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ESTERIFICATION OF ANDROGRAPHOLIDE

Miss Areerat Prajoubklang

A Thesis Submitted in Partial Fulfillment of the Requirements

for the Degree of Master of Science in Pharmacy

Department of Pharmaceutical Chemistry

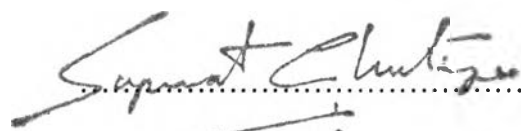
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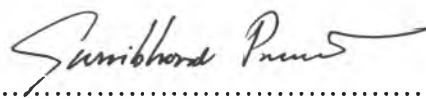
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ได้ศึกษาปฏิกริยาการเกิดเอสเทอร์ของแอนโดรกราโฟไลด์ โดยการทำให้ปฏิกริยากับแอซิดแอนไฮไดรด์ และแอซิดคลอไรด์ ได้แก่ อะซิติคแอนไฮไดรด์ บิวทริกแอนไฮไดรด์ เบนโซอิลคลอไรด์ เฮปตะโนอิลคลอไรด์ และ สเตียโรอิลคลอไรด์ที่ภาวะของปฏิกริยาต่างๆ ผลลัพธ์ที่ได้จากปฏิกริยาเป็นเอสเทอร์ของดีไฮโดรแอนโดรกราโฟไลด์ โดยจำนวนหมู่ของเอสเทอร์อาจเป็นหนึ่งหมู่หรือสองหมู่ขึ้นกับภาวะของปฏิกริยา พบว่าการให้ความร้อนแก่ปฏิกริยาจะให้เอสเทอร์ของดีไฮโดรแอนโดรกราโฟไลด์หนึ่งและสองหมู่ แต่ถ้าเตรียมที่อุณหภูมิห้องจะให้เอสเทอร์ของดีไฮโดรแอนโดรกราโฟไลด์สองหมู่เพียงอย่างเดียว ผลลัพธ์ที่ได้ทำให้บริสุทธิ์ด้วยวิธีการทางโครมาโทกราฟีและพิสูจน์เอกลักษณ์ด้วยวิธีการทางสเปกโทรสโกปี โดยใช้อินฟราเรดสเปกโทรโฟโตเมทรี นิวเคลียร์แมกเนติกเรโซแนนซ์สเปกโทรสโกปี และ แมสสเปกโทรเมทรี

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สาขาวิชา เภสัชเคมี
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Esterification reaction of andrographolide with acid anhydride and acid chloride, including acetic anhydride, butyric anhydride, benzoyl chloride, heptanoyl chloride and stearoyl chloride at various reaction conditions have been studied. The products of the reaction in all cases were mono- and di-acyl derivatives of dehydroandrographolide, but at room temperature gave only di-acyl derivatives of dehydroandrographolide. The products were purified by chromatographic methods and characterized by Infrared spectrophotometry, nuclear magnetic resonance spectroscopy and mass spectrometry.

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ABBREVIATIONS

b.p.	=	Boiling point
br s	=	Broad singlet (for NMR spectra)
<i>c</i>	=	Concentration
°C	=	Degree Celcius
CDCl ₃	=	Deuterated chloroform
CHCl ₃	=	Chloroform
CH ₂ Cl ₂	=	Dichloromethane
cm	=	Centimeter
¹³ C NMR	=	Carbon-13 nuclear magnetic resonance
COSY	=	Correlation spectroscopy
1-D	=	One dimensional
2-D	=	Two dimensional
d	=	Doublet (for NMR spectra)
dd	=	Doublet of doublet (for NMR spectra)
ddd	=	Doublet of doublet of doublet (for NMR spectra)
DASM	=	Dehydroandrographolide Succinic Acid Monoester
DEPT	=	Distortionless Enhancement by Polarization Transfer
DMAP	=	4-Dimethylaminopyridine
DMSO-d ₆	=	Deuterated dimethylsulfoxide
δ	=	Chemical Shift
EIMS	=	Electron Impact Mass Spectrum
EtOAc	=	Ethyl acetate
EtOH	=	Ethanol

Fam.	=	Family
g	=	Gram
HETCOR	=	Heteronuclear Chemical Shift Correlation
^1H NMR	=	Proton nuclear magnetic resonance
Hz	=	Hertz
in.	=	Inch
IR	=	Infrared spectrum
J	=	Coupling constant
kg	=	Kilogram
L	=	Liter
M^+	=	Molecular ion
mg	=	Milligram
MHz	=	Megahertz
ml	=	Milliliter
mm	=	Millimeter
m.p.	=	Melting point
M	=	Molar
m/z	=	Mass to charge ratio
nm	=	Nanometer
MS	=	Mass spectrometry
No.	=	Number
NMR	=	Nuclear Magnetic Resonance
ppm	=	Part per million
q	=	Quartet(for NMR spectra)
s	=	Singlet(for NMR spectra)
t	=	Triplet(for NMR spectra)
TLC	=	Thin layer Chromatography
PTLC	=	Preparative-Thin layer Chromatography
TOCSY	=	Total Coherence Spectroscopy