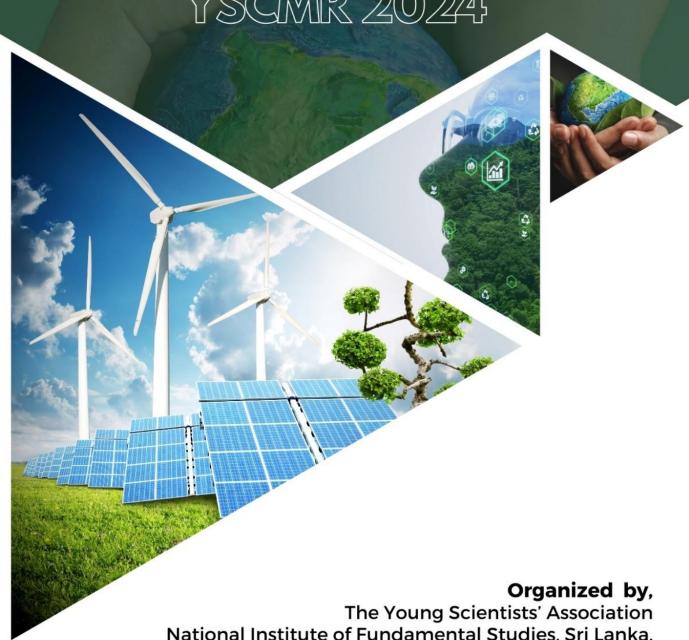


## Proceedings of the

YOUNG SCIENTISTS' CONFERENCE ON MULTIDISCIPLINARY RESEARCH

VIRTUAL INTERNATIONAL CONFERENCE

YSCMR 2024





Paper ID: CMT-082

## In vitro antioxidant, cytotoxic, and phytotoxic potential of some Sri Lankan medicinal plants

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This study aims to determine the antioxidant potential, cytotoxicity, and phytotoxicity of medicinally important Alpinia calcarata rhizome ('Araththa'), Sida alnifolia leaves ('Babila') and Tinospora cordifolia stem ('Rasakinda'). Firstly, these plants were collected, cleaned, airdried, and ground into fine powders. They were extracted into methanol by sonication and evaporated to dryness. The crude extracts were tested for antioxidant activity by the 2,2diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay, phytotoxicity by the lettuce seed germination assay, and cytotoxicity by brine shrimp lethality assay. The results of the DPPH radical scavenging assay showed that A. calcarata exhibited a strong antioxidant potential with an IC<sub>50</sub> of 34.53 mg  $L^{-1}$  followed by T. cordifolia (IC<sub>50</sub> 130.47 mg  $L^{-1}$ ) and S. alnifolia (179.23 mg L<sup>-1</sup>) compared to positive control ascorbic acid IC<sub>50</sub> 1.90  $\pm$  0.01 mg L<sup>-1</sup>. For the brine shrimp lethality assay positive control  $K_2Cr_2O_7$  showed  $LC_{50}$  of  $34.40 \pm 0.30$  mg  $L^{-1}$  whereas A. calcarata and T. cordifolia resulted in moderate cytotoxicity with LC<sub>50</sub> of 249.99 mg L<sup>-1</sup> and 275.57 mg L<sup>-1</sup> respectively. The root elongation inhibition resulted in the lettuce seed assay can be aligned as T. cordifolia (IC<sub>50</sub> 172.46 mg L<sup>-1</sup>), A. calcarata (IC<sub>50</sub> 635.02 mg L<sup>-1</sup>) and S. alnifolia (IC<sub>50</sub> 1322.83 mg L<sup>-1</sup>). Whereas, their shoot elongation inhibition can be aligned as S. alnifolia (IC<sub>50</sub> 193.35 mg L<sup>-1</sup>), A. calcarata (IC<sub>50</sub> 420.17 mg L<sup>-1</sup>), and T. cordifolia (IC<sub>50</sub> 1317.52 mg L<sup>-1</sup>). However, none of them showed strong root or shoot elongation inhibition potentials as positive control; abscisic acid which resulted IC<sub>50</sub> 1.46  $\pm$  0.19 mg L<sup>-1</sup> and 1.85  $\pm$ 0.31 mg L<sup>-1</sup> for root and shoot elongation inhibitions respectively. Based on these findings, it can be concluded that A. calcarata rhizome extract contains a remarkable antioxidant potential and moderate cytotoxicity similar to T. cordifolia. T. cordifolia and S. alnifolia extracts have moderate phytotoxicity against root and shoot elongation respectively.

**Keywords:** Alpinia calcarata, DPPH, Sida alnifolia, Tinospora cordifolia