

# **YSCMR 2021**

Proceedings of the  
**Young Scientists' Conference on  
Multidisciplinary Research - 2021**

**Virtual International Conference**

**21<sup>st</sup> October 2021**

“Multidisciplinary Research for Tomorrow’s Challenges”



**ISSN 2815-0260**

**Proceedings of the Young Scientists' Conference on Multidisciplinary Research - 2021**

**21<sup>st</sup> October 2021**

The material in this publication has been supplied by the authors, and only minor copy editing has been done by YSCMR 2021 editorial committee. The views expressed in the abstracts in this publication remain the responsibility of the named authors and do not necessarily reflect those of the National Institute of Fundamental Studies (NIFS) or the NIFS-Young Scientists' Association.

This document is made freely available on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of research articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The copyright is shared by authors and YSCMR 2021 to control over the integrity of their work and the right to be properly acknowledged and cited.

**Published by:**

Young Scientists' Association (NIFS-YSA),  
National Institute of Fundamental Studies,  
Hanthana Road, Kandy,  
Sri Lanka

[www.nifs.ac.lk](http://www.nifs.ac.lk)

Tel: +94 (0) 812 232 002

Email: [ysa@nifs.ac.lk](mailto:ysa@nifs.ac.lk)

**Cover page design & Page setup**

Buddhika Karunaratne, Mahesh Senarathna, Hiran Kankanamge

## Bioactivity of compounds from *Diploclisia glaucescens*

H.M.S.K.H. Bandara<sup>1,2</sup>, N.R. Amarasinghe<sup>3</sup>, N.K.B. Adikaram<sup>1</sup>, L. Jayasinghe\*<sup>1</sup>, H. Araya<sup>4</sup>,  
Y. Fujimoto<sup>1,4</sup>

<sup>1</sup> National Institute of Fundamental Studies, Kandy, Sri Lanka.

<sup>2</sup> Department of Biochemistry, Medical Research Institute, Colombo, Sri Lanka.

<sup>3</sup> Faculty of Allied Health Science, University of Peradeniya, Sri Lanka.

<sup>4</sup> School of Agriculture, Meiji University, Kawasaki 214-8571, Japan.

\*lalith.ja@nifs.ac.lk

**Background:** *Diploclisia glaucescens* (“Ata thiththa wel”) belongs to the family Menispermaceae, is a creeper which grows in the mid-country regions of South India and Sri Lanka. The leaves have been used in the treatment of biliousness and venereal diseases.

**Objectives:** To study the chemistry and bioactivity of secondary metabolites isolated from the stem of *D. glaucescens*.

**Methods:** 50g of Methanol extract of dry mature stem of *D. glaucescens* was chromatographed over silica gel (*n*-hexane-EtOAc-MeOH) followed by HPLC. All the isolates were screened for antioxidant activity using DPPH, antifungal activity against *Cladosporium cladosporioides*, phytotoxicity (lettuce seed germination assay), brine shrimp toxicity (*Artemia salina*) and enzyme inhibitory assays on  $\alpha$ -amylase,  $\alpha$ -glucosidase, acetylcholinesterase and lipase.

**Results:** The methanol extract furnished six compounds 3-deoxy-1 $\beta$ -20-hydroxyecdysone (**1**), abutasterone (**2**), 20-hydroxyecdysone (**3**), makisterone (**4**), diploclisin (**5**), 20-hydroxyecdysone 2,3,22-triacetate (**6**). Compounds **1**, **2** and **3** showed moderate brine shrimp lethality at 98.69 ppm, 46.39 ppm and 54.94 ppm, respectively. Strong antioxidant activity was observed for compounds **1** and **6** against DPPH at 30.18 ppm and 0.12 ppm, respectively. Compound **3** showed shoot inhibition of lettuce seedlings at 135.65 ppm while compound **2** showed root inhibition of lettuce seedlings at 330.29 ppm. Moderate  $\alpha$ -glucosidase inhibitory activity was observed for compounds **3** at 16.19 ppm and **6** at 9.69 ppm. None of the compounds exhibited  $\alpha$ -amylase, lipase and acetylcholinesterase inhibitory activities and antifungal activity against *C. cladosporioides*.

**Conclusion:** *Diploclisia glaucescens* can be considered as a potential source for the isolation of new therapeutic agents.

**Keywords:** Antioxidant, Brine shrimp lethality, *Diploclisia glaucescens*, Enzyme inhibitory activities