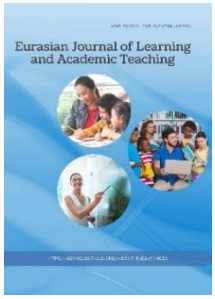

Sorbcion-Photometric Determination Of Iron (Ii) Ion In Industrial Waste Of" Olmaliq Kmk "Aj Using Diethyl 2,2'-(1,3,4-Thiadiazole-2,5-Diyl) Bis(Sulfandiyl) Diacetate Organic Reagent

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ABSTRACT

Diethyl 2,2'-(1,3,4-thiadiazole-2,5-diyl) bis (sulfandiyl) diacetate was selected as the organic analytical reagent for the Iron(II) ion contained in the wastewater technological water of industrial and environmental facilities of JSC" Olmaliq KMK". The conditions under which the 2,2 ' -(1,3,4-thiadiazole-2,5-diyl) BIS (sulfandiyl)) diacetate organic reagent immobilizes to carriers with different tolcases have been studied.

Keywords: Iron (II) ion, diethyl 2,2'-(1,3,4-thiadiazole-2,5-diyl) BIS (sulfandiyl)) diacetate organic analytical reagent, analytical reagent, immobilization, sorbcion-photometric determination.

Iron is the most common element in nature and is among the physiological and active, irreplaceable Macroelements. Biogenic is a D-element, the amount of which in the body is 1*10-5%. One of the pressing issues is the identification of iron in surrounding objects, in the body. This issue is well studied in Analytical Chemistry.

In recent years, the use of sorbents in photometric analysis has gained practical importance. This makes it possible to develop a new, highly sensitive, selective sorbtion-photometric method. The use of organic reagents known in photometric analysis also produces good results in this analysis method.

There has been a great deal of research done by chemists in the detection of iron, using sorbtsion – spectophotometric, fluorescent, extractiono – spectrophotometric methods to identify Fe (II, III) compounds. Extraction routes were carried out from air, water, soil composition.

Complex formation reactions of Fe(III) with di – tretbutil – dibenzo – 18 – kraun – 6 have been studied by the spectrophotometric method. Optimal conditions were worked at pH=2 – 2.5, λ=360 nm, and a lower detection limit of 0.01 was determined.

Preparation of solutions

1. To prepare a working solution of 0.1% 1,3,4-thiadiazole-2,5-ditiol organic reagent, 0.20 g of 1,3,4-thiadiazole-2,5-ditiol organic reagent was pulled on an analytical scale and brought with water distilled to the mark, putting it in a 100 ml measuring flask. The finished solution was diluted and applied to further work.

2. To prepare the standard 1mg/ml li solution of the Fe^{+2} ion (NH_4), 1 g of the $(NH_4)_2SO_4$ *$FeSO_4 \cdot 6H_2O$ was pulled out, placed in a 100 ml flask and brought with distilled water up to the mark. Later work used this solution.

3. Diluted concentrated sulfuric acid in the preparation of a solution of sulfuric acid of 0.1 m.

4. The buffer was brought to the different pH (1–12) li universal buffer mixture of solutions by adding 0.05 M li (H_2BO_4, H_3PO_4, CH_3COOH) from a solution of 0.2 M NaOH.

5. For the preparation of fibers, 0.2 g of synthesized fibers were pulled from the Department of polymer chemistry and prepared for work.

Effect of immobilized diethyl with 2,2'-(1,3,4-thiadiazole-2,5-diyl) bis(sulfandiyl)) diacetate organic reagent Iron (II) ion

Diethyl 2,2 ' -(1,3,4-thiadiazole-2,5-diyl) bis (sulfandiyl)) diacetate organic reagent has been studied to form a complex with an iron ion. According to it, Iron diethyl has a maximum analytic signal between 2,2' -(1,3,4-thiadiazole-2,5-diyl) bis (sulfandiyl)) diacetate organic reagent and RN= 4-5.

In this work, the reaction of the Iron (II) ion with the diacetate organic reagent diethyl 2,2'-(1,3,4-thiadiazole-2,5-diyl) BIS(sulfandiyl)), immobilized to the solid-carrying discoidal sorbent, was studied using the method of spectroscopy, the return coefficient is determined by the return light of the beam incident on the solid body. The wavelength of monochromatic light-λ-R (λ)-is called the spectral return coefficient.

Dependence of the optical density of the complex compound on the amount of the element (Substituting into the Buger-Lambert-Ber law

Following the optimal conditions determined by the above experiment, 1.0 ml of diethyl 2.2'-(1,3,4-thiadiazole-2,5-diyl) BIS (sulfandiyl)) diacetate organic reagent solution from 10.0 ml of buffer solution (pH=4-5 universal) to 10.0 ml of the solution of the diethyl 2,2 ' - (1,3,4-thiadiazol-2,5-diyl) BIS (sulfandiyl) diacetate organic reagent solution diluted with dysthylated water. The optical density of the resulting complex compound (λmax= 620 nm l=1.0 cm) was measured relative to the specific solution. The results obtained were presented in Table 1 and figure 1.

Table 1.
Dependence of optical density on Fe (II) (n=5, P=0,95, pH= 4-5)

№	Fe(II) 10 mkg / ml	Fe (II) mkg / ml	Ā
1	0,2	1,3	0,018
2	0,7	5,8	0,027
3	1,3	11	0,045
4	1.8	16	0,071
5	2,3	19	0,080
6	2,8	24	0,98
7	3.1	28	0,112
8	3,6	33	0,131
9	4,2	41	0,150
10	4,7	44	0,163

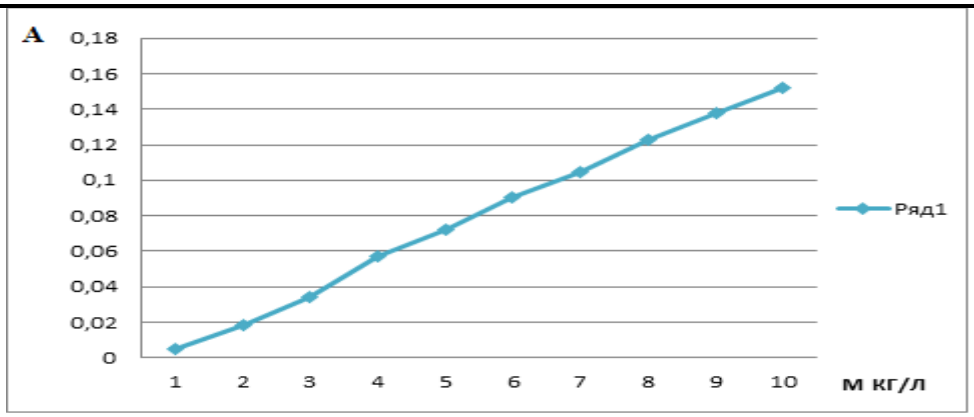

Figure 2. Optical density Fe(II) quantity dependence graph

From the results obtained, it can be seen that subordination to the Buger–Lambert–Ber law is observed in the range of concentrations of Fe (II) from 3 mkg from 3,5 mkg.

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