

Study of the antioxidant activity of plant harvest with antiulcer action and its components

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Abstract

At present, the expansion of research to find sources for obtaining new effective and safe medicines of plant origin, including those used in gastroenterological practice, is a pressing task of medical science, considering that the range of medicinal plant drugs used in practical health care is more than 40%. The article presents the results of biochemical study of total antioxidant activity of anti-ulcer collection of plant origin and its individual components. We show that it consists of the leaves of the planter large (*Plantago major* L.), grass of a sushchenitsa uliginose (*Gnaphalium uliginosum* L.), rhizomes and roots of the devisil high (*Inula helenium* L.), flowers of the chamomile pharmacy (*Matricaria chamomilla* L.), the roots of licorice naked (*Glycyrrhiza glabra* L.), grass of bird 's mountain (*Polygonum aviculare* L.), leaves of the nettle (*Urtica dioica* L.), fruits of a mountain ash ordinary (*Sorbus aucuparia* L.) and its individual components have pronounced antioxidant activity. The greatest activity was found in the roots of licorice naked, grass of bird 's mountain and flowers of chamomile pharmacy. Total antioxidant activity of water extraction of collection recovery at 6.77% from exceeded the calculated value obtained by summing the activities of the individual components of the collection, which indicates the presence of synergy in their action, which may be of importance for use in the treatment and prevention of diseases in gastroenterological practice. The detected increase in the antioxidant activity of the new collection compared to the effects of its individual components allows it to be considered as a promising dosage form for the treatment and prevention of gastroenterological diseases.

References

- [1] V.T. Ivashkin. Gastroenterology: National Leadership. Moscow: GEOTAR-Media. 2008. 704p. (russian)
- [2] S.M. Nikolaev. Phytopharmacotherapy and phytopharmacoprophylaxis of diseases. Ulan-Ude: Publishing House of BSU. 2012. 286p. (russian)
- [3] Yu.G. Bazarnova. Study of the antioxidant properties of extracts of phenolic compounds of some plants. Theses of reports "International scientific and technical conference "Resource-saving food production technologies. SpB: SPGAHTP. 1998. P.193. (russian)
- [4] G. Bartosz. Total antioxidant capacity. *Adv Clin Chem.* 2003. Vol.37. P.219-292.
- [5] V.F. Gromovaya, G.S. Shapoval, I.E. Mironyuk. Antioxidant properties of medicinal plants. *Chemical and Pharmaceutical Journal.* 2008. Vol.42. No.1. P.26-29.
- [6] A.A. Lapin, M.A. Demidova, V.V. Meltonyan, V.N. Zelenkov. Assessment of antioxidant activity of water extracts from medicinal vegetable raw materials. Non-traditional natural resources, innovative technologies and products: Collection of scientific works. Iss.20. Moscow: RAEN. 2012. P.21-26. (russian)
- [7] I.E. Kauhova. New method of production of plant preparations. *Pharmacy.* 2006. No.1. P.37-39. (russian)
- [8] A.A. Lapin, I.G. Garifullin, and V.N. Zelenkov. Biochemical study of hepatoprotective collection of plant origin. *Butlerov Communications.* 2019. Vol.59. No.7. P.134-141. DOI: 10.37952/ROI-jbc-01/19-59-7-134
- [9] S.J. Sokolov. Phytotherapy and phytopharmacology. Manual for doctors. Moscow: MIA. 2000. 976p. (russian)

- [10] P.-N.B. Lubsandorzhiya. Development and standardization of herbal remedies for the treatment and prevention of digestive diseases. *Ulan-Ude: Publishing House of the BSC SB RAS*. **2016**. 280p. (russian)
- [11] V.N. Zelenkov, A.A. Lapin. МБИ-001-44538054-07. Total antioxidant activity. Method of measurement on the coulometric analyzer. *VNII Vegetable Growing. Vereya, Moscow Region*. **2013**. 19p. (russian)
- [12] *TU 9369-141-04868244-07*. Routine is a standard sample. Specification. (russian)
- [13] *State Pharmacopoeia of the USSR*. Iss.2. General methods of analysis. Medicinal plant raw materials. MOH OF THE USSR. 11th ed., additional. *Moscow: Medicine*. **1989**. 398p. (russian)
- [14] Moda in statistics. [Electronic Resource]– URL: [http:// statanaliz.info/statistica/opisanie-dannyx/moda/](http://statanaliz.info/statistica/opisanie-dannyx/moda/) (date of the address 30.10.**2019**).
- [15] N.V. Mamonov, A.V. Zotov, A.A. Egorkin. Anti-ulcer activity of complex collection of medicinal plants. *Health. Medical ecology. Science*. **2009**. Vol.39-40. No.4-5. P.119-121. (russian)
- [16] E.V. Ferubko, S.M. Nikolayev, K.A. Pupykin, T.J. Dargayeva. Study of antiulcer activity of new collection. *Issues of drug quality assurance*. **2018**. No.1(19). P.12-20. (russian)