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ABBREVIATIONS AND SYMBOLS

anhyd.	Anhydrous
brs	Broad singlet
c	Concentration
calc.	Calculated
cat.	Catalyst
COSY	Correlation Spectroscopy
d	Doublet
DEPT	Distortionless Enhancement by Polarization Transfer
dd	Doublet of doublets
ddt	Doublet of double of triplets
ED ₅₀	Half maximal effective dose
EIMS	Electron Ionization Mass Spectroscopy
equiv.	Equivalent
ESI	Electrospray Ionization
EtOAc	Ethyl acetate
FCC	Flash column chromatography
g	Gram
IC ₅₀	50% Inhibitory concentration
<i>J</i>	Coupling constant
h	Hour
HMBC	Heteronuclear multiple bond connectivity
HMQC	Heteronuclear multiquantum coherence
HRMS	High Resolution Mass Spectrometry
Hz	Hertz
FTIR	Fourier transform infrared
lit.	Literature
m	Multiplet

min	Minute
ml	Milliliter
mmol	Millimole
m.p.	Melting point
Me	Methyl
MHz	Megahertz
m/z	Mass to charge ratio
ng	Nanogram
NMR	Nuclear magnetic resonance
pl	Picolitre
PLC	Preparative layer chromatography
ppm	Parts per million (in NMR)
RT = rt	Room temperature (°C)
R_f	Retardation factor
s	Singlet
t	Triplet
td	Triplet of doublets
T	Temperature (°C)
THF	Tetrahydrofuran
TLC	Thin layer chromatography
ν	Wavenumber (cm^{-1})
δ	Chemical shift (ppm)
λ	Wavelength (cm^{-1})
μg	Microgram
$[\alpha]$	Specific optically rotation

STATEMENT OF ORIGINALITY

At the present time, natural products have played an important role in health care and prevention of diseases. The treatment of diseases requires drug therapy. Several drug candidates are derived from synthesis and various naturally occurring medicinal sources. This research recognizes the importance of plants from nature which occurred in the northern part of Thailand's biodiversity is enormous. This research has been rising in order to rectify disease by studying natural plant extraction and improvement of their bioactivities.

This research investigated two species of *Vernonia scandens* aerial parts and *Clietocalyx nervosum* var. *paniala* seeds (Makieng) by isolation and structural identification of pure compounds. Their pure compounds were evaluated of their biological activities then improve and modify the structure for increasing their bioactivities.

The valuable information of extractions will be further employed for modifying of the drug therapy that contains specific desired activities in the future.

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่
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ข้อความแห่งการริเริ่ม

ในปัจจุบัน สารผลิตภัณฑ์ทางธรรมชาติ มีบทบาทสำคัญต่อการดูแลสุขภาพ และการป้องกันโรคต่างๆ การเยียวยาบำบัดรักษาโรคร้ายเหล่านี้ต้องอาศัยการใช้ยาเป็นส่วนมาก แหล่งที่มาของยาส่วนใหญ่ได้มาจากการสังเคราะห์ และได้มาจากสารสกัดผลิตภัณฑ์ทางธรรมชาติ งานวิจัยนี้จึงเล็งเห็นความสำคัญและประโยชน์ของพืชจากธรรมชาติ อีกทั้งทางตอนเหนือของประเทศไทยนั้นมีความหลากหลายทางชีวภาพเป็นอย่างมาก งานวิจัยนี้จึงริเริ่มขึ้นเพื่อจุดมุ่งหมายในการแก้ปัญหาโรคร้ายต่างๆ โดยทำการศึกษหาสารสกัดจากพืชทางธรรมชาติ และทดสอบการออกฤทธิ์ทางชีวภาพของสาร

ในงานวิจัยนี้ได้ทำการศึกษาพืช 2 ชนิด คือ ส่วนที่อยู่เหนือพื้นดินของ *Vernonia scandens* และเมล็ดมะเกี๋ยง *Cliostocalyx nervosum* var. *paniala* โดยจะทำการแยก และตรวจหาโครงสร้างของสาร จากนั้นนำมาทดสอบฤทธิ์ทางชีวภาพ และทำการปรับปรุงโครงสร้างของสารเพื่อศึกษาผลของการเปลี่ยนแปลงที่เกิดขึ้น

จากข้อมูลที่ได้จากการศึกษางานวิจัยนี้ สามารถนำไปศึกษาและปรับปรุงโครงสร้างของสารต่อไป เพื่อพัฒนาและนำไปใช้เป็นยาบำบัดรักษาโรคได้ในอนาคต

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