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**DYNAMICS OF REACTIVE OXYGEN AND NITROGEN SPECIES FORMATION IN LIQUIDS UNDER GAS-INJECTED MULTI-SPARK DISCHARGE DEPENDING ON THE ELECTRODE SYSTEM MATERIAL <sup>\*)</sup>**<sup>1,2</sup>Zimina M.A., <sup>1,2</sup>Gudkova V.V., <sup>1</sup>Artemiev K.V., <sup>1</sup>Davydov A.M., <sup>1</sup>Polyakova V.A.,  
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Exposure of a liquid to low-temperature plasma of a gas discharge leads to the formation of active forms of nitrogen and oxygen. In this work we used the installation with implementation of high-voltage pulse-periodic multi-electrode ring discharge in liquid with gas injection in the interelectrode gaps (air, flow rate of 6 liters per minute?) [1]. Electrode systems made of stainless steel 12X18H10T and duralumin D16 alloy were considered. Exposure time was 2-10 minutes, with a variation interval of 2 minutes, liquid volume was 120 ml (deionized water, conductivity 0.1  $\mu\text{S}/\text{cm}$ ).

The concentration of hydrogen peroxide was measured using FOX reagent by absorption spectrum at wavelength 560 nm, the concentration of nitrite ions by Griss reagent by absorption spectrum at wavelength 525 nm using HACH LANGE DR-5000 spectrophotometer (HACH LANGE GmbH, Germany). The best result for hydrogen peroxide and nitrite ion concentrations was obtained at a time exposure of 10 minutes using duralumin alloy electrodes. The nitrate ion concentration was also found to increase with increasing duration of liquid treatment.

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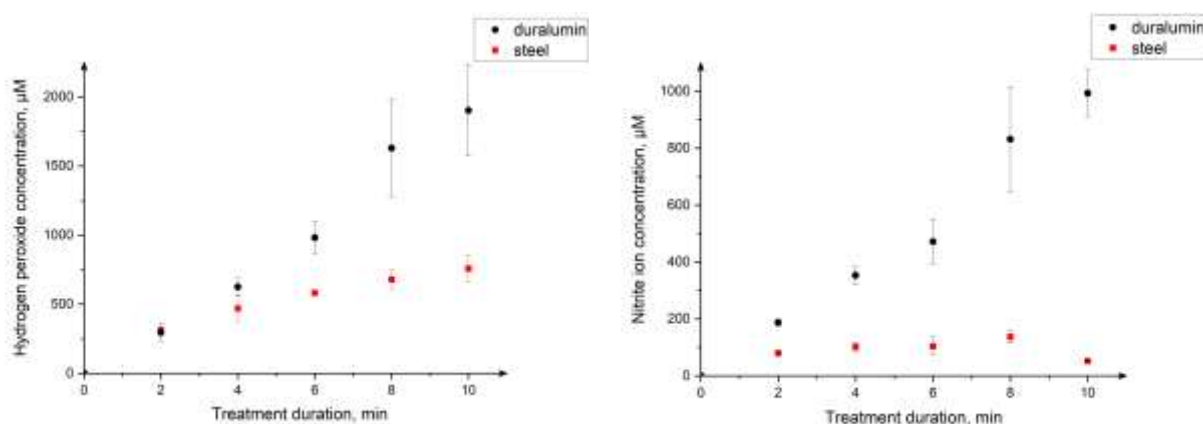


Fig.1. Dependence of  $\text{H}_2\text{O}_2$  concentration (a),  $\text{NO}_2^-$  concentration (b) on the time of plasma source exposure.

**References**

- [1]. A.M. Anpilov, E.M. Barkhudarov, Yu.N. Kozlov, I.A. Kossyi, M.A. Misakyan, I.V. Moryakov, M.I. Taktakishvili, N.M. Tarasova, S.M. Temchin, Plasma Phys. Rep., 45 (3), 246 (2019). DOI: 10.1134/S1063780X19020016

<sup>\*)</sup> [abstracts of this report in Russian](#)