

## Extraction-photometric determination of mercury with azo-substituted ethoxyacridine

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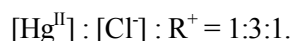
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### Abstract

The associates of halide (chloride) complexes of mercury azo-substituted ethoxyacridine have been studied by spectrophotometric method. It has been found that the associates are well extracted with a mixture of dichloroethane-acetone (3:2). The optimum volume of aqueous and organic phase is equal to 5 ml. The molar ratio of the components in the extractable compounds was studied by the methods of isomolar series, equilibrium shift and a straight line. It was found that mercury chloride associated with azo-ethoxyacridines (AE) in a ratio of 1: 1. Study of the effect of foreign ions on the accuracy of the determination of mercury with azo-substituted ethoxyacridine showed that the number of ions does not interfere (in parentheses are multiple relationships to mercury ions); Al<sup>3+</sup> (6000), Zn<sup>2+</sup> (2700), Bi<sup>III</sup> (2500), Co<sup>II</sup> (2600), Ni<sup>II</sup> (2600), Cu<sup>I</sup> (2300), Cd<sup>II</sup> (2350), Pb<sup>I</sup> (2250), Sn<sup>II</sup> (3500), Fe<sup>II</sup> (2400), Ta<sup>V</sup> (3600), Nb<sup>V</sup> (3700), as well as anions NO<sub>3</sub><sup>-</sup> (6000), SO<sub>4</sub><sup>2-</sup> (3200), C<sub>2</sub>O<sub>4</sub><sup>2-</sup> (4000), PO<sub>4</sub><sup>3-</sup> (2000), tartrate ion (3500), citrate ion (2700), ЭДТА (2900). Number of ions interfered the determination: Ga<sup>3+</sup> (1), Sb<sup>V</sup> (3), Fe<sup>III</sup> (1), Tl<sup>III</sup> (1), In<sup>III</sup> (1), Au<sup>III</sup> (1), thiourea (3).

It was studied formation and extraction of associates of mercuric chloride with AEADPA (2-ethoxy-6-(4-*N,N*-dipropylphenylazo)-9-aminoacridine) and AEAN (2-ethoxy-6-(2-hydroxynaphthylazo)-9-aminoacridine). The maxima of light absorption of mercury chloride with AEADPA is observed at 505 nm, and the AEAN at 520 nm. The light absorption of the extracts of associates coincides with the absorption maxima of azoethoxyacridines, which indicates the electrostatic character of the interaction and the formation of complexes.

The physico-chemical and analytical characteristics of the azo-substituted ethoxyacridines and their ionic associates with chloride mercury acidic complexes ( $\lambda_{\max}$ ,  $\epsilon$ ,  $\beta$ kD, D, R%) were determined. It was shown that chloro-mercuriate compounds with azo-substituted ethoxyacridines are ionic associates, the molar ratios of the components in which are:



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