POTENTIOMETRIC ANALYSIS OF MIXTURES OF ADENOSINE AND GUANOSINE

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In the isolation of purine nucleosides from hydrolyzates of ribonucleic acids, mixtures of adenosine and guanosine with various compositions are formed [1, 2]. The analysis of mixtures of purine nucleosides can be performed by chromatographic methods [3, 4] which, however, are extremely lengthy and laborious.

In order to determine the composition of mixtures of adenosine and guanosine, we have developed a potentiometric method which is characterized by rapidity of performance (the time of one determination is 25 min) and adequate accuracy (the standard deviation is ±1 abs. %).

This method is based on the different acid—base properties of adenosine and guanosine in an organic solvent — methylcellosolve — in which adenosine possesses basic properties, and guanosine amphoteric properties.

The determinations were performed in the following way. A weighed sample of the specimen to be analyzed (∿0.2-0.3 g) was dissolved in 50.0 ml of methylcellosolve and two aliquotes (20.0 ml each) of the solution to be analyzed were titrated in parallel with a 0.1 N standard solution of perchloric acid in methylcellosolve and a 0.1 N standard solution of

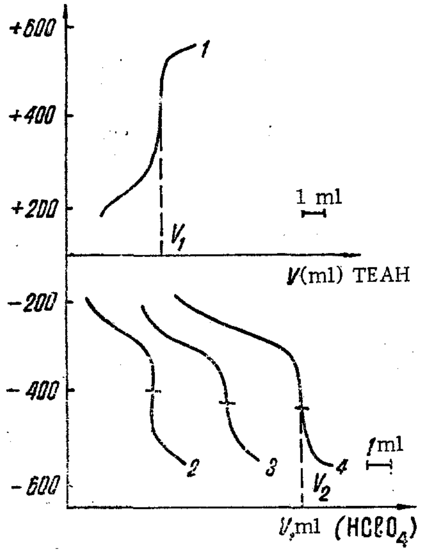

Fig. 1. Potentiometric titration curves in methylcellosolve: 1) adenosine + guanosine; 2) adenosine; 3) guanosine; 4) adenosine + guanosine.

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tetraethylammonium hydroxide (TEAH) in isopropanol (Fig. 1, curves 1-4). The calculations of the amounts of the components in the mixtures were based on the fact that V (adenosine) = V_2-V_1, and V (guanosine) = V_1.

Below, we give the results of a determination of several mixtures of adenosine and guanosine by the potentiometric method (n = 7):

	Amt. taken, %	Amt. found, %
Adenosine	96.4	96.1±0.8
	43.7	43.2±0.8
	5.2	5.8±1.0
Guanosine	3.6	3.3±0.6
	56.3	55.7±0.7
	94.8	94.3±0.6

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THE ISOLATION OF SUBSTANCES FROM THE LEAVES OF *Persica vulgaris*

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We have previously [1] reported the isolation of flavonoids from the leaves of *Persica vulgaris* Mill. The present paper gives the results of the isolation and study of certain substances from the leaves of *P. vulgaris* growing in the Uzbek SSR.

The material collected was extracted with chloroform. After the solvent had been distilled off, the residue was treated with acetone, giving acetone-insoluble (A) and acetone-soluble (B) fractions [2]. Fraction A was repeatedly extracted with petroleum ether (with heating). The petroleum ether extract was passed through a column filled with alumina. The column was washed successively with benzene, ether, and methanol. The petroleum ether eluate, after the distillation of the solvent and fractional recrystallization from acetone, yielded a number of fractions of crystalline substances which, on the basis of their GLC characteristics, were identified as high-molecular-weight hydrocarbons, the total amounts of each of them being: nonacosane 51.6; hentriacontane 21.4; heptacosane 13.8; pentacosane 4.5; triacontane 3.5; octacosane 1.7; dotriacontane 1.5; tritriacontane 1.2; and hexacosane 0.7.

The benzene and methanolic eluates yielded crystalline substances with mp 76-77, 77-78, 80-81, and 84-85°C, which formed acetyl derivatives with mp 59-60, 62-64, 66-67, and 69-71°C, respectively.

From the melting points of the substances themselves and their acetyl derivatives, the compounds isolated were identified as high-molecular-weight alcohols: tetracosanol, hexacosanol, octacosanol, and triacontanol.

From the unsaponifiable fraction after separation on a column of alumina we isolated a crystalline substance with mp 137-138°C which was identified on the basis of its own physicochemical constants and those of its derivatives (acetyl with mp 129-130°C and benzoyl with mp 145-146°C), and also from its PMR and IR spectra, as β-sitosterol. A mixture with the β-sitosterol isolated from the cotton plant [3] showed their identity.

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