

3rd International Congress on

Bacteriology and Infectious Diseases

August 04-06, 2015 Valencia, Spain

Antifungal properties of essential oils: True or myth?

Maroszynska Marta^{1,2}, Kunicka-Styczynska Alina², Rajkowska Katarzyna², Makowski Krzysztof¹, Komorowski Piotr¹ and Walkowiak Bogdan¹

¹Lodz Regional Park of Science and Technology, Poland

²Lodz University of Technology, Poland

Candida species are both a normal member of microbiota of most mammals and an opportunistic pathogen. They are recognized as the most frequent etiological agent of systemic and invasive candidiasis in humans. In addition, the biofilm formed by the yeast is a serious problem in medicine and many industries. Therefore, searching for new antifungal substances that may be effective in preventing the spread of *Candida* yeast remains a big challenge. Our goal was to determine the antimicrobial activity of essential oils against clinical and food-born strains of *Candida*. Minimal inhibitory concentration (MIC) of five essential oils, cinnamon oil (*Cinnamomum zeylanicum*), tea tree oil (*Melaleuca alternifolia*), clove oil (*Syzygium aromaticum*), peppermint oil (*Mentha piperita*) and thyme oil (*Thymus vulgaris*) against seven clinical strains of *Candida albicans* and five food-borne strains: *Candida lusitanae*, *Candida famata*, *Candida krusei*, *Candida rugosa*, *Candida boidinii* was determined by serial dilution method. All tested isolates were sensitive to all essential oils. MIC ranged from 0,031% to 4% for clinical isolates and from 0,031% to 12, 5% for food-borne isolates. Peppermint oil showed the weakest activity while cinnamon oil demonstrated the strongest one. The activity rank of essential oils was as follows: cinnamon oil>thyme oil>clove oil>tea tree oil>peppermint oil. High activity of cinnamon oil can be explained by a high content about 90% of the main component cinnamaldehyde which is considered to be very active. Our study shows that the essential oils may be attractive antimicrobial agents with broad spectrum activity, cheap and environmentally safe and potentially used to combat drug-resistant hospital superbugs.

Biography

Maroszyńska Marta is a PhD student in the Institute of Fermentation Technology and Microbiology, Department of Food Science and Biotechnology, Lodz University of Technology, Poland. She is the scientific and research worker of Industrial Biotechnology Laboratory in BioNanoPark, Lodz Regional Park of Science and Technology. This center is the first in Poland which unit their own laboratories in bio- and nanotechnologies and innovative start-ups.

mmaroszynska@gmail.com

Notes: