International Pre Conference Workshop on
Microbial Ecology & Eco Systems
June 28-29, 2018 | Alexandria, Egypt

Antibacterial activity of essential oils and antibiotics on bacterial strains isolated from infected urinary tract

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In this study, antibacterial activity of some traditional herbal oils and antibiotics against infected urinary tract bacterial isolates was investigated. Oil discs with the minimum inhibitory concentration MIC of each were impregnated. After culturing and incubation the results showed that Dill oil is the most effective oil that inhibited 61% of, 56% of Gram $^{(+)}$ cocci, and 33% of Gram $^{(-)}$ bacilli. Generally, it inhibited 48% of all isolates. Parsley and Celery oils inhibited 56% of Gram $^{(+)}$ cocci, followed by Gram $^{(-)}$ bacilli that showed 48% and 41% inhibition, respectively. Their effects on was much less inhibiting 29% and 21%, respectively. Generally they inhibited 41% and 34% of local urinary bacterial pathogens. Thyme's oil showed effect only on Gram $^{(-)}$ bacilli and coccobacilli reaching 37% and 21%, respectively. It had no effect on Gram $^{(+)}$ cocci. It's generally inhibited only 25% of isolates. Chamomile's oil was the weakest tested oil. It affected only the Gram $^{(-)}$ bacilli while it had no effect on Gram $^{(+)}$ cocci generally inhibited only 5% of all isolates. In this study the antibiotics tested were Amoxicillin/ Clavulanate, Pipracillin/ Tazobactam, Cefotaxim, Imipenem, Amikacin, Norfloxacin, Trimethoprim/ Salfamethoxazole (oxoid®). Two Strains of Gram $^{(+)}$ cocci were representative for VITEK® system identification as antibiotic sensitivity pattern were done. One was sensitive to all tested antibiotics except IP and AK and it was *Enterococcus faecalis*, the second was resistant to all the tested antibiotics and it was Staphylococcus aureus. 50% of all Gram $^{(-)}$ coccobacilli strains were submitted for VITEK®, and they were all found to belong to. Gram $^{(-)}$ bacilli were divided into clusters and the representatives were identified as *Morganella morganii, Pseudomonas aeruginosa, Pseudomonas fluorescens, Proteus mirabili*s, and *Klebsiella pneumoniae.*

Keywords: Antibacterial activity, antibiotics, dill, herbal oils, parsley, thyme

Biography

Marwa M Elmaghrabi is currently a permanent researcher at Stem Cells and Tissue Culture Labs, Faculty of Medicine, Alexandria University, a healthcare and quality advisor at Canadian Academy of Sciences, Egypt. She has MSc in Microbiology (2012), Faculty of Science, Egypt. She accumulated 8-years of experience in quality and infection control, and appointed to a number of key jobs; ISO 9001:2015 Lead Auditor, quality manager (2015-2017) and quality and infection control manager (2013-2015) in Madina Fertility group, quality-specialist at Medical Research Institute, Alexandria University, 2015-2017, and senior quality assurance specialist and internal auditor at Hassab-Labs Company, 2010-2013. She participated in a number of regional and international conferences and as a member of Organizing Committee of Microbial Ecology-2018 pre-conference workshop. She contributed to PAN-African and electronic network project as a broadcasting lecturer. She served as a member of the Egyptian Syndicate of Scientific professions, and Arab QOSH of safety professionals' experts.

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