

**ELECTROMETRIC DETERMINATION OF CUSTOMIZED
MONOBASIC CARBOXY ACID IN FOOD**

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Annotation

In given work happen to the results of the determination carbon acids in mixed and non-aqueous solution by method conductometry titrating acid-main. The Explored influence chemical and physical characteristic of the solvents in condition acid-main titrating. The linear dependency will Revealed between constant of acidity and value non electry permeability. The Value of the constant autoprotolys solvent also is an important factor for choice of the solvent for acid-main titrating.

Key words: Analysis, determination, titrimetry, conductometry, autoprotolysis constant, dielectrical permeability, reproductoin.

**ЭЛЕКТРОМЕТРИЧЕСКОЕ ОПРЕДЕЛЕНИЕ ИНДИВИДУАЛЬНЫХ
ОДНООСНОВНЫЕ КАРБОНОВЫХ КИСЛОТ В ПИЩЕВЫХ
ПРОДУКТАХ**

Аннотация

В данной работе приводятся результаты определения индивидуальных одноосновные карбоновых кислот в неводных растворах методом кондуктометрического кислотно-основного титрования. Исследовано влияния

химических и физических свойств растворителей в условиях кислотно-основного титрования. Выявлена линейная зависимость между константой кислотности и величиной диэлектрической проницаемости. Величина константы автопротолиза растворителя также является важным показателем для выбора растворителя для кислотно-основного титрования.

Ключевые слова: Анализ, определение, титриметрия, кондуктометрия, константа автопротолиза, диэлектрическая проницаемость, растворитель.

Introduction

Relevance. It is known that acids play an important role in the life of living organisms and in industry. A change in their concentration in the body leads to various disorders. Therefore, it is relevant to control their content in the body, in industrial processes, etc. Conductometric titration occupies a special place among the methods for determining acids. It is quite simple, accessible and accurate. This method can be easily implemented in the laboratory of chemical analysis of food enterprises and other industries. [1,5,10].

This paper presents the results of determining individual monobasic carboxylic acids in non-aqueous solutions by conductometric acid-base titration.

Materials and methods of research

Formic, acetic, propyl, and benzoic acids were chosen as objects. Thus, absolute ethanol and propanol-1 were used as solvents. Titration was carried out

0.1 N ethanol or propanol solution of potassium ethoxide or propoxide in an appropriate solvent medium. Conductometric studies and titration were carried out on R568 and KEL-1M AC bridges. The conductometric cell was a vessel closed with a ground stopper with platinum platinized electrodes, 20x20 sq. mm in size, located at a distance of 6 mm. [2,4,5,6]. A study of the influence of the chemical and physical properties of solvents on the conditions of acid-base titration revealed a linear relationship between the acidity constant and the dielectric constant. The value of the autoprotolysis constant of the solvent is also an important indicator for choosing a solvent for acid-base titration.

Results and discussions.

Studies have shown that the lower the autoprotolysis constant of a solvent, the more differentiating it is. Therefore, for differentiated titration of acids, the value of the dielectric constant and the autoprotolysis constant of the medium should be reduced, which can be achieved by adding a solvent with lower values of the dielectric constant and the autoprotolysis constant to the appropriate solvent. [7,3,10].

The results obtained for the determination of individual aliphatic carboxylic acids in the medium of absolute ethanol and propanol-1 are shown in Table 1

The results of titration of individual carboxylic acids of the aliphatic series in the medium of absolute ethanol and propanol-1 with a solution of C_2H_5OK (Table 1.

Solvent	ϵ	Acid	Take n, mg	Found, m g	Sr
Ethanol	26, 4	$HCOOH$	1,95	2,00±0,0 2	0,00 9
			3,91	3,97±0,0 6	0,01 4
			7,82	7,81±0,0 5	0,00 6
		CH_3COOH	3,01	2,98±0,0 3	0,00 9
			6,02	5,94±0,0 5	0,00 8
			12,04	12,00±0, 11	0,00 9
Propano l-1	19, 7	$HCOOH$	2,30	2,27±0,0 3	0,01 3
			4,60	4,54±0,0 5	0,01 0
			7,82	7,91±0,0 2	0,00 2

		CH_3COOH	2,86	2,74±0,0 2	0,00 7
			5,71	5,63±0,0 4	0,00 7
			11,42	12,08±0, 04	0,00 3

It should be noted that when titrating in a solvent medium with a dielectric constant lower than ethanol, the best results were obtained.

This method is also used for acid-base titration of formic, acetic and benzoic acids in ethanol, propanol and isopropanol solutions.

The results of titration of isopropanolic solutions of individual acids are given in table.2. Results of conductometric titration of individual acids with a solution of C₃H₇OK () Table 2.

Acid	Taken, mg	Found,mg	S	Sr
Formic	4,60	4,62±0,03	0,02	0,004
	9,20	9,12±0,10	0,06	0,007
	13,80	14,04±0,16	0,10	0,007
	18,40	18,88±0,60	0,38	0,019
Acetic	6,06	6,14±0,45	0,28	0,046
	12,12	12,17±0,60	0,38	0,031
	18,18	18,08±0,21	0,13	0,007
	24,24	24,80±0,43	0,27	0,011
	30,06	29,80±0,49	0,31	0,010
Benzoic	12,26	12,70±0,43	0,27	0,021
	24,52	24,72±0,06	0,04	0,001
	36,52	36,71±0,34	0,21	0,006
	49,04	48,93±0,36	0,23	0,005

Findings

1. The possibility of conductometric titration conditions for indus monobasic carboxylic acids with solutions of potassium isopropoxide, which exhibit strongly pronounced basic properties in non-aqueous media on the basis of estimated and known acidity constants of the studied acids, is shown.

2. A linear relationship has been established between the acidity constants of substances and the value of the dielectric constant of the medium. It is shown that there is a linear relationship between the acidity constant of substances and the autoprotolysis constant, as well as the dielectric constant of the medium. An increase in the autoprotolysis constant and a decrease in the dielectric constant lead to a decrease in the strength of dissolved carboxylic acids and, consequently, to an increase in the differentiating effect of the solvent.

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