



GRADUATE SCHOOL, BURAPHA UNIVERSITY

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**CHEMICAL COMPOSITION INVESTIGATION OF THE
CLINACANTHUS NUTANS LINDAU LEAVES**

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ABSTRACT

The leaves of *Clinacanthus nutans* Lindau have long been traditionally used in Thailand as an anti-inflammatory drug for the treatment of insect bites, herpes infection and allergic responses. The crude chloroform extract was separated by column chromatography and further purified by preparative thin-layer chromatography to give six pure compounds. Structure elucidation of the isolated compounds was carried out on the basis of spectral analysis, including DEPT, COSY, NOESY, HMQC and HMBC. Five of these were identified as novel compounds related to chlorophyll a and chlorophyll b; they are 13²-hydroxy-(13²-S)-chlorophyll b, 13²-hydroxy-(13²-R)-phaeophytin b, 13²-hydroxy-(13²-S)-phaeophytin b, purpurin 18 phytol ester, phaeophorbide a. The other was stigmasteryl-3-O-β-D-glucopyranoside, which was not previously reported in this species.



CHEMICAL COMPOSITION INVESTIGATION OF THE *CLINACANTHUS NUTANS* LINDAU LEAVES

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ABSTRACT: The leaves of *Clinacanthus nutans* Lindau from Thailand were reported to possess analgesic and anti-inflammatory activities and activities against varicella-zoster virus and herpes simplex virus type-2. The chloroform extract of the leaves was fractionated and further purified by column chromatography. The structure elucidation of the six isolated compounds was carried out on the basis of spectroscopic analysis including DEPT, COSY, NOESY, and HMQC. Five of these were identified as novel compounds related to chlorophyll a and chlorophyll b; they are 13²-hydroxy-(13²-S)-chlorophyll b, 13²-hydroxy-(13²-R)-phaeophytin b, 13²-hydroxy-(13²-S)-phaeophytin b, purpurin 18 phytol ester, phaeophorbide a. The other was stigmasteryl-3-O-β-D-glucopyranoside which was not previously reported in this species.

INTRODUCTION: Extracts from the leaves of *Clinacanthus nutans* were reported to possess analgesic and anti-inflammatory activities and activities against varicella-zoster virus and herpes simplex virus type-2.



Fig. 1. *Clinacanthus nutans* Lindau leaves.

C. nutans preparation (cream ointion) for the relief of minor skin inflammation and insect bites, including treatment of genital herpes and varicella-zoster lesions in patients. *C. nutans* has been chemically investigated previously; stigmasterol, luteol, β-sitosterol, belutin, six known C-glycosyl flavones, vitexin, isovitexin, shaftoside, isomallupentin-7-O-β-glucopyranoside, orientin, isorientin, five sulfur-containing glycosides, two glycolipids, a mixture of nine cerebroside and one monoacylmonogalactosylglycerol, have been isolated.

This present communication deals with the isolation of compounds from the chloroform extract and structure elucidation of the six isolated compounds as chlorophyll a and chlorophyll b related compounds together with stigmasterol glucoside by spectroscopic methods.

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REFERENCES

1. Dechatiwongse Na Ayudhya, T., Sakdarat, S., Shuyypram, A., Pattamadilok, D., Bansiddhi, J., Waterman, P. G., and Karagianis, G. (2001). Chemical Constituents of the Leaves of *Clinacanthus nutans* Lindau. *Thai Journal of Phytopharmacy*, 8 (1): 1-8.
2. Sakdarat, S., Shuyypram, A., Panyakom, K., Samart, N., Dechatiwongse Na Ayudhya, T., Waterman, P. G., and Karagianis, G. (2005). Bioactive constituents from the leaves of *Clinacanthus nutans* Lindau. *The 5th National Symposium on Graduate Research*, at Bangkok, ST-051, 66.

RESULTS AND DISCUSSION

The structures of compounds 1-6 from the chloroform extract of *Clinacanthus nutans* leaves were elucidated on the basis of spectroscopic analysis.

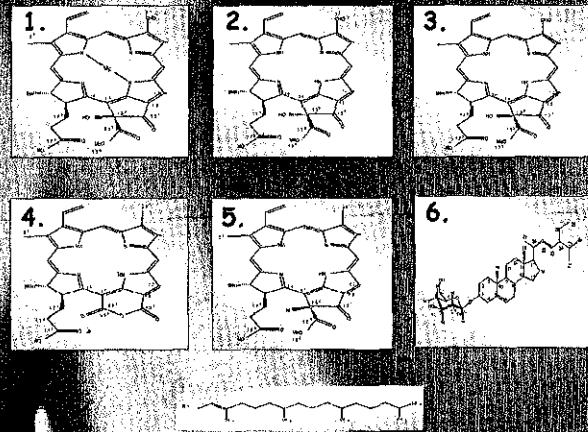


Fig. 3. Structure of compound 6.

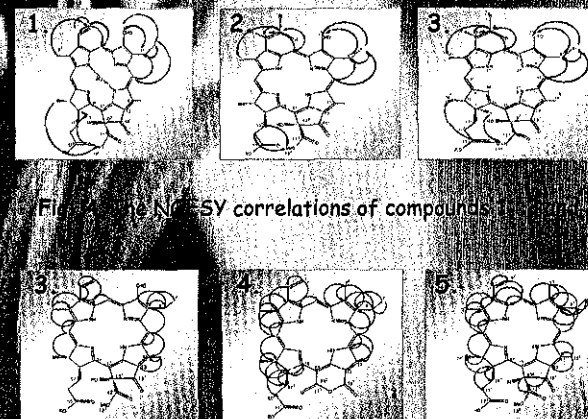


Fig. 4. The NOESY correlations of compound 1.

CONCLUSIONS AND FUTURE RESEARCH

Structure elucidation of the isolated compounds were carried out on the basis of spectroscopic analysis, including DEPT, COSY, NOESY, HMQC and HMBC. Five of these were identified as novel compounds related to chlorophyll a and chlorophyll b; they are 13²-hydroxy-(13²-S)-chlorophyll b, 13²-hydroxy-(13²-R)-phaeophytin b, 13²-hydroxy-(13²-S)-phaeophytin b, purpurin 18 phytol ester, phaeophorbide a. The other was stigmasteryl-3-O-β-D-glucopyranoside which was not previously reported in this species.