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LIST OF ABBREVIATIONS

| | |
|--------------------|--|
| CC | Column chromatography |
| CDCl ₃ | Deuterated chloroform |
| CHCl ₃ | Chloroform |
| cm | Centimeter |
| CO ₂ | Carbon dioxide |
| DMSO | Dimethyl sulfoxide |
| EI | Electron impact |
| EIMS | Electron impact mass spectrum |
| <i>et al.</i> | And others |
| EtOAc | Ethyl acetate |
| EtOH | Ethanol |
| FC | Flash column |
| FID | Flame ionization detector |
| FT-IR | Fourier transform infrared spectroscopy |
| g | Gram |
| GC | Gas chromatography |
| GC-MS | Gas chromatography mass spectrum |
| h | Hours |
| ¹ H-NMR | Proton nuclear magnetic resonance |
| HPLC | High performance liquid chromatography |
| Hz | Hertz |
| ICBN | International Code of Botanical Nomenclature |
| ISBN | Information Standard Book Number |
| i.d. | Internal diameter |
| IR | Infrared |
| KBr | Potassium bromide |
| kg | Kilogram |
| km | Kilometer |

| | |
|------------------|---|
| L | Liter |
| lit. | Literature |
| m | Meter |
| max | Maximum |
| MeOH | Methanol |
| MeOH- <i>d</i> 4 | Methanol- <i>d</i> 4 |
| μL | Microliter |
| μg | Microgram |
| μm | Micrometer |
| mL | Milliliter |
| mg | Milligram |
| MHz | Megahertz |
| MIC | Minimum inhibition concentration |
| min | Minutes |
| mm | Millimeter |
| mM | Millimolar |
| MS | Mass spectrum |
| NCCLS | National Committee for Clinical Laboratory Standard |
| NIST | National institute of standards and technology |
| nm | Nanometer |
| NMR | Nuclear magnetic resonance |
| No. | Number |
| NP | Normal phase |
| ppm | Part per million |
| PTLC | Preparative thin-layer chromatography |
| RI | Retention index |
| RP | Reversed phase |
| RT | Retention time |
| spp. | Species |
| TLC | Thin-layer chromatography |
| UV | Ultraviolet |

| | |
|---------------|-----------------------------------|
| V_{\max} | Wave number at maximum absorption |
| μg | Microgram |
| μL | Microliter |



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LIST OF SYMBOLS

| | |
|--------------------|-----------------------------------|
| α | Alpha |
| $[\alpha]_D$ | Specific optical rotation |
| β | Beta |
| brd | Broad doublet |
| brs | Broad singlet |
| $^{\circ}\text{C}$ | Degrees celsius |
| d | Doublet |
| dd | Doublet of doublet |
| dt | Doublet of triplet |
| IC_{50} | 50% Inhibition concentration |
| J | Coupling constant |
| m | Multiplet |
| m/z | A value of mass divided by charge |
| s | Singlet |
| δ | Chemical shift |
| λ | Wavelength |

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ข้อความแห่งการริเริ่ม

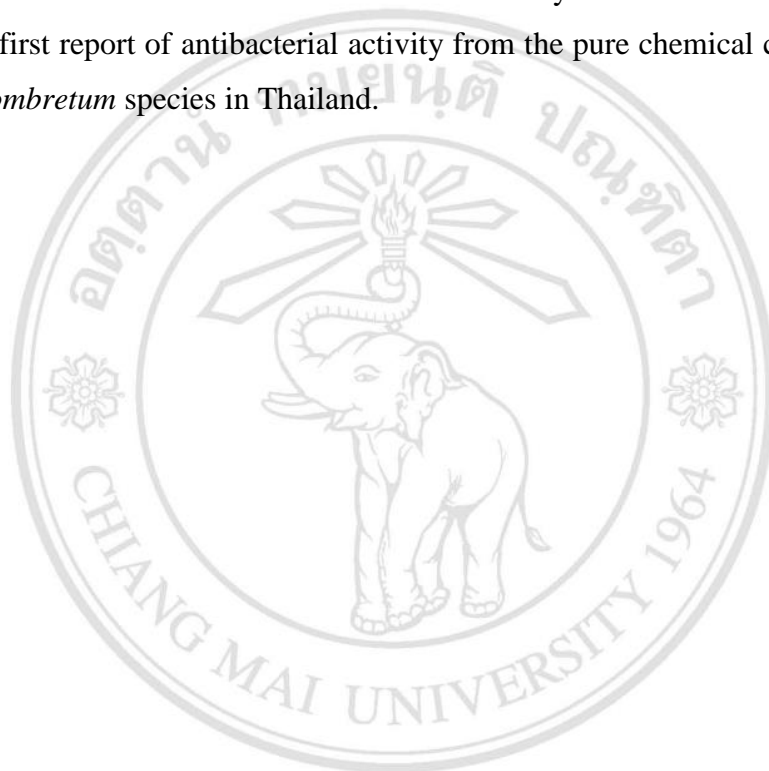
1. วิทยานิพนธ์นี้ ได้นำเสนอ เป็นครั้งแรก ในการสกัดสารบริสุทธิ์ จากสารสกัดจากใบ ของพืชในสกุล *Combretum* ในประเทศไทย
2. เป็นครั้งแรก ในการศึกษาฤทธิ์ทางชีวภาพ จากสารสกัดจากใบ และเป็นครั้งแรก ในการศึกษาฤทธิ์ต้านเชื้อแบคทีเรีย ของสารบริสุทธิ์ที่สกัดได้ จากสารสกัดจากใบ ของพืชในสกุล *Combretum* ในประเทศไทย



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STATEMENTS OF ORIGINALITY

1. This thesis is the first report that present the isolation of the pure chemical constituents from the leaves extracts of some *Combretum* species in Thailand.
2. In order to the first determination of the bioactivity from the leaves extracts and also the first report of antibacterial activity from the pure chemical constituents of some *Combretum* species in Thailand.



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