

PROSPECTS OF CREATING COMPLEX ANTIMICROBIAL DRUGS FOR EXTERNAL USE

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Due to acquired tolerance of microorganisms to anti-viral, anti-microbial, and anti-fungal substances, search, development, and introduction of new drugs remains relevant today.

The purpose of the work is to investigate antimicrobial activity of some inorganic, natural, and synthetic materials, as well as their combinations.

Materials and methods. For study purposes, the following materials have been selected: copper sulfate, zinc sulfate, boric acid, aluminum chloride, ammonium aluminum alum, lead acetate, iron chloride III, alizarin, and quercetin.

Antimicrobial activity of drugs has been determined by the diffusion method of "wells" with the determination of the diameter of microorganism growth delay zone. In order to evaluate antimicrobial activity of the formulations, the following six test strains of microorganisms have been used:

Staphylococcus aureus ATCC 25923, *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27853, *Proteus vulgaris* ATCC 4636, *Bacillus subtilis* ATCC 6633, and *Candida albicans* ATCC 885/653.

Results and discussion. Below there are the comparison results of antimicrobial activity of substances in order of descending.

Aqueous solutions of copper sulfate and zinc sulfate demonstrate significant antimicrobial activity. Ethanol solutions of boric acid, calcium chloride+Alizarin, Alizarin+aluminum chloride, quercetin, quercetin+aluminum chloride, and alizarin show medium-range activity. And aqueous solutions of iron chloride III, ammonium aluminum alum, lead acetate, and aluminum have weak activity.

Conclusions. The most promising as antimicrobial agents for external use are copper and zinc cations, as well as soluble complexes of aluminum or boric acid with quercetin. However, this requires careful toxicological and pharmacological studies.