

## CHOOSING THE CHROMATOGRAPHIC CONDITIONS FOR DETERMINATION OF GLIBENCLAMIDE

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**Introduction.** Treatment of diabetes mellitus type 2 is based on the usage of oral anti-diabetic drug, which belong to different compound classes. Sulfonylureas derivatives are the leading group of anti-diabetic drug. Glibenclamide has been considered as the second generation of sulfonylureas. It has been widely used in treatment of type 2 diabetic patients. Lifelong application, growing number of patients with diabetes mellitus, side effects – are the factors of toxicological hazards of this drug. Thus, the development of the suitable methods for the chemico-toxicological analysis of glibenclamide is an actual problem. Thin layer chromatography is one of the most widely applied methods in the chemico-toxicological analysis, which use in the stages of preliminary and confirmatory researches. **The aim of this work** was to choose the chromatographic conditions for determination of glibenclamide acceptable for toxicological investigations.

**Materials and methods.** Analysis has been performed on chromatographic plates Merck silica gel 60 F<sub>254</sub> and Sorbfil, and mobile phases such as: 1) chloroform-acetone (80:20); 2) ethyl acetate-methanol-25% ammonia (85:10:5); 3) ethyl acetate; 4) chloroform-methanol (90:10); 5) chloroform-ethanol (90:10); 6) chloroform-cyclohexane-glacial acetic acid (40:40:20). For the detection of adsorption zones such reagents have been used: ferric-iodine complex, *chlor-zinc-iodide solution*, Bushard's reagent and 12.5% solution of copper sulfate in alkaline medium.

**Results.** It has been found that glibenclamide have satisfactory chromatographic mobility in all used mobile phases. But, in phases 1, 2, 4-6 glibenclamide adsorption occurs in the second, fourth and fifth chromatographic zones, where localized derivatives of barbituric and salicylic acid, 1,4-benzodiazepine and pyrazolone-5. Consequently, system 3 was defined as the most suitable for the analysis. The adsorption of glibenclamide occurs with R<sub>f</sub> values of 0.47 for Merck and 0.42 for Sorbfil. For the suitability checking of the used phases, chromatographic procedure carried out with the standard substance – caffeine. After processing of corresponding zones with aforementioned reagents the visualization products of glibenclamide stained in brown color, while – with 12.5% solution of copper sulfate gives green color on blue background products of visualization.

**Conclusions.** The proposed chromatographic conditions can be used for determination of glibenclamide in the extracts from biological objects for poisoning of this anti-diabetic drug.