ANTITERMITIC COMPOUNDS FROM THE HEARTWOOD OF SONOKELING WOOD (*Dalbergia latifolia* Roxb.)

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ABSTRACT

This study was undertaken primarily to isolate and identify antitermitic substances that may be responsible for the natural durability of sonokeling wood (Dalbergia latifolia Roxb.). The woodmeal of the samples were extracted with acetone solvent. The acetone extract was then fractionated into n-hexane soluble fraction, ether soluble fraction, and insoluble fraction. The antifeedant bioassay test was carried-out by treating paper discs with extracts at three level of concentration i.e., 0.1 %, 0.5 %, and 1.0 % (W/W). The antifeedant bioassay test showed that both n-hexane soluble fraction and ether soluble fraction of this wood exhibited high toxicity to subterranean termite Reticulitermes speratus Kolbe. The toxicity of these soluble fractions need further investigation to identify the responsible compounds. Further investigation of the ether soluble fraction led to the isolation and identification of main compound, namely latifolin and new neoflavonoid.

Keywords : sonokeling wood, latifolin, new neoflavonoid, antitermitic activity, *Reticulitermis speratus* Kolbe

Sonokeling (*Dalbergia latifolia* Roxb.) is one species of the family Papilionaceae. It is one of the major commercial wood species of Indonesia and is found throughout Jawa island. In England and the USA, this species is known as Indian rosewood or Bombay blackwood, whereas in Deutch and Germany it is called Indisch palissander and Indisches Rosenholz, respectively. This species is used in Indonesia for furniture, decorative veneer, and wood carving (Martawijaya & Kartasujana, 1977).

According to the wood durable classification, this species is classified as a very durable wood (Martawijaya & Kartasujana, 1977). It means that this species has high ability to resist the attacks of wood destroying organisms, i.e., fungi, insects, and marine borer. The natural durability of wood depends on the concentration of the toxic extractives of wood formed during the formation of heartwood. Pre-investigation using the termite of *Cryptotermes cynopcepahlus* Light indicated that the acetone extractives from the heartwood of this wood play a significant role in its durability against the termite (Syafii & Febrianto, 1995). This study was undertaken primarily to isolate and identify antitermitic compounds that may be responsible for the natural durability of this wood.

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METHODS

The study was conducted at the Laboratory of Forest Products Chemistry, Faculty of Forestry, Bogor Agricultural University and Laboratory of Wood Extractives, Forestry and Forest Products Research Institute, Tsukuba, Japan.

Preparation of Extracts

Wood sample used in this experiment was obtained from West Jawa, Indonesia. The heartwood of the sample was converted to woodmeal in a Willey mill to pass a 40-60 mesh screen and then air-dried to about a 10 % moisture content. One thousand gram sample of air-dried woodmeal (10.55 % moisture content) was extracted with acetone solvent in a soxleht apparatus for 24 hours. The acetone extract was then concentrated at 30-40 ^{0} C in a rotary vacuum evaporator. It was then successively fractionated into *n*-hexane soluble fraction and ether soluble fraction. The general scheme of this successive fractionation is presented diagrammatically in Figure 1.

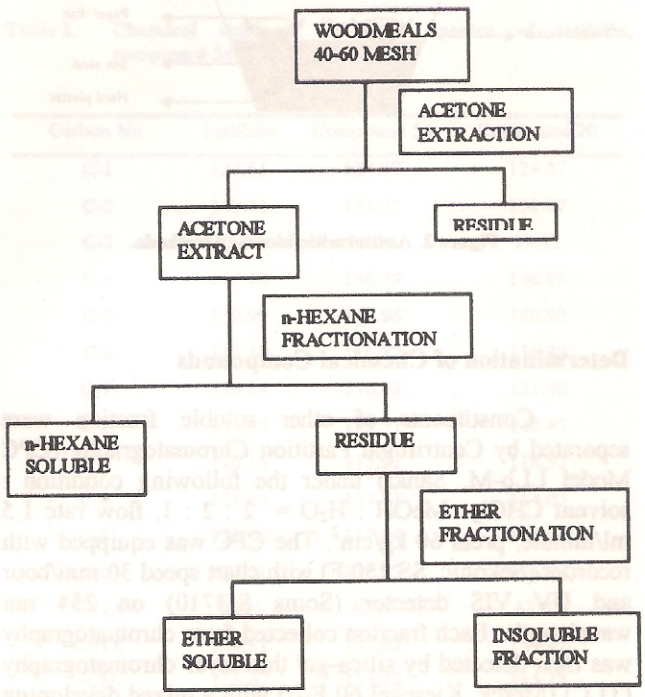

Figure 1. Schematic fractionation of acetone extract