EFFECT OF β-CYCLODEXTRIN COMPLEXATION ON THE ANTIBACTERIAL ACTIVITY OF SOME SALICYLANILIDE ESTERS

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Abstract

The aim of this research was to demonstrate the beneficial role of complexation on the efficiency of novel-designed chloro-substituted salicylanilide esters, starting from the premise that entrapping antimicrobial compounds in cyclodextrins should lead to proper control of drug release, so that the drugs could be more efficiently used. Thus, new complexes of salicylanilide ethyl esters and β-cyclodextrin, using the kneading method were obtained and tested against some Gram-positive and Gram-negative bacterial strains. For comparison, the effect of uncomplexed salicylanilide derivatives was also evaluated. Antimicrobial assays showed good activity on Gram-positive bacteria, meanwhile the Gram-negative strains proved no susceptibility on the action of tested concentrations. Among the bacterial strains, the most susceptible to the action of chloro-substituted salicylanilide derivatives proved to be *Streptococcus pyogenes* and *Streptococcus mutans*. The MBC and MIC values were equal meaning that the tested compounds action is bactericidal against the sensitive bacteria. The β-cyclodextrin complex of ethyl 2-(2-((2-chlorophenyl)carbamoyl)phenoxy)acetate preserved the same activity of the ester itself, even if the amount of the ester in the complex was 4 times smaller. This behavior can be due to the fact that complexation may disturb the cell membrane potential of bacteria and improve the membrane permeability of the drug.

Acknowledgements

This work is based on research supported by the Romanian Ministry of Research, Innovation and Digitization, project no. PN 19 22 03 01, contract no. 40N/2019 - "Supramolecular inclusion complexes of some natural and synthetic compounds with applications in health" - carried out under the NUCLEU Program.

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