

สารเคมีจากฟองน้ำของไทย *Mycale* sp.



นาย ฉัตรชัย วัฒนากิรมย์สกุล

วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาเภสัชศาสตรมหาบัณฑิต

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CHEMICAL CONSTITUENTS FROM A THAI SPONGE, *MYCALE* SP.



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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

จัดรายชื่ วัฒนาริรมย์สกุล : สารเคมีจากฟองน้ำของไทย *Mycale* sp. (CHEMICAL CONSTITUTENTS FROM A THAI SPONGE, *MYCALE* sp.) อาจารย์ที่ปรึกษา : อาจารย์ ดร. คณิต สุวรรณวิริรักษ์, อาจารย์ที่ปรึกษาร่วม : รศ. สุรัตนา อำนวยผล, 183 หน้า. ISBN 974-631-382-7

จากการแยกสกัดสารจากสิ่งสกัดในชั้นไตรโคลอโรมีเทนของฟองน้ำไทย, *Mycale* sp. สามารถแยกสารใหม่ในกลุ่มสเตียรอยด์คิโตนได้ 2 ชนิด ได้แก่ (24 *R*)-methylcholest-4-en-3-one-6 β -ol หรือ campest-4-en-3-one-6 β -ol และ (24 *S*)-ethylcholest-4-en-3-one-6 β -ol หรือ poriferast-4-en-3-one-6 β -ol และจากการแยกสกัดสารจากสิ่งสกัดในชั้นน้ำของฟองน้ำชนิดนี้ สามารถแยกสารในกลุ่มนิวคลีโอไซด์ได้ 4 ชนิด ได้แก่ thymine, uracil, thymidine, 2'-deoxyuridine ซึ่งสารทั้ง 4 ชนิดนี้ไม่เคยมีรายงานว่าพบในฟองน้ำสกุล *Mycale* มาก่อน การพิสูจน์สูตรโครงสร้างของสารทั้ง 6 ชนิดนี้ทำได้โดยวิเคราะห์ข้อมูลจากสเปกตรัมของ uv, ir, ms, 1-D nmr และ 2-D nmr ร่วมกับการเปรียบเทียบข้อมูลกับสารอื่นที่มีโครงสร้างทางเคมีที่สัมพันธ์กันชนิดที่ทราบสูตรโครงสร้างแล้ว



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Two new steroidal ketones, (24 *R*)-methylcholest-4-en-3-one-6 β -ol or campest-4-en-3-one-6 β -ol and (24 *S*)-ethylcholest-4-en-3-one-6 β -ol or poriferast-4-en-3-one-6 β -ol were isolated from the dichloromethane extract of a Thai sponge, *Mycale* sp. and four known nucleosides, thymine, uracil, thymidine, and 2'-deoxyuridine were isolated from the aqueous extract of the same sponge. These nucleosides have not been previously found in the sponge genus, *Mycale*. The structure elucidations of the isolated compounds were achieved by analyses of the uv, ir, ms, 1-D nmr, and 2-D nmr spectral data, as well as comparison with other known related compounds.



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ABBREVIATIONS



ϵ	= Molar absorptivity
ADP	= Adenosine 5' diphosphate
AMP	= Adenosine 5' monophosphate
ATP	= Adenosine 5' triphosphate
br. t	= Broad triplet (for nmr spectra)
$^{\circ}\text{C}$	= Degree celsius
CDCl_3	= Deuterated chloroform
CD_3OD	= Deuterated methanol
CH_2Cl_2	= Dichloromethane
CHCl_3	= Chloroform
^{13}C nmr	= Carbon-13 nuclear magnetic resonance
cm	= Centimeter
COSY	= Correlated spectroscopy
CTP	= Cytidine triphosphate
1-D	= One dimensional
2-D	= Two dimensional
d	= Doublet (for nmr spectra)
dd	= Doublets of doublet
ddd	= Doublets of doublets of doublet
dddd	= Doublets of doublets of doublets of doublet
DEPT	= Distortionless enhancement by polarization transfer
δ	= Chemical shift
dt	= Doublets of triplet
eims	= Electron impact mass spectrum
eV	= Electron volt
g	= Gram
^1H -nmr	= Proton nuclear magnetic resonance
HPLC	= High performance liquid chromatography
HMBC	= ^1H -detected heteronuclear multiple bond coherence
HSQC	= ^1H -detected high sensitive quantum coherence
Hz	= Hertz
IC_{50}	= 50 % Inhibition concentration

ir	= Infrared
<i>J</i>	= Coupling constant
kg	= Kilogram
l	= Liter
λ_{\max}	= Wavelength at maxima absorption
M ⁺	= Molecular ion
MeOH	= Methanol
MHz	= Mega Hertz
μg	= Microgram
μm	= Micrometer
mg	= Milligram
mm	= Millimeter
MS	= Mass spectrum
NA	= Nutrient agar
ng	= Nanogram
nmr	= Nuclear magnetic resonance
No.	= Number
NOE	= Nuclear Over-Hausser effect
ν_{\max}	= Wavenumber at maxima absorption
PDQF	= Phase sensitive double quantum frequency
pg	= Picogram
ppm	= Part per million
q	= Quatet (for nmr spectra)
s	= Singlet (for nmr spectra)
sp.	= Specy
spp.	= Species
SCUBA	= Self-contained underwater breathing apparatus
SDA	= Sabouraud dextrose agar
t	= Triplet (for nmr spectra)
TLC	= Thin layer chromatography
TSA	= Trypticase soy agar
UTP	= Uridine triphosphate
uv	= Ultraviolet