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Antioxidant and cytotoxic agent from the rhizomes of *Kaempferia pandurata*

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PEER REVIEW

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Comments

This is a good study in which the authors explained the isolation of flavonoid compounds from the rhizomes of *K. pandurata*. This paper discusses the structure elucidation of the two flavanones. Also, structure-activity relationship against DPPH radical and cytotoxic activity

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ABSTRACT

Objective: To determine antioxidant and cytotoxic activity of two flavanones, pinocembrin (1) and pinostrobin (2) from the rhizomes of *Kaempferia pandurata*. The chemical structures of both compounds were determined based on spectroscopic data, including UV, IR, MS and NMR spectra.

Methods: The antioxidant activities of pinocembrin (1) and pinostrobin (2) were assayed by using 2,2-diphenyl-1-picrylhydrazyl. Cytotoxic assay was done by using brine shrimp lethality test, and cytotoxic properties was tested against murine leukemia P-388 cells.

Results: Compounds 1–2 were evaluated for their antioxidant properties against DPPH, showing their IC₅₀ were 5816 and 6268 μmol/L; brine shrimp lethality test: LC₅₀ 23.3 and 60.5 μg/mL; murine leukemia P-388: IC₅₀ 176.3 and 218.5 μmol/L.

Conclusions: The results indicated that pinocembrin (1) was slightly more active than pinostrobin (2).

KEYWORDS

Flavanone, Pinocembrin, Pinostrobin, *Kaempferia pandurata*, Antioxidant, Cytotoxic

1. Introduction

Kaempferia pandurata Robx. (*K. pandurata*) syn. *Boesenbergia pandurata* Robx. (local name: Temu Kunci) belongs to the family Zingiberaceae. In Indonesia, the rhizomes of this plant are extensively used as a flavouring in traditional food, and it is also used in traditional medicine as an aphrodisiac, and for the treatment of asthma, diarrhea, fever, and colic disorder. This plant has been shown to produce a number of flavonoid and essential oil compounds[1–3]. In continuation of these chemical investigations, we have examined *K. pandurata* Robx. and succeeded in isolating two flavanones, namely pinocembrin

(1) and pinostrobin (2). This paper discussed the structure elucidation of the two flavanones. Also, free radical scavenging and cytotoxic properties of compounds 1–2 against DPPH radical, brine shrimp, and murine leukemia P-388 cells are briefly described.

2. Materials and methods

2.1. General experimental procedures

UV and IR spectra were measured with a Beckman DU 7500 and an FT-IR Spectrum One Perkin-Elmer instrument,

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