tory infections. Taking this into account, protective clothes used as facemasks provide an accessible way for personal safety [1]. However, conventional textiles offer very limited protection to the user since their main role according to the World Health Organization is to protect people around from infections the facemask wearer could transmit without wearing one. Thus, in this contribution we will discuss a versatile textile treatment for the facemasks that offer significant improvements over other strategies reported until now [2, 3, 4]. We accomplished this feat by the laser-integration of graphene oxide and metallic nanoparticles textiles. The synergetic antibacterial properties of Ag nanoparticles and the enhanced filtration properties of laser-reduced graphene showed that textiles can be made with improved performance [5, 6]. Our work has significant implications in health care and our battle against transmittable respiratory diseases by offering an inexpensive and scalable way to provide antibacterial and filtration properties to facemasks.

In this work, we develop a new approach for the laser treatment of reusable protective face masks decorated with immobilized AgNP. This combination increases filtration and antibacterial efficiency of masks via properties synergism of graphene and silver. Laser treatment is a cheap and scalable method that allows creating patterns of any form and control the properties of the material by adjusting the beam power.

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INVESTIGATION OF THE ELECTROCHEMICAL PROPERTIES OF INDOMETHACIN FOR ITS QUANTITATIVE DETERMINATION

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Currently, a large number of drugs are classified as non-steroidal anti-inflammatory drugs (NSAID). One of the common and available NSAIDs is indomethacin (IMN), a derivative of indoleacetic acid. It has anti-inflammatory, analgesic, and antipyretic effects [1].

The purpose of this work is to select the conditions for the electrochemical determination of IMN for the subsequent development of a technique for its quantitative determination in drugs by voltammetry.

Electrochemical experiments were performed with TA–2 voltammetric analyser (OOO RPE Tomanalit, Tomsk, Russia). A glassy carbon electrode was used as an indicator electrode. Silver chloride electrodes were used as an auxiliary and reference,

which filled with 1 mol L^{-1} KCl. 2 M NaOH solution was chosen as the background electrolyte and solvent for the substance [2].

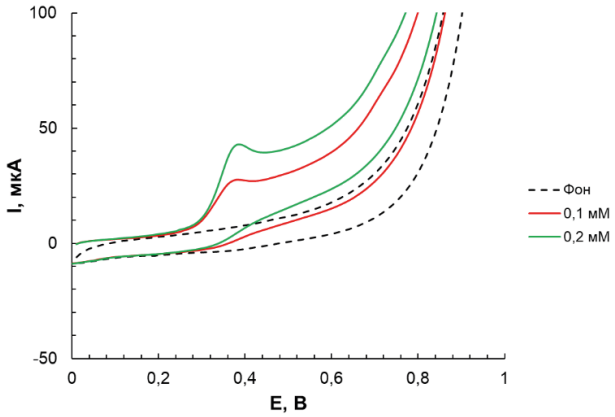

Fig. 1. *Cyclic voltammograms of oxidation – reduction of IMN on GCE in 2 mol L^{-1} NaOH, W = 100 mV/s*

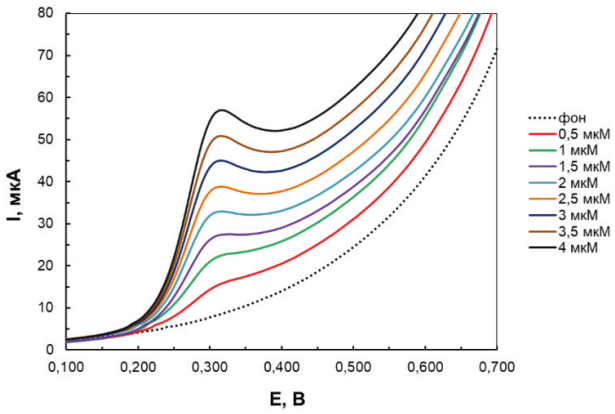

Fig. 2. *Anodic voltammograms of INM in 2 mol L^{-1} NaOH, W = 100 mV/s*

Cyclic voltammograms were recorded in the potential range of 0–1 V for searching of electrochemical signal from pharmaceutical substance (Fig. 1). According to the results, IMN is oxidized only in the anode region.

Figure 2 shows the anodic voltammograms of IMN electrooxidation, where intensity of the peak current increases with an increase of the concentration of the substance.

The dependence of the anodic peak current on the concentration is linear in the range of 0–0.4 mM (Fig. 3).

The proposed method for determining IMN will be used to develop a method for the quantitative determination of a substance in pharmaceuticals.

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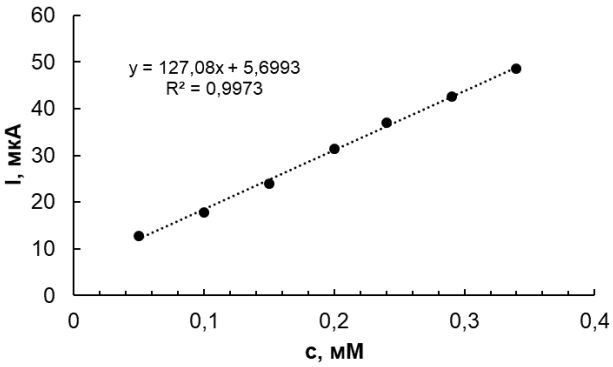

Fig. 3. *Dependence of the IMN electrooxidation current on its concentration in 2 mol L^{-1} NaOH, W = 100 mV/s*

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THE THERMAL DECOMPOSITION OF POLYLACTIDE WASTE

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Over the last years, polymers have been used in almost all areas of modern life. However, one of the most important problems here is that most polymers do not decompose in nature, which leads to sustainable environmental pollution. The development and appliance of polymers able decompose to under specified conditions is a solution to this problem. Biodegradable polymers are materials that break down into innocuous to the environment compounds during certain natural microbiological and biochemical processes. The products of complete ones decomposition are mainly carbon diox-