



HP-50: Alternative Therapeutic Strategy to Antibiotics for the Treatment of Urinary Tract Infections

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Subject description: Essential oils (EOs) are currently being recognized for enhancing the quality of life and alleviating a variety of illnesses. Multiple antibacterial properties of plants that contribute in suppressing uropathogenic invasion are one of the main strategies to decrease or eliminate bacterial progression.

Objectives: The objectives of this investigation were the extraction and the study of the antimicrobial activity of the EOs from plants against uropathogenic bacteria, in order to evaluate their potential as alternative products of synthetic antibiotics.

Methods: EOs from *Petroselinum crispum*, *Thymus vulgaris* and *Cinnamomum cassia* were obtained by hydrodistillation method. Where their antibacterial activity against uropathogenic bacteria; *Escherichia coli*, *Staphylococcus sp*, *Pseudomonas sp* and *Klebsiella sp* were qualitatively and quantitatively assessed.

Results and discussion: The yields of the three EOs are respectively 0.49% for parsley, 2.25% for thyme, and 2.35% for cinnamon. The tested EOs exhibit an interesting antibacterial activity compared with that of the antibiotics; cotrimoxazole, fluoroquinolones, and β -lactams. Cinnamon and thyme oils have a good activity against *Escherichia coli*, *Staphylococcus sp*, and *Klebsiella sp*, but a moderate activity against *Pseudomonas sp*. However, parsley oil showed a weak antibacterial activity.

Conclusion: The increasing rates of uropathogens resistance against the tested antibiotics which cannot be used for empiric therapy. For that, to counteract the increasing resistance rates, alternative treatment options, such as phytotherapeutic approaches, need to be investigated.

Keywords: essential oils, uropathogens, phytotherapy, urinary tract infection, antimicrobial resistance.