THE EFFECT OF PHENOL FORMALDEHYDE IMPREGNATION UPON SENGON WOOD TO DIMENSION STABILITY AND ITS EFFICACY TEST AGAINST DRY-WOOD TERMITE *Cryptotermes cynocephalus* Light.

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ABSTRACT

The utilization of sengon wood is increasing along with the development of community forest. Despite its instability and poor durability, this wood is potential to be used in carpentry. Therefore, a certain treatment is required to ensure long usage. The preservation method used in this study was dimensional stabilization by impregnating phenol formaldehyde (PF) resin into the wood. The aim of this study is to examine the effects of impregnating material concentration and impregnation time of PF upon sengon wood to its dimensional stability and efficacy test upon dry-wood termite's, *C. Cynocephalus*, attack.

The research was made using a sound sengon log, which was cut into boards. Further, the boards were cut into small pieces to provide samples of dimensional stability measuring 3 x 3 x 1, 5 cm and efficacy test measuring 3 x 3 x 5 cm. The latter was being painted on both ends and on its two opposing sides. The samples were impregnated with PF solution, obtained from PT PAI Probolinggo, by hot-cold soaking method in concentration of 5%, 10% and 15% (based on weight comparison) for 1, 3 and 5 days (hot soaking during 6 hours). Each efficacy sample was attacked to healthy dry-wood termite *C. cynocephalus* for 12 weeks. The design used in this research is Completely Randomized Design with two factors; impregnating material concentration and impregnation time, and then continued by LSD (*Least Significant Difference*) test. Parameters tested are actual retention, moisture content, specific gravity, total shrinkage, termite mortality and sample weight reduction.

The result shows that interactions of concentration and impregnation time are not significant. Concentration factor has significant effects to all parameters but total shrinkage. Impregnation time factor has significant effects to actual retention, moisture content and sample weight reduction. Concentration of 15% and 5 days impregnation generally gives the best result to efficacy test parameter with actual retention of 0,0529 g/cm^3, termite mortality of 98% and sample weight reduction of 0,05 g (relative weight reduction is 17,24%, categorized as medium attack), but does not improve wood dimension stability.

Key words: impregnation, sengon wood, PF resin, dimension stability, efficacy test, dry wood termite *C. cynocephalus*

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