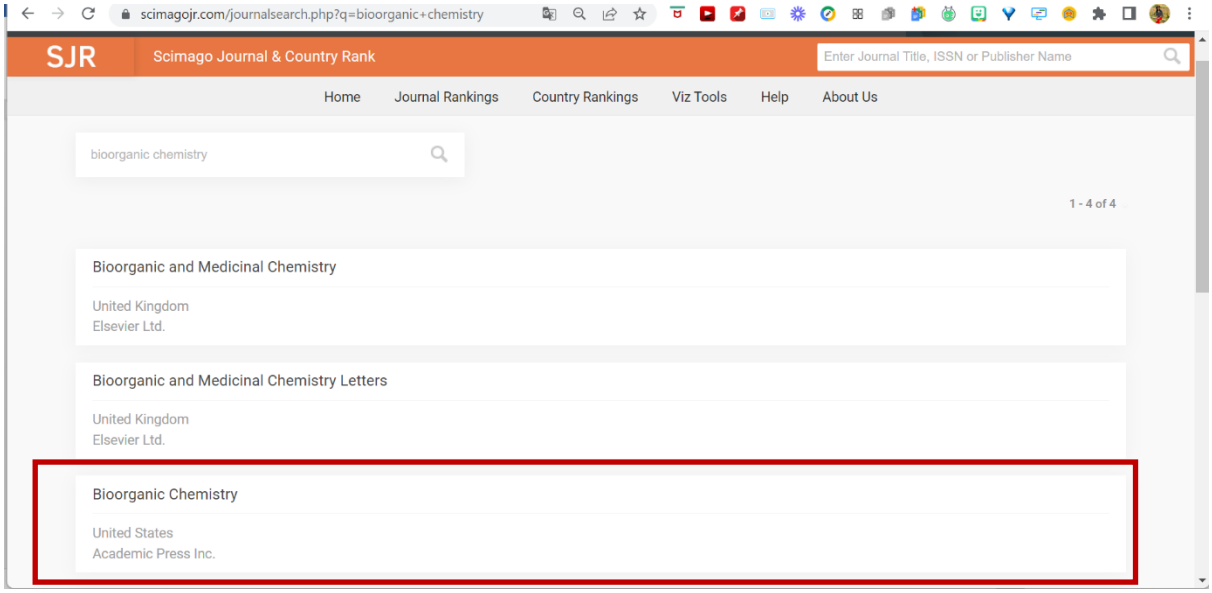
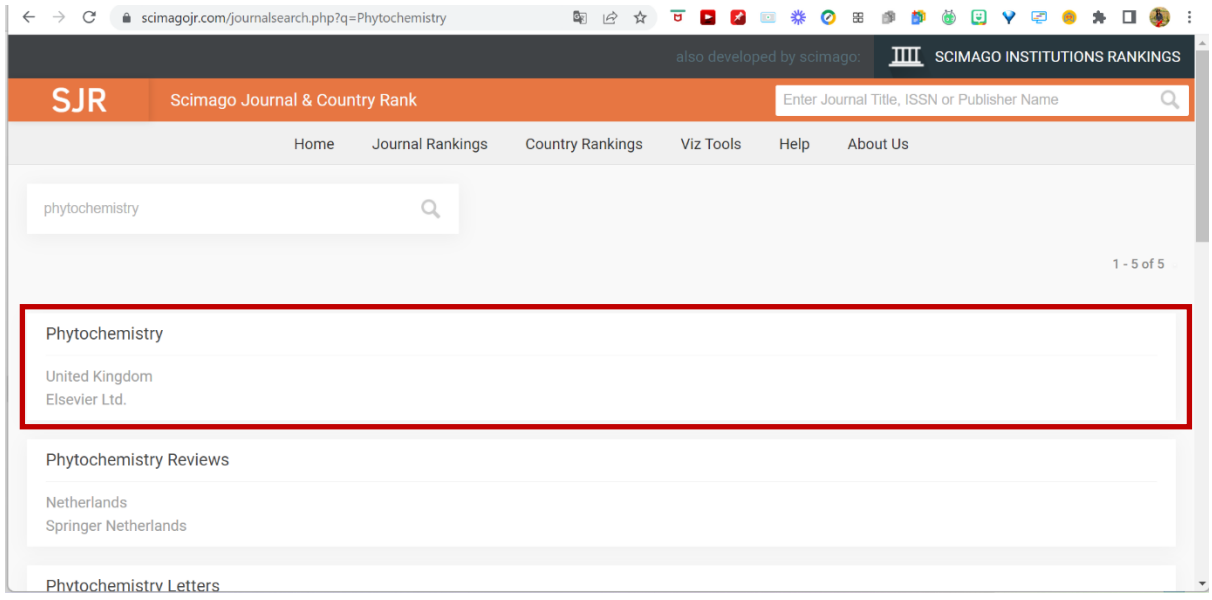
รายงานการอ้างอิงบทความเรื่อง "Acylphloroglucinols from *Callistemon lanceolatus* DC."
ที่ตีพิมพ์ในช่วง ตุลาคม 2564 – มีนาคม 2565 มี 3 บทความ ดังนี้

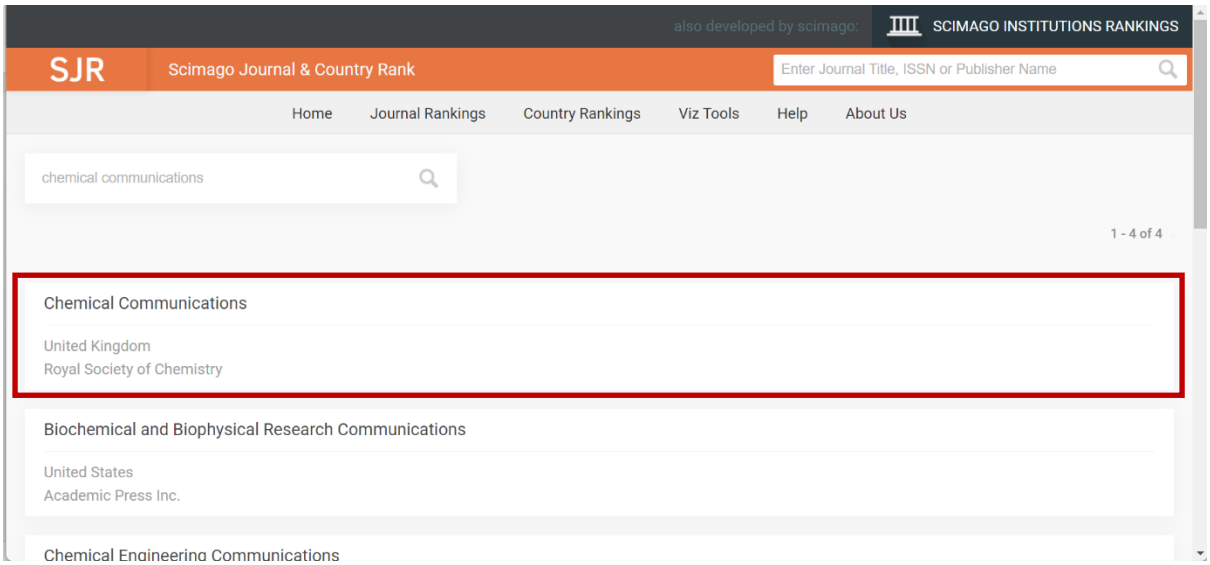
1. Acylphloroglucinol trimers from Callistemon salignus seeds: Isolation, configurational assignment, hAChE inhibitory effects, and molecular docking studies. Bioorganic Chemistry. (2021) 117. 105404. (Oct 2021)



2. Phloroglucinol derivatives rhotomensones A-G from *Rhodomyrtus tomentosa*. Phytochemistry. (2021) 190. 112890. (Oct 2021)



3. Total syntheses of ericifolione and its analogues via a biomimetic inverse-electron-demand Diels-Alder reaction. Chemical Communications. (2022). 58 (2), 270-273 (Dec 23 2021)



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Acylphloroglucinols from *Callistemon lanceolatus* DC.

Suthida Rattanaburi [a], Wilawan Mahabusarakam [a,b,*], Souwalak Phongpaichit [b,c], Anthony R. Carroll [d,e]

[a] Department of Chemistry, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand
[b] Natural Products Research Center of Excellence, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand
[c] Department of Microbiology, Faculty of Science, Prince of Songkla University, Hat Yai, Songkhla 90112, Thailand
[d] Griffith School of Environment (Gold Coast Campus), Griffith University, Qld 4222, Australia
[e] Environmental Futures Centre, Griffith University, Gold Coast, Qld 4222, Australia

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Acylphloroglucinol trimers from *Callistemon salignus* seeds: Isolation, configurational assignment, *h*AChE inhibitory effects, and molecular docking studies

Mu-Yuan Yu [a], Si-Na Liu [a,b], Hui Liu [a,b], Qing-Hong Meng [a,b], Xu-Jie Qin [a,b,*], Hai-Yang Liu [a,b,*]

[a] State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, People's Republic of China

[b] University of Chinese Academy of Sciences, Beijing 100049, People's Republic of China

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ABSTRACT

Alzheimer's disease (AD) diagnoses are greatly increasing in frequency as the global population ages, highlighting an urgent need for new anti-AD strategies. With the aim to search for human acetylcholinesterase (*h*AChE) inhibitors from the species of Myrtaceae family, ten acylphloroglucinol trimers (APTs), including eight new APTs, callistemontrimers A–H (**1a**, **1b**, **2a**, **2b**, **3a**, **3b**, **4b**, and **5b**), and two naturally occurring ones (**4a** and **5a**), along with one reported triketone–acylphloroglucinol–monoterpene adduct (**6**), were obtained and structurally characterized from the *h*AChE inhibitory acetone extract of *Callistemon salignus* seeds. The structures and their absolute configurations for new APTs were unequivocally established *via* the detailed interpretation of extensive spectroscopic data (HRESIMS and NMR), ECD calculations, and single crystal X-ray diffraction, whereas the absolute configurations of known APTs were determined by further chiral separation, and calculated ECD calculations. The results of *h*AChE inhibitory assay revealed that an enantiomeric mixture of **2a/2b**, **2a**, and **2b** are good *h*AChE inhibitors with IC_{50} values of 1.22 ± 0.23, 2.28 ± 0.19, and 4.96 ± 0.39 μM, respectively. Molecular docking was used to uncover the modes of interactions for bioactive compounds with the active site of *h*AChE. In addition, **2** and **6** displayed moderate neurite outgrowth-promoting effects with differentiation rates of 6.16% and 6.19% at a concentration of 1.0 μM, respectively.

1. Introduction

Alzheimer's disease (AD), one of the most common kinds of dementia, is an age-linked neurodegenerative disease seriously affecting approximately 24 million victims worldwide. As the global population ages, it is estimated that the number of people suffering from AD would total up to more than 100 million cases by the end of 2050 [1]. Despite a herculean effort, it is still a real challenge for the community to find a cure, or at very least, a treatment that delays the progression of this disease. With only four drugs approved to barely relieve the symptoms of AD, three of them are human acetylcholinesterase (*h*AChE) inhibitors named galantamine, donepezil, and rivastigmine. Given that one of hallmarks of the AD pathophysiology is high damage in the forebrain during the progression of AD [2,3], an increase of acetylcholine (ACh) level at the synapse region by means of inhibiting the *h*AChE could be an advisable approach to slow down the progression of AD [4–8]. AChE inhibition is conducive to maintaining the normal neurotransmission mediated by ACh for healthy people. Additionally, it may prevent the occurrence of AD or decelerate the progression for AD patients [9]. In recent years, *h*AChE inhibitors have proven to share several benefits [10], such as reduced degradation of synaptic ACh as well as improvement of brain ACh levels in a dose dependent manner resulting in an enhanced cholinergic transmission for AD patients.

Acylphloroglucinol trimers (APTs) reported from the plants of Myrtaceae family, a class of Diels–Alder adducts, arise biosynthetically from one acylphloroglucinol and two triketone units [11–22]. These secondary metabolites are particularly attractive, not only due to their interesting chemical features, but also because of a broad range of biological effects, including anti-bacterial [12,20], α-glucosidase inhibitory [13], anti-malarial [16], anti-inflammatory [23–26], anti-proliferative

* Corresponding authors at: State Key Laboratory of Phytochemistry and Plant Resources in West China, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, People's Republic of China.
E-mail addresses: qinxujie@mail.kib.ac.cn (X.-J. Qin), haiyangliu@mail.kib.ac.cn (H.-Y. Liu).

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Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.bioorg.2021.105404.

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Phloroglucinol derivatives rhotomensones A-G from *Rhodomyrtus tomentosa*

Qing-Hu Mo [a,1], Meng-Qi Yan [a,1], Xian-Li Zhou [b,*], Qin Luo [c], Xi-Shan Huang [d,**], Cheng-Qin Liang [a,***]

[a] College of Pharmacy, Guilin Medical University, Guilin, 541199, PR China
[b] College of Biotechnology, Guilin Medical University, Guilin, 541199, PR China
[c] Science Experiment Center, Guilin Medical University, Guilin, 541199, PR China
[d] State Key Laboratory for the Chemistry and Molecular Engineering of Medicinal Resources, Collaborative Innovation Center for Guangxi Ethnic Medicine, School of Chemistry and Pharmaceutical Sciences of Guangxi Normal University, Guilin, 541004, PR China

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Total syntheses of ericifolione and its analogues *via* a biomimetic inverse-electron-demand Diels–Alder reaction†

Tingting Zhou,[ab] Anquan Zheng,[ab] Luqiong Huo,[b] Changgeng Li,[a] Haibo Tan,[b] Sasa Wang*[bc] and Huiyu Chen*[ad]

ericifolione analogue **1i** was obtained in a good yield, irrespective of the ester functional group, as compared to **1c**, strengthening the excellent tolerance of functionalities during this biomimetic cascade process. Collectively, the aforementioned results revealed that this biomimetic approach held promise of rapid access to biologically meaningful ericifolione analogues or derivatives.

In conclusion, polycyclic polymethylated phloroglucinols encoded by potential biosynthetic pathways stimulated us to explore an efficient methodology featuring a biomimetic tautomerization/intermolecular inverse-electron-demand hetero Diels–Alder reaction cascade sequence, which allowed efficient access to sterically hindered dihydropyran scaffolds with excellent diastereoselectivity and facilitated the first biomimetic total syntheses of ericifolione along with its analogues. Taking the advantage of simplicity and efficiency, the well-established synthetic methodology will provide a generally practical protocol for the preparation of relevant PPPs or other natural products and derivatives in sufficient quantities to meet the needs of drug discovery. Further endeavors towards this goal will be reported in due course.

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Conflicts of interest

There are no conflicts to declare.

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