Proceedings of the

# YSCMR 2022

## VIRTUAL INTERNATIONAL CONFERENCE 2022

# *YOUNG SCIENTISTS' CONFERENCE ON MULTIDISCIPLINARY RESEARCH*

November 10, 2022

ORGANIZED BY THE YOUNG SCIENTISTS' ASSOCIATION,
NATIONAL INSTITUTE OF FUNDAMENTAL STUDIES, SRI LANKA

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*ISSN 2815-0260*

*Proceedings of the Young Scientists' Conference on Multidisciplinary Research-2022*
*Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka* YSCMR - 2022 *10th November 2022*

Paper ID:
CMT-092

# Bioactivity studies of *Bridelia retusa* leave extracts

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*Bridelia retusa* commonly known as spinous kino tree is widely used as a medicinal plant to treat urinary problems, rheumatism, diarrhea and diabetes. This study was carried out to investigate the bioactivities of different extracts of *B. retusa* leaves. The leaves were air-dried and powdered using a grinder. The powdered sample was sequentially extracted into hexane, ethyl acetate (EtOAc) and methanol (MeOH) using a sonicator. The extracts were evaporated using a rotary evaporator to obtain crude extracts. The extracts were screened for antioxidant activity against DPPH (2,2′-diphenyl-1-picrylhydrazyl), antifungal activity against *Cladosporium cladosporioides*, cytotoxic activity against *Artemia salina*, phytotoxic activity against lettuce seed germination, and enzyme inhibitory assays against α-amylase, α-glucosidase, and lipase. The results obtained showed that all three extracts possess antioxidant activity of which hexane and MeOH extracts showed $IC_{50}$ values of 17.23 ± 7.90 mg $l^{-1}$ and 5.33 ± 4.59 mg $l^{-1}$. The EtOAc extract showed the highest antioxidant activity of 0.03 ± 0.00 mg $l^{-1}$. None of the extracts showed inhibition against *Cladosporium cladosporioides.* All extracts demonstrated low cytotoxicity and, none of the extracts exhibited phytotoxicity against lettuce seed germination within 1000 mg $l^{-1}$ concentration. Only the methanolic extract of the leaves showed α-amylase inhibitory activity ($IC_{50}$ = 187.46 ± 4.35 mg $l^{-1}$). All extracts showed α-glucosidase inhibitory activity where, hexane and EtOAc extracts showed $IC_{50}$ values of 800.31 ± 34.39 mg $l^{-1}$ and 631.44 ± 21.11 mg $l^{-1}$, while methanol extract showed the highest activity of 0.25 ± 0.18 mg $l^{-1}$. In the lipase enzyme inhibitory assay, the hexane extract showed an $IC_{50}$ value of 475.80 ± 15.84 mg $l^{-1}$. EtOAc and MeOH extracts showed $IC_{50}$ values of 718.38
± 15.01 mg $l^{-1}$ and 457.95 ± 2.43 mg $l^{-1}$ respectively. Activity-guided fractionation of the extracts is in progress. These results suggest that *Bridelia retusa* leaves have the potential to isolate bioactive compounds.

**Keywords:** *Antioxidants, bioactivities, cytotoxicity, enzyme inhibitors, phytotoxicity*