

TETRACYCLINE HYDROCHLORIDE AND METAL SALTS INTERACTION RESEARCH

Dobrova A.O., Golovchenko O.S., Sidorenko L.V., Georgiyants V.A.

The National University of Pharmacy, Kharkiv, Ukraine

dobronutka@mail.ru

Antibiotic tetracycline is well known in a pharmacotherapy as an organic ligand, which can form chelate complexes with metal ions. But it can be assumed, that the process of forming complexes can be different and depends on a ratio of antibiotic and metal salts or an antibiotic's concentration.

Considering mentioned above, the purpose of the research was to study tetracycline hydrochloride and MgSO_4 , CaCl_2 , FeSO_4 , FeCl_3 , $\text{Al}_2(\text{SO}_4)_3$ salts interactions in different proportions. The research was carried out using absorbance spectrophotometry methods in the UV part of the spectrum, where the absorbance of tetracycline hydrochloride and its metal salts complexes were measured in proportions 1:1, 1:2, 1:3, 1:4, 1:5. The solution of tetracycline hydrochloride in concentration 0,2M was used as a standard solution. All experiments were conducted in the purified *water medium*.

Comparing the parameters of spectra we can assess following positions: the character of spectra was not changed; absorbance intensity was changed for all samples except magnesia sulfate, in all their ratios. In complexes tetracycline hydrochloride with aluminum sulfate the shift of absorbance maximums for all concentrations was observed, compared with the pure solution of substance. The direct proportion between increasing of the tetracycline hydrochloride and metal salts ratio and absorbance intensity difference was observed.

In terms of the results obtained in experimental conditions, we may conjecture that the complexes with tetracycline hydrochloride and metal salts are forming since the 1:1 ratio and their stability might be decreasing according to the decreasing proportion.

As a conclusion we can assume that the interaction of tetracycline hydrochloride can be stronger with some salts and weaker with another. We can't still exactly say where is the lower and where is the upper limit and how it interconnected with the strength of these complexes. And in what limits the interaction between the tetracycline hydrochloride and metal ions can affect the pharmacokinetics and bioavailability of the medication. Therefore our study will carried out using another methodics.