

OPINION

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by Prof. Rayko Dimitrov Peshev, Ph.D., head of Department "Epizootology and Infectious Animal Diseases" in NDNIVMI, Sofia, according to the announced competition for "Professor", in the field of higher education, Agricultural Sciences and Veterinary Medicine, professional direction 6.4. Veterinary medicine, scientific specialty "Epizootology, infectious diseases and prevention of infectious diseases in animals", under the discipline "Pathology (Pathological Physiology) announced in the Official Gazette, no. 18 of 1.3.2024 procedure code VM-P-0224-122, for the needs of the Faculty of Veterinary Medicine (VMF) of the Forestry University (LTU).

In connection with the competition announced by the Faculty of Veterinary Medicine (VMF) of the Forestry University (LTU) professional direction 6.4. Veterinary medicine, scientific specialty "Epizootology, infectious diseases and prevention of infectious diseases in animals", in the discipline for occupying the academic position "Professor", the documents were submitted by a single candidate Docent Dr. Krasimira Ivanova Genova. For participation in the competition, the following documents are submitted: Resume according to the European model; notarized copies of a diploma for completed higher education with an attachment; notarized copies of "Candidate of Science" diploma; notarized copy for Docent, document for academic position held; medical certificate; criminal record certificate; certificate of internship in the specialty; certificate of compliance with the minimum national requirements for "Professor", certificate-self-assessment for the fulfillment of the minimum national requirements for the academic position "Professor" - Appendix 1.4; reference-self-assessment for the fulfillment of the minimum national requirements for the academic position "Professor" - Appendix 2; list of scientific works with evidentiary material, classification of publications; reference for the contributions in the works, summaries of the works in Bulgarian; list of citations; a list of participations in scientific forums, with evidentiary material; reference to scientific, teaching and expert activities, reference to inventions, rationalizations; certificate of educational employment, participation in scientific research projects, sample information card in Bulgarian - Appendix 12; declaration under Art. 313 of the Criminal Code for the reliability of the information provided, announcement in the state gazette. The documents and materials submitted by the candidate are in full compliance with the rules for Development of Academic Staff at LTU.

Brief biographical data:

Docent Krasimira Ivanova Genova was born on September 13, 1964. From 1982 to 1987, she studied veterinary medicine at the Moscow Veterinary Academy and obtained a doctorate, veterinary doctor. In 1994, she was awarded the scientific degree of doctor in cipher 04.03.12 "Epizootology, infectious diseases and prevention of infectious diseases in animals". From 1987 to 1999, he was a research assistant III - I degree, leading a laboratory at the NIPVMII, Sofia. From 1999 to 2000, he was a research assistant, first degree, biotechnologist in the "Virus biopreparations" department at the "Bioproduct" Veterinary Medical Institute, Sofia. From 2000 to 2001, she was head of department in the same company. From 2001 to 2008 she was chief assistant at LTU, Sofia. In 2008, she became a docent in the Veterinary medical faculty of LTU. From 2008 to 2011, she was deputy dean of scientific part in the VMF at LTU. From 2011 to 2018, she was a docent in the VMF. From

2018 to 2020, she is again deputy dean of studies in the VMF. From 2020 to the present, she is the dean of the Veterinary Medical Faculty of LTU.

Assessment of the candidate's academic and teaching activities

Docent Genova teaches at the Veterinary Medical Faculty in the following disciplines: Pathology (Pathological Physiology) – 60 hours of lectures and 60 hours of exercises in the 4th and 5th semesters of the academic year, Immunology – 30 hours of lectures and 15 hours of exercises in the 5th semester, Molecular Biology – 30 hours of lectures and 15 hours of exercises in the 3rd semester and Work with laboratory animals, organization of the experiment and humane treatment of animals - optional discipline with 15 hours of horary. From 2017-2018 to 2020-2021, he teaches part of the Biochemistry lecture course in Bulgarian and English. From the report on the academic workload of associate professor Genova for the last five years, it can be seen that the classroom and occupation in Bulgarian language is a total of 1548 hours, and outside the classroom and occupation is 346.7 hours. The classroom and employment in English language is 200, and outside the classroom and employment is 221.1 hours. Docent Genova was a reviewer of the Animal Physiology, Pathology (General Pathomorphology) and Pathology (Special Pathological Anatomy) curricula. This report shows how many diverse disciplines Docent Genova has led over the years, how high the workload is and how successfully she has taught them.

Scientific, scientific applied and publication activity

From the presented list of scientific articles, it can be seen that there are 6 publications in scientific publications, referenced and indexed in world-famous databases with scientific information (Scopus, Web of Science). Scientific publications in scientific journals, referenced and indexed in world-renowned databases of scientific information (Scopus, Web of Science) without impact factor or impact rank are 28. Scientific publications in non-refereed peer-reviewed journals or published in edited collective volumes in English language are 17 pieces. There are 12 scientific publications in non-refereed peer-reviewed journals or published in edited collective volumes in Bulgarian. Or the candidate's scientific publications are 63 in total. In the section teaching aids, monographs and books, 2 items are presented. There are 13 articles in foreign journals, 22 in national journals, and 28 presented at international and national scientific forums. There are 25 scientific articles in Bulgarian, and 38 in foreign languages.

Thematically, the contributions can be divided into the following areas:

I. Infectious pathology in ruminants reflected in articles No. 64, 26, 28 as the epidemiology, clinic and prevention of Bovine Respiratory Disease Complex (BRDC) were studied, risk factors and some main etiological pathogens in Bovine Respiratory Disease Complex (BRDC), an interferon-inducing activity of a Bulgarian vaccine strain of bovine respiratory syncytial virus (RSV) and the absence of the characteristic human RSV allergic reaction upon re-injection of animals has been demonstrated, a stronger T-cell immune response has been demonstrated in lambs administered tracheally with vaccine strain of BRSV compared with subcutaneous vaccination.

II. Infectious pathology in pigs reflected in articles No. 2, 19, 17, 4, 6, 43, 42. When carrying out vaccination against enzootic pneumonia in pigs, improvement of the health status of animals, reduction of damage in the lungs of pigs and achievement of better production

results. The dynamics of antibodies after vaccination against enzootic pneumonia in pigs during the different technological periods were established. The extent and severity of pathomorphological lesions in the lungs of pigs naturally infected with *Mycoplasma hyopneumoniae* were analyzed. Bacterial pathogens have been identified and their importance in swine respiratory disease complex has been determined. A comparative study was conducted and the therapeutic potential of enrofloxacin and florfenicol in pigs infected with *Mycoplasma hyopneumoniae* in industrial pig farms in Bulgaria was established.

III. Infectious pathology in rabbits reflected in articles No. 18, 5, 20, 21, 8, an analysis of the spread of myxomatosis in rabbits in our country was carried out and the need for vaccination was justified, the dynamics of the serological response after a different method of administration of a live attenuated vaccine against myxomatosis was followed and a proposed method of application depending on the breed, the dynamics of impact and the harmlessness of an attenuated vaccine strain of myxoma virus on the concentration, the motility and velocity of rabbit spermatozoa has been proven, studies of the macroscopic and pathohistological changes on the skin and in the internal organs after experimentally induced infection with a field isolate of the rabbit myxomatosis virus were carried out.

IV. Application of methods for rapid diagnosis of viral diseases in reports No. 52 and 36, as a latex-agglutination test for the detection of the hemorrhagic disease virus in rabbits and a coagglutination test for the detection of parvovirus in dogs were developed.

V. Substitutes for nutritional antibiotics in animal husbandry in communications No. 44, 45, 46, 47, 48, 3, 12, 55. The effect of herbaceous plants on productive indicators and quality of meat in fresh and frozen state and during cooking was studied and was found that the best for the purpose are chamomile and thyme flour. The potential of using thyme, mint and their combination as natural growth promoters in broiler chickens has been proven. It has been shown that 1% chamomile and 1% rosemary to feed can be considered as potential growth promoters in birds. The modulating role of probiotics on the immune system of birds has been established. The positive effects of *Tribulus terrestris* extract on the weight and health status of Simmental calves in the milking period have been proven.

VI. Organic and inorganic zinc, iron and lead compounds are reflected in communications No. 11, 15, 9, 14, 62, 41, 27. The effect of a Bulgarian experimental zinc methionate (ZnMeth) in comparison with zinc sulfate (ZnSO₄) on some hematological indicators was studied and factors of natural immunity in rats and pigs and it was found that the Bulgarian experimental zinc methionate (ZnMeth) has an immunoregulatory effect in rats and pigs, which is expressed by a suppressive effect on the migratory activity of blood and spleen cells in vitro and a stimulating effect on blast transformation to different mitogens. A comparative analysis of the influence of the Bulgarian experimental zinc methionate (ZnMeth) and zinc sulfate (ZnSO₄) on the functional activity of pseudoeosinophils and monocytes in the blood of broiler chickens was performed. It has been shown that low dosages of organic zinc affect the reactivity of phagocytes to a higher degree, and 600ppm in the feed suppresses macrophage phagocytosis and suppresses the generation of an oxidative burst. The effects of different doses of organic and inorganic iron on the functional activity of polymorphonuclear leukocytes were studied and a decreased bactericidal activity of macrophages was demonstrated. The influence of total lead content on the mechanisms of non-specific immunity in birds was studied.

VII. The role of mycotoxins in immune reactivity is reflected in reports No. 7, 56, 57, 32. Fumonisin-induced immunotoxicity on lymphocyte blastogenesis, cytotoxic activity of peripheral blood lymphocytes, and cytotoxic activity of chicken splenic lymphocytes, broiler chicken lymphocytes were studied. fed with feed containing fumonisin B1. Pronounced dose-dependent suppression was demonstrated. The effect of fumonisin B1 on the humoral immune response in broiler chickens that received different concentrations of the toxin was studied and it was found that the concentration of total protein and albumin decreased and the primary antibody response was suppressed. The cytotoxic activity of fumonisin B1 against mononuclear cells of different origin was studied. This indicator depends on the dose and time. The highest stability was demonstrated in bovine lymphocytes and in blood type "0". The results support the hypothesis that mycotoxins are a serious health problem for humans and animals and a factor in immunosuppression.

VIII. Influence of sex, breed, season and age on the immune status of birds and animals reflected in reports No. 1, 25, 34. Studies were carried out with rams of the Karakachanska and Mednochervna Shumenska breeds to determine the non-specific immune parameters, the phagocytic activity of leukocytes, the bactericidal activity (oxygen-dependent and oxygen-independent) of phagocytic systems and the total level of plasma proteins. The results show that the rams of the two local Bulgarian breeds have a high activity of the innate immune reactions. Significant differences were found in the proliferative activity of lymphocytes of rams of the Karakachanska and Mednochervna Shumenska breeds. The obtained immune parameters for the two local breeds of sheep can serve as a basis for further studies of the systemic immune response of lambs depending on the breed. The immunocytadherence technique in the study of lymphocytes from the peripheral blood of pheasants shows that there is no difference in the absolute number of T- (E-ROK) according to gender, as well as according to lymphocyte subpopulations. Significantly higher B-lymphocyte values were demonstrated in male compared to female pheasants. It was found that the number of B-lymphocytes (EAC-rosettes) and helper cells increases with age and depends on the season.

IX. Atopy in dogs reflected in reports No. 30 and 31. A comparative analysis of different methods of treatment of atopic otitis in dogs was carried out, it was based on reactive therapy followed by proactive therapy. Allergen-specific immunotherapy (ASIT) has been shown to be a modern method that can influence the course of atopic dermatitis, not just suppress the symptoms. ASIT does not induce deleterious hematological and biochemical effects in dogs in contrast to long-term systemic glucocorticoids.

X. Cell-transmitted tumor of chickens - hepatoma induced by strain MC-29 of the myelocytomatosis reflected in communications No. 16 and 53. Transplantation resistance against cell-transmitted hepatoma of chickens MC-29 was investigated after: spontaneous regression of the tumor; immunization with a subtumorigenic dose of tumor cells; immunization with hepatoma cell extract; immunization with MC virus. MC-29 hepatoma cells contain specific transplantation antigen. In histological studies of the cell populations infiltrating the transplantable hepatoma MC-29 of chickens during progression and regression, the most characteristic changes were found in the thymus and spleen in the progressively developing tumors, and in regression - the thymus and spleen had a well-defined structure rich in lymphocytes.

XI. Carcinogenic influence of various toxic substances is reflected in reports No. 40 and 22. Hypoproteinemia, hypoalbuminemia and hypoglycemia were found in turkeys hatched from embryonic eggs inoculated with the proven hepatocarcinogen N-nitrosodiethylamine. Preneoplastic liver lesions induced by N-nitrosodiethylamine were studied in guinea pigs. Thrombocytopenia and increased levels of major liver enzymes, findings associated with hepatocarcinogenesis, have been demonstrated.

XII. Genetic markers reflected in reports No. 61, 50, 51 and 38. A detailed analysis of the genetic structure of sheep breeds was carried out in connection with their genetic improvement with a view to the diagnosis of many diseases. The frequency of MSTN gene alleles in the Askan Merino and Caucasian Merino breeds was determined. Exon 3 of the MSTN ovine gene has been shown to be monomorphic for the two studied herds of the Merino breeds - Askan and Caucasian sheep. Research and identification of the polymorphism in the ABCG2 gene, which is related to milk production in three breeds bred in Bulgaria - Askani Merino, Caucasian Merino and Carnobat Merino, was carried out. Genomic DNA was extracted and genotypes were assessed by PCR amplification using a specific set of two primers. A systematic review of the gene responsible for the synthesis of the protein myostatin, which regulates muscle growth, was made.

XIII. Problems in dentistry reflected in messages No. 37, 54, 58, 59 and 60. An in vitro study of the most suitable parameters for hard tissue preparation with the QSP mode of dental lasers was performed. The method has been compared to classical tools such as the high-speed drill and the proven gold standard for Er:YAG laser enamel preparation and the MSP mode. The sensitivity of cariogenic microorganisms to three-, two- and one-step adhesive systems was investigated, using the total etch and self-etch approaches. The sensitivity of the investigated microorganisms (*Str. mutans* and *Lactobacillus acidophilus*) is strongest to total etch and self etch systems of the primers (highest value for Optibond TM FL Prime). In general, the susceptibility of *Lactobacillus acidophilus* to the tested adhesive systems was weaker than that of *Str. mutans*. A comparative in vitro study of the cytotoxicity of different 7 adhesive systems, representatives of the 4th, 5th, 6th and 7th generations, respectively, was performed. A cytotoxic effect has been proven, with the 24-hour extracts having a weaker cytotoxicity than the direct application. The degree of apical penetration in root canals obturated with adhesive root canal filling agents was established. The results were compared with gutta-percha and AN26 sealer. The reaction of the pulp to different materials, as well as the quality of the reparative dental hard tissue, which is the result of the stimulated dentinogenesis, were also monitored.

Participation in scientific applied and educational projects

Docent Genova was the leader of 5 scientific projects and a co-executor in 20 projects. She worked on 4 educational projects and one infrastructure project. The projects were financed through NIS of LTU - 13 units, from Fond Scientific Investigation to Ministry of Education and Science - 1 unit and 4 financed by EU programs.

Inventions, rationalizations and other scientific and applied results

Docent Genova owns two patents, three rationalizations and six implementations in practice. The products that have been developed and implemented in practice have a great economic effect in animal husbandry, these are vaccines, serums and other preparations.

Participation in other professional and creative activities appearances

The candidate has participated in 4 national scientific forums and 20 international scientific forums. At national and international scientific forums, the candidate has delivered scientific messages related to her scientific activities. She was also in the organizing committee of many of the forums.

Reflection of the candidate's scientific activity in the literature - citability

Scientific articles of Docent Genova have been cited 17 times in refereed scientific journals and twice in non-refereed ones. This shows that scientific reports are valuable and are cited by foreign and our authors.

Assessment of the candidate's personal contribution

The personal contribution of the candidate from the presented scientific reports is very tangible. I believe that most of the research messages where she is in the first place and the monograph are the personal work of the candidate. In the scientific reports, where she is in the second and next place, her presence is also evident.

Critical notes and recommendations

Surely there is always something to recommend and criticize. But I do not see what critical remarks and recommendations I can give to this enormous work and so much material that has been given to me for writing an opinion. Retrospectively, when I look back, I can see that a lot of thought and work was done in the scientific and research part. This is work has been performed for more than 15 years. I also do not underestimate the administrative qualities of Docent Genova, who has proven them over the years and continues to prove them.

Personal impressions

My personal impressions of the candidate are excellent, I have known her for more than 30 years, from the time when she worked at NIPMVII as a young researcher and then when she started teaching at the VMF of LTU. We have worked together on scientific projects, where she proved to be a very good scientist and experimenter. I know her as a very thorough teacher, very strict in the performance of her duties, completely devoted to the veterinary medical profession. I have heard from her students that they attend the lectures and exercises with great pleasure, and she conveys veterinary news to them in a very accessible language. As dean and teacher, she is loved by her colleagues and students, regardless of the high demands she makes on them.

Fulfillment of minimum national requirements

From the reference for the minimum national requirements under indicator - 1 A for a defended dissertation, the candidate has 50 points, under point B indicator 2 – no points, under point C indicators 3 and 4 she has a total of 100 points. According to indicator D - a sum of indicators from 5 to 10, according to the requirements of the Law, there should be 200 points, and she exceeds this indicator and collects 417.31 points as follows: D 7-articles and reports published in refereed and indexed in world-famous databases - 34 scientific announcements and articles and reports published in non-refereed journals with scientific review - 31 nos. In a group of indicators D 13, 41 citations are presented, which carry 580 points, and for this indicator it exceeds the requirements, which are 100 points. She was the

supervisor of two successfully defended doctoral students, which earned her 80 points. Participation in national scientific research projects 15 items – 135 points, management of national or educational projects - 90 points or all points under indicator group E – 305 points. When adding up all the points for indicators A + B + G + D, it can be seen that she collects a total of 1452.89 points out of the 550 points required for a professor, and in this way she fulfills almost three times the minimum national requirements for a professor.

Conclusion

The research and applied achievements presented to me by Docent Dr. Krasimira Ivanova Genova and the obtained results in the field of pathological physiology, virology and epizootology give me full right to conclude that they meet the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, the Regulations for its Application at LTU. The participation in the education of students is also evident, which can be seen from the huge load in conducting both classroom and non-classroom classes. The scientific indicators are fulfilled and exceed the requirements for acquiring the academic position "professor". Regardless of the administrative and workload before as deputy. Dean and now as Dean, the candidate has continued to work on research projects. Associate Professor Krasimira Genova has been working in the field of pathophysiology and epizootology for more than 15 years, during which time she has achieved very good research and applied results that have been presented to the scientific community. They are valued and this is evident from the high number of citations of the scientific reports. I will vote positively and allow myself to recommend to the members of the Scientific Jury and the members of the Scientific Council of the VMF of LTU, Sofia to vote positively to award the academic position "Professor" to Docent Dr. Krasimira Ivanova Genova in the field of higher education Agricultural sciences and Veterinary medicine, professional direction 6.4. Veterinary medicine, scientific specialty Epizootology, infectious diseases and prevention of infectious diseases in animals", in the discipline "Pathology (Pathological Physiology) of animals.

22.5.2024

Sofia

Wrote the opinion:

(Prof. Rayko Peshev, Doctor of Science)