

สารเคมีจากฟองน้ำทะเลของไทย *Biemna fortis*



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Chemical Constituents from the Thai Marine Sponge, *Biemna fortis*

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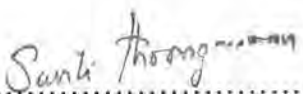
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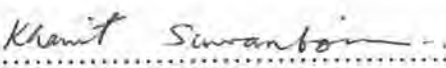
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พิมพ์ต้นฉบับบทความวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

ลัดดา ฐิติธนภัก : สารเคมีจากฟองน้ำทะเลของไทย *Biemna fortis* (CHEMICAL CONSTITUENTS FROM THE THAI MARINE SPONGE, *Biemna fortis*), อาจารย์ที่ปรึกษา : อาจารย์ ดร. คณิต สุวรรณบริรักษ์, อาจารย์ที่ปรึกษาร่วม : รศ. อังอร มันทรานนท์, 215 หน้า. ISBN 974-631-635-4


จากการสกัดแยกสิ่งสกัด เมธานอลของฟองน้ำทะเลของไทย *Biemna fortis* (Topsent) โดยอาศัยผลการทดสอบฤทธิ์ทางชีวภาพของความเป็นพิษต่อเซลล์มะเร็ง ประกอบกับข้อมูลทางสเปกตรัมของ $^1\text{H-NMR}$ สามารถแยกสารที่มีฤทธิ์ทางชีวภาพ ได้สารกลุ่ม polyethers นอกจากนี้ยังแยกสารกลุ่ม diene-unsaturated steroid ได้ 3 ชนิด จากการวิเคราะห์ข้อมูลทางสเปกตรัมของ UV, IR, MS, 1D และ 2D-NMR สามารถพิสูจน์สูตรโครงสร้างของสารทั้ง 3 ชนิด ได้ คือ Brassicasterol, Cerevisterol และ 22(E)-ergosta-7,22-dien-3,5-diol-6-one

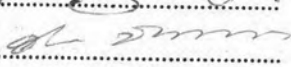
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ลายมือชื่อนิสิต 

ลายมือชื่ออาจารย์ที่ปรึกษา 

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม 

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KEY WORD: *BIEMNA FORTIS*/ MARINE SPONGE/ BIOACTIVE COMPOUNDS/ CHEMICAL
CONSTITUENTS

LADDA THITITHANAPHUK : CHEMICAL CONSTITUENTS FROM THE THAI MARINE
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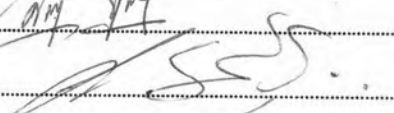
The isolation of bioactive polyether compounds from the methanol
extract of Thai marine sponge, *Biemna fortis* was guided by both tumor
cytotoxicity and $^1\text{H-NMR}$ signals. Moreover, three diene-unsaturated steroid
compounds, brassicasterol, cerevisterol and 22(*E*)-ergosta-7,22-dien-3,5-
diol-6-one, were isolated from the same extract. The identification and
structure elucidation of the isolated steroids were achieved by analyses
of the UV, IR, MS, 1D and 2D-NMR spectral data.


ภาควิชา..... เกษษ.เวท.....

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ABBREVIATIONS

ϵ	= molar absorptivity
ϵ_{\max}	= maximum molar absorptivity
δ	= chemical Shift
μg	= microgram
μl	= microliter
μM	= micromolar
ν_{\max}	= wavenumber at maximum absorption
ξ	= Greek Xi
λ_{\max}	= wavelength at maximum absorption
br. d	= broad doublet (for NMR spectra)
$^{\circ}\text{C}$	= degree celsius
$^{13}\text{C-NMR}$	= carbon-13 nuclear magnetic resonance
cm.	= centimeter
COSY	= correlated Spectroscopy
d	= doublet (for NMR spectra)
dd	= doublets of doublet (for NMR spectra)
ddd	= doublets of doublets of doublet (for NMR spectra)
DEPT	= Distortionless Enhancement by Polarization Transfer
1D-NMR	= One Dimensional Nuclear Magnetic Resonance
2D-NMR	= Two Dimensional Nuclear Magnetic Resonance
dt	= doublets of triplet (for NMR spectra)
<i>E</i>	= Entgegen : against
ED ₅₀	= 50% Effective Dose
EIMS	= Electron Impact Mass Spectrum
eV	= electron volt
Fig.	= Figure
FTIR	= Fourier Transform Infrared
g	= gram
HIV-I	= Human Immunodeficiency Virus type I
$^1\text{H-NMR}$	= Proton Nuclear Magnetic Resonance
HMBC	= Heteronuclear Multiple Bond Coherent
HMQC	= Heteronuclear Multiple Quantum Coherent
HOHAHA	= Homonuclear Hartman Hahn

HPLC	= High-Performance Liquid Chromatography
HSQC	= ¹ H-detected Heteronuclear Single Quantum Coherent
Hz	= Hertz
ID ₅₀	= 50% Inhibition Dose
IR	= Infrared
<i>J</i>	= coupling constant
kg	= kilogram
l	= liter
LD ₅₀	= 50% Lethal Dose
m	= multiplet (for NMR spectrum)
M ⁺	= molecular ion
mg	= milligram
MHz	= mega Hertz
ml	= milliliter
ml/min	= milliliter per minutes
mm	= millimeter
<i>m/e</i>	= Mass to charge ratio
MS	= Mass Spectrometry
NA	= Nutrient Agar
nm	= nanometer
NMR	= Nuclear Magnetic Resonance
No	= Number
NOESY	= Nuclear Overhauser Engancement Spectroscopy
PDQFH	= Phase Sensitive Double Quantum Filter ¹ H- ¹ H COSY
ppm	= part per million
q	= Quartet (for NMR spectrum)
s	= singlet (for NMR spectrum)
SCUBA	= Self - Contained Underwater Breathing Apparatus
SDA	= Sabouraud Dextrose Agar
sp.	= species
spp.	= species
t	= triplet (for NMR spectra)
td	= triplets of douplet (for NMR spectra)
TLC	= Thin Layer Chromatography
TMS	= Tetramethylsilane
TSA	= Trypticase Soy Agar

UV	= Ultraviolet
v/v	= volume by volume
w/w	= weight by weight
Z	= Zusammen : together