

BOOK OF ABSTRACTS
of
National Seminar Cum Workshop
ON
**“FEEDING BEYOND THE PLATE: A
COMPREHENSIVE GUIDE TO ENTERAL AND
PARENTERAL NUTRITION”**

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Department of Nutrition and Dietetics (UG and PG)
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Book of Abstracts
**“FEEDING BEYOND THE PLATE: A
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PHYTOCHEMICAL PROFILING AND THERAPEUTIC POTENTIAL OF NEPENTHES PITCHER PLANT EXTRACT: ANTIOXIDANT, ANTIMICROBIAL, AND BIOPOLYMER APPLICATIONS

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ABSTRACT

Phytochemical, antioxidant, antibacterial, and biopolymer properties of *Nepenthes* extracts were investigated. Extracts obtained via Soxhlet extraction with petroleum ether and ethanol were processed by lyophilization and rotary evaporation. Screening identified bioactive compounds, including proteins, sugars, terpenoids, alkaloids, flavonoids, tannins, and saponins, indicating potential therapeutic applications. FTIR spectroscopy revealed hydroxyl, methyl, aromatic, and alkane functional groups. Antioxidant activity in terms of DPPH radical scavenging assay shown dose- dependent manner. The highest inhibition was observed in NP extract (75% at 100 µg/mL) as compared to ascorbic acid (51.32%) indicates the extract may have strong free radicals' neutralization activity. Comparison of GC-MS analysis of ethyl acetate and methanol extracts of *Nepenthes* pitcher's showed existence of 15 compounds including alkaloids, flavonoids, and terpenoids were correlated with antimicrobial, anti-inflammatory, antioxidant, and anticancer activities. Some of the solvents such as N,N-Dimethylacetamide that aid biopolymer extraction processes were found. HPLC also confirmed the constituent, capsaicin and dihydro capsaicin and this extract raised usage worth to field associated with pharmaceutical, nutraceutical and cosmetic usage. Antibacterial activity of resin at zones of inhibition was significant, especially against *Pseudomonas aeruginosa* and *Staphylococcus aureus* (18 mm zones via well-diffusion method). Ethanol was the most effective solvent, yielding 45 g/1000 mL of biopolymers from *Nepenthes* pitcher extracts, highlighting their potential for pharmaceutical, antimicrobial, and biodegradable polymer applications.

Keywords: *Nepenthes* pitcher's, Phytochemical, Antimicrobial activity, Antioxidant, Biopolymer