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Electrochemical determination of tannin in industrial products

N.V. Lutsenko*, M.O. Mironyak, V.I. Tkach

[1]Ukrainian State University of Chemical Technology, 8 Gagarin Avenue, City of Dnipropetrovsk, Ukraine, 49005;
*e-mail: lutsenko.nat@gmail.com

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During research the reaction of interaction between the complex cationic particle tannin-Ba^{2+} and heteropolyanion of Keggin structure $PMo_{12}O_{40}^{3-}$ was studied with the methods of amperometric titration and UV spectrophotometry. The correlation of reacting components in the reaction was defined. Associative character of interaction was confirmed, and the value of product dissolving was calculated. The resulting slightly soluble associate $(Tan\text{-}Ba)_3(PMo_{12}O_{40})_2$ was used as electrode active substances in plasticized polyvinylchloride membranes sensitive to tannin ion-selective electrodes(ISE) based on membrane solvents plasticizers of dibutyl phthalate and dioctyl phthalate. The impact of different factors (pH test solution, the quantitative value of EAS in membrane, nature of membrane solvent-plasticizer) on characteristics of developed ISE was studied. New methods of quantitative determination of tannins in industrial production by amperometric titration and direct potentiometry with used ion-selective electrodes were developed on the basis of research. The developed techniques are tested on real industrial products, such as lotion rinse mouth «Colgate Plax oak bark and fir». New methods notable for simple implementation, high sensitivity, selectivity and express.

Keywords: 12-molybdophosphate acid, amperometric titration, direct potentiometry, heteropolyanion, ion-selective electrode, spectrophotometry, tannin