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The Bioactive Extracts of Heartwood of *Dalbergia latifolia*

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Abstract: The heartwood of *Dalbergia latifolia* was extracted succesively with *n*-hexane, EtOAc and MeOH solvent. The extracts were then examined for the bioactivity against termites and various fungi, including non-wood decay fungi. The quantity and quality of bioactive components of the extracts were also analyzed. The *n*-hexane extract was proved to be the most active fraction against termites (mortality and antifeedant) and wood decay fungi. As the main compounds of the extract, latifolin, dalbergiphenol and 4-methoxydalbergione were isolated and identified as the bioactive components, and they all belonged to the neoflavanoids. Of the three isolated compounds, the relative content level of latifolin was the highest, followed by 4-methoxydalbergione, and dalbergiphenol, respectively. With regard to bioactivity, latifolin showed relatively high termiticidal, termite-antifeedant and antifungal activity against Kawaratake (*Trametes versicolor*). Dalbergiphenol exhibited moderate termite-antifeedant activity and relatively high antifungal activity against Oouzuratake (*Fomitopusis palustris*), *Rhizopus oryzae* and *Cladosporium cladosporioides*. 4-Methoxydalbergione showed moderately termite-antifeedant activity and antifungal activity against Kawaratake. By comparing the structure of these compounds, the specific performance in bioactivity corresponded to the existence of hydroxyl in the ortho position in B ring and to the quinonoid structure in A ring. Thus, it was suggested that the major defensive actions against various organisms in *D. latifolia* was partly due to variation of the heartwood extracts and the changing partial structure of neoflavonoids.

Keywords: *Dalbergia latifolia*, heartwood, neoflavonoid, antitermite activity, antifungal activity

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