

# DEVELOPMENT OF TANDEM PROCEDURE FOR DOXYLAMINE QUANTITATIVE DETERMINATION BY THE METHODS OF UV-SPECTROPHOTOMETRY AND EXTRACTION PHOTOMETRY

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**Introduction.** Realization procedure of toxicological examinations requires 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 UV-spectrophotometric/extraction-photometric procedure of doxylamine quantification.

**Materials and methods.** Doxylamine succinate was of pharmacopoeial purity. All spectrophotometric measurements were carried out using a single beam UV/VIS spectrophotometer SPEKOL®1500 (Analytik Jena AG, Germany).

**Results and discussion.** Tandem procedure of doxylamine quantitative determination by the methods of extraction-photometry and UV-spectrophotometry is based on processing the doxylamine succinate solution with 0.02% methyl orange solution in the acid medium (acetic-acetate buffer solution with pH = 4.6) for formation of ionic associates. The ionic associates are extracted by chloroform (under these conditions the chloroform layer becomes yellow; the amount of methyl orange is equivalent to the amount of doxylamine in ionic associates).

The decomposition of such ionic associates is carried out in the way of simultaneous reextraction of their components (methyl orange and doxylamine) in 0.1 mole/l hydrochloric acid solution. The absorbance of methyl orange ( $\lambda_{\max} = 540$  nm) and doxylamine ( $\lambda_{\max} = 262$  nm) in the obtained aqueous solution is measured.

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 doxylamine 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 wavelengths that makes it suitable for further application.

**Conclusions.** The new tandem procedure for doxylamine determination has been developed; the offered procedure allows to determine simultaneously doxylamine 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.