

ABSTRACT

HABILITATION THESIS

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This habilitation thesis presents the professional and scientific results obtained in the course of my academic and research activity in in the field of biotechnology and veterinary reproduction since the defence of my PhD thesis in 1996 up to present, as well as my future plans for the development of my academic career.

The habilitation thesis, entitled "**Modernization of reproductive biotechnologies and management of genital and mammary gland pathology in animals**" presents the most relevant results obtained in recently conducted scientific research and published in 8 ISI articles, 12 ISI proceedings articles and 87 BDI articles, as author or coauthor. These include specific topics in the field of veterinary reproductive biotechnologies as well as pathology of female reproductive tract or mammary gland in animals.

After a short introductory chapter, in Section 2 (scientific and professional results) the main research topics are presented, which led to the realization of this habilitation thesis, namely: Contributions to the modernization and implementation of reproductive biotechnologies in animals, Contributions to the management of reproductive disorders in animals and Contributions to the management of mammary gland pathology in animals.

Chapter 2.1 - Contribution to the modernization and implementation of reproductive biotechnologies in animals shows the results obtained during the investigations on the induction and synchronization of oestrus in livestock, cryopreservation of semen and artificial insemination, and other reproductive biotechnologies (embryo transfer, in vitro fertilization or embryo sexing). Thus, the studies concerning modernization and implementation of estrus induction and synchronization during the reproductive season as well as out of season in small ruminants, induction of estrus in sows after weaning, implementation of artificial insemination in cattle in mountain areas as well as ram semen collection and preservation are presented. The contributions to the morphocytometric analysis and maturation of sheep oocytes, as well as cryopreservation and sexing of bovine embryos are also presented.

Chapter 2.2 - Contributions to the management of reproductive disorders and pathology of the mammary gland in animals, presents the homeopathic studies performed in order to treat and prevent puerperal and chronic endometritis as well as retention of fetal membranes in cattle, supervision and control of puerperium as well as therapy of ovarian hypotrophy in cows. At the same time, the research for diagnosis and management of clinical and subclinical mastitis in cows is also presented, demonstrating the relationship between the number of somatic cells and antioxidant status in cow's milk, and the effect of the type of bacteria involved in the etiology of mastitis and the activity of certain enzymes in milk.

Scientific research and publishing activity after the defence of my doctoral thesis can be summarized as follows: contribution to the publication of 3 books/scientific treatises, two textbooks and two practical work guides for students, 8 ISI and 12 ISI Proceedings articles, as author or co-author, 87 BDI articles, 20 papers published in international symposia proceedings, and 54 papers published in national symposia proceedings. I also participated as a member or grant director to the successful completion of 22 research grants (World Bank, Biotech, CNCSIS, CEEX, Partnerships, Capacities or contracts with pharmaceutical companies).

The three scientific books that were published have been awarded by the Romanian Academy or Academy of Agricultural and Forestry, as follows:

Ion Adameșteanu Award of the Academy of Agricultural and Forestry Sciences in 2009 for the book **Bogdan Liviu, Groza Ioan (coordonatori), Muntean Mircea, Morar Iancu, Simona Ciupe, Pop Al. Raul, Cenariu Mihai – Obstetrică Veterinară, Ed. AcademicPres, Cluj-Napoca, 2009, ISBN 973-744-164-5;**

Paul Riegler prize of the Academy of Agricultural and Forestry Sciences in 2006 for the book *Groza Ioan (coordonator), Bogdan Liviu, Cătană Raul, Cenariu Mihai, Simona Ciupe, Ciupercescu Dorel, Morar Iancu, Muntean Mircea, Pop Al. Raul, Brîndușa Stegeran – Ginecologie, Andrologie și Obstetrică Veterinară – Compendiu, Ed. Academiei Române, București, 2006, ISBN 978-973-27-1445-4;*

Traian Săvulescu Prize of the Romanian Academy in 2004 for the book: *Groza Ioan, Morar Iancu, (coordonatori), Muntean Mircea, Papuc Ionel, Bogdan Liviu, Oana Liviu, Morar Roman, Simona Ciupe, Pasca Ioan, Pop Al. Raul, Cenariu Mihai, Peștean Cosmin – Andrologie Veterinara, Ed. Gryphon, Brașov, 2004, ISBN 973-604-012-7.*

The third section of the thesis presents the future development plan for my academic career. In academic field, this refers mainly to continuous improvement in terms of theory and practice by accessing the latest publications and reading scientific articles published in the

field of interest, as well as improving and updating the lecture training materials and practical work guides.

In scientific field, the main objective is the publication of further papers in ISI impact factor journals, increasing the number of papers published annually, and especially publishing articles in journals with high impact factor and relative influence score, as well as to access national and international research grants in order to attract funds, participate in national and international symposia and get involved in the organization of the university scientific events.