

P15: Biological activity of ionic liquids based on bis-pyridinium in Gram-positive and Gram-negative bacteria

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Introduction: Resistance to antibiotics is becoming a public health problem and is the subject of concern from various global entities. In this context, finding new alternatives to combat microbial infections is critical. Ionic liquids (ILs) come up as a resource to be used in the pharmaceutical industry, especially in the synthesis of new antibiotics. The ILs have shown the ability to improve the characteristics of active pharmaceutical ingredients. However this is not the only the relevance of these compounds, antimicrobial properties also have been described. The bis-pyridinium ILs are now being studied as antimicrobial agents in the present study.

Objectives: The purpose of this study is to evaluate the activity of bis-pyridinium salts as antimicrobial agents.

Materials and Methods: To evaluate biological activity of the compounds the Minimum Inhibitory Concentration by microdilution method and the growth rates values were determined according to the methodology of the Clinical Laboratory Standards Institute (CLSI).

Results and Discussion: We studied 12 ILs against 9 different bacterial strains, some of them are resistant to antibiotics. Two IL showed biological activity against all studied bacteria, including *Staphylococcus aureus*. Six of seven remaining compounds demonstrated biological activity against most studied bacteria. Only one compound showed activity against a single bacteria.

Conclusion: The bis-pyridinium ILs have biological activity against gram positive and gram negative bacteria including resistant bacteria. So these compounds must be take into account in the search for new antibacterial molecules. This bis-pyridinium ILs could be an alternative to the classic antibiotics.

References

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