

ISSN 2411-0388

**NATIONAL ACADEMY OF AGRARIAN
SCIENCES OF UKRAINE**

**NATIONAL SCIENTIFIC CENTER
'INSTITUTE OF EXPERIMENTAL
AND CLINICAL VETERINARY MEDICINE'**

**JOURNAL FOR
VETERINARY MEDICINE,
BIOTECHNOLOGY
AND BIOSAFETY**

**Volume 5
Issue 2**

**KHARKIV
2019**

EDITORS-IN-CHIEF:

Stegniy B. T., Dr. Sci. (Vet. Med.), Prof., Academician of NAAS (Ukraine)

Gerilovych A. P., Dr. Sci. (Vet. Med.), Prof., Corresponding member of NAAS (Ukraine)

EDITORIAL COUNCIL:

Bakanidze L., PhD (Biol.), Prof. (Georgia)

Beillie L., PhD, Dr. Sci. (Vet.), Prof. (United Kingdom)

Boboš S., Dr. Sci. (Vet. Med.), Prof. (Republic of Serbia)

Dugan O. M., Dr. Sci. (Biol.), Prof. (Ukraine)

Imnadze P., Dr. Sci. (Med.), Prof. (Georgia)

Fedota O. M., Dr. Sci. (Biol.), Prof. (Ukraine)

Hunger-Glaser I., Dr. Sci. (Biol.) (Switzerland)

Kolybo D. V., Dr. Sci. (Biol.) (Ukraine)

Kozeretska I. A., Dr. Sci. (Biol.) (Ukraine)

Krasochko P. A., Dr. Sci. (Vet. Med., Biol.), Prof. (Republic of Belarus)

Kuzmak J., Dr. Sci. (Vet. Med.), Prof. (Republic of Poland)

Liu Y. S., Dr. Sci. (Biol.), Prof. (Republic of China)

Lymanska O. Yu., Dr. Sci. (Biol.) (Ukraine)

Mandygra M. S., Dr. Sci. (Vet. Med.), Prof., Corresponding member of NAAS (Ukraine)

Mel'nychuk S. D., Dr. Sci. (Biol.), Prof., Academician of NAAS (Ukraine)

Niemczuk K., Dr. Sci. (Vet. Med.), Prof. (Republic of Poland)

Potkonjak A., Dr. Sci. (Vet. Med.) (Republic of Serbia)

Ruban S. Yu., Dr. Sci. (Agr.), Prof., Corresponding member of NAAS (Ukraine)

Rublenko M. V., Dr. Sci. (Vet. Med.), Prof., Academician of NAAS (Ukraine)

Shalcross J., Dr. Sci. (Med.) (United Kingdom)

Sheely H., Dr. Sci. (Biol.) (United Kingdom)

Ushkalov V. O., Dr. Sci. (Vet. Med.), Prof., Corresponding member of NAAS (Ukraine)

Vilcek S., Dr. Sci. (Vet. Med.), Prof. (Slovak Republic)

Vlizlo V. V., Dr. Sci. (Vet. Med.), Prof., Academician of NAAS (Ukraine)

Whatmore A., Dr. Sci. (Vet.) (United Kingdom)

Zavgorodniy A. I., Dr. Sci. (Vet. Med.), Prof., Corresponding member of NAAS (Ukraine)

Zhegunov G. F., Dr. Sci. (Biol.), Prof. (Ukraine)

Zöller L., Dr. Sci. (Med.), Prof., Colonel (MC) (Germany)

EDITORS:

Biloivan O. V. (Ukraine)

Bolotin V. I., Cand. Sci. (Vet. Med.), Senior Res. (Ukraine)

Filatov S. V. (Ukraine)

Goraichuk I. V., Cand. Sci. (Biol.) (Ukraine)

Kalashnyk M. V., Cand. Sci. (Vet. Med.), Senior Res. (Ukraine)

Kit M. Yu. (Ukraine)

Koreneva Yu. M. (Ukraine)

Kovalenko L. V., Cand. Sci. (Biol.), Senior Res. (Ukraine)

Magats D. Yu. (Ukraine)

Muzyka D. V., Dr. Sci. (Vet. Med.), Senior Res. (Ukraine)

Orehkova G. A. (Ukraine)

Orobchenko O. L., Dr. Sci. (Vet. Med.), Senior Res. (Ukraine)

Paliy A. P., Dr. Sci. (Vet. Med.), Senior Res. (Ukraine)

Romanko M. Ye., Dr. Sci. (Biol.), Senior Res. (Ukraine)

Stegniy M. Yu., Cand. Sci. (Biol.), Assoc. Prof. (Ukraine)

Zlenko O. B. (Ukraine)

Responsible Secretary: Unkovska O. M., Cand. Sci. (Agr.) (Ukraine)

Technical editor: Vovk D. V.

The Journal for Veterinary Medicine, Biotechnology and Biosafety is included in the list of scientific special serial publications of Ukraine that can publish the results of Ph.D. and Dr.Habil. theses in veterinary sciences (order of the Ministry of Education and Science № 241, March 9, 2016) and biological sciences (order of the Ministry of Education and Science № 515, May 16, 2016)

Materials approved for publication and to spread via the Internet by the Scientific Council of the National Scientific Center 'Institute of Experimental and Clinical Veterinary Medicine' (protocol № 9 of 21.06.2019)

The full text of articles available at jvmbbs.kharkov.ua. JVMBBS covered in the abstract and citation databases Google Scholar (scholar.google.com), RISC (elibrary.ru) and Index Copernicus (indexcopernicus.com)

Cover photographs by NSC 'IECVM', 2019 © All rights reserved

Editorial Board Address:

NSC 'Institute of Experimental and Clinical Veterinary Medicine'

83 Pushkinska Str., Kharkiv, Ukraine, 61023

tel. +38 (057) 707-20-53, 704-10-90

E-mail: nsc.iecvm.kharkov@gmail.com, inform@vet.kharkov.ua