

**OPINION**

DBM

517 # 18  
9.07.20

from

**Prof. Dr. Yanislav Iliev Iliev, Ph.D.**

**University of Forestry – Sofia, Faculty of Veterinary Medicine**

**Regarding:** Competition for the scientific degree "Professor" in the field of higher education 6. Agricultural sciences and veterinary medicine, professional field 6.4. Veterinary medicine, scientific specialty: Animal Pathology, in the discipline "Pathology (Special Pathological Anatomy)", announced by the University of Forestry in the State Gazette no. 32 / 03.04.2020 and procedure code: VM-P-0320-35.

**Candidate for participation in the competition:** Assoc. Prof. Vasil Kostadinov Manov, Ph.D.

**1. Brief biographical data about the candidate:** Assoc. Prof. V. Manov graduated from the Technical School of Veterinary Medicine in Lovech in 1981. He completed his university education at the Faculty of Veterinary Medicine of the Trakia University in Stara Zagora in 1989. Assoc. Prof. V. Manov began teaching and research work at the Faculty of Veterinary Medicine of the Trakia University in 1989, passing successively through the following levels of development as a university lecturer: Assistant Professor (1989), Senior Assistant Professor (1993), Chief Assistant Professor (1996) and Associate Professor (2010). In 2009 he successfully defended a dissertation for educational and scientific degree PhD on "Comparative pathomorphological studies in animals infected with Bulgarian isolates of Aujeszky's disease virus", in the scientific specialty "Animal Pathology (General pathomorphology and Special pathological anatomy).

**2. Compliance of applicant's materials and documents to the requirements listed in the Statute for Development of the Academic Staff of the University of Forestry**

The documents and materials of the candidate in the competition Assoc. Prof. Dr. Vasil Manov are in full compliance with the National requirements for holding the scientific degree "Professor" for PF 6.4. "Veterinary Medicine" and those of the Regulations for the Statute for Development of the Academic Staff in LTU. They are precisely completed and this facilitates the evaluation of the applicant. A habilitation reference for the scientific contributions is included, contained in fifteen publications in referenced and indexed editions with a total **IF of 23.66**. Attached are copies and summaries of a total of 22 scientific and scientific and applied articles, published in non-peer-

reviewed journals with scientific review or published in edited collective volumes, as well as two monographs and seven university textbooks and teaching aids.

The minimum number of required points by groups of indicators (A, B, C, D and E) for the scientific degree professor under PF 6.4. "Veterinary Medicine" is 550, and the total number of points from all indicators of Assoc. Prof. Vasil Manov is 1570.43, which exceeds about three times the required points for this scientific degree. The information card is filled in correctly in Bulgarian and English.

### **3. Assessment of the teaching activity of the applicant.**

The presented reference for the teaching activity of Assoc. Prof. Vasil Manov shows that as a university lecturer for thirty years, of which ten years as an Associate Professor, he carries out active and diverse teaching activities. This has contributed to his development as an erudite teacher who knows how to master the audience using modern means to illustrate their knowledge. Assoc. Prof. V. Manov is provided with the necessary classroom employment for a habilitated lecturer in the disciplines taught by him. He is a leading teacher (holder) of lectures and practical trainings and author of the curricula in Bulgarian and English in the following disciplines, taught in the department of the curriculum of the specialty "Veterinary Medicine", scientific specialty: Animal Pathology:

1. Lectures and practical trainings in the compulsory discipline "Pathology (General Pathomorphology)".
2. Lectures and practical trainings in the compulsory discipline "Pathology (Special Pathological Anatomy)".

Assoc. Prof. V. Manov has participated in the creation and equipment of training laboratories and centers at FVM of UF-Sofia, namely: training laboratory in pathohistology and laboratory for preparation of macroscopic preparations. He is the author of two textbooks in Veterinary Pathology for students of veterinary medicine, as well as co-author of five manuals for practical training for teaching veterinary medicine students and a reviewer of five manuals for exercises in Animal Anatomy and three research projects developed in the Trakia and the University of Forestry. Under his scientific guidance a dissertation with current topics in the field of protective action of biologically active substances from medicinal plants was developed and successfully defended.

### **4. Evaluation of the research, researched & applied and publishing activity of the candidate.**

In the current competition for professor, Assoc. Prof. V. Manov presents a significant volume of scientific production. He participated with 46 scientific works after the competition for "Associate Professor" in 2010, that are distributed as follows: textbooks – 2; teaching aids (manuals) – 5; monographs – 2; scientific publications in specialized journals and collections of national and international forums – 37, of which 12 scientific publications in specialized journals with impact factor (IF); 3 publications in non-IF journals referenced by Scopus and Web of Science; 17 scientific publications in specialized non-refereed journals and 5 publications printed in full text in collections of national and international forums. Most of the scientific papers are in English – 29 (28 publications and 1 manual), of which individual – 7 (2 monographs, 3 publications and 2 textbooks). The total number of participations in scientific forums after holding the academic position of "Associate Professor" is 24.

#### **4.1. Participation in research, research & development and educational projects.**

Assoc. Prof. V. Manov has participated as an associate professor in the development of two national research projects of the National Research Fund at the Ministry of Education and Science. His active scientific cooperation in these projects is a proof of his ability to work in a team and to be a coordinator and organizer of joint scientific and scientific & applied research. Proof of this are the scientific nominations awarded to him for high results in research in 2018 and 2019.

#### **4.2. Characteristics of the published scientific results.**

The publications of Assoc. Prof. V. Manov contain results of studies illustrating various aspects of pathological processes and tumor morphology, their growth and morphological & functional characteristics, as well as the accompanying morphological & functional changes in some organs and organ systems in animals. Data from pathological and pharmacological studies of plant samples with hepatoprotective potential are also presented.

The scientific results have been published mainly in leading European scientific journals, whose total **impact factor amounts to 23.66** – evidence of a high level of scientific research. The wide range of scientific results achieved in the publication of Assoc. Prof. V. Manov, undoubtedly enriches the knowledge of clinical, pathological and differential diagnostic assessment of some significant and problematic for veterinary practice infectious diseases and neoplasms.

#### **4.3. Reflection of the candidate's scientific activity in the literature (citation).**

The total number of citations in the scientific work of Assoc. Prof. V. Manov is 86, of which 54 in prestigious scientific journals, referenced by Scopus and Web of Science. This significant set of citations proves the high scientific level and relevance of his research. The most cited are the following publications: "Hepatoprotective and antioxidant effects of saponarin, isolated from *Gypsophila trichotoma* Wend. on paracetamol-induced liver damage in rats" – 19 times;

"Molecular Survey on Parvoviruses Infecting Carnivores in Bulgaria" – 18 times; "Protective effects of the apigenin-O/C-diglucoside saponarin from *Gypsophila trichotoma* on carbone tetrachloride-induced hepatotoxicity *in vitro* / *in vivo* in rats – 8 times; "Electrochemotherapy – a novel method of treatment of malignant tumors in the dog" – 7 times.

#### **4.4. Contributions in the works of the candidate (scientific, scientific & applied, applied).**

All scientific publications, monographs and teaching aids presented by the candidate are in the scientific specialty of this competition. His scientific research is related to studies of histopathological, immunohistochemical, morphological, diagnostic imaging, hematological and biochemical parameters and studies in various models of intoxication *in vitro* and *in vivo* induced organ damage, as well as clinical, pathological and differential diagnostic assessment of some infectious diseases and neoplasms in the veterinary practice. The most important contributions to scientific publications are the following:

- A molecular biological study was performed to prove parvovirus infection in samples obtained from carnivores in Bulgaria. The field strains proven in clinical cases are distinguished from the vaccine strains used for prophylaxis in practice. For the first time, canine parvovirus was detected in samples from wild animals and domestic cats.
- The etiological role of porcine circovirus 2 (PCV2) in the induction of new circovirus-associated diseases for the country has been demonstrated: post-weaning multisystem wasting syndrome (PMWS); porcine dermatitis and nephropathy syndrome (PDNS).
- The clinical manifestations and pathomorphological changes caused by a vaccine strain and two field uterotrophic strains of Suid herpes virus 1 in young dogs and cats were studied.
- *In ovo* tests were performed to demonstrate the toxic and carcinogenic potential of N-nitrosodimethylamine (NDMA) and N-nitrosodiethylamine (NDEA) on turkey embryos and Japanese quail, and the result showed that NDEA induces neoplastic lesions in the liver, pancreas and kidneys during the early embryonic development of the turkeys, chickens and guinea fowl.
- For the first time, a series of *in vitro/in vivo* studies were performed for the protective effect of purified extracts, saponin mixtures and biologically active substances obtained from *Gypsophila trichotoma* Wend., three species of the genus *Astragalus* L. and *Ruscus aculeatus* L. A pathological anatomical evaluation was performed of the nature and degree of involvement of various organs, which confirms pronounced protective effects – no hemodynamic lesions and degenerative & necrotic changes in ganglion and glial cells were found.
- Hepatoprotective and antioxidant effects have been demonstrated *in vitro/in vivo* for butanol extract of *A. monspessulanus* subsp. *monspessulanus* in CCl<sub>4</sub>-induced liver damage, commensurate with silymarin activity.

- The protective effects of alcesefolside isolated from the aerial part of *Astragalus monspessulanus subsp* were demonstrated *in vitro/in vivo*. The neuroprotective, hepatoprotective and antioxidant activity comparable to silibin/silymarin has been demonstrated in non-enzymatic lipid peroxidation with Fe<sup>2+</sup>/AA and in a CCl<sub>4</sub>-induced brain and liver toxicity model.
- Hepatoprotective activity has been demonstrated under conditions of t-BuOOH-induced oxidative stress, as well as neuroprotective activity in a model of damage with 6-OHDA, comparable to that of silibin for flavoalkaloids and flavonoids. The hepatotoxicity of the compounds was also assessed by QSAR analysis.
- It has been proven, that in an *in vivo* model of experimentally induced type-2 diabetes on spontaneously hypertensive rats with purified saponin mixture (PSM) from *Astragalus glycyphylloides*, the glycemic, liver and antioxidant status of animals was improved. *In silico* methods showed that PSM can be a source of potential lead structures for PPAR $\gamma$ -mediated prevention and treatment of metabolic syndrome.
- *In vitro* hepatoprotective and neuroprotective effects of a purified saponin mixture obtained from *Astragalus glycyphylloides* were found alone for toxicity and in models of t-BuOOH intoxication. The antioxidant potential of defatted *Astragalus spruneri* extract in spontaneously hypertensive rats (SHR) was evaluated. Compared to normotensive animals, the extract affects the activity of antioxidant enzymes in the liver, kidneys and spleen.
- It has been proven, that a purified extract from *Ruscus aculeatus* (ERA) containing 20% steroidal saponins has effects on the bone structure of rats with estrogen deficiency induced by bilateral ovariectomy. ERA may be a potential candidate for the prevention of osteoporotic complications after menopause.
- When assessing the pathological characteristics of poisoning with toxic substances and others, it has been proven that working in a formaldehyde environment during the training of students in veterinary medicine and in the practice can be an important risk factor for the occurrence of contact sensitization
- Butoline intoxication has been proven in 6-month-old snakes of the Caspian whipsnake (*Coluber caspius*) species, which died with neurological symptoms and allotriophagia consisting of the ingestion of peat bedding.
- A differential diagnostic scheme of clinical signs and macroscopic changes in infectious abortions and stillbirths in pigs has been developed, facilitating and directing the actions of the veterinarian. The scheme includes both viral diseases such as classical plague, Aujeszky's disease, reproductive and respiratory syndrome and parvovirus in pigs, as well as bacterial diseases: brucellosis, leptospirosis, listeriosis and chlamydia.

- It has been proven, that the use of different models of intoxication and hepatocarcinogenicity of chemical compounds *in vitro* and *in vivo* in combination with histopathological studies of damaged organs makes it possible to reveal the possible mechanisms of protective and antioxidant action of new biologically active substances.

- Pharmacological and pathological studies have been performed with biologically active plant substances, proving well-defined protective activity, which is a premise for the development of phytoproducts in the future and their application in human and veterinary practice.

- The monography "Special Veterinary Pathology" reflects significant for veterinary practice pathological processes and morphological changes in some organs and organ systems in animals. The diseases are illustrated with 33 original photos. The author's research, included in 52 scientific publications, as well as cases from practice are included.

- The monograph "Morphological characteristics of some neoplasms in animals" not only summarizes data on the morphology of common oncological diseases in animals, but also interprets new data on some aspects of the etiology of tumor formations, their growth, evolution and morphological & functional characteristics. 161 scientific sources and almost thirty years of scientific and practical experience of the author in this field have been used.

##### **5. Assessment of the personal contribution of the candidate.**

The personal contribution of Assoc. Prof. V. Manov in scientific publications stands out significantly and is indisputable both in the articles published in journals with Impact Factor, and in those published in non-refereed publications and in Collections of scientific conferences. His presence in teams from other scientific communities and specialties proves that he is a sought-after co-author with his expert knowledge.

Other personal contributions of Assoc. Prof. V. Manov include:

- 24 participations with reports at scientific forums with international participation.
- Participation in the editorial board of a scientific journal.
- Supervisor of a student who successfully defended a PhD work.
- Review of textbooks, projects and articles in scientific journals.
- Participation in scientific juries with reviews and opinions, of which 1 – for Doctor of Sciences, 2 – for Professor, 5 – for Associate Professor, 6 – for PhD, and 2 – for Chief Assistant.
- Manager of the University Clinic at FVM – 2012-2016.
- Preparation of forensic veterinary medical examinations in pre-trial proceedings.

## **6. Personal impressions.**

As a long-term lecturer at FVM, I know Assoc. Prof. V. Manov very well. My personal impressions of him are that he is a positive, communicative and responsible teacher with a creative personality and popularity. He is respected for his erudition, his extensive professional interests and knowledge, his analytical thinking and his dedication to his work. Highly respected colleague and lecturer and sought-after consultant in the field of veterinary pathology.

## **7. Conclusion.**

Based on the presented evidence for teaching, research and expert activities, the relevance of the issues on which he works and scientific contributions, publication activity, teaching knowledge and experience and personal qualities, I highly appreciate the scientific work and professional & academic activity of the participant in the competition Assoc. Prof. Vasil Kostadinov Manov, Ph.D. I propose to the honourable members of the Scientific Jury, Assoc. Prof. Vasil Kostadinov Manov to be conferred with the academic position "Professor", in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional field 6.4. Veterinary Medicine, scientific specialty: Animal Pathology, in the discipline "Pathology (Special Pathological Anatomy)".

Sofia

Signature...



(Prof. Dr. Ya. Iliev, PhD)