

## Summary

### of the Habilitation Thesis entitled

*The quality of the natural environmental factors, of the animal feed and of the animal source foodstuffs in close relation to the life quality in animals and in humans, in the framework of One Health - One Welfare holistic approach, authored by Assoc. Prof. Elena Mitrănescu, D.V.M., PhD*

**Key words:** *environmental quality monitoring, fish welfare assessment, terrestrial animals' welfare assessment, One Health, One Welfare*

In this thesis, my professional and academic career and performances are described, as well as my major scientific achievements, gathered into four main research and publishing directions, namely: the quality of natural environmental factors in the context of the contaminants' transfer along natural food chains and along the foodstuffs' supply chain, in depth addressing of the aquatic animals' welfare problem - especially in fish, assessing the welfare of various species of terrestrial domestic animals, and the efficacy control of the sanitation actions, all these elements being closely interconnected, indissolubly bond under the umbrella of the *One Health - One Welfare* concept. In the last parts of the present thesis, I described the distinctive aspects regarding my research projects' activities, as well as the most important elements that prove the professional prestige and the proposals for the further evolution and development in my career.

The content of this thesis follows the indicated structure, in the first subchapter (I.1.) being presented my professional evolution, after graduating the faculty (1984), then as a district practitioner veterinarian (1984-1987), scientific researcher (1987-1988) and finally, after embracing the teaching career (1988), up to the present moment.

In subchapter I.2., the scientific achievements are detailed, belonging to the four main directions mentioned, with a selection of significant results, which were not only the subject of various publications in my scientific portfolio and of presentations at numerous scientific events in the country and abroad, but were permanently transmitted to the students, to the future generations of professionals in the field of veterinary medicine.

Subchapter I.2.a. focused on revealing the scientific results of the studies on the quality of natural environmental factors (air, soil, natural water sources) in the context of traceability of contaminants along the multiple relationships within ecosystems and along the food supply chain - with human consumers as final beneficiaries.

In the first section of the subchapter, there are presented the results of the inventory for tracking pollutants emitted into the air in the Calarasi, Târgoviște, Brăila, Ploiesti, Buzău areas, the scientific papers published on this topic contribute in drawing the public opinion attention upon the negative environmental potential found in the cases of exceeding of the values recorded.

Another environmental factor studied was the soil, in the second section of subchapter I.2. being presented my researches aiming its impact pollution in various areas: Isalnita - Dolj, Valea Călugarească, Braila, Campina.

I was also concerned about the pollution of the surface waters and the resulting disbalance of the aquatic ecosystems, with negative repercussions on the other natural environmental factors. Different personal researches aimed the objective of establishing the quality of surface waters on the Romanian territory, for the Danube River, for various inland rivers (Arges, Buzau, Călmățui, Milcovat, Vedea, Teleajen, Prahova, Firiza, Tisa, Dambovita), in various river streams' sections, as well as to establish the quality of standing waters (Lacul-Morii Lake) and of the marine water (in Black Sea, along the Romanian seashore).

The last section in sub-chapter 1.2.a. concerns the transfer of environmental contaminants into non-animal origin products (cereals, fruits, vegetables, wine, honey, etc.) and into animal-source foods (into different animal tissues/organs, in fish meat, game meat, milk, etc.), in the context of the holistic perspective on the food supply chain, according to the concept *from stable to table*.

Moreover, there are presented the results obtained and also my involvement in defining strategic actions concerning the hazards generated by the presence of fungi and mycotoxin contamination of feed and food, included in the CEEX grant 147/2006 activities.

To summarize this research direction trait, the environmental health is the main pillar of "One Health" concept, representing the only safe path for a sustainable development of human society.

Subchapter 1.2.b. addresses my second research direction - namely the problem of fish welfare, a scientific area that was not very approached in Romania at that time. This direction was the object of the contractual researches carried out within the CNCSIS PN II Idei 290/2007 grant, as well as of the other subsequent researches.

The third subchapter (1.2.c) highlights my involvement in the third research direction, namely the in-field assessments or laboratory analyses of the welfare level in various species of terrestrial animals on farms, during the transportation and in slaughter units. At the point of crossing of three conceptual areas: ecological, physiological and ethological (behavioral), animal welfare is obviously an essential component of the holistic *One Health - One Welfare* perspective, to which the veterinary profession has adhered intuitively, implicitly, a long time before the recent media boom and advertising recorded for this concept. The experience I gained on the topic of animal welfare has also been applied in teaching, by elaborating various descriptive welfare audit forms, filled-in under teaching staff's supervision by the students from the Veterinary Medicine program, for acquiring their specific skills and competences.

For dairy cow herds, the research on the welfare assessment at group level followed the protocol described by the ANI 35L integrative numerical system, in other cases, there were corroborated the microclimate parameters level interpretation with the results obtained for the blood biochemical parameters and for the tracking the health status of the cows; or sometimes it was even used a specific

scoring protocol that brought together health parameters with behavioral and management-based objective welfare parameters. Other researches had the goal to establish the welfare level in laying hens' flocks, as well as the welfare of horses in various locations.

Another direction, detailed in subchapter 1.2.d., was represented by the control of the efficiency of microbial decontamination/disinfection, as a responsibility of the veterinary profession related to the protection of animal and human health, in accordance with the environmental health.

Chapter I.3. describes the research activity in which I have been involved since 1989. I coordinated as manager/representative 5 research projects won by competition and a C.O.S.T. project (Action 867: *Welfare of fish in European aquaculture*), these being included in the interest areas of my professional activity, I also participated as a member in multidisciplinary research teams for 11 other national projects and for an international project (FP7-EIE/07/121 *BioMotion - Biofuels in Motion*).

Chapter I.4. presents the main elements that built and sustained my professional reputation. Thus, my scientific activity consists in publishing 376 papers, out of which 299 after the last promotion: 12 W.O.S. rated scientific papers, 35 W.O.S. indexed papers, 329 I.D.B. indexed articles - from the last class 252 being published after my last career promotion, for 85 of them being the first author. The books and articles I published had a great impact, gathering a total number of 67 citations in W.O.S. journals and 84 citations in different I.D.B. articles.

The article *Changes in management, welfare, emotional state, and human-related docility in stallions*, which I co-authored, win an UEFISCDI award, subprogram 5.2.3., in the year of 2023 Competition.

I have been a member of evaluation teams at the level of the Ministry of Education, in the C.N.C.S.I.S., C.N.A.T.D.C.U., in commissions for faculty admission exams, for the public defence of many doctoral theses, in commissions for contests for hiring personnel in different teaching academic positions, etc.

For the future activity, I proposed to improve and develop 2 major levels: didactic activity, and scientific research respectively. Thus, the general and specific objectives in achieving them are defined on the one hand by the modernization/updating of the techniques used in the teaching-learning process (integration of technology, adaptation of teaching and assessment strategies in order to focus on the student), and on the other hand by the expansion of the portfolio of scientific papers and of projects (to attract additional funds and to increase visibility).