



STATEMENT

by **Prof. Vasil Kostadinov Manov, PhD**

from the Faculty of Veterinary Medicine at the Forestry University - Sofia, appointed as a member of the Scientific Jury by Order № ZPS-369 from 07/05/2023 of the Rector of University of Forestry - Sofia.

Subject: dissertation thesis for awarding the educational and scientific degree "Doctor", field of higher education 6. "Agricultural sciences and veterinary medicine", professional field 6.4. "Veterinary medicine", scientific specialty "Surgery, radiology and physiotherapy of animals".

Topic of the thesis: "Examination of the regenerative potential of platelet-rich plasma and sodium hyaluronate with dexpanthenol in experimentally induced corneal ulcers in rabbits."

Author of the thesis: Assist. Prof. Seven Ruzhdi Mustafa, PhD student in self-study at the Department of "Surgery, Radiology, Obstetrics and Gynecology" of the Faculty of Veterinary Medicine at University of Forestry - Sofia, enrolled with Order №ZSD-50 from 14.02.2022 of the Rector of University of Forestry - Sofia.

Scientific consultant: Assoc. Prof. Nadya Zlateva-Panayotova, PhD, from the Faculty of Veterinary Medicine at University of Forestry - Sofia.

1. Brief biographical data

Seven Ruzhdi Mustafa is born on 06.12.1988 in Gabrovo. He completed his secondary education in 2007 at the 18th secondary school "William Gladstone" with intensive study of the Chinese language. In 2010 he graduated from the Medical College "Yordanka Filaretova" at the Medical University-Sofia, majoring in "Dental Technology", and in 2019 - Faculty of Veterinary Medicine at University of Forestry - Sofia. He won the "Academic Doncho Kostov" scholarship of the "Eurika" Foundation for 2019 for achievements in the field of agricultural sciences, veterinary sciences and forestry. After winning a competition in October 2019, he was appointed as an assistant in the Department of "Surgery, Radiology, Obstetrics and Gynecology" at University of Forestry - Sofia, and in February 2022 he was enrolled in the same department as a doctoral student self-study for two years. He is fluent in English, Turkish, and Chinese language.

2. Relevance and significance

Regenerative medicine is a rapidly developing interdisciplinary field. Current studies on corneal ulcers, characterized by loss of corneal epithelium and stromal tissue, remain a significant problem in veterinary ophthalmology. This makes the dissertation work particularly relevant, both in a scientific and purely practical aspect. The indisputable relevance of the problem stems from the fact that if corneal ulcers are not treated effectively, they can lead to significant visual impairment. On the other hand, the use of platelet-rich plasma and the combination of hyaluronic acid with dexpanthenol in ophthalmology is the subject of research

due to their potential to accelerate corneal healing processes, reduce inflammatory reactions and improve the overall recovery of eye tissues. The positive effect of the use of platelet-rich plasma therapy is known, but its most effective form of administration for eye diseases in veterinary ophthalmology has not been studied.

3. Dissertation analysis

The thesis is written on 164 pages and is properly structured, according to the Law on the Development of the Academic Staff in the Republic of Bulgaria and the Regulations for the Implementation of it. It includes the required sections such as literature review, aim and tasks, materials and methods, own research, conclusions, contributions, recommendations for practice, scientific publications related to the dissertation work, and established citations, as well as a literature index.

4. Level of knowledge of the state of the problem and creative interpretation of the literature review

In the literature review, the results of similar studies are analyzed in detail, and most of them were conducted abroad. A sufficient number and volume of up-to-date literary sources are provided, which are skillfully arranged and interpreted. The literature review shows the author's good awareness, ability to analyze and summarize published data.

5. Aim, tasks, hypotheses, and research methods. Correspondence of the chosen research methodology with the set aim and tasks of the thesis work

Based on the extensive literature review, the aim of the scientific research is precisely formulated, and five tasks for its implementation are precisely specified.

Research is aimed at reproducing corneal ulcers by chemical and surgical methods in rabbits. The effects on speed and degree of healing in the surgical intervention of temporary fixation of the third eyelid were compared with therapy carried out with sodium hyaluronate and dexpanthenol, as well as with platelet-rich plasma in the form of eye drops or subconjunctival injection.

The research methodology is well described. Clinical, specific ophthalmological, and imaging-diagnostic methods were used. A histological assessment of the effect of the applied therapies on the healing of the induced corneal ulcers was made.

6. Presentation of the obtained results

In the present scientific research, the effects in therapy of corneal ulcers induced experimentally in rabbits with platelet-rich plasma in the form of eye drops or subconjunctival injection have been proven. Results are detailed and well-systematized. They are illustrated with 19 tables and 57 figures.

7. Discussion of the results and used literature

The research results are well presented. This section shows the doctoral student's literary awareness, the ability to analyze and process scientific information and interpret the obtained results. The data from the conducted analyzes were compared with results obtained by other leading researchers at home and abroad. 336 titles are cited in the literary index, of which 327 are in Latin and the rest in Cyrillic. As a result of the conducted research, conclusions are

formulated, which are presented concisely and clearly and follow logically from the reported results. The use of platelet-rich plasma, regardless of the medical form, is a highly effective method for the treatment of corneal ulcers, with those resulting from chemical burns requiring longer treatment. In addition, already on the 3rd day, regardless of the etiological factor, the area of the ulcers is significantly reduced (more than 67%), and this is best expressed with the subconjunctival injection. The results of sodium hyaluronate treatment with dexpanthenol and PRP were similar, but histological examination showed a marked anti-inflammatory effect only in the rabbits treated with platelet plasma. In addition, a suitable non-invasive method for diagnosis - optical coherence tomography - has been proposed.

8. Contributions and recommendations for the practice

Scientific contributions are objective and properly defined. They are divided into original and confirmatory. The originals are related to a complex comparative experimental study in two types of corneal ulcers in rabbits (traumatic and chemical burns) treated with autologous platelet-rich plasma and sodium hyaluronate with dexpanthenol. For the first time in veterinary ophthalmology in Bulgaria, optical coherence tomography was used for diagnosis. It has been shown that the healing of ulcers of traumatic origin is faster compared to ulcers caused by chemical burns, regardless of the therapeutic approach used. It has been established under what conditions platelet-rich plasma is obtained. The effect of the various applied therapies was also proven by histological examination.

Valuable practice recommendations are made. Corneal ulcers can be treated for up to 7 days with cryopreserved autologous platelet-rich plasma. For precise diagnosis of severe corneal damage, optical coherence tomography is a suitable method for accurate diagnosis. A method for obtaining platelet-rich plasma is proposed.

9. Assessment of the level of personal participation of the doctoral student in the contributions

The presented thesis shows that the doctoral student possesses in-depth theoretical knowledge and professional skills by demonstrating qualities for independent conduct of scientific research. The results are a personal contribution of Assist. Prof. Seven Mustafa.

10. Critical notes and questions

I have no major criticisms. The doctoral student complied with my recommendations when preparing the dissertation work.

11. Publications connected to the thesis and citations

In connection with the thesis, three publications in English are presented, in which Assist. Prof. Mustafa is the lead author. They are published in the "Advance Research Journal of Multidisciplinary Discoveries" and "Tradition and Modernity in Veterinary Medicine". One of the publications is cited in "Veterinary Research Communications" with IF: 2.816.

12. Assessment of publications related to the thesis

The publications are sufficient in volume, fully reflect the thesis development, and correspond in content to the reference of the doctoral student's scientific contributions. Scientific

data fully cover and exceed the criteria for obtaining the educational and scientific degree "Doctor".

Conclusion. The thesis submitted to me for statement is dedicated to studies related to veterinary ophthalmology – diagnosis and treatment of corneal ulcers. The research was conducted at a high experimental level, the results of which were discussed critically and thoroughly with the undoubted participation of the doctoral student. The set tasks have been completed, as a result of which the aim has been achieved. Original scientific results with real application in veterinary practice have been obtained. I accept the scientific contributions and consider that they correspond to the professional direction of the developed topic.

This gives me the reason to give a positive assessment of the qualities of Seven Ruzhdi Mustafa's dissertation work for awarding the educational and scientific degree "Doctor" in the scientific specialty "Surgery, Radiology and Physiotherapy of Animals", professional field 6.4. "Veterinary Medicine", field of higher education 6. "Agricultural Sciences and Veterinary Medicine".

04.08.2023
Sofia

Statement prepared by:
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