DEVELOPMENT OF TANDEM PROCEDURE FOR ZOPICLONE DETERMINATION IN SEWAGES OF PHARMACEUTICAL PLANTS

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Introduction. Realization procedure of toxicological examinations requires to give the results of analyte content determination in the sample obtained with the help of at least two methods of analysis, which are based on different principles. Therefore elaboration of so-called tandem procedures allowed to carry out substance determination in the same sample simultaneously by means of two methods of analysis is actual.

Aim. The purpose of our paper is development and validation of tandem extraction-photometric/UV-spectrophotometric procedure of zopiclone quantitative determination in sewages of pharmaceutical plants.

Materials and methods. Doxylamine of pharmacopoeial purity was used in the experiment.

Results and discussion. Tandem extraction-photometric/UV-spectrophotometric procedure of zopiclone quantitative determination is based on using acid dye methyl orange formed ionic associates with zopiclone in the acid medium, which are extracted by chloroform. Under these conditions the chloroform layer becomes yellow. The amount of methyl orange is equivalent to the amount of zopiclone in ionic associates under these conditions.

It has been suggested to carry out decomposition of ionic associates and reextraction of methyl orange and zopiclone in 0.1 mole/l hydrochloric acid solution simultaneously and to measure the absorbance of methyl orange and zopiclone in the obtained aqueous solution by spectrophotometer.

We have carried out validation of the offered tandem procedure in the variant of the method of calibration curve using model solutions.

The obtained data specify that the offered tandem procedure of zopiclone quantitative determination is characterized by satisfactory linearity, accuracy and precision for all variants of range of the methods application and for both variants of the used wave length that makes it suitable for zopiclone quantitative determination in sewages of pharmaceutical plants.

Conclusions. The tandem procedure for zopiclone determination in sewages of pharmaceutical plants has been developed; the offered procedure allows to determine simultaneously zopiclone both by its own absorbance in UV-range of spectrum and by absorbance of methyl orange in visible range of spectrum that provides additional reliability of analysis and satisfies the requirements to researches realization in toxicological analysis.