

สารเคมีจากทูนีเคต, *Didemnum sp.* ของไทย

นาย พงศธร หลิมศิริวงษ์



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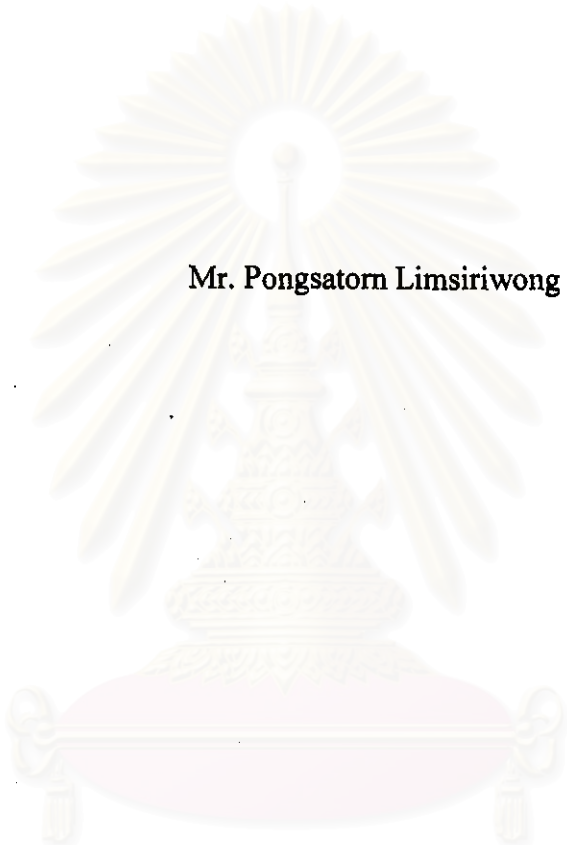
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CHEMICAL CONSTITUENTS FROM A THAI TUNICATE, *DIDEMNUM SP.*



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**A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Pharmacy in Pharmacognocny**

Department of Pharmacognosy

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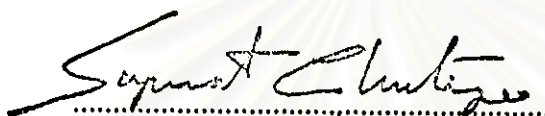
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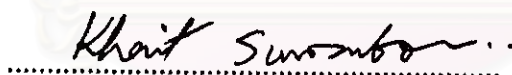
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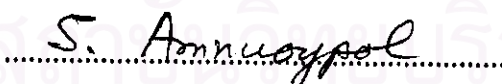
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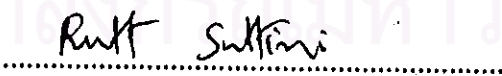
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พิมพ์จำหน่ายโดยห้องสมุดมหาวิทยาลัยราชภัฏบุรีรัมย์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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จากการแยกสกัดสารจากทูนินเคตไทย, *Didemnum sp.* สามารถแยกสารในกลุ่มนิวคลีโอไซด์ได้ 4 ชนิด ได้แก่ 4-amino-7-(5'-deoxyribos-1' β -yl)-5-iodopyrrolo[2,3-d]pyrimidine, 4-amino-7-(5'-deoxyribos-1' β -yl)-5-bromopyrrolo[2,3-d]pyrimidine, 4-amino-7-(5'-deoxyxylos-1' β -yl)-5-iodopyrrolo[2,3-d]pyrimidine และ 4-amino-7-(5'-deoxyxylos-1' β -yl)-5-bromopyrrolo[2,3-d]pyrimidine ซึ่งสารตัวสุดท้ายยังไม่เคยมีรายงานมาก่อน การพิสูจน์สูตรโครงสร้างของสารทั้ง 4 ชนิดนี้ทำโดยการวิเคราะห์ข้อมูลจากสเปกตรัมของ uv, ir, ms, ^1H และ ^{13}C nmr โดยเฉพาะอย่างยิ่งจากข้อมูลที่ได้จากเทคนิค NOE และ LCMS ร่วมกับการเปรียบเทียบข้อมูลกับสารชนิดอื่นที่มีโครงสร้างทางเคมีที่สัมพันธ์กัน



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Four halogenated pyrrolo[2,3-*d*]pyrimidine nucleosides were isolated from a Thai tunicate, *Didemnum sp.*: including three known compounds, 4-amino-7-(5'-deoxyribos-1' β -yl)-5-iodopyrrolo[2,3-*d*]pyrimidine, 4-amino-7-(5'-deoxyribos-1' β -yl)-5-bromopyrrolo[2,3-*d*]pyrimidine, and 4-amino-7-(5'-deoxyxylos-1' β -yl)-5-iodo-pyrrolo[2,3-*d*]pyrimidine and a new derivative, 4-amino-7-(5'-deoxyxylos-1' β -yl)-5-bromopyrrolo[2,3-*d*]pyrimidine. The structures and relative stereochemistry of the compounds were elucidated through extensive analyses of their uv, ir, ms, ^1H and ^{13}C nmr spectral data, especially NOE and LCMS techniques, as well as comparison with the data of related compounds.



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ABBREVIATIONS

$[\alpha]_D^{20}$	= specific rotation at 20 °C and sodium D line (589 nm)
ADP	= adenosine 5' diphosphate
AMP	= adenosine 5' monophosphate
ATP	= adenosine 5' triphosphate
br d	= broad doublet
br s	= broad singlet
c	= concentration
°C	= degree celsius
^{13}C nmr	= carbon-13 nuclear magnetic resonance
CDCl_3	= deuterated chloroform
CH_2Cl_2	= dichloromethane
CHCl_3	= chloroform
cm	= centimeter
CTP	= cytidine 5' diphosphate
δ	= chemical shift
1-D	= one dimensional
2-D	= two dimensional
d	= doublet
dq	= doublet of quartets
ϵ	= molar absorptivity
eV	= electron volt
g	= gram
^1H nmr	= proton nuclear magnetic resonance
HMBC	= proton-detected heteronuclear multiple bond coherence
HMQC	= proton-detected heteronuclear multiple quantum coherence
HPLC	= high performance liquid chromatography
HSQC	= proton-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
LD ₅₀	= 50% lethality dose
M ⁺	= molecular ion
MeOH	= methanol
MHz	= megahertz
μg	= microgram
mg	= milligram
ml	= milliliter
mm	= millimeter
MS	= mass spectrum
ν_{\max}	= wavenumber at maximum absorption
NA	= nutrient agar
nmr	= nuclear magnetic resonance
No.	= number
NOE	= nuclear overhauser effect
p	= pentet
ppm	= part per million
q	= quartet
s	= singlet
SDA	= sabouraud dextrose agar
<i>sp.</i>	= species
t	= triplet
TLC	= thin layer chromatography
TSA	= trypticase soy agar
UTP	= uridine triphosphate
uv	= ultraviolet