

Ecotoxicity of heat-treated Kapur and Japanese larch

ABSTRACT

Kapur (*Dryobalanops* sp.) and Japanese larch (*Larix kaempferi*) wood samples were heat-treated in air at 180 °C for 24 and 48 h. Leaching and toxicity tests were conducted to determine the ecotoxicity effect of these heat-treated woods on the aquatic environment due to heat treatment. The toxicity of conventional preservative-treated woods, i.e. chromated copper arsenate (CCA) and ammoniacal copper quat (ACQ), was also determined for comparison purposes. Acute toxicity tests were performed using two aquatic organisms, *Daphnia magna* and *Vibrio fischeri* according to the Organization for Economic Co-operation and Development standard procedures and Microtox assay, respectively. Significantly low toxicity to *D. magna* was found for the heat-treated Kapur compared to that of untreated Kapur, while heat-treated Japanese larch did not show any toxicity effect. As expected, ACQ-treated samples showed the highest toxicity to *D. magna*, followed by that of CCA, though toxicity of both preservative-treated woods further reduced over time. Hence, heat treatment of Kapur and Japanese larch were believed to be not harmful to the aquatic ecosystem.

Keyword: Kapur; Japanese larch; Heat treatment; Toxicity; Preservative-treated wood; Aquatic ecosystems