



STANDPOINT

on a dissertation work for obtaining an educational and scientific degree "Doctor" in a field of higher education 6. Agricultural sciences and veterinary medicine professional direction 6.4. Veterinary medicine, scientific specialty "Animal pathology"

Author of the dissertation: Roger Hanna Al Hanna, part-time doctoral student at the Department of "Animal Science" at the Faculty of Veterinary Medicine, University of Forestry, Sofia

Dissertation topic: "Impact of dietary supplementation with different herb species on body performance, meat quality and health status in broiler chickens"

Reviewer: Assoc. Prof. Dr. Metodi Hristov Petrichev, Forestry University, Sofia

Academic position: Associate Professor Field of higher education 6. Agricultural sciences and veterinary medicine professional direction 6.4. Veterinary medicine, scientific specialty "Animal pathology.

Appointed as a member of the scientific jury by Order ZPS No. 170/01.04.2024 of the Rector of LTU

1. Timeliness of the problem

The scientific subject is very current, and in the last 20 years there have been many scientific developments in this scientific field all over the world. This is confirmed by the literary sources used by the author in his dissertation work: Cited Literary sources – 408.

In poultry farming and other branches of productive animal husbandry, there is a tendency to replace traditional antibiotics with dietary supplements of extracts from various types of medicinal plants. This is a modern alternative medicine that is dictated by the fact that almost everywhere there is a built-up resistance in both animals and humans. In modern medicine, different types of probiotics and prebiotics and different schemes for the prevention and metaphylaxis of diseases are used.

The dissertation is written on 154 pages, using 30 figures and 10 tables.

An extensive literature review has been written which includes:

State of the Poultry Sector in the Middle East and the World, State of the Sector in Lebanon. Bird feeding management. Methods of raising birds. Antibiotics. Use of antibiotics in poultry

Effect of antibiotics on human health. Biological production. Phytogenic feed additives

Using different types of herbs and spices: Effects and use of herbal feed additives

Various herbal feed supplements as suggested by Mirzaei-Aghsaghali (2012)

Aromatic plants and essential oils: source of antioxidants

Mode of action of aromatic plants and essential oils

Antioxidants and antioxidant plants – oregano, ginger, turmeric, clove oil, garlic, cumin, onion, thyme, mint, clove and oregano blend. Dandelion, anise, cinnamon and mint. Cumin, fenugreek, ginger and

verum. Clover powder, agrimonia and lemon balm extracts. Cornflower, garlic and thyme. Essential oils (oregano, cinnamon and black pepper) and Labiatae extract (mint, thyme, sage and rosemary). Garlic and

turmeric powder. Chamomile. Rosemary and anise.

Phytobiotics and immunity: avian innate immune system and its importance, gut microbiota.

Hematology and immunology of broilers and natural herbs.

Meat quality: pH, water holding capacity, color, tenderness.

Summary of the literature review

2. Purpose, tasks and research methods.

The main objective of the dissertation is to investigate the potential of local natural herbs (thyme, mint, rosemary, chamomile, garlic and onion powder) as growth promoters and immune enhancers in Ross broiler chickens, aimed at replacing antibiotics traditionally used in Lebanon and in the broiler industry. Also to evaluate the effect of tested natural herbs on broiler physiology, growth, meat quality, serum biochemical profile, hematological parameters and immunology. To achieve the goal, five main tasks have been set.

Different methods have been used to fulfill the tasks set in this way.

During the development of the dissertation, the doctoral student has mastered a significant number of methodologies and research methods, which is a reason to consider that he has acquired the necessary methodological experience to conduct a scientific experiment, and also that the educational task of this scientific degree has been fulfilled.

3. Transparency and presentation of the obtained results.

The dissertation is properly structured and includes all the required sections in an adequate volume. The obtained results are very well visualized and analyzed. Tables and figures fully reflect the research carried out and are a good basis for analysis. The dissertation meets all requirements and criteria.

4. Discussion of the results and used literature.

408 literary sources were used. This shows a very good awareness of the doctoral student, especially in the field of recent scientific achievements in the field of poultry farming. The obtained results have been skilfully compared with what has been established by other researchers, an indicator of the good awareness and analytical thinking of the doctoral student.

The "Results and Discussion" section has been developed in detail in accordance with the objective and set tasks. Based on the conducted research, 6 conclusions were drawn, which correspond to the obtained results. The PhD student has achieved the set goal of the work and has fulfilled the set tasks to the maximum extent.

PhD student Roger Hanna Al Hanna has mastered various methods of research and processing the received information, has shown skills in proper planning and conducting experiments, as well as skills in professional analysis of the obtained results and formulation of logical conclusions and recommendations.

5. Contributions of the dissertation work.

Scientific and applied contributions

5 contributions have been made that can be put into practice in the poultry industry in Lebanon.

6. Critical notes and questions.

When writing the groups and their treatment with plant additives, it is good to write: In concentration: in ppm

The vein from which blood was taken for a complete blood count and biochemical tests should also be written in Latin (Italics)

Regarding biochemical tests: To monitor the functional state of the kidneys, two biochemical indicators in the blood are mandatory and parallel: creatinine and urea.

7. Published articles and citations.

The PhD student presented 3 scientific publications on the dissertation work, two of which were reported at scientific symposia. In two of them he is the first author, and in one he is the only author. One of the scientific publications is in an indexed journal with SJR=0.175 and IF=0.48.

The number and quality of the publications meet the requirements of the Regulations for the terms and conditions for the acquisition of scientific degrees and for holding academic positions, and their content reflects basic results that are sufficiently presented to a specialized scientific audience.

CONCLUSION:

Based on the various research methods learned and applied by the PhD student, the correctly performed experiments, the generalizations and conclusions made, I believe that the presented dissertation meets the requirements of the ZRASRB and the Regulations of the Forestry University for its application, which gives me the reason to evaluate it POSITIVE.

I take the liberty of proposing to the honorable Scientific Jury to also vote positively and award Roger Hanna Al Hanna, the educational and scientific degree "Doctor" in the field of higher education 6. Agricultural Sciences and Veterinary Medicine, professional direction 6.4. Veterinary medicine, scientific specialty "Animal Pathology".

24.04.2024
Sofia

Prepared the Standpoint:
(Assoc. Prof. Dr. M. Petrichev)

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