric acid and borax are cheap preservatives which contain boron as the active material. Those preservatives also are easy to obtain as well as do not produce smells and the wood discoloration.

The experiment materials are the sapwood parts from teak boards obtained from the felled tree in the community forest of Kali Bawang, Kulon Progo. This experiment used a complete randomized block design arranged in a factorial with two factors: the kind of preservative (boric acid and borax in 5% concentration) and duration of cold soaking (12, 24, 36, and 48 hour). In this experiment, to examine the durability of sample we used 50 dry wood termites (*Cryptotermes cynocephalus* light.) in each sample. Termites were fed on the test sample for 4 weeks which was covered by a glass tube as a termite container. The parameters observed in this study were the preservative absorption, retention and penetration, as well as dry wood termite mortality, weight reduction, and degree of damage of teak wood samples.

The results showed that range of the average values of absorption, retention, and depth of penetration were 33.09 to 70.77 kg/m³, 3.81 to 10.77 kg/m³, and 2,34 to 3,86 mm respectively. The average values of termite mortality during 2 weeks, 4 weeks, the values of weight reduction, and degree of the damage were 46,33 to 53 %, 82,67 to 94,33%, 560 to 570 mg, and 30,34 to 31.27% respectively. By ANOVA, there was an interaction between the kind of preservatives and the duration of cold soaking factors which is significantly affected the dry wood termite mortality. Kind of preservative factor was significantly different to the level of absorption and penetration. Further the duration of cold soaking factor significantly different to the level of absorption, retention and penetration

Keywords: *Tectona grandis* L.f., sap wood, wood preservation, borax, cold soaking, *Cryptotermes cynocephalus* Light.

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