

# THE ROLE OF NOS AND ANTIOXIDANT ACTIVITY IN SOME DERIVATIVES OF L-ARGININE

Ghazaryan. S.H.<sup>1</sup>, Alchudzhyan N. Kh.<sup>2</sup>, Movsisyan N.H.<sup>2</sup>,  
Barkhudaryants I.M.<sup>1</sup>, Hovakimyan S.S.<sup>1</sup>, Paghutyan N.H.<sup>1</sup>

<sup>1</sup>*Institute of Fine Organic Chemistry STCOPC NAS RA*

<sup>2</sup>*Institute of Biochemistry of NAS RA*

[sedrham@yahoo.com](mailto:sedrham@yahoo.com)

The discovery of NO as a universal regulatory molecule possessing the properties of a biological messenger was a consequence of the development of a number of scientific areas, including immunology, physiology and pharmacology of the cardiovascular system, toxicology, neurobiology, etc.

The regulatory effect of NO in all systems is ensured by its generation from L-arginine, catalyzed by constitutive isoforms of NO synthesis (NOS) - endothelial and neuronal NOS.

Along with regulatory functions, NO also detects cytotoxic / cytostatic activity, acting as one of the main effectors of the cellular immunity system. This NO activity is ensured by the functioning of the inducible form of NOS, the synthesis of which in immunocompetent cells is initiated by cytokines, endotoxins and other biologically active agents.

The above serves as the basis for the planning of new derivatives of L-arginine both in the form of lithium salts due to the carboxyl group of the amino acid and in the form of new N-substituted derivatives of the same amino acid.

So, NOS activity was judged by the number of nitrite / nitrate anions (in  $\mu\text{g} / \text{ml}$  blood) formed during 24 hours of incubation, which were determined by the diazotization reaction, spectrophotometrically at a wavelength of 546 nm.

To determine the effect of lithium salts of tert-butyloxycarbonyl-L-arginine, N<sup>ω</sup>-tosyl-N<sup>α</sup>-benzyloxycarbonyl - L-arginine, N<sup>α</sup>, N<sup>ω</sup>, N<sup>ω</sup>-tricarbobenzoyl - L-arginine and tert-butyloxycarbonyl-L-arginine during the peroxidation process (POL), we determined the level of lipid peroxides in the non-enzymatic (ascorbate-dependent) system of peroxidation according to the yield of the final product - malonic dialdehyde (MDA). The

data obtained indicate the feasibility of finding new, more effective substances in a number of derivatives of the amino acid L-arginine.

*Key words: NOS, NO-synthase, L-arginine, derivatives of the amino acid, malonic dialdehyde, MDA*

## **THE ROLE OF MICROELEMENTS CONTAINING AMINO ACIDS IN THE DEVELOPMENT OF THE BODY**

**Ghazaryan S.H., Barkhudaryants I.M., Alaverdyan Zh.R.,  
Hovakimyan S.S., Paghutyan N.H.**

*Institute of Fine Organic Chemistry STCOPC NAS RA*  
[sedrham@yahoo.com](mailto:sedrham@yahoo.com)

In the case of the formation of a pathogenic excess of microelements (ME) in the environment, it is necessary to carry out comprehensive measures to adjust their quantity in environmental objects aimed at regulating the intake of ME into the body. It should be noted that the same trace elements in a different dosage and possible forms are necessary for the normal functioning of human and animal organisms.

Such chemical elements include: iron, copper, cobalt, zinc, molybdenum, manganese, strontium, boron, selenium, fluorine, iodine, which are used in medicine.

At present, the number of such biogenic chemical elements is growing, as the physiological role outside the new and new chemical elements, and their.

Studies are included in research plans - lithium, cadmium, cesium, barium, titanium, vanadium, chromium, antimony, arsenic, mercury, bismuth, and discoveries in the field of biogeochemistry and biology are possible.

Experimenters and clinicians describe the very important effects of these cations with amino acids in one molecule.

Based on the studies, it can be concluded that Li<sup>+</sup>, Zn (II), Ag (I) containing derivatives of amino acids and peptides have a wide spectrum of pharmacological action, that is, they have antioxidant, fibrolitic, antimutagenic, radioprotective, antidepressant, psychotropic activities.