

**ISOLATION AND IDENTIFICATION OF GALANGIN
AND OTHER COMPOUNDS FROM *ALPINIA GALANGA*
LINNAEUS WILLD AND *ALPINIA OFFICINARUM*
HANCE**

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**A Thesis Submitted in Partial Fulfillment of the Requirements for
the Degree of Master of Science in Chemistry
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การแยกและการพิสูจน์เอกลักษณ์ของกาแลนกินและสารอื่นจากข่าใหญ่
(*Alpinia galanga* Linnaeus Willd) และข่าเล็ก (*Alpinia officinarum* Hance)

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WILLD AND *ALPINIA OFFICINARUM* HANCE**

Suranaree University of Technology has approved this thesis submitted in
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NUTTAPORN SAMART : ISOLATION AND IDENTIFICATION OF
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Alpinia Galanga Linnaeus Willd and *Alpinia officinarum* Hance, a Thai medicinal plant of family Zingiberaceae, is well-known plant used in Thai traditional medicine as an antibacterial and antiulcer. Moreover it has insecticidal properties. The crude extract of *Alpinia Galanga* Linnaeus Willd was preliminary tested and this test did not indicate any traces of the investigated compound (galangin). The chloroform crude extract of *Alpinia officinarum* Hance was purified by column chromatography and preparative thin-layer chromatography to give three pure compounds. Structural elucidation of the isolated compounds was carried out on the basis of spectral analyses, including UV, IR, MS, ^1H -NMR and ^{13}C -NMR, as well as comparison with reported values. Two of these were identified as flavonol of flavonoids. They were 3,5,7-trihydroxy flavone (galangin) and 3,5,7-trihydroxy-4'-methoxy flavone (kaempferide). The other was 5,7-dihydroxy-4'-methoxy-3-*O*- β -D-glucopyranoside flavone (kaempferide-3-*O*- β -D-glucoside), which had not been previously reported in this species.

School of Chemistry

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LIST OF ABBREVIATIONS

$^{\circ}\text{C}$	degree Celcius
CDCl_3	chloroform- d_1
cm	centimeter
cm^{-1}	wave number unit
d	doublet
dd	doublet of doublets
g	gram
g/kg	gram per kilogram
HPLC	high performance liquid chromatography
Hz	Hertz
IR	infrared spectroscopy
J	coupling constant in Hertz
m	multiplet
mg/mL	milligram per milliliter
mL	milliliter
MRSA	Methicillin-resistant <i>Staphylococcus aureus</i>
MSSA	Methicillin-susceptible <i>Staphylococcus aureus</i>
MS	mass spectrophotometry
nm	nanometer
NMR	nuclear magnetic resonance spectroscopy

LIST OF ABBREVIATIONS (Continued)

ppm	parts per million
PTLC	preparative thin-layer chromatography
<i>q</i>	quartet
<i>s</i>	singlet
<i>t</i>	triplet
TLC	thin-layer chromatography
UV	ultraviolet radiation
UV-Vis	ultraviolet-visible radiation
δ	chemical shift in ppm
λ_{max}	maximum absorption wavelength
μg	microgram
$\mu\text{g/mL}$	microgram per milliliter
ν_{max}	maximum absorption wavenumber