

**NEUROPROTECTIVE AND ANTI-OXIDANT ACTION OF THE PLANT REMEDY «THYREOTON» IN THE
EXPERIMENTAL HYPOBARIC HYPOXIA**

© A. A. Toropova, ^{*,1} Y. G. Razuvaeva,¹ S. V. Lemza,¹

S. M. Nikolaev,² L.N. Shantanova²

¹Institute of General and Experimental Biology SB RAS, Ulan-Ude

²Buryat State University

*E-mail: anyuta-tor@mail.ru

REFERENCES

1. Lukyanova L. D. 1997. Bioenergy hypoxia: the concept, mechanisms and methods of correction. — Byulleten eksperimentalnoy biologii i meditsiny. 124 (9): 244–256. (In Russian)
2. Shabanov P. D., Zarubina I. V., Novikov E.V., Tsygan V.N. 2010. Metabolicheskie korrekory gipoksii [Metabolic correctors of hypoxia]. St. Petersburg. 916 p. (In Russian)
3. Nelson D. L., Cox M. M. 2008. Lehninger Principles of Biochemistry. New York. 1294 p.
4. Perinskaya Yu. S., Sakanyan E. I. 2014. Current state and prospects of the development of drugs based on the rhizomes and roots of *Rodiola rosea* L. — Khimiko-farmatsevticheskiy zhurnal. 48(8): 28–32. (In Russian)
5. Li Y. 2011. Antioxidants in Biology and Medicine: essentials, advances and clinical applications. New York. 422 p.
6. Rastitelnye resursy Rossii: Dikorastushchie tsvetkovye rasteniya, ikh komponentnyy sostav i biologicheskaya aktivnost. 2009. T. 2. [Plant Resources of Russia: Wild flowering plants, their component composition and biological activity, Vol. 2: Actinidiaceae–Malvaceae and Euphorbiaceae–Haloragaceae families]. Ed. by A. L. Budantsev. St. Petersburg; Moscow. 513 p. (In Russian)
7. Rastitelnye resursy Rossii: Dikorastushchie tsvetkovye rasteniya, ikh komponentnyy sostav i biologicheskaya aktivnost. 2011. T. 4. [Plant Resources of Russia: Wild flowering plants, their component composition and biological activity. Vol. 4: Caprifoliaceae – Lobeliaceae families]. Ed. by A. L. Budantsev. St. Petersburg; Moscow. 629 p. (In Russian)
8. Arkhipova E.V. 2012. Effects of *Potentilla alba* L. extract and Tireoton complex herbal medicinal product on the course of experimental hypothyroidism: Avtoref. dis. ... kand. med. nauk. Ulan-Ude. 21 p. (In Russian)
9. Sidorov K. K. 1973. On the classification of poisons toxicity under parenteral ways of administration. — Toksikologiya novykh promyshlennykh khimicheskikh veshchestv. Moscow. 13: 47–51. (In Russian)

10. Berezovskiy V. A., Boyko O. A., Kurbakov L. A., Tridina T. A. 1985. On the mechanism of the formation of differences in the natural resistance of rats to acute hypobaric hypoxia. — *Fiziologicheskiy zhurnal*. 31(3): 257–262. (In Russian)
11. Panov A., Dikalov S., Shalbuyeva N., Hemendinger R., Greenamyre J. T., Rosenfeld J. 2007. Species- and tissue-specific relationships between mitochondrial permeability transition and generation of ROS in brain and liver mitochondria of rats and mice. — *Am. J. Physiol. Cell Physiol.* 292(2): 708–718.
12. Stalnaya I. D., Gorishvili T. D. 1977. Method for determination of malondialdehyde using thiobarbituric acid. In: *Sovremennye metody v biokhimii*. Ed. by V. N. Orekhovich. Moscow. P. 66–68. (In Russian)
13. Korolyuk M. A., Ivanova L. I., Mayorova I. G., Tokarev V. E. 1988. Method for determination of catalase activity. — *Laboratornoe delo*. 1: 16–19. (In Russian)
14. Akerboom T. P. M., Sies H. 1981. Assay of glutathione, glutathione disulfide and glutathione mixed disulfides in biological samples. — *Methods Enzymol.* 77: 373–382.
15. Kurkin V. A., Kulagin O. L., Dodonov N. S., Tsareva A. A., Avdeeva E. V., Barabash S. V., Lyashenko M. V., Kurkina A. V., Dremova E. A., Satdarova F. Sh., Ryzhov V. M. 2008. The antioxidant activity of some tonic and hepatoprotective herbal remedies containing flavonoids and phenylpropanoids. — *Rastitelnye resursy*. 44(1): 122–129. (In Russian)
16. Khazanov V. A., Sayfutdinov R. R. 1999. Mitochondrial effects in the mechanism of antihypoxic action of the *Scutellaria baicalensis* extract. — *Byulleten eksperimentalnoy biologii i meditsiny*. 128(9): 327–329. (In Russian)
17. Cao L. L., Du G. H., Wang M. W. 2005. Effect of salidroside on mitochondria injury induced by sodium azide. — *Yao Xue Xue Bao*. 40(8): 700–704.
18. Greer D. M. 2006. Mechanisms of injury in hypoxic-ischemic encephalopathy: implications to therapy. — *Semin. Neurol.* 26(4): 373–379.
19. Busl K., Greer D. 2010. Hypoxic-ischemic brain injury: pathophysiology, neuropathology and mechanisms. — *Neuro. Rehab.* 26(1): 5–13.
20. Novikov V. E., Levchenkova O. S. 2013. New directions in search of medicinal agents with antihypoxic activity and targets for their action. — *Eksperimentalnaya i klinicheskaya farmakologiya*. 76(5): 37–47. (In Russian)