Ministry of Higher Education
And Scientific Research
University of Babylon
College of Pharmacy

Evaluation of antimicrobal activity of *Anastatica hierochuntica* and *Uncaria tomentosa* extracts

Graduation project submited to the College of Pharmacy / University of Babylon in partial Fulfilment of the requirement for the B. Sc. In pharmacy

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بِسْمِ اللَّهِ الرَحْمَنِ الرَحِيمِ

(قُلْ هَلْ يَسْتَوِي الَذِينَ يَعْلَمُونَ وَالَذِينَ لا يَعْلَمُونَ إنَمَا يَتَذَكَرُ أُولُو الْبَابِ)

صدق الله العلي العظيم

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Abbreviations:
HPLC
High-performance liquid chromatography **ELISA** Enzyme-linked immunosorbent assay
PGE2
Prostaglandin E2 **KAE** A. hierochuntica aqueous extract
KEE
A. hierochuntica ethanolic extract **GSH** Restored reduced-glutathione
SOD
Superoxide dismutase **DPPH** Alpha ,alpha-diphenyl-beta-picrylhydrazyl
U.guianensis
Uncaria guianensis **U.tomentosa** *Uncaria tomentosa*
MOD
Malondialdehyde **A. hierochuntica** Anastatica hierochuntica
S.aureus *Staphylococcus aureus* **E.coli** *Escherichia coli*
P.aeuroginosa aeruginosa *Pseudomonas* **C.albicans** *Candida albicans*

Abstract:

Background: Herbal medicine has gained significant attention due to its potential therapeutic properties, including the antimicrobial potential of extracts. Anastatica hierochuntica and Uncaria tomentosa have been used for traditional herbal medicines due to their antimicrobial action against pathogenic microbe.

Aim of the study: The current study conduct to assess the antimicrobial effects of extracts derived from *Anastatica hierochuntica* and *Uncaria tomentosa* plants.

Methods: Chemical tests were carried out on the hydroethanolic crude extract of *Anastatica hierochuntica* and *Uncaria tomentosa* to detect its active phytochemical compounds. In addition to the antimicrobial activity of *Anastatica hierochuntica* and *Uncaria tomentosa* hydroalcoholic extracts was detected on Brain-Heart infusion Agar (BHIA) medium using a well-agar diffusion method. The extracts were tested at various concentrations (10%, 20%, 30%, and 40%) . Gentamicin (5µg) used as a positive control for detection of antibacterial activity, fluconazole (25µg) as a positive control for antifungal activity, and distilled water as a negative control.

Results: The results showed that the extracts contained phenolic compounds, terpenoids, alkaloids, saponins, and tannins. Anastatica hierochuntica shows more inhibitory activity against gram-positive bacteria (*S. aureus* and *Streptococcus*) than gram-negative bacteria (*E. coli* and *P. aeruginosa*). but no inhibition against *C. albicans* is observed. While, *Uncaria tomentosa* extract shows inhibitory effect against *S. aureus*, but no inhibition against E. coli is observed. It also exhibits some level of inhibition against the fungal species C. albicans

Conclusion: *Anastatica hierochuntica* and *Uncaria tomentosa* extract appears to exhibit antimicrobial activity against some pathogenic microbes