The depending of Pb^{2+} and Cd^{2+} removing percentage from sorbent dose (duration 30 min, pH 8, primary concentration of Pb^{2+} 200 mg/L) is presented in figure 2.

According to data presented in figure 3 increasing sorbent dose from 0,1 to 1 g/100 ml leads to rapid increasing of removing degree. However, from 1 to 5 g/100 ml efficiency of sorption removing of Pb^{2+} and Cd^{2+} almost unchanged. On our opinion, it connects with adhesion of sorbent particles with a high content of it in solution. It causes blocking of useful sorption surface of the bentonite.

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THE STUDY OF THE CONCENTRATION DEPENDENCE OF ATENOLOL ELECTRO-OXIDATION ON "SMART" POLYMERS

The study of the concentration dependence on the peak current of the analyte oxidation is one of the main characteristics when registering voltammograms. In this work sensors based on glassy carbon electrodes (GCE) modified by “smart” polymers of poly(phtalidilidenfluorene) (PPF) and poly(phtalidilidenbiphenyl) (PPB), for determination of atenolol were proposed. The cardio selective β-adrenoblocker atenolol (ATN) was chosen as an analyte. The differential pulse voltammograms (DPV) of atenolol oxidation in Britton-Robinson buffer solution of pH 11.98 and corresponding calibration plots are presented in Figure 1.Voltammograms recorded on GCE modified by PPF-Cl, PPB-Cl, PPB-Br films differed in both the height of the atenolol oxidation peak and the shape of the curves. This suggests that each modifier makes its specific contribution to oxidation. The standard calibration plots showed that current peaks increased linearly with increasing ATN concentration in the range from 0.008 to 0.5 mM. The current peaks increased linearly with increasing ATN concentration in the range from 1.8 to 0.12 mM (insets in Fig. 1).

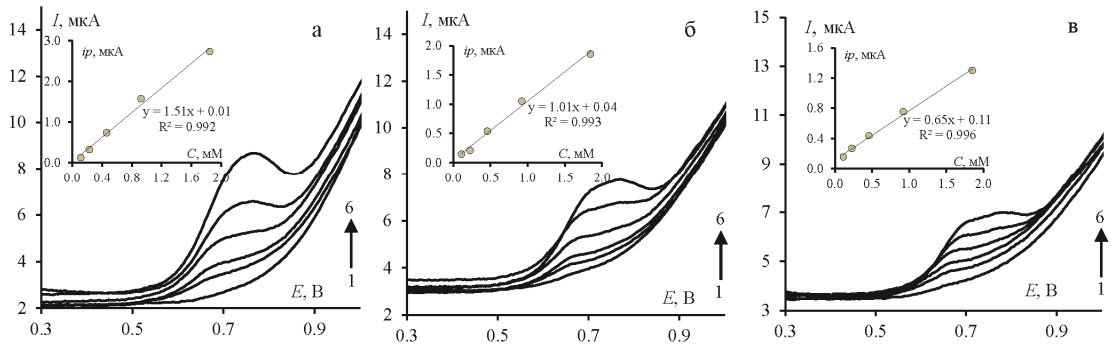

Fig. 1. DPVs of atenolol oxidadtion on PPB-Br (a), PPF-Cl (b), PPB-Cl (c) for various concentrations: Britton-Robinson buffer solution of pH 11.98 (1), 0.116 (2), 0.231 (3), 0.462 (4), 0.925 (5), 1.85 (6) mM at scan rate rate of 20 mV/s. Inserts: corresponding calibration plots

Table 1 presents the results of ATN determination on proposed sensors using analysis of spiked samples. As can be seen from Table 1, the sensors with high accuracy determined the concentration of model solutions in the entire linear range, and the standard deviation in all cases didn't exceed 3.7%.

Table 1. Determination of atenolol on GCE modified by PPF-Cl, PPB-Cl, PPB-Br in Britton-Robinson buffer solution (pH 11.98) at scan rate 20 mV/s (n=5, P=0.95)

Electrode	Spiked, mM	Found, mM	RSD, %
GCE/ PPB-Br	0.148	0.140±0.009	0.7
	0.37	0.31±0.01	0.7
	1.20	1.17±0.05	3.7
GCE/ PPF-Cl	0.148	0.143±0.007	0.6
	0.37	0.33±0.02	1.4
	1.20	0.94±0.01	0.9
GCE/ PPB-Cl	0.148	0.139±0.015	1.2
	0.37	0.39±0.03	2.6
	1.20	1.19±0.03	2.1

Thus, the concentration dependence of atenolol electro-oxidation on "smart" polymers was studied. Linear range from 1.8 to 0.12 mM was established.

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