International Pharmaceutical Students' Federation
Eastern Mediterranean Regional Office

World Antimicrobial Awareness Week

Article

Role of essential oils in the fight against antibiotic resistance

#EMROGoesUnrivaled

Action of Essential Oils

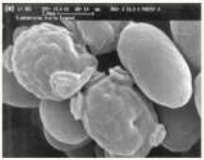
The alternative to historical antibiotics in the post-antibiotic era must be an agent that possesses antimicrobial activity is non-toxic to humans or the environment and does not cause selection of resistant microbes.
Here comes the use of essential oils which has antimicrobial activity and is available.

Antimicrobial Action of Essential Oils:
It is necessary to scientifically revisit the ancestral practices of treatment of infections by aromatic plants and their extracts, we are talking here about Essential Oils. These oils respect the conditions of non-toxicity, lower costs, and a minimum inhibitory concentration that is too low!

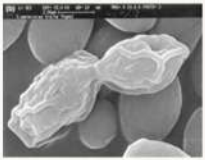
Mechanism of Action (Bacteria):
It is a major alteration of the bacterial envelope (wall and membrane).

E.Coli untreated

E.Coli treated



S. cervisiae untreated



S. cervisiae treated

Action of Essential Oils

Essential Oils have a non-specific mechanism of action. Opposite of antibiotics.

Lack of resistance selection:
No selection of bacteria resistant to antibiotics or essential oils and good effectiveness of Essential Oils against bacteria resistant to ABs in the Intestinal flora.

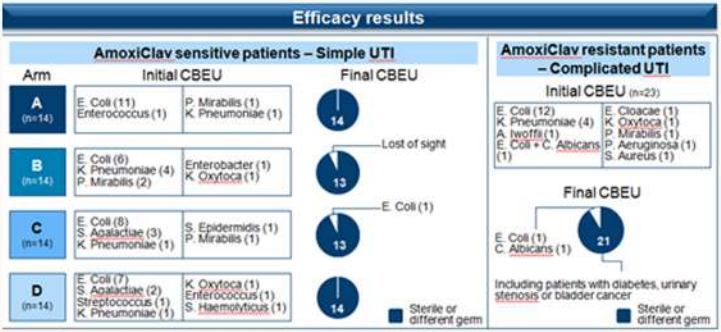
"Boosting" principle
It has been proven that there is a strong synergy between certain main compounds of essential oils and certain antibiotics:
Combine existing antimicrobial agents + With active ingredients from essential oils.

Clinical Trials: Urinary tract infection
PK/PD study on 56 patients: Patients suffering from simple urinary infection with sensitive bacteria
Study on 23 patients with multi-resistant germs: Complex profiles

Patient Profiles	Treated Bacteria
Patients with benign prostatic hyperplasia	E.coli
Diabetic patients	Acinetobacter iwoffi
Patients with Urethral Stenosis	Klebsiella pneumoniae
Patients who have undergone urinary diversion	Enterobacter cloacae
Patients with bladder stones	Klebsiella oxytoca
Patients with bladder cancer	Proteus mirabilis

Action of Essential Oils

Conclusion:
Essential oils represent a hope to gradually clean up the animal and plant sources of this silent pandemic and to improve the effectiveness of the precious existing antibiotics against multi-drug resistant bacteria.
A new drug has been approved for official use and it is labeled "Olipen" an association of Amoxicilin, Clavulanic Acid, and the essential oil Cineole!



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