



**UNIVERSITY OF AGRONOMIC SCIENCES AND
VETERINARY MEDICINE OF BUCHAREST**



HABILITATION THESIS

Research domain: VETERINARY MEDICINE

RESEARCH ON THE ETIOLOGY, DIAGNOSIS AND THERAPY OF OPHTALMIC DISORDERS IN DOGS AND CATS

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SUMMARY

of the habilitation thesis „**RESEARCH ON THE ETIOLOGY, DIAGNOSIS AND THERAPY OF OPHTHALMIC DISORDERS IN DOGS AND CATS**”

developed by Associate Professor Iuliana Ionașcu, PhD

The habilitation thesis „*Research on the Etiology, Diagnosis, and Therapy of Ophthalmic Disorders in Dogs and Cats*,” authored by Assoc. Prof. Iuliana Ionașcu, PhD, highlights the most significant aspects of academic, scientific, and professional activities undertaken since the attainment of the doctorate in veterinary medicine.

On April 8, 2005, I presented my doctoral dissertation titled „*Clinical Aspects, Morphopathological Alterations and Treatments of Lens Pathology in Dogs and Cats*”, under the coordination of Prof. Ion Miclăuș, PhD (Doctoral Diploma No. 338/12.10.2005, Series C, No. 0003632).

The scientific research domain focuses on veterinary ophthalmology in companion animals, with the doctoral dissertation establishing a foundational framework for defining and advancing this branch of veterinary medicine in Romania.

The main research topics focus on medical and surgical therapies for corneal disorders, aesthetic ocular surgeries, and diode laser surgery for ocular conditions in dogs and cats.

The habilitation thesis consists of three main sections: (I) *Scientific, Academic, and Professional Achievements*, (II) *Career Development Plans*, and (III) *Bibliographic references*, pertaining to the first two sections.

Section I (divided into two chapters: **Chapter I.1. Scientific Achievements** and **Chapter I.2. Professional and Academic Achievements**) represents the central component of the thesis, describing the most significant scientific results, demonstrating the originality and relevance of the published research, research presented at scientific conferences and congresses, and key professional and academic achievements from 2005 to 2024, following the doctoral dissertation.

Doctoral research in this specialty outlined career development directions, and since 2003, after completing an internship under the coordination of Prof. David Wilkie at the Ohio State University, USA, Department of Comparative Ophthalmology, I performed cataract surgeries in dogs and cats for the first time in Romania.

Since 2009, I have participated in all ECVO (European College of Veterinary Ophthalmologists) and ESVO (European Society of Veterinary Ophthalmology) conferences and integrated new examination, diagnostic, medical, and surgical methods into academic and clinical activities. Three primary lines of research have been pursued:

1. Medical and Surgical Therapy of Corneal Disorders

Etiology, diagnosis and therapy of indolent corneal ulcers in dogs, characterized by complex ocular symptoms and frequent complications, are a topical subject in veterinary medicine. Establishing diagnostic protocols and studying comparative therapies have contributed to successful treatments. Daily contact lenses alleviate ocular pain and reduce healing time. For melting corneal ulcers in dogs and cats, early therapy improves healing chances and reduces complications.

Correct surgical decision-making correlates with ultrasound imaging results. Ocular ultrasound is critical for detecting posterior ocular changes in melting corneal ulcers and to evaluate the patient's visual prognosis in the affected eye. The usage of collagen lenses like SoftShield®/VetShield® combined with tarsorrhaphy ensures successful healing and vision preservation. Research on indolent, deep, and melting corneal ulcers using a newly formulated corneal wound-healing eye drop (developed in 2018) marked the first step in a broader project aimed at its production in Romania.

2. Aesthetic Surgery (Intrascleral Prosthesis) in Companion Animals

Intrascleral prosthesis in kittens represents a surgical alternative to enucleation, particularly relevant given the high prevalence of feline herpesvirus infection in the feline population. This viral condition is frequently associated with complex ocular pathologies such as buphthalmos, descemetocoeles and deep or perforated corneal ulcers.

Intrascleral prosthesis, as an alternative to complete globe removal, has been supplemented by performing a corneo-conjunctival flap, followed by the application of a SoftShield®/VetShield® collagen contact lens and tarsorrhaphy. Postoperative ophthalmologic evaluations demonstrated favorable outcomes without major complications. The silicone prosthesis was well tolerated by ocular tissues and offered both comfort and cosmetic benefit to feline patients. The novelty of this study lies in the young age of the patients and the use of this surgical technique in cases of severe corneal disease — situations in which previous studies had excluded intrascleral prosthesis from the list of viable therapeutic options.

3. Diode Laser Surgery in Veterinary Ophthalmology in Dogs and Cats

Recently introduced in veterinary medicine, diode laser surgery addresses ocular pathologies like eyelid tumors, trichiasis, distichiasis, conjunctival tumors, iris melanoma, uveal cysts, intraocular tumors, retrobulbar tumors, and glaucoma in dogs, cats and horses. The laser's preset programs enhance surgical precision and comfort.

Over three years (November 2019 – November 2022), 161 cases were studied. Favorable outcomes with minimal complications were noted in treating iris tumors, uveal cysts, and iris melanosis. However, transscleral cyclophotocoagulation for glaucoma was ineffective in restoring vision in 85% of cases. Using diode laser for enucleation ensures minimal hemorrhage and surgical comfort. However, for symblepharon, rapid recurrence accompanied by corneal neovascularization was observed.

From an academic standpoint, continuous professional development was achieved through participation in congresses, conferences, and workshops dedicated to ophthalmology and ophthalmic surgery. Since 2003, following the cataract surgery training conducted under the supervision of Professor David Wilkie at Ohio State University, USA, I have developed an ongoing training system for veterinary practitioners in Romania and across Europe, delivered through congresses, conferences, and webinars focused on veterinary ophthalmology.

Between 2020 and 2023, in my role as Vice-Rector for Quality Assurance and Evaluation at USAMVB, I organized, within the framework of FDI projects, a wide range of professional training conferences and courses. In 2023, these included digital skills courses for both teaching and non-teaching staff at USAMV Bucharest; training programs on teacher-student communication and

feedback assessment; courses on research ethics; and academic ethics and deontology, all organized under project CNFIS-FDI-2023-0508, titled "Modern Educational Techniques, Communication, and Digitalization for Enhancing the Quality of the Teaching Process while Respecting Academic Ethics and Deontology."

In 2022, I organized the conferences "Excellence in the Vocation of Education" and "The School as a Stage. The Writer, Artist, and Mentor. I Am a Blind Man... A Dialogue with Horațiu Mălăele," under project CNFIS-FDI-2022-0619 – "Returning to Face-to-Face Education through Communication and Socialization to Improve the Quality of Teaching Activities at USAMV Bucharest." In 2021, I coordinated the course "SWOT Analysis – Strategic Transformation" and "Digital Brain versus Analog Brain," as part of CNFIS-FDI-2021-0343 – "Improving the Use of Innovative Tools to Enhance Teaching Quality in Both Conventional and Online Systems While Respecting Academic Ethics and Professional Deontology at USAMVB."

In 2020, I organized courses on the use of educational platforms in higher education, ICT tools, online teaching and assessment methods, as well as courses in university ethics, deontology, and psychopedagogy. These were conducted under CNFIS-FDI-2020-0159, within the project "Development and Implementation of Innovative Tools to Improve the Quality of Teaching Activities While Ensuring Adherence to Academic and Professional Ethics at USAMV Bucharest."

Chapter I.2. briefly presents the main professional and academic achievements obtained after completing the doctoral degree. These include mentoring over 50 undergraduate and thesis projects, as well as participation as a committee member in the doctoral training of six PhD candidates. I have published: 8 specialty books as sole author; 19 teaching manuals as author and co-author; and 6 instructional guides, also as author and co-author. I initiated and coordinated the publication of a series of vademecums (equine and bovine) in Romanian, English, and French, intended to support teaching within a modular system.

I have authored 28 scientific articles published in journals indexed in the Web of Science Core Collection (ISI Thomson R Clarivate Analytics, SCIE, and ESCI), 21 articles published in the proceedings of ISI-indexed conferences, and 92 BDI-indexed papers. I participated in 9 educational projects — as team member in 5 and as project director in 4. In addition, I was involved in 4 research projects as a member, and served as project leader in 2 national research projects.

Part II outlines the perspectives for future professional development, with an emphasis on scientific advancement, academic growth, and increased professional visibility. Key indicators for measuring professional and academic progress are presented, along with the strategic directions intended to fulfill the proposed objectives. Based on the current framework of activities, the inclusion of doctoral students — with whom I intend to develop ophthalmic diagnostic techniques using ocular computed tomography and posterior segment eye surgery — will represent a hallmark of research excellence. Furthermore, the creation of a diagnostic algorithm for ocular diseases using artificial intelligence is a highly feasible objective in today's digital era.

I aim to take an active role in encouraging creativity and academic performance in the next generations of doctoral students.

Part III compiles the bibliographic references related to the content presented in the first two sections.