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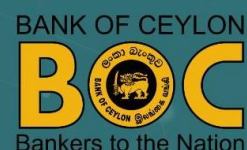
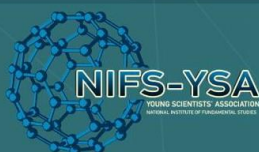
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## Bioactivity studies of *Bridelia retusa* leave extracts

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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  $\alpha$ -amylase,  $\alpha$ -glucosidase, and lipase. The results obtained showed that all three extracts possess antioxidant activity of which hexane and MeOH extracts showed IC<sub>50</sub> values of  $17.23 \pm 7.90 \text{ mg l}^{-1}$  and  $5.33 \pm 4.59 \text{ mg l}^{-1}$ . The EtOAc extract showed the highest antioxidant activity of  $0.03 \pm 0.00 \text{ mg l}^{-1}$ . 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  $1000 \text{ mg l}^{-1}$  concentration. Only the methanolic extract of the leaves showed  $\alpha$ -amylase inhibitory activity (IC<sub>50</sub> =  $187.46 \pm 4.35 \text{ mg l}^{-1}$ ). All extracts showed  $\alpha$ -glucosidase inhibitory activity where, hexane and EtOAc extracts showed IC<sub>50</sub> values of  $800.31 \pm 34.39 \text{ mg l}^{-1}$  and  $631.44 \pm 21.11 \text{ mg l}^{-1}$ , while methanol extract showed the highest activity of  $0.25 \pm 0.18 \text{ mg l}^{-1}$ . In the lipase enzyme inhibitory assay, the hexane extract showed an IC<sub>50</sub> value of  $475.80 \pm 15.84 \text{ mg l}^{-1}$ . EtOAc and MeOH extracts showed IC<sub>50</sub> values of  $718.38 \pm 15.01 \text{ mg l}^{-1}$  and  $457.95 \pm 2.43 \text{ mg l}^{-1}$  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