

## Screening of *Morus alba*, *Citrus limon* and *Trigonella foenum-graecum* extracts for antimicrobial properties and phytochemical compounds

### ABSTRACT

In the present study, the effect of aqueous and methanol extracts of *Trigonella foenum-graecum* seed (fenugreek), *Citrus limon* peel (lemon) and *Morus alba* foliage (mulberry) against two Gram-negative bacteria, *Aeromonas hydrophila* and *Escherichia coli* and two Gram-positive bacteria, *Streptococcus agalactiae* and *Staphylococcus aureus* were investigated and the phytochemical compounds of the tested herbal extracts were determined. The results indicated that the aqueous extracts of *Trigonella foenum-graecum* seed and *Citrus limon* peel revealed weak antibacterial activity against the bacteria. The methanol extracts of all herbs exhibited stronger antimicrobial activities against the tested pathogens. Among the entire methanol extracts, the *Morus alba* had the strongest activities. *Aeromonas hydrophila* was the most sensitive microorganism tested. The phytochemical screening of the plants showed the presence of secondary metabolites such as phenols, volatile oils, tannins, saponins, steroids, flavonoid, terpenoids and alkaloids.

**Keyword:** Antimicrobial properties; Bacteria; *Citrus limon*; *Morus alba*; Phytochemical compounds; *Trigonella foenum-graecum*