

Ж-л "Biotechnologia Acta" Т. 12, № 4, 2019

<https://doi.org/10.15407/biotech12.04.005>

SYNERGISTIC ACTION OF ESSENTIAL OILS WITH THE BIOCIDES ON MICROORGANISMS

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Abstract

This review summarizes the published data and own results concerning synergism of antimicrobial activity of essential oils with antibiotics against bacteria of the family *Enterobacteriaceae*,

genera

Staphylococcus, *Pseudomonas*, *Acinetobacter*

; with synthetic antifungal drug fluconazole, against yeast genus

Candida

; with surfactants of microbial origin, against bacterial and yeast test cultures. The synergistic effect of the complex of essential oils with antibiotics, enzymes, surfactants, etc. on biofilms was considered as well. Mixing essential oils with other biocides allowed to significantly decrease the minimum inhibitory concentrations of each component. The probability of emerging resistance to antibiotics is also reduced in the pathogenic bacteria and yeasts due to the antimicrobial action of essential oils that caused the dysfunction of cellular membrane of microorganisms. The prospects of implementing complex essential oils with antibiotic nisin in the food industry, and with other antibiotics in veterinary medicine are discussed.

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