

Curriculum Vitae

Personal information

Name Seham Mohammed Khalil Elkassas

(El-Kassas, S.)

Associate Professor of Animal, Poultry and Fish

Breeding and Production

Date and 02/01/1985, Kafrelsheikh

place of

Birth

Permanent Department of Animal Wealth Development, Fac. Vet. Med, Kafrelsheikh

Univ. Kafrelsheikh, 33516, Egypt.

Address

Telephone Mobile +201066831379

number

E. Mail seham.elkassas@vet.kfs.edu.eg

Seham.elkassas7@gmail.com

Websites https://scholar.google.com.eg/citations?user=TvR86GoAAAAJ&hl=en

https://www.scopus.com/authid/detail.uri?authorId=56589825800

https://www.researchgate.net/profile/Seham-El-Kassas

https://publons.com/researcher/1304964/seham-el-kassas/

Education

- Bachelor degree of Veterinary Medical Science (B. V. Sc), May 2007, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt, May 2007.
- Master degree of Veterinary medical science (M.V.Sc) in Animal, Poultry and Fish Breeding and Production, March 2012, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.
- **Title of master thesis:** "Selection for Increasing Four Weeks Body Weight and Correlated Response to Body Conformation and Carcass Traits in Japanese quail".





- **Ph.D** of Veterinary medical science in Animal, Poultry and Fish Breeding and Production, August 2016, Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.
- **Title of Ph.D thesis:** "Expression and Regulation of Cholecystokinin A Receptor in Chicken Immune System".

Academic positions

2008-2012	Demonstrator of Animal, Poultry and Fish Breeding and Production at
	Department of Animal Wealth Development, Faculty of Veterinary
	Medicine, Kafrelsheikh University, Egypt
2012-2016	Assistant lecture of Animal, Poultry and Fish Breeding and Production at
	Department of Animal Wealth Development, Faculty of Veterinary
	Medicine, Kafrelsheikh University, Egypt.
2016- 2021	Lecturer of Animal, Poultry and Fish Breeding and Production at
	Department of Animal Wealth Development, Faculty of Veterinary
	Medicine, Kafrelsheikh University, Egypt.
2021-till now	Assistant Professor of Animal, Poultry and Fish Breeding and Production
	at Department of Animal Wealth Development, Faculty of Veterinary
	Medicine, Kafrelsheikh University, Egypt.
8-2022 -till now	Acting as Head of the Department of Animal Wealth Development,

Professional Experience

• Teaching the course of Animal, Poultry and Fish Breeding and Production for the 2nd year undergraduate students at the Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.

Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.

- Teaching the course of Veterinary Biostatistics for the 1st year undergraduate students at the Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt.
- Teaching advanced biostatistics, experimental design, computer and data processing, advanced animal, poultry and Fish breeding and production for postgraduates (Master and Ph.D.) students.
- Member of Central Diagnostic Lab at College of Veterinary Medicine, Kafrelsheikh University- Egypt.



Reviewer at

Scholarships

- PhD Joint supervision scholarship at College of veterinary Medicine, Nursing and Allied Health, Tuskegee University, Tuskegee, Al, USA from January 25,2014 to January 24, 2016.
- Post-doc Visiting Scholar at School of Environment and Natural Resources (SENR),
 The Ohio State University, Ohio, USA from August 2019 to January 2020.

Skills and Experiences

- Statistics & Data Analysis
- Gene Expression, PCR and qPCR
- Cell culture, Cloning & Western blot
- Having an experience in molecular biology (DNA extraction, RNA extraction, PCR, Gene Cloning and Bioinformatics) where I work as member in biotechnology laboratory at the faculty of veterinary medicine- Kafrelsheikh University-Egypt (2012-Untill Now).
- Member at Virology/Immunology and Cell Culture Lab. at dr. T, Nashar laboratory, College of Veterinary medicine, Nursing and Allied Health, Tuskegee university-USA (2014-2016).
- I work as Co-investigator in a project titled "Novel biotechnological approach to increase meat production of native (baladi) chickens through inhibition of Myostatin activity." In Biotechnology Lab. faculty of veterinary medicine- Kafrelsheikh University from 2012 to 2014.
- Member of Central Molecular and Diagnostic Lab at Faculty of Veterinary medicine-Kafrelsheikh University-Egypt.

Scientific Publications

1. Naglaa Fathy, El-Sayed M. Abdel-Kafy, Seham El-Kassas*, Hassan Mohamed Sobhy, Sahar H. Abdalla Hekal, Mahmoud Alagawany*, Eman A. Manaa (2023). Association of insulin receptor substrate 1 (IRS-1) gene polymorphism with growth and



litter-related traits in NMER rabbits. Anim Biotechnol. 2023 Jun 13:1-8. doi: 10.1080/10495398.2023.2219705.

- 2. **Ibrahim Elkhaiat, Seham El-Kassas, Yahya Eid, Magda Ghobish, Esteftah El-Komy, Mahmoud Alagawany, Mohamed Ragab (2023)**. Assessment of variations in productive performance of two different plumage color varieties of Japanese quail and their reciprocal crosses. Tropical Animal Health and Production. Volume 55, Issue 3, DOI: https://doi.org/10.1007/s11250-023-03604-5.
- 3. Abeer AK Kirrella, Seham El-Kassas, Saad Mohamed Mostfa, Hassan Hassan Younes, Mostafa Helal, Mohamed Ragab (2023). The comparison of two different plumage-color lines of Japanese quail (Coturnix japonica) disclosed a significant effect in increasing abdominal fat contents with increasing age. Tropical Animal Health and Production. Volume 55, 180. DOI: https://doi.org/10.1007/s11250-023-03601-8.
- 4. Mayada R Farag, Seham El-Kassas, Youssef A Attia, Rashed A Alhotan, Mohamed A Mahmoud, Alessandro Di Cerbo, Mahmoud Alagawany (2023). Yucca schidigera Extract Mitigates the Oxidative Damages, Inflammation, and Neurochemical Impairments in the Brains of Quails Exposed to Lead. Biol Trace Elem Res (2023). https://doi.org/10.1007/s12011-023-03696-y.
- 5. Abeer AK Kirrella, Seham El-Kassas, Karima El-Naggar, Livio Galosi, Lucia Biagini, Giacomo Rossi, Alessandro Di Cerbo, Mahmoud Alagawany, Mohamed Kassab, Rasha A Al Wakeel (2023). Growing and laying performance of two different-plumage color Japanese quail varieties supplemented with corn silk in their diet. Poultry Science Volume 102, Issue 2, February 2023, 102360
- 6. Safaa E Abdo, Abeer F El-Nahas, Sally Abdelmenam, Mostafa A Elmadawy, Radi Mohamed, Mohamed Atef Helal, Seham El-Kassas (2022). The synergetic effect of Bacillus species and Yucca shidigera extract on water quality, histopathology, antioxidant, and innate immunity in response to acute ammonia exposure in Nile tilapia. Fish & Shellfish Immunology. Volume 128, Pages 123-135.
- 7. Seham El-Kassas, Nesreen Aljahdali, Safaa E Abdo, Fatima S Alaryani, Eman M Moustafa, Radi Mohamed, Wesam Abosheashaa, Esraa Abdulraouf, Mohamed Atef Helal, Manal E Shafi, Mohamed T El-Saadony, Karima El-Naggar, Carlos Adam



Conte-Junior (2022). Moringa oleifera Leaf Powder Dietary Inclusion Differentially Modulates the Antioxidant, Inflammatory, and Histopathological Responses of Normal and Aeromonas hydrophila-Infected Mono-Sex Nile Tilapia (Oreochromis niloticus). Front Vet Sci. 2022; 9: 918933. doi: 10.3389/fvets.2022.918933.

- 8. Ali Raza Jahejo, Nazeer Hussain Kalhoro, Hidayatullah Soomro, Jin Yu, Chenliang Zhang, Seham El-Kassas, Sayed Haidar Abbas Raza, Jin-feng Zhao, Azizullah Memon, Lubna Ghani, Guan-bao Ning, Ding Zhang, Shu-ming Chen, Wen-xia Tian (2021). Dietary supplementation with Celecoxib to prevent the welfare problem of tibial dyschondroplasia in broiler chickens. Livestock Science, Volume 250, August 2021, 104568. https://doi.org/10.1016/j.livsci.2021.104568.
- 9. Haitham G. Abo-Al-Ela, Seham El-Kassas, Karima El-Naggar, Safaa E. Abdo, Ali Raza Jahejo & Rasha A. Al Wakeel (2021). Stress and immunity in poultry: lightmanagement and nanotechnology as effective immune enhancers to fight stress. Cell Stress and Chaperones volume 26, pages 457–472. DOI: https://doi.org/10.1007/s12192-021-01204-6
- 10. Seham El-Kassas, Safaa E Abdo, Wesam Abosheashaa, Radi Mohamed, Eman M Moustafa, Mohamed Atef Helal, Karima El-Naggar (2020). Growth performance, serum lipid profile, intestinal morphometry, and growth and lipid indicator gene expression analysis of mono-sex Nile tilapia fed Moringa oleifera leaf powder. Aquaculture Report, 18, 10042. DOI: https://doi.org/10.1016/j.aqrep.2020.100422.
- Osama A Sakr, Eldsoky Nassef, Sabreen E Fadl, Hazem Omar, Emad Waded, Seham El-Kassas (2020) "The Impact of Alpha-lipoic Acid Dietary Supplementation on Growth Performance, Liver and Bone Efficiency, and Expression Levels of Growth-Regulating Genes in Commercial Broilers. J. World Poult. Res., 10 (28): 172-179. DOI: https://dx.doi.org/10.36380/jwpr.2020.22.
- 12. Nagham ELSaidy, Abeer Kirella, Seham El-Kassas, Mahmoud A. O. Dawood & Fatma Abouelenien. (2020). Reducing the Abundance of Harmful Bacteria of Rooftop Tank—Stored Drinking Water Using Silver Nanoparticles and Acetic Acid and Its Impact on Japanese Quail Growth Performances. Biol Trace Elem Res. DOI: https://doi.org/10.1007/s12011-020-02422-2



- 13. Mahmoud Alagawany, Mayada R. Farag, Manal E. Sahfi, Shaaban S. Elnesr, Othman Alqaisi, Seham El-Kassas, Abdullah S. Al-wajeeh, Ayman E. Taha & Mohamed E. Abd E-Hack (2020) Phytochemical characteristics of Paulownia trees wastes and its use as unconventional feedstuff in animal feed, Animal Biotechnology, DOI: http://10.1080/10495398.2020.1806074
- 14. Seham El-Kassas, Safaa E Abdo, Karima El-Naggar, Walied Abdo, Abeer AK Kirrella, Ibrahim El-Mehaseeb, Mohammed Abu El-Magd (2020). Dietary Supplementation with Copper Oxide Nanoparticles Ameliorates Chronic Heat Stress in Broiler Chickens. Animal Production Science 60(2) 254-268. DOI: https://doi.org/10.1071/AN18270
- 15. Afaf D Abdel-Mageid, Abeer Gamal Zaki, Yakout A El Senosi, Hanan A Fahmy, Amel M El Asely, Haitham G Abo-Al-Ela, Seham El-Kassas (2020). Modulatory effect of lipopolysaccharide on immune-related gene expression and serum protein fractionation in grey mullet, Mugil cephalus. Aquaculture Research, 51(4), Pages 1643-1652. https://doi.org/10.1111/are.14510
- 16. Afaf D Abdel-Mageid, Abeer Gamal Zaki, Yakout A El Senosi, Amel M El Asely, Hanan A Fahmy, Seham El-Kassas, Haitham G Abo-Al-Ela (2020). The extent to which lipopolysaccharide modulates oxidative stress response in Mugil cephalus juveniles. Aquaculture Research 51 (1), 426-431. DOI: 10.1111/are.14309.
- 17. Abdel-Hay Abdel-Hay, Sara Hamed, Mohamed Zayd, Fatma Abouelenien, Ibrahim Rehan, Seham El-Kassas, Amany Deyab, Radi Mohamed (2019). NIGHT FEEDING REGIME IMPROVES WATER QUALITY, GROWTH PERFORMANCE AND FEEDING BEHAVIOUR OF EUROPEAN EELS, Anguilla. Slovenian Veterinary Research Vol 56, Suppl 22. DOI:10.26873/SVR-799-2019
- 18. Mostafa A Elmadawy, Seham El-Kassas, Safaa E Abdo, Atsushi Nagai, Yasuo Bunai (2019). GENETIC DIVERSITY AMONG TWO COMMON POPULATIONS OF CANIS LUPUS FAMILIARIS IN EGYPT BY USING MITOCHONDRIAL DNA HVR1 SEQUENCE. Slov Vet Res 2019; 56 (Suppl 22): 75–85. DOI 10.26873/SVR-745-2019.
- 19. KarimaEl-Naggar, SehamEl-Kassas, Safaa E.Abdo, Abeer A.K.Kirrella, Rasha A.Al wakeel (2019). Role of gamma-aminobutyric acid in regulating feed intake in



commercial broilers reared under normal and heat stress conditions. Journal of Thermal Biology. Volume 84, August 2019, Pages 164-175. DOI: https://doi.org/10.1016/j.jtherbio.2019.07.004

- 20. Seham El-Kassas, Safaa E Abdo, Karima El-Naggar, Walied Abdo, Abeer AK Kirrella, Toufic O Nashar (2018). Ameliorative Effect of Dietary Supplementation of Copper Oxide Nanoparticles on Inflammatory and Immune Reponses in Commercial Broiler under Normal and Heat-Stress Housing Conditions. Journal of Thermal Biology. Volume 78, December 2018, Pages 235-246. https://doi.org/10.1016/j.jtherbio.2018.10.009.
- 21. AF El-Nahas, WM Basiony, S El-Kassas, and S Mahmoud (2018). Variation in the Genetic Effects of ABCG2, Growth Hormone and Growth Hormone Receptor Gene Polymorphisms on Milk Production Traits in Egyptian Native, Holstein and Hybrid Cattle Populations. Pak Vet J, 2018, 38(4): 371-376. DOI: 10.29261/pakvetj/2018.089.
- 22. Safaa Abdo, Seham El-Kassas*, Abeer El Nahas, and Shawky Mahmoud (2017). Modulatory Effect of Monochromatic Blue Light on Heat Stress Response in Commercial Broilers. Oxidative Medicine and Cellular Longevity, Volume 2017 (2017), Article ID 1351945, 13 pages https://doi.org/10.1155/2017/1351945
- 23. <u>El-Kassas S</u>, Odemuyiwa S, Hajishengallis G, Connell TD, Nashar TO (2016) Expression and Regulation of Cholecystokinin Receptor in the Chicken's Immune Organs and Cells. J Clin Cell Immunol 7: 471. doi:10.4172/2155-9899.1000471.
- 24. El-Kassas, S., Faraj, R., Martin, K., Hajishengallis, G., Connell, T. D., and Nashar, T., 2015. Cell clustering and delay/arrest in T-cell division implicate a novel mechanism of immune modulation by E. coli heat-labile enterotoxin B-subunits. Volume 295, Issue 2, June 2015, Pages 150-162. DOI: https://doi.org/10.1016/j.cellimm.2015.02.014
- 25. Radi Mohamed, Sherif ElKholya, Mustafa Shukry, El-Kassas S, Nagham Saidy (2017) Manipulation of Broiler Growth Performance, Physiological and Fear Responses Using Three Monochromatic LED lights. Alexandria Journal of Veterinary Sciences (AJVS). Vol. 53: 57-62. April 2017. DOI: 10.5455/ajvs.263048.
- 26. <u>Seham Elkassas</u>, Jasmyne Davis, , and Toufic Nashar. Control of Appetite in Chickens: Expression of CCKA Receptor Correlates with Immunological Parameters. 16th



Annual Biomedical Research Symposium, College of veterinary Medicine, Nursing and Allied Health, Tuskegee University, Tuskegee, Al, USA. September 17-18. 2015.

- 27. <u>Seham Elkassas</u>, Jasmyne Davis, Solomon Odemuyiwa, and Toufic Nashar. The Immune Status in Chickens is a Factor that May Control Appetite. NIH-MERIAL symposium, UC Davis School of Veterinary Medicine, University of California, Davis, CA, USA. From 30th July to 2nd of August 2015.
- 28. Rawah Faraj, Toufic Nashar, Seham El-Kassas, Karmarcha Martin, George Hajishengallis and Terry D Connell. Novel mechanisms of adjuvanticity implied from invitro studies with bacterial toxins. 9th Vaccines & Vaccination. From November 30-December 02, 2015 San Francisco, USA.
- 29. Seham Elkassas, M. M. Sharaf, and A. A. Mansour. 2012. Selection for increasing four weeks body weight in Japanese quails. Kafrelsheikh Vet. Med. J. Vol. 11 No.2.
- 30. Published genes on GenBank databases: 1-1-

https://www.ncbi.nlm.nih.gov/nuccore/?term=El+kasas

https://www.ncbi.nlm.nih.gov/nuccore/?term=El+kassas

https://www.ncbi.nlm.nih.gov/nuccore/ON638900.1

https://www.ncbi.nlm.nih.gov/nuccore/ON638901.1

Grand projects

- Co-investigator in a project titled "Novel biotechnological approach to increase meat production of native (baladi) chickens through inhibition of Myostatin activity." Funded from Kafrelsheikh University from 2012 to 2014.
- Member in Knord Dabrowski's laboratory in the School of Environment and Natural Resources, College of Food, Agriculture and Environmental Science, The Ohio State University, USA, for 6 months as a post-doctoral scholar and she was a collaborator on the research project entitled " The effects of dietary yeast Pichia pastoris intracellularly expressing fish proteolytic enzyme in formulation of starter diets for freshwater fish".

Scientific awards

- Kafrelsheikh University award for international publication, 2016-2017.
- Kafrelsheikh University award for international publication, 2017-2018.



- Kafrelsheikh University award for international publication, 2018-2019
- Kafrelsheikh University award for international publication, 2019-2020
- Kafrelsheikh University award for international publication, 2020-2021.
- Kafrelsheikh University award for international publication, 2021-2022.
- Kafrelsheikh University award for international publication, 2022-2023.

Thesis supervision

- "Identification of Some SNPs in ABCG2 gene that affects milk production and composition in Egyptian cows", Master thesis, Department of Animal Wealth Development, Faculty of Veterinary Medicine, Kafrelsheikh University. (DONE).
- "Genetic Evaluation of Some Productive Traits of Dairy Cattle". Master thesis, Department of Animal Wealth Development, Faculty of Veterinary Medicine, Kafrelsheikh University. (DONE).
- "Using Some Managemental Practices to Improve Performance of Nile Tilapia". Master thesis, Department of Animal Wealth Development, Faculty of Veterinary Medicine, Kafrelsheikh University. (DONE).
- "Advanced studies on fish feeding strategies", Ph D thesis, Faculty of Aquatic and Fisheries Science, Kafrelsheikh University.
- 'Genetic Evaluation of Some Reproductive Traits in Egyptian Buffaloes". Master thesis, Department of Animal Wealth Development, Faculty of Veterinary Medicine, Kafrelsheikh University.

Conferences

- 3rd scientific conference of the Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt, 2010.
- 15th Annual Biomedical Research Symposium "Transmitting Research through Community Networking for A healthier Nation "College of veterinary Medicine, Nursing and Allied Health, Tuskegee University, Tuskegee, Al, USA. March 19-22, 2014.



- 49th Annual Veterinary medical Symposium "Bridging the Gap: Veterinary Medical Education, Practice and Research "College of veterinary Medicine, Nursing and Allied Health, Tuskegee University, Tuskegee, Al, USA. September 18-19, 2014.
- 16th Annual Biomedical Research Symposium "Infectious diseases and Health Disparties" College of veterinary Medicine, Nursing and Allied Health, Tuskegee University, Tuskegee, Al, USA. September 17-18, 2015.
- 4th International scientific conference of the Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt, May 12-15, 2016.
- 7th International scientific conference "Veterinary Medicine and Advanced Technological Applications", Faculty of Veterinary Medicine, Alexandria University, Egypt, November, 8-10, 2016.
- 1st International Conference and Exhibition on "Sustainable Development of Aquaculture". Central Laboratory of Aquaculture Research (CLAR), 20-22, November 2017.
- 3rd Annual Meeting of Faculty of Agriculture, Kafrelsheikh University and Society on December 19, 2018.
- The 5th International Scientific Conference of the Faculty of Veterinary Medicine, Kafrelsheikh University, Egypt "Veterinary Medicine: Research and Applications" on March 05-09, 2019.
- The 2020 3rd annual Equine and Farm Animal Veterinary Continuing Education Conference on January 3, 2020. This was organized by Faculty of Veterinary Medicine, The Ohio State University, Columbus, Ohio, USA.
- 2nd International Scientific and Practical conference on "Molecular Genetic Technologies for analysis of gene expression as related to productivity and Resistance to animal diseases". K.I. Skryabin Moscow State Academy of Veterinary Medicine and Biotechnology, Moscow, Russia, December 25, 2020.
- The Annual Meeting of JSPS Alumni Association Egypt & the 2nd International JSPS Webinars entitled "Preparedness for the next COVID-18 Wave Multidisciplinary impacts Health, Education and Environment" on Saturday 13th February 2021.

Kafrelsheikh University Faculty of Veterinary Medicine

Department of Animal Wealth Development



Workshops

- Attending a training course on "Efficient Breeding for Sheep and Goat for Developing Countries", Sponsored by Ministry of Commerce of the Public Republic of China and organized by International Exchange Center Yangling, China, From May 16th 2017 to June 6th, 2017.
- Attending a workshop on "Rabbit breeding and production: The current and Future situation" Poultry Production Department, Faculty of Agriculture Kafrelsheikh University, on October 09, 2017.
- Attending and participating in a training workshop on "Competitive Research Proposal Writing" Sponsored by <u>DAAD Kairo Akademie (DKA)</u>, <u>Egypt</u>, on Thursday, March 1st, 2018.
- Attending an online workshop on "Communicating Science to Public" organized by Organized by Nature Research Academies in collaboration with the Egyptian Knowledge Bank (EKB) on February 03, 2020.
- Attending an online Workshop on "Systematic Reviews and Meta-analyses" organized by Organized by Nature Research Academies in collaboration with the Egyptian Knowledge Bank (EKB) on February 16, 2020.
- Attending an online workshop on "Logical Manuscript Structure" organized by Organized by Nature Research Academies in collaboration with the Egyptian Knowledge Bank (EKB) on February 21, 2020.
- Attending a workshop entitled "An Introductory Workshop on Multi-Gene Expression Assessment Employing Open Array Technology" Sponsored by a STDF project IDs: 4880 and 22941. This workshop was held on November 1st 2020 and organized by Digital Molecular Biology Research Lab, Medical Research Center of Excellence, NRC.
- Attending an online workshop on "Enhance Your Research with Elsevier: How to Publish an eBook" organized by Organized by Nature Research Center (NRC), Cairo, Egypt-in collaboration with the Egyptian Knowledge Bank (EKB) and Elsevier Society on 22nd December 2020.



- Attending a CABI online-platform webinar series on "**Professional Peer-review** (V2): **Professional post-submission peer-review**". Organized by CABI in collaboration with the Egyptian Knowledge Bank (EKB) on Thursday, December 24, 2020.
- Attending an online workshop on "Enhance Your Research with Elsevier: How to Improve R&D Productivity with Reaxys" organized by Organized by Nature Research Center (NRC), Cairo, Egypt- in collaboration with the Egyptian Knowledge Bank (EKB) and Elsevier Society on Monday 18th January, 2021.
- Attending an online workshop on "Enhance Your Research with Elsevier: Before Hitting Submit: Practical Tips for Authors" organized by Organized by Nature Research Center (NRC), Cairo, Egypt- in collaboration with the Egyptian Knowledge Bank (EKB) and Elsevier Society on Sunday 24th January, 2021.
- Attending an online workshop on "Functional Genome Annotation and Enrichment Analysis" organized by Organized by Nature Research Center (NRC), Cairo, Egypt-on 18-19 May 2021.
- Attending a training course on "Integrated Technology of Dairy and Beef Cattle for Developing Countries", Sponsored by Ministry of Commerce of the Public Republic of China and organized by International Exchange Center Yangling, China, From October 26th 2022 to November 15th, 2022 (VIRTUAL).

Research interests

- Investigating the impact of nutrition and management on chicken and other life stock growth and performance.
- Impact of feeding on improving chicken and other life stock immune response.
- Genetic Improvement of the poultry growth.
- Immune-regulation of poultry and animal growth.
- Immunogenic selection of highly resistant chicken.
- Genetic Improvement of milk and meat composition of cattle.