

# **THE SYNTHESIS AND SPECTROSCOPIC INVESTIGATIONS OF FLUOROQUINOLONES METAL ION COMPLEXES**

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Molecules of antibacterial agents of fluoroquinolone's group are produced by chemical synthesis. In the case of drug interactions with antacids or iron preparations fluoroquinolones form metal complexes due to their capacity to bind metal ions. Complex formation occurs in molecules of fluoroquinolones by the carboxyl, ketone group and azoheterocyclic fragment. Interaction with metal ions has some important consequences for the solubility, pharmacokinetics and bioavailability of fluoroquinolones, and is also involved in the mechanism of action of these bactericidal agents.

Considering the mentioned above information the purpose of this work was the complex compounds synthesis of ciprofloxacin hydrochloride with ferrous sulfate and ferric chloride salts in a medium of 0.1 M sodium hydroxide solution

and a medium of purified water for further study of biological properties of their complexes and determination of the influence of interaction for the effect of antibacterial therapy.

For the complex compounds formation a weighed substance of ciprofloxacin hydrochloride was dissolved in 0.1 M sodium hydroxide solution and then to the solution was added an iron salts in the ratio 2: 1 for ferrous (II) sulfate, and 3:1 - for ferric (III) chloride. The solution was stirred for 10 hours. The same research was performed in a medium of purified water with added 0,1 M NaOH to pH =8.

A further research of obtained complexes was performed by UV absorption - spectrophotometry in a medium of purified water and in 0.1 M solution of hydrochloric acid. The solution was prepared at a 0.0005% concentration. Measurement has been shown that there was no significant difference between the absorption maximum when the antibiotic was given alone and when given with the iron salts, absorption maximum of the complexes was observed at the same wavelength. The absorption maximum of the investigated complex compounds remained unchanged, but there was a significant change of the absorbance intensity of the studied complexes.

The next stage of our work is planned to be determination of the structure of obtained complex compounds, the study of bioavailability and biological activity of those.