NIFS NIFS-YSA

Scientia et Innovatio: Vision to Venture

YSCMR 2025

Proceedings of the

YOUNG SCIENTISTS' CONFERENCE ON MULTIDISCIPLINARY RESEARCH

VIRTUAL INTERNATIONAL CONFERENCE

2025

Organized by
The Young Scientists' Association
National Institute of Fundamental Studies, Sri Lanka.

ISSN 2815-0260
Proceedings of the Young Scientists' Conference on Multidisciplinary Research-2025
Young Scientists' Association, National Institute of Fundamental Studies, Sri Lanka
27th November 2025

Paper ID: CMT_37

Pharmacological potential of *Ficus hispida* and *Pouteria campechiana* leaves: Exploring antioxidant, cytotoxic, and phytotoxic properties for therapeutic applications

K. Sylvester[1], H.A.K.D. Premasiri[1], K.G. Nelum Piyasena[1]*, D.S. Jayaweera[1], N.K.B. Adikaram[1], L. Jayasinghe[1]

[1]*National Institute of Fundamental Studies, Kandy, Sri Lanka*

**nelum.pi@nifs.ac.lk*

Traditional medicinal plants are rich sources of biologically active compounds with valuable therapeutic potential. This study investigates the pharmacological properties of *Ficus hispida* (Kota dibula) and *Pouteria campechiana* (Lavulu) leaves, focusing on their antioxidant, cytotoxic, and phytotoxic activities. Methanolic extracts were prepared using sonication and rotary evaporation. Antioxidant activity was evaluated using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay and the Ferric Reducing Antioxidant Power (FRAP) assay. Cytotoxicity was assessed using the brine shrimp lethality assay, while phytotoxic effects were determined by seed germination in lettuce. The DPPH assay indicated moderate antioxidant activity, with IC_{50} values of 149.81 ± 15.04 µg mL^{-1} for *F. hispida* plant and 155.78 ± 40.97 µg mL^{-1} for *P. campechiana*, compared to ascorbic acid (IC_{50} = 7.90 ± 0.10 µg mL^{-1}) as the positive control. FRAP assay results supported these findings, showing FRAP values of 382.86 ± 12.59 µmol Fe^{2+}/g for *F. hispida* and 1494 ± 36.01 µmol Fe^{2+}/g for *P. campechiana*, relative to the positive control Trolox (17679.67 ± 505.58 µmol Fe^{2+}/g). Both extracts exhibited cytotoxic activity in comparison to $K_2Cr_2O_7$ (LC_{50} =7.97± 0.97 mg L^{-1}), with *F. hispida* demonstrating stronger activity with LC_{50} 100.54 ± 13.02 mg L^{-1} than *P. campechiana* LC_{50} = 672.42 ± 35.41 mg L^{-1}, suggesting greater cytotoxic potential. In the phytotoxicity test, *F. hispida* inhibited root and shoot growth by 46.73% and 15.44%, respectively. In contrast, *P. campechiana* showed a slight stimulatory effect, promoting root and shoot growth by 6.79% and 22.30%, respectively. Overall, both plant extracts demonstrated promising antioxidant and cytotoxic properties. These findings support their traditional medicinal uses and warrant further phytochemical and pharmacological investigation.

Keywords: *Brine shrimp lethality assay, DPPH assay, FRAP assay*