В статье приведены результаты исследования лечения и профилактики рахита телят с помощью природного цеолита и их положительного влияния на морфологию крови.

Ключевые слово: рахит телят, природный цеолит, гемоглобин, эритроциты, лейкоциты, морфология, показатели крови.

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INFLUENCE OF NATURAL ZEOLITE ON MORPHOLOGICAL INDICATORS OF BLOOD AT CALVES RICKETS

In this article research results of treatment and rickets of calves prevention with the help of natural zeolite and their positive influence of blood morphology are given.

Key words: rickets of calves, natural zeolite, hemoglobin, erythrocytes, leukocytes, morphology, blood indicators.

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ECHINOCOCCOSIS: ANALYSIS OF PATENT DOCUMENTATION ON SAFETY, QUALITY AND VETERINARY-SANITARY EVALUATION OF LIVESTOCK PRODUCTS

Abstract The article is devoted to the patent search, analysis of the echinococcosis problem, research in the field of veterinary medicine and examination of slaughter animals' products at echinococcosis.

***Key words**:* Echinococcosis, Meat, Slaughter Products, Quality, Veterinary andSanitary Assessment, Cattle, Sheep and Goats.

Providing the population with food and healthy nutrition is an important and actual problem of national importance. Social stability and health of population could not be without decision of this problem.In recent years Kazakhstan was changing of the domestic market and integrated into the global economy. For decision of this important national goal the environmental and sanitary control objective requirements assigned to Kazakhstan by countries - participants of the World Trade Organizationare taken into account.

The concept of healthy nutrition and public policy to create the foundations of biological safety of our country require modification of the legislative framework and regulatory and methodological support of the state supervision over the quality of products of animal origin, and harmonization of them with international standards is relevant direction of Veterinary Sanitation of Kazakhstan [1].

It is known that diseases of farm animals, a significant share of cost which is parasite infections, negatively affect the quality and quantity of raw materials and products of animals' origin. Currently, echinococcosis has a particular danger to human health and the economy of Kazakhstan, the epidemiological strength which reached a high level here [2].

Echinococcosis is a very dangerous disease for human and causes numerous functional disorders and severe damage of various organs. This infestation is asymptomatic in cattle, small ruminants and other farm animals. In Kazakhstan average prevalence of echinococcosis in sheep

is 33.1%; in cattle, pigs and horses - 21.8%, 3.7 and 5.4% respectively [3]. It should be noted that the global distribution of the disease has more than 100 countries around the world [4-6].

Global importance of the cystic echinococcosis and its great influence on the economy and health of population recognized by the World Health Organization, the working committee which carries out systematic monitoring of the disease.Annually, there are international congresses on the results of echinococcosis research and practical prevention [7].

In Kazakhstan and other countries of Central Asia, wherein the last three decades the new economic model of agricultural production was forming and in these conditions observed a significant increase in the infection indices of the disease the large-scale study of epidemiology and prevention of human and animal cystic echinococcosis were organized [8].

Meat of animals is one of the major biologically valuable foods of the population in many countries.

The nutritional value of meat is determined by its chemical composition, biological and energy value, digestibility, taste properties, depending on species, breed, sex, age, body condition, physiological state, and feeding conditions, the transport of animals, as well as post-mortem factors.

Considering economic and social importance of the disease on the European Union directives the echinococcosis included in the list of the most significant infectious diseases, which necessarily must be taken into account when the veterinary and sanitary evaluation of the quality and determination of biosafety of animal origin products intended for sale, processing, transportation within the countries - participants, exports and imports [9].

Knowledge in the fields of patent law and patent science necessary for each future specialist in veterinary and animal sciences and technology as a modern labor market involves the active use of the latest achievements of science and technology. Modern patent documentation has many significant advantages and features, thanks to which it is paramount for specialists.

First of all these are authenticity, novelty and practical applicability contained in patent documents, scientific and technical information. Currently about 85-90% of published scientific and technical material are contained in the patent literature. At the same time, only 5 to 10% of information published in patent sources could be found in other scientific and technical publications.

Search for patent documents in the field of safety, quality, veterinary and sanitary risk assessment of products from animals with echinococcosis was carried out in the Fund of Public Examination of Inventions of following countries: the Soviet Union (SU), Russia (RU), Kazakhstan (KZ), Kyrgyzstan (KG), United States (USA), Great Britain (GB), France (FR), German (DE), European Patent Office (EP), and publication in accordance with the Patent Cooperation Treaty - PCT (WO).

Depth of search from January 1983 to March 2015, due to the fact that by 1983, most countries have adopted new patent laws that changed the forms of protection of facilities of biotechnology. In particular there was in problems of products' security of parasitic diseases.

Total 200 documents has been reviewed from which 80 published documents (certificates of authorship, applications, patents) directly related to safety, quality and veterinary and sanitary assessment of animal products at the echinococcosis were selected and analyzed.

Analysis of the distribution of patent documents in the study area by rubrics and subheadings of the International Classification of Inventions (ICI fourth edition, 1985) has shown that the patent documents relating to safety, quality and veterinary and sanitary risk assessment of products of animal echinococcosis in veterinary medicine and animal breeding, food and medicine distributed in 12 ICI rubrics and subheadings. Filling the rubrics and subheadings by documents was very irregular. With sufficient clarity documents could be divided by filling into three main groups [10].

By filling of documents there were distinguished such rubrics and subheadings ICI as methods of surgical treatment of echinococcosis in medicine (55%), the use of new methods of echinococcosis research in veterinary and medicine (45%) and research in the field of expertise of products of slaughter animals at echinococcosis (5%).

Dynamics of published patent documents' number in all analyzed countries and agencies showed that the overall rate of increase of inventive activity declined in countries of the former Soviet Union in 1989-1998.

Practically there was absent the country (whose patent collections were analyzed), which would have increasing in rates of the inventive activity.

Publicized patent documents' analysis in the field of safety, quality and veterinary and sanitary risk assessment of products of animals at echinococcosis showed that out of 200 examined documents for the maximum number of inventions was in 2014 (30%), the second highest inventive activity was in 2001 (27%), and the minimum of inventions found in 1990 and 1992 (less than 4%).

The major inventions in the study area registered by famous Russian scientists- inventors: Bessonov A.S., Kovalenko F.P., Novik T.S., Ryabova V.A., Skvortsova F.K., Gugushvili N.N.

Results of the analysis of patent documents for the development of new and innovative methods of prevention and treatment of echinococcosis in Kazakhstan revealed the veterinary research schools under the leadership of Ramazanov V.T., Kereev Y.M., Shalmenov M.Sh., Shabdarbayeva G.S..

Analysis of Kazakhstan statistical data in 1984-2000 showed that over the 16 years the incidence of cystic hydatidosis of republic's population had grown by 2.3 times. Children often become involved into the epidemiological process, whose share among patients with echinococcosis was 28.7%.

Official statistics of the Committee of Veterinary Inspection and Control of the Ministry of Agriculture for 2010-2012 on the veterinary and sanitary examination of products were shown that at the enterprises for slaughtering, storage, processing and realizing of products and raw materials of animal origin there was a tendency to increase the annual identification of echinococcosis in cattle, sheep and pigs.

At the same time, the proportion of farm animals' echinococcosis varied within 12,6±5,64-52,0±8,08% of all detected in reports diseases. Nationally dozens of tons of food and slaughter raw materials for industrial use, a significant proportion of which make up the internal organs, were exposed to veterinary and sanitary disposal and recycling. In particular, annually byproducts in the amount of 40,8±4,57t from slaughtered cattle, 11,3±0,95t - sheep and 3,4±0,74t - pigs were exposed to the veterinary and sanitary handling.

However, during this period research of quality and veterinary-sanitary assessment of slaughter products obtained from animals with cysts almost not carried out.

Taking into account that livestock industry is a traditional agricultural branch and meat products make up a significant proportion of the diet of the population, research and development of science-based criteria for assessing the quality and safety of slaughter products at the cystic echinococcosis in Kazakhstan remains an urgent problem.

Thus, analysis of the dynamics of patenting and distribution of patent documents relating to safety, quality and veterinary and sanitary risk assessment of products of animal echinococcosis suggest to following conclusions:

1. The number of patents on echinococcosis in human and veterinary medicine, namely for the diagnosis, treatment, prevention had a clear tendency to increase, which was particularly characteristic for the US, European countries, Russia and Kazakhstan.

2. High inventive activity and patenting at the field of safety, quality, veterinary and sanitary assessment of livestock products at echinococcosis shown applicants from Russia.

3. Kazakhstan stands out from the CIS countries in 1999-2013 by the number of patent documents in the field of veterinary research of echinococcosis.

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АНАЛИЗ ПАТЕНТНОЙ ДОКУМЕНТАЦИИ ПО БЕЗОПАСНОСТИ, КАЧЕСТВУ И ВЕТЕРИНАРНО-САНИТАРНОЙ ОЦЕНКЕ ПРОДУКТОВ ЖИВОТНОВОДСТВА ПРИ ЭХИНОКОККОЗЕ

Статья посвящена патентному поиску, анализу проблемы эхинококкоза, исследованиям в области ветеринарии, медицине, и экспертизы продуктов убоя животных при эхинококкозе.

Ключевые слова: Эхинококкоз, мясо, продукты убоя, качество, ветеринарно-санитарная оценка, крупный рогатый скот, мелкий рогатый скот.

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ЭХИНОКОККОЗ КЕЗІНДЕГІ МАЛ ШАРУАШЫЛЫҒЫ ӨНІМДЕРІНІҢ ҚАУІПСІЗДІГІ, САПАСЫ ЖӘНЕ ВЕТЕРИНАРИЯЛЫҚ-САНИТАРИЯЛЫҚ БАҒАЛАУ ТУРАЛЫ ПАТЕНТТІК ҚҰЖАТТАРДЫ ТАЛДАУ

Мақала эхинококкоз бойынша патенттік ізденіске, мәселені талдауға, ауру жағдайындағы ветеринария, медицина және сойыс өнімдерін сараптау салаларындағы зерттеулерге арналған.

Кілт сөздер: эхинококкоз, ет, сойыс өнімдері, сапа, ветеринариялық-санитариялық бағалау, мүйізді ірі қара, мүйізді ұсақ мал.

УДК 57.086.13

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СРАВНИТЕЛЬНОЕ ИЗУЧЕНИЕ ЖИЗНЕСПОСОБНОСТИ ОВАРИАЛЬНЫХ ФОЛЛИКУЛОВ ОВЕЦ ПОСЛЕ ВИТРИФИКАЦИИ С ДИМЕТИЛСУЛЬФОКСИДОМ И ПРОПАНДИОЛОМ

Аннотация Криоконсервация овариальной ткани является альтернативным методом сохранения генетического материала животных. В данном исследовании мы сравнили жизнеспособность овариальных фолликулов витрифицированной ткани яичника овец с 4,5М диметильсулфоксидом (DMSO) и 5М пропандиолом (PROH). После гистологического анализа процент морфологически нормальных фолликулов криосохраненной ткани составил: с 1,5 М DMSO − примордиальных - 39,8%; первичных - 30,4 % и вторичных - 19,6 %; 1,5М PROH - 48,8%; 37,1% и 24,9%, а в контрольной группе - 95,8%; 92,9 % и 89,6%, соответственно. Таким образом, установлено, что использование 5М PROH оказывает более эффективное действие на жизнеспособность овариальных фолликулов при витрификации, чем использование 4,5М DMSO.

Ключевые слова: витрификация, диметилсульфоксид, овариальная ткань, пропандиол, фолликул.

Введение Генетические ресурсы животных представляют ценный и стратегически важный капитал любой страны, так как они связаны с решением проблемы обеспечения населения страны продовольствием, промышленности – сырьем. Для решения данной проблемы в развитых странах мира проводятся интенсивные научные исследования по сохранению и рациональному использованию как культурных, созданных на основе искусственного отбора и подбора пород домашних животных, так и аборигенных пород и популяций животных, сформировавшихся в течение многих столетий на базе естественного отбора и народной селекции.

Сохранить генетический материал и репродуктивный потенциал можно не только за счет выделения и сохранения отдельных яйцеклеток и получаемых из них эмбрионов, но и путем криоконсервации самой функциональной (кортикальной) ткани яичника, технология которой так же включает методы медленного замораживания [1,2,3] и витрификации [4,5,6,7]. Медленное замораживание остается наиболее широко используемым методом в клинике. Более низкие концентрации криопротектантов используются в составе крипротекторов для медленного замораживания, что снижает риск токсического и осмотического повреждения клеток, но следует учитывать, что это не предотвращает образование кристаллов льда, которое приводит к уменьшению выживаемости клеток во время замораживания [8]. Витрификация считается относительно новым методом замораживания, о нем были опубликованы статьи как об эффективном альтернативном методе для криосохранения тканей яичников различных видов, в том числе мыши [9,10], крысы [11], свиньи [12], козы [13], овец [14, 15], обезьяны [16] и человека [17, 18]. Данный метод сочетает в себе быструю скорость замораживания и большую концентрацию криопротектантов в составе витрификационных растворов, которые быстро обезвоживают клетки при этом, предотвращая образование кристаллов льда [8].

С точки зрения криобиологии задача ученых состоит в повышении выживаемости овариальной ткани после криоконсервации. В связи с этим, целью нашего исследования является изучение влияния различных криопротекторов: 4,5М диметильсулфоксида (ДМСО) и 5 М пропандиола (PROH) на выживаемость тканей яичников при витрификации.

Материалы и методы Реагенты. Все реагенты, использованные в данном исследовании были куплены от Sigma-Aldrich (Германия).