EXTRACTION OF ATOMOXETINE FROM AQUEOUS SOLUTIONS WITH CHLORINATED HYDROCARBONS

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Introduction. Atomoxetine ((3R)-N-methyl-3-(2-methylphenoxy)-3-phenylpropan-1-amine hydrochloride) is a thymoleptic of the selective norepinephrine reuptake inhibitor group used in the pharmacotherapy of attention-deficit/hyperactivity disorder. Most of bioanalytical methods described in the literature for atomoxetine determination are based on using HPLC with the preliminary solid phase extraction (SPE) as a sample preparation stage. The reported sample preparation method requires special materials and is not always available for the toxicology laboratories. Liquid-liquid extraction (LLE) is an alternative to SPE. Chlorinated hydrocarbons are of interest as effective extractants of medicinal substances. According to *U. Demme* (2005), for a large number of toxicologically important drugs, the extraction degree with 1-chlorobutane from alkaline medium was of 100 %.

Aim. To determine the extraction degree of atomoxetine by chlorinated hydrocarbons depending on pH values of aqueous solutions.

Materials and methods. Chloroform, tetrachloromethane, dichloroethane, methylene chloride were studied as organic extractants. Values of pH of the aqueous solutions were created using Britton-Robinson buffer (the range of pH values was from 1 to 13). The atomoxetine concentrations in the organic solvents after **single stage extraction** were determined using the previously developed UV spectrophotometric technique. The calibration curve was described by the equation of $y = (0.00455 \pm 4 \cdot 10^{-5})x + (0.016 \pm 0.005)$.

Results and discussion. The following values of extraction degree were obtained: for chloroform – 9.8 % at pH of 2 – 4, 13 – 15 % at pH of 8 – 11; for tetrachloromethane – 1.6 % at pH of 2, 10.0 – 9.8 % at pH of 9 – 12; for dichloroethane – 2.8 % at pH of 3, 13.9 % at pH of 8; for methylene chloride – 10.0 – 6.7 % at pH of 1 – 3, 21.1 % at pH of 10. Thus, the extraction degree of atomoxetine with these solvents was insignificant both from acidic and alkaline aqueous solutions.

Conclusion. Tetrachloromethane and dichloroethane are of interest as extractants of the biological matrix components from acidic aqueous solution (pH of 2 – 3) for purification with back-extraction method in sample preparation stage. To increase the extraction degree of atomoxetine from aqueous solutions with organic solvents the salting out should be used that will be the studied in our further research.

THE EXPRESS-METHOD FOR ADMIXTURE DETERMINATION OF SALICYLIC ACID IN ASPIRIN

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Introduction. Anti-inflammatory and analgesic agents where acetylsalicylic acid (aspirin) is one of the active components have been widely used in therapeutic practice. As a result of storage violation and transportation conditions acetylsalicylic acid (aspirin) is hydrolyzed with the formation of salicylic and acetic acids. Despite the fact that the toxicity of salicylic acid is low, its critical doses can lead to a number of irreversible consequences. Unfortunately, the methods of determination of salicylic acid (SA) recommended by the State Pharmacopoeia (Russia) are characterized by low sensitivity and selectivity. Due to this, in analytical practice, high-efficiency liquid chromatography and galvanostatic coulometry methods are relevant for its quantitative determination, the possibilities of which are limited by the complexity of instrumental design.