

องค์ประกอบทางเคมีและฤทธิ์ทางชีวภาพของผลตะนูนขาว

Xylocarpus granatum Koen.



นางสาวศุภรา ปิ่นจินดา

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จุฬาลงกรณ์มหาวิทยาลัย

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**CHEMICAL CONSTITUENTS AND BIOLOGICAL ACTIVITY OF
THE FRUITS OF *Xylocarpus granatum* Koen.**

Ms. Supara Pinjinda

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Graduate School

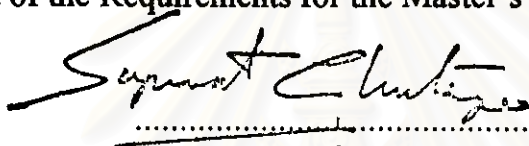
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ผลการทดสอบฤทธิ์ทางชีวภาพเบื้องต้นพบว่า สังกัดของผลและเมล็ดของตะบูนขาวมีฤทธิ์ทางชีวภาพ สามารถแยกสารได้ 7 ชนิดจากสังกัดของผล โดยอาศัยสมบัติทางกายภาพ, ปฏิกริยาเคมี และหลักฐานทางสเปกโทรสโกปี ได้พิสูจนสูตรโครงสร้างของสารได้ 7 ชนิด คือ ของผสมของเอสเทอร์ไฮดรอกซี, ของผสมของแอลกอฮอล์ไฮดรอกซี (C_{25} , C_{27-30}), ของผสมสเตอรอยด์ (β -sitosterol, stigmasterol และ campesterol), ของผสมกรดคาร์บอกซิลิกไฮดรอกซี (C_{17-25} , C_{27}), 7-oxo-7-deacetoxy gedunin, xylocensin K (ลิโมนอยด์ใหม่) และของผสมสเตอรอยด์ไกลโคไซด์ นอกจากนี้สารที่แยกได้ทั้งหมดจากส่วนผลแล้วยังสามารถแยกลิโมนอยด์ได้อีก 2 ชนิดจากเมล็ดตะบูนขาวแต่ไม่สามารถพิสูจนสูตรโครงสร้างได้ 7-oxo-7-deacetoxy gedunin และ xylocensin K แสดงฤทธิ์ต้านการกินของหนอนกินไม้ชื่อขนาดใหญ่, *Galleria mellonella*, 80.69% และ 66.29% ตามลำดับด้วยระดับปริมาณสาร 4.0 mg.

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ปีการศึกษา 2539

ลายมือชื่อนิติกร *สมิทธิ์*
ลายมือชื่ออาจารย์ที่ปรึกษา *วรินทร์ ชวลิตวี*
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The preliminary bioassay results indicated that the crude extracts of the fruits and the seeds of *Xylocarpus granatum* Koen. were biologically active. Seven substances were isolated from the crude extract of the fruits. By means of physical properties, chemical reactions and spectroscopic data, all of them were elucidated their structural formulae as a mixture of long chain aliphatic esters, a mixture of long chain aliphatic alcohols (C₂₃, C₂₇₋₃₀), a mixture of long chain carboxylic acids (C₁₇₋₂₅, C₂₇), 7-oxo-7-deacetoxy gedunin, xylocensin K (a new limonoid) and a mixture of steroidal glycosides. Besides all isolated substances obtained from the fruits, two additional unidentified limonoids could be isolated from the seeds of this plant. 7-Oxo-7-deacetoxy gedunin and xylocensin K exhibited an antifeedant activity of 80.69% and 66.29% against Greater Wax Moth, *Galleria mellonella* at dose level 4.0 mg.

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ภาควิชา.....เคมี.....

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List of Abbreviations

b	board	l	liter (s)
°C	degree centigrade	m	multiplet (NMR)
Cpd	compound	m/z	mass to charge ratio
cm ⁻¹	unit of wavelength	mg	milligram (s)
d	doublet (NMR)	mL	mililiter (s)
dd	doublet of doublet (NMR)	m.p.	melting point
DMSO	dimethylsulfoxide	MW	molecular weight
g	gram (s)	M ⁺	molecular ion
GLC	gas liquid chromatography	nm	nanometer
HPLC	high performance liquid chromatography	ppm	part per million
J	coupling constant	R _f	rate of flow in chromatography
kg	kilogram (s)	s	singlet (NMR)
s	sharp (IR)	t	triplet (NMR)
wt	weight	δ	chemical shift
NMR	nuclear magnetic resonance	MS	mass spectroscopy
IR	infrared		