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**SYNTHESIS OF PLAUNOTOL ANALOGUES FROM GERANIOL**



**Miss Puntharik Ruchirabha**

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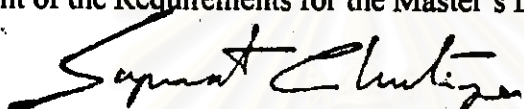
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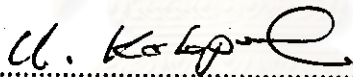
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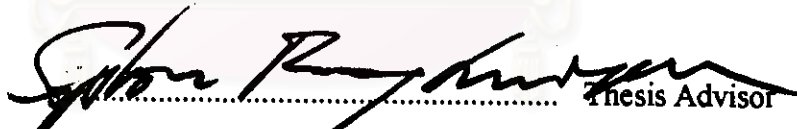


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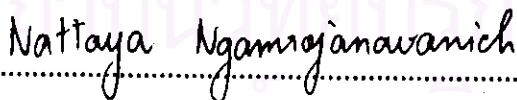
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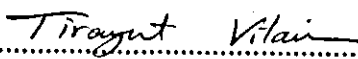
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พิมพ์ต้นฉบับบทคัดย่อวิทยานิพนธ์ภายในกรอบสี่เหลี่ยมนี้เพียงแผ่นเดียว

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สังเคราะห์สารเลียนแบบเปลาโนทอลชนิดใหม่ 12 ชนิด โดยเริ่มค้นจากเจอร์รานีโอล โดยมี  
ขั้นตอนแบ่งตามโครงสร้างของสารได้ 2 แนวทาง การสังเคราะห์สารประกอบ 2,6-Dimethyl-2,6-  
octadien-1,8-diol (4) มีขั้นตอนที่สำคัญคือ ปฏิกริยาไฮดรอกซิเลชัน โดยใช้ selenium dioxide  
การสังเคราะห์สารประกอบชนิดใหม่ตัวอื่นๆ ประกอบด้วย ปฏิกริยาอัลคิลเลชันของมาโทเนตเอส  
เทอร์ด้วยเจอร์รานีลคลอไรด์ จากนั้นทำปฏิกริยาอัลคิลเลชันครั้งที่สองกับสารประกอบฮาโล-เอสเทอร์  
นำผลิตภัณฑ์ที่ได้มาทำปฏิกริยาดีคาร์บอกซิเลชันในสถานะที่เป็นกลาง และรีดิวซ์ด้วยลิเทียมอะลูมิ-  
เนียมไฮไดรด์ได้สารประกอบแอลกอฮอล์ นำสารประกอบแอลกอฮอล์ที่ได้ทดสอบฤทธิ์ทางชีวภาพ  
โดยใช้ cAMP phosphodiesterase สารประกอบบางชนิดมีฤทธิ์ยับยั้ง cAMP phosphodiesterase ปาน  
กลาง มีสารประกอบชนิดใหม่เพียง 4 ชนิดที่สามารถหาค่า  $IC_{50}$  ได้

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Twelve new plaunotol analogues were synthesized from commercially available geraniol which were separated in two pathways according to their structures. 2,6-Dimethyl-2,6-octadien-1,8-diol (4) has been synthesized by selenium dioxide hydroxylation as the key step. The synthesis of another new compounds composed of alkylation of malonate esters with geranyl chloride in the presence of base then second alkylation was carried out with halo-esters. The alkylation products were decarboxylated with neutral condition and reduced with lithium aluminium hydride to obtain corresponding alcohols. These compounds have been tested for their biological activity using cAMP phosphodiesterase. Some of these compounds showed modest inhibition of cAMP. Only four new compounds had enough activity to be able to determine their  $IC_{50}$  values.

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## LIST OF ABBREVIATIONS

$^{13}\text{C}$ NMR	Carbon-13 Nuclear Magnetic Resonance
$\text{cm}^{-1}$	unit of wavenumber
d	doublet (NMR)
DEPT	Distortionless Enhancement by Polarisation Transfer
FT-IR	Fourier Transform Infrared Spectroscopy
$^1\text{H}$ NMR	Proton Nuclear Magnetic Resonance
m	multiplet (NMR)
$\text{M}^+$	Molecular ion in mass spectrum
MS	Mass spectrometry
ppm	parts per million
<i>R<sub>f</sub></i>	Retention factor in chromatography
s	singlet (NMR)
TLC	Thin Layer Chromatography
$\delta$	Chemical shift
Hz	Hertz
t	triplet (NMR)
q	quatet (NMR)
m/z	mass to charge ratio
$\nu_{\text{max}}$	the frequency at maximum absorption
br	broad (IR)
s	strong (IR)
m	medium (IR)
w	weak (IR)
$^{\circ}\text{C}$	degree celsius
ml	milliliter (s)
mg	milligram