

## **EFFECT OF LONG-TERM EXPOSURE TO NON-THERMAL PLASMA ACTIVATED WATER ON METHEMOGLOBIN IN MICE**

**Valentin NĂSTASĂ<sup>1</sup>, Mihai MAREȘ<sup>1</sup>, Andra-Cristina BOSTĂNARU<sup>1</sup>,  
Eugen HNATIUC<sup>2</sup>, Mariana GRECU<sup>1</sup>**

e-mail: vnastasa@uaiasi.ro

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### **Abstract**

Non-thermal plasma activated water (PAW) is described as a potent antimicrobial agent, but although it has numerous bio-medical applications, there is a lack of toxicity studies in living organisms. Thus, as a main objective, we aimed to evaluate the *in vivo* methemoglobin sizing potential of non-thermal plasma activated water (PAW) in CD-1 mice. The device used in our experiment is based on the GlidArc principle, with the advantage of adjusting the values of the current in the circuit on account of a special power supply, which works with magnetic scattering fluxes. A daily volume of 300 ml of PAW was prepared daily with this reactor with the following physico-chemical parameters: conductivity  $446 \pm 25 \mu\text{S} / \text{cm}$ , pH  $2.78 \pm 0.12$ , ORP  $+ 1.06 \text{ V}$ , NO<sub>2</sub>- $192 \pm 10 \text{ mg} / \text{L}$ , NO<sub>3</sub>- $1550 \pm 95 \text{ mg} / \text{L}$ , H<sub>2</sub>O<sub>2</sub>  $2.6 \pm 0.12 \text{ mg} / \text{L}$ , O<sub>3</sub>  $1.08 \pm 0.07 \text{ mg} / \text{L}$ , peroxyxynitrite - ONOO-. After analysis and interpretation of the data, it was found that methemoglobinemia did not differ significantly in the groups treated with PAW ( $p < 0.05$ ) compared to the control group ( $p = 0.8076$ ). Thus, long-term consumption of PAW has no detrimental effects on the health status of CD-1 mice.

**Key words:** PAW, mice, methemoglobin

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