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Peer-review of monograph of V. V. Makarov, N. Ya. Makhamat, A. M. Gulyukin, M. I. Gulyukin "Anthrax: Modern Knowledge and Global Occurrence".

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Рецензия на монографию В. В. Макарова, Н. Я. Махамата, А. М. Гулюкина, М. И. Гулюкина «Сибирская язва: современное представление и мировое распространение».

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The monograph is devoted to anthrax, one of the major epizootological and epidemiological challenges.

The monograph publication is important due to almost total lack of the data on epizootic peculiarities of the global nosoarea of anthrax in animals suitable for ecological-epizootological modeling and prediction.

Analysis of one hundred fifty-year veterinary and medical efforts for anthrax control in Russia and in the world described in Introduction showed obvious and impressive progress in solving this problem. Therewith, the monograph authors note some outstanding issues of the further anthrax control strategy, prediction, modeling, agent ecology associated with apparent sapronotic nature of the infection.

"Modern knowledge of anthrax" section, one of the important monograph sections, contains general information on the infection, infection agent and its two alternative forms (vegetative form – in the diseased animal organism and spore form – outside the animal organism) determining infectious and epizootic processes, respectively. First outstanding achievements in specific disease prevention as well as ecological aspects of anthrax infection, routes of human and animal infection, landscape and climate factor effects on the spore persistence in soil being a covert source of the infection, susceptibility of animals to the disease are described in the section. The authors draw attention to epizootological and epidemiological significance of the disease in food-producing grazing herbivores – large and small ruminants.

The section also contains data on various anthrax forms in humans that are associated with infection routes: cutaneous form (local form) caused by the agent contact to

the skin, as well as inhalation and enteric forms (systemic forms). The disease incidence in humans was shown to depend on the level of exposure to the infection in each country taking into account data on susceptible animal population and epizootic, epidemic and ecological co-factors.

The materials provided in the second section "Veterinary epidemiology of anthrax. Current situation" are of great interest. Considering the importance of this issue the monograph authors analyzed human cases and anthrax outbreaks in animals occurred in many countries in the world for the last 40–50 years as well as assessed current situation in the Russian Federation and in the world based on recent national publications with particular emphasis to anthrax emergence and consequences of mass anthrax morbidity in animals in the Yamalo-Nenets Autonomous Okrug in 2016. Also, information on possibilities and cases of anthrax agent use for terrorist purposes is given in the section.

Veterinary epidemiological pattern for global anthrax spread at the current stage (2007–2017) based on the authors' investigation results is provided in the third section of the monograph. The investigation was carried out as a systematic review in accordance with general evidence-based medicine requirements, epizootological analysis and evidence-based epizootology principles and methods using the most complete international animal health information databases (ProMED and WAHIS) with total coverage of reports on anthrax in humans and animals and common methods of quantitative, graphical epidemiology, biometrics and statistical data processing.

Comparative evaluation of the intensity of epizootic and epidemiological processes in anthrax-affected countries in Africa (16 countries), Asia and Middle East (14 countries), Europe (18 countries), in Australia, Canada, Argentine, Colombia, Haiti, Peru and Uruguay based on performed investigations are presented.

Multi-year and annual dynamics of anthrax outbreaks in cattle in the Republic of Chad for 2010–2015 is given.

Susceptibility of animals and incidence in humans as an indicator of unfavorable epizootic situation, as well as risk factors, seasonality and focality as major features of anthrax epizootic process were characterized for the infected countries.

There are a lot of interesting perfect illustrations of anthrax history, global infection nosoarea in 21st century, infection cycle, mortality rates in animals of different species in the world in 2007–2017, cutaneous anthrax in humans, anthrax incidence, mortality, lethality in humans and different contacts with infected materials and other data in the monograph.

In epilogue containing the final interpretation of given materials, the authors provide a clear characterization of anthrax as a typical naturally-focal non-transmissible sapronosis for which soil plays a role of reservoir and source of the infection for mammals naturally contacting with it.

References include selected publications, mainly original publications on anthrax veterinary epidemiology and nosogeography.

The authors have shown the importance of the problem that is an undoubted advantage of the monograph "Anthrax: Modern Knowledge and Global Occurrence".

The monograph is of great interest to wide range of readers, experts in infectious pathology and epizootology. It will be useful for students, postgraduates, lecturers, participants of advanced training courses organized at veterinary higher educational institutions, veterinarians and medical specialists.