

DEVELOPMENT OF THE ISOLATION PROCEDURE FOR CLOPIDOGREL USING OXALIC ACID

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Clopidogrel belongs to the antiplatelet medicines and is the world standard in the correction of changes of blood rheological properties. This medicine belongs to the low-toxic drugs, however in the case of the lethal poisoning by unknown substance the forensic medical expert-toxicologist must establish the total list of medicines taken by the patient, but not only the medicine, which is the direct reason of poisoning. At the same time the attempts of suicides using clopidogrel as a monomedicine are fixed.

Research purpose. In this paper we set ourselves as an object to develop the optimal conditions of clopidogrel isolation from biological matrices.

Materials and methods. 10 g of the model mixture of biological material with clopidogrel were placed into the beaker and coated with 20 ml of water, following which the mixture was acidified with 10% oxalic acid solution to pH = 2 and kept for 2 hours while continuously shaking. The mixture was centrifuged (during 30 min. under 3000 revolutions per minute) and the centrifugate was collected into the clean beaker. Infusion of biological material with new portions of acidified water was carried out twice for 1 hour more. The «acid» water extracts were joined, placed into the separating funnel and extracted with chloroform by portions of 10 ml three times. The obtained extracts («acid» chloroform extract) were joined, filtrated through the paper filter («red strip») with 1 g of sodium sulphate anhydrous into the measuring flask with the capacity of 25.0 ml and the solution was diluted to the volume by chloroform (extract 1). The «acid» water extract were alkalified by ammonia solution to pH = 11 and extracted with chloroform by portions of 10 ml three times. The obtained extracts («alkaline» chloroform extract) were joined, filtrated through the paper filter («red strip») with 1 g of sodium sulphate anhydrous into the measuring flask with the capacity of 25.0 ml and the solution was diluted to the volume by chloroform (extract 2).

The extract 1 was used for identification of clopidogrel carboxylic acid and the extract 2 was used for identification of clopidogrel by the methods of thin layer chromatography (TLC) and high-performance liquid chromatography (HPLC). For their quantitative determination we used the methods of HPLC, UV-spectrophotometry and extraction photometry.

Results and conclusion. The developed procedure allowed to isolate about 50% of clopidogrel carboxylic acid and 55% of clopidogrel from the biological matrices.