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László Beier[1], Ferenc Jánoska[2]

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Abstract:
The use of Unmanned Aircraft Systems (UAS), commonly known as drones, has been increasing in various fields, including wildlife research and conservation. Drones offer a non-invasive and efficient method for monitoring and studying wildlife populations. Thermal imaging drones have been proven to be effective for population counts offering more precise and accurate results compared to traditional ground-based counting methods. This study aims to evaluate the effectiveness of using drones for population counts of Grey Partridge (Perdix perdix). The method has the potential to expand opportunities for wildlife management and conservation, but it still has several flaws.

Keywords: grey partridge, Perdix perdix, drone, drone survey, unmanned aerial vehicle, UAV, thermal cameras, night vision, population monitoring, population estimation, ground-nesting birds

2. Characterization of amino acids, polyphenols and flavonoids of some bee products collected in the Banat region

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Abstract: Bee products have a millennial tradition in human apitherapy, thanks to their many healing properties. The aim of this study was to evaluate the chemical characterization of the content of amino acids, polyphenols and flavonoids of some bee products, such as apilarnil, royal jelly and propolis**.** Samples were collected from our apiary from Banat region, Romania, in 2022, as well as from the market. Apilarnil

and royal jelly were analyzed in pure and lyophilized form, and propolis in pure and tincture form. Our results show that there is a great variability in the chemical composition of the three bee products studied, depending on the form of presentation and the source of origin. In the case of amino acids, the best results were obtained from apilarnil and royal jelly from the own apiary, and for polyphenols and flavonoids, the best results were obtained in the case of pure propolis samples.

Keywords: apilarnil; royal jelly; propolis; amino acids; polyphenols; flavonoids.

3. Fenugreek's Secondary Metabolites – Role in Agriculture, Biotechnology and Animal Sciences

Mirela Ahmadi[1], Dorel Dronca[1], Gabi Dumitrescu[1], Lavinia Ştef[1], Elena Peţ[1], Liliana Ciochină-Petculescu[1], Igori Balta[1], Mărioara Nicula-Neagu[1], Florica Emilia Morariu[1], Ioan Peţ[1]

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Abstract

The secondary metabolites of fenugreek (*Trigonella foenum-graecum*) are organic compounds that are not directly involved in the main metabolic pathways, being non-essential for growth, development, and reproduction. However, these secondary metabolites are usually synthesized in response to different environmental stresses, and various interactions with other living organisms, or are synthesized as a plant defence mechanism. Non-essential metabolites are usually biologically active compounds with critical ecological roles, including a role in the defence of plants against herbivores, with antagonistic effects towards other plants or towards attracting pollinators. Secondary metabolites of fenugreek include various alkaloids, terpenoids, flavonoids, and phenolic compounds, with pharmaceutical, agricultural, and industrial applications – with important contributions to plant adaptation to the environment or the possibility of being used for its medicinal properties.

Keywords: biologic-active compounds, fenugreek, secondary metabolites

4. Comparative analysis on food security between Kenya and Zambia

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Abstract
Food security, a vital determinant of overall health and well-being, hinges on the simultaneous achievement of four dimensions: physical availability of food, economic and physical access to food, utilization of nutrients, and stability over time. This paper explores the complex and multi-faceted food security situations in Kenya and Zambia, emphasizing key factors such as agricultural production, government policies, and socio-economic conditions.
Keywords: Food Security, food supply, hunger, Integrated Food Security Phase Classification, malnutrition

5. Probiotics supplementation to mulberry silkworm *B. mori*

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Abstract
This paper evaluates the importance, characteristics, mechanisms, and effects of probiotics added to silkworm *B. mori* feed. Scientific databases (PubMed, Science Direct, Google Scholar, MDPI, Elsevier) were screened. We are searching for alternative solutions to improve the nutritional quality of the mulberry leaves. Probiotics present properties such as non-pathogenetic or non-toxicity, adhere to epithelial cells, can be reproduced, stimulate immune response, have a positive influence on the host, can survive in intestinal mucosal surface, etc., and perform various functions that recommend them as natural feed supplements in silkworm nutrition. *Lactobacillus*, *Bifidobacterium*, *Bacillus*, *Streptococcus*, and *Saccharomyces* species are the most evaluated probiotics used in insects. In addition to producing lactic acid, probiotics also lower intestinal pH, inhibit pathogen populations, alleviate inflammation in the gut,

boost immunity, and improve overall intestinal health. Silkworm gut contains various bacterial phylotypes (Proteobacteria, Firmicutes, Actinobacteria, and Bacteroidetes) that are crucial in nutrients metabolism and exhibit metabolites and enzymes indispensable for growth. This review highlighted that supplementing mulberry leaves with probiotics represents an eco-friendly strategy to improve the silkworm's performance, economic traits, and health.

Keywords: *B. mori*, gut microbiota, probiotics, performance, health.

Acknowledgements: This study was supported by the Romanian Ministry of Agriculture and Rural Development, grant ADER 24.1.2/2023.

6. Nutritional Composition of Some Cold-Pressed Oilseed Cakes as Alternative Sources of Nutrients for Pigs

Nicoleta Aurelia Lefter, Mihaela Dumitru, Georgeta Ciurescu*, Smaranda Mariana Pop, Arabela Untea

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Abstract

By-products from oilseed processing serve as valuable reservoirs of nutrients and bioactive compounds, displaying substantial potential for integration into pig diets. This study aimed to examine the chemical composition, fatty acid (FA) and mineral profiles, and to determine the nutritive value of three distinct cold-pressed oilseed cakes, such as pumpkin seed cake (PSC), hempseed cake (HSC), and linseed cake (LSC), sourced from a local processor. The chemical composition was evaluated using the Weende method, while FA analysis was conducted using Gas-Liquid Chromatography. The mineral micronutrients determination was performed using flame atomic absorption spectrometry following microwave digestion. Based on our findings, all examined by-products contained important amounts of protein (41.2% PSC; 35.6% HSC and 29.5% LSC) with higher biological value. The metabolizable energy was also higher in all three sources. Each of the three sources contained significant quantities of polyunsaturated FA (73.0% HSC, 66.6% LSC and 50.7% PSC). Notably, α-linolenic acid was particularly abundant, accounting for 51.1% in LSC and 17.4% in HSC. The HSC are rich in minerals (Cu, Fe, Mn). Overall, the findings suggest that due to their nutritional composition, all analyzed by-products have the potential to partially replace some nutritional sources in pig diets, offering notable health benefits.

Keywords: chemical composition, fatty acids profile, mineral profile, nutritional value, oilseed cakes, pig diets

7. The effects of a diet containing mustard seeds meal on the microbiota in post-weaning piglets

Iulian Alexandru Grosu[1], Gina Pistol[1], Daniela Marin[1], Ionelia Taranu[1]

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Abstract

The present study investigates the potential of by-products derived from oilseed by-products (mustard), possessing bactericidal and anti-inflammatory properties to modulate the intestinal microbiota in post-weaning piglets.

24 cross-bred TOPIG hybrid piglets were randomly allocated into four experimental groups based on their diet composition as follows: Control group receiving basal diet, LPS group challenged with *E. coli* lipopolysaccharides (LPS) and fed with basal diet, MSM group receiving diet including 8% mustard seed meal and MSM+LPS group fed 8% MSM diet and challenged with LPS. After 21 days of feeding with dietary mustard meal, pigs were sacrificed and colonic content samples were collected and the effect of diets on the pig gut microbiota was assessed.

Bifidobacterium and *Prevotella* populations remained stable across all groups. LPS treatment increased *Enterobacter* and *Clostridium*, while reducing *Lactobacillus* populations compared to controls. Mustard meal alone didn't alter microbiota when compared to the gcontrol diet. However, in LPS-challenged piglets fed mustard seed meal, *Lactobacillus* levels normalized while *Enterobacter* and *Clostridium* decreased, suggesting mustard meal's potential in mitigating LPS-induced microbiota disruptions.

The paper highlights the potential of mustard seed meal to counteract the adverse effects of the LPS on microbiota composition through modulation of specific bacterial populations.

8. Alternariol mycotoxin induce oxidative stress in porcine epithelial cell line IPEC-1

Daniela E. Marin, Gina C. Pistol, Iulian Grosu, AnaMaria Pertea, Cristina V. Bulgaru, Ionelia Taranu

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Abstract

Alternaria toxins are secondary metabolites with different chemical structure, produced by fungus belonging to Alternaria species (Ostry, 2008). Exposure to Alternaria mycotoxins was associated with different negative effects on human and animal health, including cytotoxic, mutagenic, genotoxic and carcinogenic effects (EFSA, 2016). Pigs through the consumption of a diet rich in cereals are particularly exposed to the mycotoxin contamination (Marin et al., 2020). After oral ingestion, mycotoxins present in food or feed reach the body and interact in the first place with the cells of the gastrointestinal tract. For this reason, the aim of our study was to investigate the capacity of alternariol (AOH), a very common contaminant produced by Alternaria fungi, on porcine epithelial intestinal cells. IPEC-1 cells were

cultivated in cell plates for 24h and exposed to different AOH concentrations for another 24h. Our results indicated a dose related effect on cell viability with a calculated IC50 of 29.2mM. AOH significantly decrease the activity of antioxidant enzymes superoxide dismutase (a decrease of 9.2% for AOH 2.5mM and 38.9% for AOH 5mM) and catalase (a decrease of 44.5% for AOH2.5mM and 52% for AOH 5mM) as compared with the control. Exposure to AOH induces a significant increase of ROS (+) cells by 6.5 and 9.23 times for the concentrations of 2.5mM and 5mM AOH as measured using a flow cytometry test. These effects were accompanied by a significant increase of protein, lipid and DNA oxidation. In conclusion, our results have shown that the exposure of porcine epithelial intestinal cells IPEC-1 to AOH significantly decrease the cell proliferation, inducing an increase of the oxidative stress and a decrease of antioxidant defense in porcine epithelial intestinal cells.

Keywords: alternariol, pig, intestine, oxidative stress

Acknowledgement: This research was supported by funds from the National Research Projects PCE 42/2022 and 8 PFE/2021 granted by the Romanian Ministry of Research Innovation and Digitalization

9. Nutritional characterization of white grape pomace: potential feed additive in Ruminants' Nutrition

Alexandra-Gabriela Oancea, Mihaela Saracila, Alexandru Vlaicu, Iulia Varzaru, Arabela Untea, Catalin Dragomir

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Abstract

In today's food industry, fortifying food products with several nutrients is a priority, animal nutrition representing a key strategy for achieving this goal. Nevertheless, the scarcity and high costs of the conventional feedstuffs leads to the investigation of industrial by-products as alternative solutions in livestock nutrition. White grape pomace, a by-product of the winery industry, is well-known for its rich resveratrol content. Nevertheless, in addition to this, it can present significant quantities of other nutrients and antioxidant compounds, which exert beneficial effects when incorporated in ruminants' nutrition. Our study revealed a remarkable concentration of the white grape pomace nutrients, with important amounts of minerals, particularly manganese (106.35 mg/kg). The fatty acids profile showed a high composition of polyunsaturated fatty acids (65.05 g/100 g FAME), with a great amount of omega 3 fatty acids (62.66 g/100 g FAME). Concerning the antioxidant compounds, white grape pomace exhibited a concentration of 12.49 mg/g GAE for total polyphenols and 3.27 mg/kg for total flavonoids. Also, our study highlighted a high antioxidant potential of it, especially assessed through DPPH radical scavenging assay (74.26 mM eq. Trolox), ABTS radical scavenging assay (75.07 mM eq. Trolox), and total antioxidant capacity (286.26 mM eq. ascorbic acid).

Keywords: Antioxidant potential, bioactive compounds, nutritional quality, white grape pomace.

"This research was financially supported by the Romanian Ministry of Research, Innovation and Digitalisation, project PED 631/2022 and supported by the National Research Development Project to Finance Excellence 8 PFE/2021."

10. Effects of dietary White Lupin (*Lupinus albus*) seed meal on the fresh yolk colour and sensory properties of boiled eggs

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Abstract
This study evaluated the effects of dietary replacement of soyabean meal (SBM) with white lupine seed (WLS) on fresh yolk color and sensory properties of boiled eggs. A 6-week feeding trial on 160 Tetra SL laying hens (30 weeks of age), divided into 3 groups (SBM; WLS15% and WLS32.5%) was done. At the end of the study, 126 eggs were randomly selected from each group, to evaluated the sensory quality by a panel of 42 trained members. Eggs were boiled five minutes at 100 ℃, peeled and cut in half, placed in the plate with a identification code and presented to the evaluators. The yolk colour value at the fresh eggs significantly ($p \leq 0.05$) increased at the WLM (15 or 32.5%) groups. L* parameter concomitantly decrease with the level of lupine increase, while a* and b* show significant variations between groups. The flavor evaluation was significantly ($p \leq 0.05$) lower for the eggs provided by hens fed with WLS32.5%, significantly decreasing both compared to SBM (with 45%) and WLS15% (over 30%). This fact is due to the presence of quinolizidine alkaloids (32 g/kg) in the white lupine, which led to obtaining the eggs with a bitter taste. In conclusion, white lupine seeds can be added to poultry diets up to 15% as a replacement for SBM without affecting egg quality.
Keywords: eggs, lupin, yolk colour, sensory properties, quinolizidine alkaloids

11. Investigations regarding the efficacy of several cosmetic preservatives

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Abstract
The average adult today uses between 7 and 12 personal care products a day. The quality of cosmetics is therefore very important. The incorporation of preservatives in cosmetics is necessary to prevent the growth of various micro-organisms and damage to cosmetics. In this work, the efficacy of three cosmetic preservatives: sodium metabisulphite, sodium salicylate and salicylic acid at different concentrations (0, 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 mM) on four bacterial strains: *Escherichia coli*, *Staphylococcus aureus*,

Enterobacter cloacae, and *Pseudomonas aeruginosa* was investigated. The results showed that the growth of the bacterial strains is different depending on the preservatives used. Sodium metabisulphite is the most effective preservative, having a bactericidal effect on all strains used.

Keywords: bacteriostatic effect, bactericidal effect, cell viability,

Funding: This research was funded by the GRANT PNIII-P3-284, ChitoWound—Biotechnological tools implementation for new wound healing applications of byproducts from the crustacean seafood processing industry.

12. Exploring the effect of three cosmetic nutrients on several bacterial strains

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Abstract
Nutricosmetics is the newest trend in the beauty industry. Nutricosmetics are products and ingredients such as peptides, proteins, vitamins, carotenes, minerals, omega-3 fatty acids, added to various cosmetics or dietary supplements to maintain the natural beauty of skin, nails and hair. This research focused on determining the effect of three cosmetic nutrients: ascorbic acid, zinc oxide (particle and nanoparticle sizes) and activated charcoal at different concentrations (0, 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 mM) on several bacterial strains: *Escherichia coli*, *Staphylococcus aureus*, *Enterobacter cloacae*, and *Pseudomonas aeruginosa*. The results showed that only ascorbic acid had an inhibitory effect on the growth of all bacterial strains, starting at 35 millimolar. Under working conditions, the other cosmetic nutrients had a stimulatory effect on bacterial growth. At 50 mM concentration, ascorbic acid had bactericidal effect on all bacterial strains used, except *Pseudomonas aeruginosa*. In addition, in this study, microbiological quality tests in three different cosmetic products containing several nutrients (day cream with skin protection factor, micellar cleansing water with ascorbic acid and face mask with snail extract) showed high quality in the day cream and micellar water (without bacterial colonies), but the presence of some bacterial colonies in the snail extract samples.

Keywords: bacteria, bacteriostatic effect, bactericidal effect.

Funding: This research was funded by the GRANT PNIII-P3-284, ChitoWound—Biotechnological tools implementation for new wound healing applications of byproducts from the crustacean seafood processing industry.

13. Effects of incorporating clinoptilolite in colostrum on the immunity and diarrhea in newborn calves

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Abstract
Clinoptilolite, a naturally occurring zeolite present in sedimentary rock, has significant potential as an essential component for the removal of toxins inside the gastrointestinal system. Its detoxifying, antioxidant, hemostatic, anti-diarrheic, growth-promoting, and immunostimulant characteristics render it very applicable in animal biotechnology and veterinary medicine. In recent years, clinoptilolite has become more popular in animal nutrition, particularly for its ability to enhance performance and promote overall health. Diarrhea in neonates is a very widespread ailment that leads to significant mortality rates and cost ramifications. Bovine colostrum plays a crucial role in the early feeding of calves, and the incorporation of clinoptilolite into colostrum has been shown to reduce the likelihood of diarrhea syndrome. Clinoptilolite-based products are being used more often in the fields of veterinary and human medicine due to their beneficial features, such as their capacity to facilitate ion exchange and adsorption. The objective of the study was to examine the characteristics of clinoptilolite included into colostrum in neonatal calves, specifically focusing on its impact on immunity and the occurrence of diarrhea.

Keywords: colostrum, clinoptilolite, newborn calves, diarrhea, immunity.

14. Season influence on milk physico-chemical characteristics

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Abstract
The influence of seasonal variations on milk composition might be contingent upon many variables, including geographical location, climatic conditions, cow breed, and farm management strategies. The objective of this research is to examine the correlation between the season, quality, and safety of bovine milk via the assessment of physical-chemical parameters and the somatic cell count. The milk samples were collected on a weekly basis from the cooling tanks of a farm located in the northeastern region of Romania. The parameters were assessed via the use of rapid analytical procedures that require minimal reagent usage and accessible analysis expenses. Based on the findings of the study, it was determined that seasonality exerted a notable influence on the milk's quality. Specifically, the cold season displayed higher levels of fat, protein, casein, and lactose compared to the warm season. Additionally, in the cold season a lower quantity of somatic cells (SCC) in comparison to the warm season was observed.
Keywords: season, milk, cow, parameters physico-chemical

15. Frontiers of genetic engineering: cutting-edge genome editing for silkworms and honeybees

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Abstract
Nowadays, entomology is one of the most studied domains due to the pivotal role of insects in ecology, agriculture, the pharmaceutical industry, and medicine. Insects are the most diverse and numerous group of species, and their impact represents a high interest for the scientific community. Due to their well-documented high applicability in various areas, two of the most studied insects are silkworms and honeybees. One of the most important roles of silkworms is their role in medicine and the pharmaceutic industry as bioreactors and model organisms. Honeybees represent the main pollinator for numerous crops and wild plants and present a major contribution to the food chain. Despite their beneficial role in nature and the numerous products obtained from the hive, the bees face several stressors, both biotic and abiotic. The most important progress in this direction has been made by applying genome editing tools to enhance their productivity and agricultural sustainability. Until now, researchers have obtained disease-resistant individuals, limiting the high need for chemical treatments and promoting environmental health. These advancements exhibit progress in biotechnological innovations, including the production of innovative biomaterials for medical applications, underscoring the broad impact of these techniques on the economy, ecology, and medicine.

Keywords: biotechnological innovations, honeybees, medicine, silkworms

16. Investigating the genetic diversity of potential squab pigeon breeds using 8 microsatellite markers

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Abstract
The aim of this study was to make comparison between the Hungarian giant pigeon breeds and international squab breeds. Eight pigeon microsatellite markers were used to examine the genetic variability and relationships among seven breeds of domestic pigeons. Four breeds are native breeds from Hungary (Buga pigeon, Hungarian cropper, Hungarian giant pigeon, Salonta giant), and three are internationally very popular squab breed (King, Mondain, Runt). In total, 8 microsatellite loci were genotyped in 193 individuals giving a total of 319 alleles. This study is the first to report microsatellite analysis in Hungarian native pigeon breeds. In our study, expected and observed heterozygosity values were higher than expected for all breeds compare to literatures, the highest values were measured in the Runt pigeon (H_O=0.51) and in the Salonta giant (H_O=0.47). The expected heterozygosity was lowest in the King and Mondain breeds (H_E=0.82), slightly higher in the Hungarian Giant (H_E=0.84) and very high in the other breeds (H_E=0.9). The inbreeding coefficient showed the highest values were recorded for the King (F_{IS}=0.55), the Buga pigeon (F_{IS}=0.50) and the Hungarian cropper (F_{IS}=0.50), and the lowest for the Runt pigeon (F_{IS}=0.43). In case of allelic samples, very high allele counts were obtained for all the studied breeds, but the Buga pigeon stood out in the number of unique alleles (5.375). The results were also analysed based on two groups (Hungarian and International breeds), showing that Hungarian breeds have one and a half times more unique alleles than the international breeds we studied, which clearly shows the existence of unique genetic traits due to the isolation of Hungarian breeds in the Carpathian Basin. In short, the long history of domestic pigeon breeding has not led to a reduction in their genetic variation and diversity. The breeds that have been developed have not yet developed many unique genetic traits that can be considered as unique to the breed. However, in a few breeds, such as the Buga pigeon and the Hungarian cropper, genetic patterns have been found that set them apart from the other breeds studied.

Keywords: history, microsatellites, pigeon

Acknowledgment
Katalin Balog was supported by the PhD Excellence Scholarship from the Count István Tisza Foundation for the University of Debrecen. Supported by the University of Debrecen Program for Scientific Publication.

17. Conserving evolutionary potential and resilience to climate change of domestic buffalo in Hungary

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Abstract
The Carpathian or Pannonian buffalo is the original breed of Carpathian basin countries, like Hungary, Romania and Ukraine that is very well adapted to the harsh environment. Its hoofs are stronger and steeper than the hoofs of other breeds and they have denser fur and more hair all over the body. The general objective of this study is to analyse genomic diversity, structure, phylogenomic status of the Hungarian local buffalo herds. And to preserve the cultural heritage and traditional extensive land management in threatened habitats found in the studied region. Despite declining use in modern agriculture, native breed likely hold genetic variants critical for evolutionary potential and resilience to climate change. This has implications for A) food security, including options for genetic rescue in response to climate change, and B) mutual benefits for preservation of native breeds and ecosystems in Hungary and beyond by free-range grazing that promotes *in situ* conservation and contemporary evolution to the extent possible. We believe that our genomic study would successfully contribute to the elucidation of the global "origin story" of domestic buffalo and assess the gene pool of the global population. On the other hand, the results would provide directly utilisable information for animal breeders in Hungary to develop their breeding programs.

Keywords: Carpathian buffalo, diversity, phylogenomic status, SNP chip

Acknowledgement: Supported by the University of Debrecen Program for Scientific Publication and DETKA Bridging Fund.

18. Stability of poultry meat during refrigerated storage, based on the packaging used

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Abstract
This study proposes a comprehensive investigation into identifying the spoilage threshold of refrigerated meat, focusing on skinless boneless chicken breast, packaged in two distinct methods: polyethylene bags with clips (Cryovac system) and trays wrapped in stretch film (Skin type). The analyses were initiated starting from the 7th day of storage, following the manufacturer's recommendations, and included parameters such as pH, easily hydrolyzable nitrogen, hydrogen sulfide, and formic aldehyde. Every day, we rigorously followed a protocol to examine five product units for each packaging method. The results indicate that, for 7 days, the freshness of the meat was maintained under both packaging conditions; however, subsequently, it was compromised. Nevertheless, it is noted that the chicken breast packaged in polyethylene bags with clips exhibited significantly longer freshness retention compared to the chicken breast packaged in trays with stretch film. These findings make significant contributions to understanding the process of refrigerated meat spoilage and can guide the development of improved packaging and storage strategies in the food industry.

Keywords: packaging, poultry meat, freshness, refrigeration.

19. The impact of heat stress on the health and performance of poultry: a review

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Abstract
The aim of this study is to conduct a comprehensive analysis of information regarding the impact of heat stress on the health and performance of poultry, emphasizing the importance of effective management of this stress factor in the poultry industry. Heat stress poses a significant threat to the poultry farming industry, having a negative impact on both health and product efficiency and quality. Despite having physiological thermoregulatory mechanisms, birds, especially those in meat production lines, are vulnerable to the harmful effects of heat stress because they lack sweat glands and because artificial selection alters their metabolic rate. The consequences of heat stress are varied, encompassing behavioral changes (such as lethargy and reduced food intake), metabolic imbalances, disruptions of internal

homeostasis (such as hormonal imbalances and inflammatory processes), and impairment of intestinal functionality. To counteract these negative repercussions for poultry, strategies have been developed that target not only nutritional aspects but also growth and adaptation techniques.

Keywords: avian health, heat stress, poultry, productive performance

20. Preliminary results on the detection of adenosine triphosphate using the luminescent D-luciferin-luciferase reaction

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Abstract
Living bacteria contain adenosine triphosphate (ATP), and the number of bacteria is related to the level of ATP under certain conditions, therefore the luciferase method, which catalyzes the luminescent reaction of D-luciferin in presence of ATP, is widely used to detect bacteria in different types of samples. Rapid and high-throughput ATP-based bacterial detection technologies are currently being sought. The D-luciferin substrate is oxidized and ATP is degraded to adenosine monophosphate (AMP), with energy released as visible light. The light emission can be either a fast flash reaction or a stable glow reaction, depending on the specific assay environment. The flash reaction provides improved sensitivity in measuring ATP, but has the disadvantage of requiring automatic dispensers for substrate adding. In this work, five protocols were tested in order to stabilize the ATP flash reaction and to adapt it to an equipment without automatic dispenser. The concentration of ATP or magnesium ions required for the reaction were varied. For the tests carried out, the results revealed that the reaction is still very fast and still challenging.

Keywords: bioluminescence, flash reaction, glow reaction.

Funding: This work was financially supported by the Project RoRS 337- ROmania Serbia NETwork for assessing and disseminating the impact of copper mining activities on water quality in the cross-border area (RoS-NET2), implemented under the Interreg-IPA Cross-border Cooperation Romania-Serbia Programme that is financed by the European Union under the Instrument for Pre-accession Assistance (IPA II) and co-financed by the partner states in the program.

21. Study on lactation curve in Romanian buffalo using non-linear mixed models

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Abstract
The aim of the study was to evaluate the lactation curve in Romanian buffalo cows using non-linear mixed equations (NLM) for the total lactation recorded. A database of 2726 daily milk records (kg) were analysed. The data was collected at irregular time intervals during lactation from 311 buffalo cows, calving from 2021 to 2023 in a farm located in Arad County. Five NLMs were tested: Brody et al., 1923 (BRO); Sikka, 1950 (SIK); Wood, 1967 (WOD); Cobby and Le Du, 1978 (COB); and Wilmink, 1987 (WIL). The best fit model was selected using the R^2. All the parameters of the models were statistically significant ($p \leq 0.05$), while the percentage of variance explained by each model was only over 30%. The highest R^2 was obtained by WOD (0,3399), followed by BRO (0,3355), SIK (0,3279), WIL (0,3267), and COB (0,3303). All five NLMs had three variables (b1, b2, and b3) which were very different from one model to another. This resulted in different lactation curve shapes depending on the model used, but we consider that the best model was WOD because it provided the highest R^2 and produced the closest to the normal shape of the lactation curve.

Key words: buffalo, lactation curve, milk, non-linear models

22. Exploring nanobiotechnologies in the food industry: applications, benefits and challenges

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Abstract
Nanobiotechnologies have emerged as a promising frontier in the food industry, offering a plethora of applications with the potential to revolutionize food production, preservation, and safety. This paper explores the extensive applications, benefits, and challenges associated with the integration of nanobiotechnologies into various aspects of the food industry. Numerous studies have demonstrated the multifaceted utility of nanobiotechnologies in food science. These include but are not limited to

nanoparticle-based delivery systems for bioactive compounds, nanoencapsulation for enhancing stability and solubility of nutrients, and nanosensors for rapid detection of contaminants. Such innovations have led to improvements in food quality, shelf-life extension, and nutritional fortification, addressing critical challenges faced by the food industry. Moreover, the adoption of nanobiotechnologies presents significant benefits such as increased efficiency in nutrient delivery, reduced reliance on chemical preservatives, and enhanced food safety through real-time monitoring of pathogens and toxins. This paper synthesizes recent research findings and highlights the transformative potential of nanobiotechnologies in the food industry. By addressing the applications, benefits, and challenges associated with their integration, this study aims to provide insights into the future directions of research and development in this dynamic and rapidly evolving field.

Keywords: food industry, food safety, nanobiotechnologies, nanoparticles, nutritional fortification

23. Analysis of quality of turkey pâté: organoleptic, physicochemical and microbiological evaluation

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Abstract
High-quality poultry meat products, characterized by freshness, flavor, and safety, are essential for consumer satisfaction and loyalty in the food industry. The consistent maintenance of quality standards in poultry meat products ensures not only consumer confidence but also contributes to their overall health and well-being. This paper aims to assess and verify the quality of turkey liver pate cans obtained within a poultry meat processing unit in the Moldova region, through organoleptic, physico-chemical, and microbiological analyses. The analysis of the chemical composition showed a content of 1.35% NaCl, protein content with an average value of 8.76%, and fat content with an average value of 24.66%. Also, microbiological analysis of the cans demonstrated the absence of pathogenic bacteria from the genera Salmonella and Escherichia coli. In conclusion, quality assurance of canned meat is achieved through the implementation of total supervision through the correct and impartial evaluation of all risk factors for the health of the final consumer. Hygiene must be ensured in all stages of production, starting from hygiene on the technological flow of canning, the hygiene of the storage space and the sale of preparations.

Keywords: food safety, meat quality analysis, poultry meat products, turkey pâté

24. Oregano essential oil used as feed supplement: organic fermented goat milk products properties

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Abstract
The present work aimed at evaluating the effect of *Origanum vulgare* essential oil used as feed supplement on the physicochemical, rheological/textural and sensory properties of organic fermented goat milk products (kefir and spreadable-type cheese produced using the starter culture of kefir). Twenty-four animals of the same age and with similar milk yield and body weight were distributed into three groups. First group (A) was fed with the control diet, while in groups B and C, organic oregano essential oil of 1mL and 2mL, respectively, was added to the feed of each goat per day. The samples were analysed for their physicochemical (pH, acidity and dry matter, fat and protein content), rheological/textural (firmness, consistency, cohesiveness, index of viscosity) and sensory (colour, aroma, acidity, viscosity/consistency, total acceptability) properties. The introduction of *Origanum vulgare* in the goats' diet increased acidity, aroma and acceptability of the fermented goat milk products, while it reduced rheological/textural properties of the spreadable-type cheese samples. The milk form B group resulted in the production of kefir samples with increased dry matter and fat content, rheological properties and consistency. It is concluded that the use of *Origanum vulgare* essential oil affected the properties of kefir and spreadable-type cheese derived from organic goat milk.

Keywords: kefir, organic goat milk, *Origanum vulgare*, spreadable-type cheese

25. The effect of oregano essential oil addition on milk production and composition of organically reared goats.

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Abstract
The effect of adding organic oregano essential oil (EO) to the diet of dairy goats was investigated. Twenty-four age-matched lactating goats, mean live weight 49±1.8 kg, were allocated to 3 equal groups in a randomized design, of 8 goats housed in the same cell. The 3 groups were fed the same standard mixture of corn-based concentrates, while a mixture of alfalfa hay, wheat straw and corn silage was used as roughage. In groups 2 and 3, organic oregano essential oil 1ml and 2ml per animal per day was added to the concentrate feed mixture. Individual milk production performance as well as ration provision was recorded daily, starting from the 150th day of milk production. The milk samples were analyzed for their chemical composition and the number of somatic cells. The results showed that the groups of animals with the inclusion of EO showed a greater persistence in milk production compared to the control group. In addition, groups 2 and 3 presented 21.4% and 10% increased milk production compared to group 1, during the final stage of milk production. The chemical analysis of the milk showed that group 2 showed the highest fat content and protein concentration, as well as that the milk from groups 2 and 3 showed a lower number of somatic cells, compared to group 1. In conclusion, EO supplementation can improve the performance of organically reared dairy goats as well as relatively improve the composition of the milk produced. However, the underlying mechanisms leading to this improvement need further investigation.

Key words: Dairy goats, oregano essential oil, milk yield.

26. Study on wild animals' dynamics on 66 Tolvadia hunting area from Timis County during 2021-2024

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Abstract
The EU integration of the Romania is imposing a special attention to the populations of wild animals for hunting. The hunt was always a spring of rich in our country, not only by the large number of animals but also by the variety of species. The hunt represents the oldest occupation, before all others humans were hunter and gatherer. As old as man, the hunt evolved with the humans and with the development of the society.The aim of the present paper was to study the quantitative evolution of the hunting population for 13 animal species during 2021-2024, on 65 Giera hunting area, from Timis County, heaving a total area of 12,557 ha. The study shows that form the 13 monitored animal species, 6 were not identified on this hunting area: Red Deer (*Cervus elaphus L*), Fallow Deer (*Dama dama L*), Wildcat (*Felis silvestris L*), Grey Partridge (*Pedrix pedrix L*), Weasel *(Mustela nivalis L.)* and Muskrat (*Ondatra zibethica L.*). We recommend the permanent monitoring and limitation of populations from the *Canidae family*, especially of the Jackal *(Canis aureus L.)* species and Red Fox *(Vulpes vulpes L)* species. The present study recommends the revival of the existing population on this hunting area, through "blood refreshing" actions.

Key words: game animals, game population, cynegetic, hunting animals, hunting area

27. Evolution of the Observed Sizes of Hunting Herds on 54 Padureni hunting area fromTimis County, Romania

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Abstract
The observed size of an animal population, as opposed to the genetic size, is given by the number of individuals in all categories as well as by the total number of males and females, participating in the production of the descendant generation. The integration of Romania into the European Union requires special attention also to the hunting populations. The purpose of the present paper was to study the evolution of the observed sizes of the hunting population for 13 species of animals in the period 2020-2024, on 54 hunting areas Padureni, from Timis County with a total area of 9,928 ha. On this hunting area, the *Cervidae* family – which includes ruminants with deciduous horns, is represented by 2 species, respectively Roe Deer (*Capreolus capreolus* L) species and Fallow Deer (*Dama dama* L.) species, instead, Red Deer (*Cervus elaphus* L.) species, has not been found. We recommend the permanent monitoring and limitation of populations from the *Canidae family*, especially of the Jackal *(Canis aureus L.)* species. For the other identified species, the population of evolutionary numbers showed that there is a good correlation between the number of individuals and their biogenic capacity. The present study recommends the revival of the existing population on this hunting area, through "blood refreshing" actions.

Key words: observed size, hunting animals, hunting population, hunting area

28 Analysis of longevity traits in Holstein Friesian cows

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Abstract
Survival rate (SR) number of parities and length of productive herd life (LPHL) were evaluated for Holstein Friesian cows that calved beginning January 1, 2000 through May 2021 in a research dairy farm. A total of 870 lactation records were examined. Average Survival Rates (SRs) were 75.8% to parity 2, 49.7% to parity 3, 37.3% to parity 4, 18.6% to parity 5, 11% to parity 6, 6.3% to parity 7 and 3.3% to parity 8. A change for a better survival rate of cows over the span, years 2011-2021 compared with 2000-2010 was found to parity 2 and to parity 3 (significant differences). For the rest of parities (to 4, to 5, to 6, to 7 and to 8) the differences were non-significant. Average number of parities over the spam years 2000 to 2015 was 2.81. Linear regression of average of parities on year of first calving was positive (R=0.2786) and this means that was a weak direct relationship between variables. A change in the year of first calving with 1 impacted a change in the number of parities with 0.006. Average productive herd life (months) over the span years 2000 to 2015 was 33.86. Linear regression of average LPHL by year of first calving was positive (R=0.6513) and this means that was a strong direct relationship between variables. A change in the year of first calving with 1, impacted a change in the number of parities with 0.1889. The results of this study can give important information for economic studies on dairy herd management

Keywords: survival rate, number of parities, length of productive life.

29 Impact of subclinical endometritis on some fertility traits of dairy cows

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Abstract
The aim of this of this retrospective study was to determine that most suitable Polymorphonuclear leukocytes (PMNs) threshold for diagnosis of subclinical endometritis (SE), the causes of this disorder and its effect on subsequent reproductive parameters of Holstein Friesian cows. Uterine cytology was executed on 140 Holstein cows at 28-30 days postpartum (pp) to calculate the PMN cells. A threshold of 16% PMNs above which some of the reproductive parameters were significantly affected was used. The retained fetal membranes (Odds ratio; OR = 3.02) and metritis (OR = 4.92) were the causes for SE. subclinical endometritis and metabolic disorders (milk fever and ketosis) affected the resumption of pp

cyclicity at 28-30 days in milk. Cows with SE were less likely to conceive after their artificial insemination (OR = 0.44 p<0.05) than cows without S.E., and needed more artificial inseminations to conceive (2.4 vs. 2.1.). A PMN threshold of 16% was good enough to detect SE at 28-30 days pp. the RFMs and metritis were causal factors for SE.

Keywords: cytological endometritis, subclinical endometritis, polymorphonuclear cells, reproductive parameters, causal factors.

30 Effect of titanium dioxide on certain bacterial and yeast cultures

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Abstract
Titanium dioxide is a chemical compound used in a wide range of products and fields, including paints, coatings, adhesives, paper, plastics and rubber, printing inks, textiles, ceramics, cosmetics, soaps, toothpaste, water treatment agents, food dyes, pharmaceuticals, automotive products, sunscreens and catalysts. In food industry, titanium dioxide or E171, is used as coloring food additive. Recent studies have shown that titanium dioxide is no longer considered a safe food additive due to its accumulation and toxic effects. In the present investigation, the effect of different concentrations of ethanol (0; 0,4; 2; 4; 6; 8; 10; 12; 14; 16; 18; 20 %), or titanium dioxide prepared in 40% ethanol (0, 1, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 mM) on different bacterial cultures (*Staphylococcus aureus* and *Enterobacter cloacae*), and fungi cultures (*Pichia pastoris*, *Saccharomyces cerevisiae*, and *Candida albicans*) was observed. The preliminary results revealed that *Enterobacter cloacae* was inhibited at 8% ethanol and 5 mM titanium dioxide in ethanol, while *Staphylococcus aureus* at 18 % ethanol and 35 mM titanium dioxide in ethanol. The yeast strains were less sensitives than bacterial strains in ethanol, or titanium dioxide prepared in ethanol media.

Keywords: bacteria, yeast, solubility.

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31 Effect of dry buffered vinegar on Listeria monocytogenes growth during of shelf life on ready to eat beaten beans dip

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Abstract
The beaten beans dip represents one of the most popular foods in Romania, it being frequently consumed, and it is on the manufacturing list of many food producers as ready to eat (RTE) meal. This category of RTE, generally, recognize aw and pH values which permit growth of different foodborne pathogens, as *Listeria monocytogenes* (Lm). Evaluation of Lm growth potential during the shelf life represents a food safety aim, according to Regulation (EC) no. 2073/2005, on microbiological criteria for foodstuffs. *Listeria monocytogenes* represents a public health threat, it being the pathogen agent of human listeriosis, a severe emerging foodborne zoonosis. The purpose of the study is to assess the inhibition effect of dry buffered vinegar on Lm growth during the shelf life of beaten beans dip, in modified atmosphere packaging and refrigeration storage conditions. Based on the results, the growth of Lm is not possible, the highest value being 0.04 (less than 0.5) for the beaten beans dip with dry buffered vinegar. The use of Lm growth inhibitor represents a useful preventive measure, in the conditions of increasing the consumption of RTE type products and the potential risk of Lm multiplication.
Keywords: beaten beans, dry buffered vinegar, food safety, Lm, shelf life

32 Comparison of milking systems based on milk quality and milk quantity

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Abstract
We analysed one Holstein- Friesian dairy farm using two types of milking technologies. One of them is a parallel milking parlour (2x8), where 200 cows are milked twice a day. The other part of the animals (500 cows) is milked with robotic milking machine. The average daily milking frequency is 2.8. We processed data from nearly 700 cows. Based on the two different milking technologies, we formed two groups for the calculations. Within the groups, the animals were arranged according to their lactation period (14 months). We collected daily milk production (kg / day), milk protein (% / kg), milk fat (% / kg) and somatic cell count (SCC) (cell number / cm^3) data, based on a monthly test-day. Using the SPSS-26 program, we compared the results of the two groups with an independent T-test.

Each month, there was significantly more milk production for robotic milking (P <5%) compared to conventional milking technology. In the 2nd month of lactation, at the time of peak production, the average milk production of the animals was 43 kg and 37 kg, respectively. The milk protein content was higher in conventional milking, because less milk is more concentrated. At months 2, 3, 4, and 11 of lactation, the difference was significant. In the month of peak production (month 2): 3.27 and 3.22 (milk protein %). Milk fat% was higher in conventional milking only in months 2 and 3 of lactation, however, this level was significantly higher in the second half of lactation in addition to robotic milking. The somatic cell count of milk was lower each month for robotic milking. This difference was significant for the first 11 months. At 2 months of lactation: 140,000 and 220,000 (number of cells / $cm^{3)}$ (P <5%).
Based on our results, we can conclude that significantly more milk and milk fat can be produced and significantly less the SCC with the robot milking. With this technology, the average number of milkings per day is 2.8, compared to the traditional twice-daily milking. The udder is emptied several times, which stimulates the udder to produce more milk. At the end of milking comes the higher fat milk, which can also be increased by milking three times a day.

keywords: robot milking, milk yield, somatic cell count, milk protein, milk fat

33 An approach on the functional properties of mulberry leaves associated with yeast (*Saccharomyces cerevisiae)* for silkworm *Bombyx mori* feeding

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Abstract
This paper explores the characteristics and associative impact of the compounds from mulberry leaves and yeast (*S. cerevisae*). Nutritional characteristics of the mulberry leaves, yeast properties and metabolism, as well as the effects on silkworms, were described. The online English databases used were MDPI, PubMed, Research Gate, Google Scholar, and Elsevier. The nutrition and health of silkworms *B. mori* depend on protein and amino acids, fats, vitamins, and minerals, all abundant in mulberry leaves. Furthermore, mulberry leaves contain bioactive phytochemicals offering health benefits. Many dietary supplements were investigated for their potential to enhance nutritional, technical, and health benefits, even though mulberry leaves are considered a complete feed for *B. mori* silkworm. Yeast is a good source of proteins, amino acids, fats, carbohydrates, minerals, and vitamins that can contribute to the fortification of mulberry leave characteristics. *S. cerevisiae* species also produce several secondary metabolites: polyketides, phenolics, alkaloids, and flavonoids. Numerous studies have demonstrated the positive effects of yeast dietary addition on economic indicators and health status in silkworm fifth instar. Yeast can act as a probiotic, release digestive enzymes and influence gut microbiota. Alterations in the gut microbiota improve immunological resistance and nutrition metabolism, ameliorating silkworm performances.

Keywords: insects, mulberry leaves, probiotics, silkworm, yeast

34 Lamb body weight evolution in suckling period feeding ewes-mothers with alfalfa semi-silage

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Abstract
The purpose of the study is to determine the effect of alfalfa semi-silage administered to sheep mothers in the lactating period on the growth performances of suckling lambs from two genotype: Tsigai breed – rusty variety and their contemporaries crossbred lambs Suffolk (50%) x German Blackface (37.5%) x Tsigai (12.5%). The lamb were born in 2023 (98 crossbred lambs and 50 Tsigai lambs). The fodder administered to the ewes-mothers had provided a nutritional value of 198 g DP and 14.75 MJ NEM and was consisting of alfalfa semi-silage, hill hay and concentrates (50% grain corn; 50% grain barley). Weaning occurred at around 65 days. During the suckling phase, the lamb diet was tailored to achieve a growth potential of 300 g/head/day, adhering to NRC (2007) guidelines (135 g DP and 10.89 MJ NE). Altough the crossbred lambs recorded superior value of growth performances compared to lambs from Tsigai breed, alfalfa semi-silage had no significant influenced ($p>0.05$) the growth rate between the two genotype: 13.08 kg *vs*. 12.82 kg weight at the end of first month of life; weaning weight – 20.89 kg *vs.* 19.79 kg, total gain birth-weaning – 16.43 kg *vs* 15.47 kg and average daily gain 255.21 g *vs*. 240.13 g.
Keywords: alfalfa, crossbred, lamb, semi-silage, Tsigai – rusty variety

35 Determination of the total fatty acid content of a milk dessert with the addition of passion fruit and lime

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Abstract
Dairy products should occupy a certain share in the daily human diet. Due to the rich nutritional content, *i.e*. the possession of certain amounts of proteins, lipids and minerals that definitely enrich this type of food, consuming them is of great importance for the normal development of metabolic processes. Special attention should be focused on the fatty acids, when it comes to dairy products. Depending on whether

they are saturated or unsaturated, whether they are *cis* or *trans* configuration, we can expect a series of negative effects (diseases of the heart and cardiovascular system), but also many benefits (prevention of the aforementioned diseases). That is why it is important to know the proportion of trans fatty acids that are undesirable in the diet, as well as the desirable ratio of omega-3 and omega-6 polyunsaturated fatty acids, etc. Of the omega-3 fatty acids, the presence of alpha-linolenic acid (0.88%) and cis – 5, 8, 11, 14, 17 – eicosapentaenoic acid (0.43%) and cis – 4, 7, 10, 13, 16, 19 – docosahexaenoic acid (0.86%) was determined. A high precentage of oleic acid (23.13%) was also determined. The values of the obtained health indices, namely atherogenic and thrombogenic index, were 1.94 and 2.17 respectively

Key words: fatty acid, dairy food, omega – 3

36 Characteristics of autochthonous pirot sheep and its reaction to the presence of parasites

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Abstract:
The research was conducted in the population of the Pirot's autochthonous sheep in the area of Stara Planina Mountain, East Serbia. The production characteristics of sheep - quantum of lactation and body weight.were observed. Estrus is most pronounced in July (58%), then in August (33%), while lambs reach a weight of 22 kg at three months. Before experiment flock from which separated animals from examination we were examined to presence of parasitic infection, with coprological examination. A total of 21 animals were examined after slough. We revealed same gastointestinal helmints*: Dicrocoelium dendriticum*, *Dictyocaulus filaria*, *Ostertagia circumcincta*, *Os.ostertagi*, *Trchostrongylus axe, Tr colubriformis, Nematodirus filicollis*, *N,spathige, Haemonchus contortu, Marshallagia marshalli*, *Chabertia ovina*, *Oesophagostomum venulosum*and *Bunostomum trigonocephalum*. First group we treated by anthelmintic drugs and second which we treated one month after first group The parasites significantly affected the weight and daily milk yield of sheep. The conclusion is that serious prevention in terms of sheep parasites is necessary.

Key words*:* pirot sheep, parasites, body weight, milk

37 Biodiversity of lumbricidae intermedial hosts of metastrongylides of pigs in the Belgrade area

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Abstract
Metastrongylidosis or pulmonary strongylidosis of pigs is a disease caused by several species of nematodes from the genus Metastrongylus. Metastrongylides belong to biohelminths whose causative agents use transitional hosts for their development and maintenance of the biological cycle, in this case numerous species of lumbricides (earthworms). The larvae acquire infectivity only when they eat by earthworms - intermedial host. The degree of infection of earthworms is directly dependent on the species and their biological characteristics - the place of life above all. Earthworms are most abundant in moist and loose soil that is rich in humus and animal waste, where hundreds of earthworms per m 2 can be found. The seasonal variation of microclimate conditions in the soil has a large part in the life of earthworms, and the inhibitory factors in their seasonal dynamics are directly related to the spread of metastrongylidosis. Overview of research conducted in the five-year period in the area of Belgrade it was established that the dominant species of earthworms which are intermediate hosts to lungworm: *Eisenia foetida, Eisenia rosea, Dandreobena rubida, Allopbophora caliginosa, Allopbophora jassyensis, Lubricus terrestris* and *Lubricus rubbelus*. Also, species occur as transitional hosts of metastrongylidosis was *Eiseni veneta, Eisenella tetraedra, Allopbophora longa, Octolasium complanatuum, Octolasium lacteum, Octolasium rebeli, Dendrobaena octaedra, Dendrobaena subrubicunda, Dendrobaena mariupoliensis, Bimastus tenius* and less often species from the genus *Heledrillus spp.*

Key words: pigs, earthworms, metsrongylides

38 Microbiological safety of fish feed from Serbian market

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Abstract
Microbiological parametars are defining feature for feed quality and safety, that has a direct impact on the outcome of any aquaculture system. Furthermore, reported food safety risks may be associated with feeds, including fish feed. The present study aimed to determine the microbial load in fish feed, collected from Serbian market.
A total of fifty samples of fish feed (complete feed mixtures and raw materials) were collected during 2023. Samples were analyzed for total numbers of bacteria, numbers of molds, presence of Salmonella spp., Enterobacteriaceae and sulfite-reducing clostridia.
The feeds contained total bacteria and molds each at the level of 10^3 cfu g-1. Additionally, no Salmonella spp. was detected in complete feed. In 17% of complete feed, and 13% of raw material samples sulfite-reducing clostridia were detected, with counts ranging from 1,3 X 10^2 to 2,1 X 10^3 cfu g-1. Among Clostridium sp., Cl. sporogens, Cl. perfrignes and Cl. novy were determined. One sample of sunflower meal was Salmonella spp. positive. Obtained results point out that the feed used in the fish diet largely differs in their microbal status. Regarding significance of fish-feed contamination as pathway for pathogens, evaluation of microbial quality of fish feed on farms, as well as feed producers should be enforced.
Keywords: fish, feed, microbial safety

39 Improving the fatty acid profile of dairy cow's milk using the prepared innovative feed

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Abstract
This study investigated the effects of prepared innovative feed (PIF) on the saturated and unsaturated fatty acid profiles of dairy cow milk. PIF was composed of rape seed meal, sun flower meal, protected fat, source of conjugated linoleic acid (CLA), calcium carbonate, monocalcium phosphate (MCP), sodium bicarbonate, and vitamin mineral premix. Dairy cows were divided into two groups (10 cows/group)

including a control group (CG) fed basal diet without any nutritional supplements and experimental group (EG) fed basal diet + 1.5 kg PIF/cow/day of the new products. During experiment the addition of PIF in the feed of dairy cows from EG resulted to increase significantly ($p \leq 0.05$) the UFA from 64.164% to 73.229%. The SFA content slightly ($p \geq 0.05$) decreased from 35.607% to 26.910%. Furthermore, the PUFA content has elevated from 37.824% to 45.415% ($p \geq 0.05$). Not significant difference was recorded for n3, n6 and the n6/n3 ratio ($p \geq 0.05$). In conclusion during the experimental period the content of SFA tended to decrease, while the amount of UFA has increased ($p \leq 0.05$). Similar observations were also noticed for PUFA and MUFA. The inclusion of PIF as dietary supplement in dairy cows modified the fatty acid profile of milk, with major impact on consumer health.

Keywords: milk fatty acid composition, Romanian spotted cattle, feed supplementation, unsaturated fatty acid (UFA), polyunsaturated fatty acids (PUFA)

Acknowledgements
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40 Histological evaluation of the small intestine of worker bees after the use of essential oils

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Abstract
The paper presents the results regarding the influence of additional feedings with essential oils (mint, thyme, basil, oregano, cloves, cinnamon, rosemary, juniper) on the development of intestinal villi of the worker bees that came from bee colonies fed for 3 weeks with sugar syrup and the essential oils mentioned. Between 30.03.2021 and 21.04.2021, 18 worker bee samples were analyzed. Significant changes in the development of intestinal villi were observed in all analyzed groups. The best results in terms of the development of intestinal villi were shown in the group fed with sugar syrup and the addition of mint essential oil (141.2 μm), followed by the group with the addition of cinnamon oil (96.56 μm) and the batch with added essential oil of oregano (81.28 μm).

Keywords: bees, supplementary feeding, essential oils, intestinal villi, histological examination

41 Comparative analysis of zootechnical performance in broiler chickens across different technological rearing systems

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Abstract

This study conducts an in-depth investigation into the zootechnical performance of broiler chickens reared under diverse technological systems, against the backdrop of a globally increasing demand for chicken meat. The research addresses how the rearing system, along with factors such as nutrition, farm management, the rearing environment, and genetics, impacts the yield of chicken meat production. By comparing intensive, semi-intensive, and extensive growth systems, the research aims to identify optimal strategies that ensure efficient and sustainable chicken meat production, maximizing yield and quality while also considering animal welfare and environmental sustainability.

The analysis encompasses the evaluation of daily weight, feed conversion ratio, and uniformity across different systems, as well as the examination of environmental homogeneity using the Student's t-test to highlight significant differences between batches.

The findings offer valuable insights into the impact of the rearing system on zootechnical performance, indicating that the intensive system is characterized by superior yields and a preferential development of the breast. Moreover, the study highlights the significance of the interaction between genetic and nutritional factors and how these elements, together with the choice of rearing system and health care practices, contribute to the optimization of production.

Keywords: Broiler Chickens, Feed Consumption, Rearing Systems, Weight Gain, Zootechnical Performance

42 Color dynamics in Aubrac cattle meat: Longissimus Dorsi analysis at 0, 24, and 48 hours postmortem

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Abstract
The objective of this study was to assess the changes in meat color over time in Aubrac cattle of both genders. Specifically, the study concentrated on Longissimus Dorsi muscles, examining the color values of the meat at 0, 24, and 48 hours after death. The development of the CIE Lab* color space allows for the expression of colors in a three-dimensional system. The L*, a*, and b* values represent lightness, the red-green color component, and the yellow-blue color component, respectively. These values enable the evaluation and description of the color of a meat sample. Taking into account the overall obtained results (example: the meat color saturation recorded an average value of 14.28 ± 1.11 in males, and 17.72 ± 2.76 in females), we can appreciate that in the Aubrac cattle breed, there are significant differences between males and females, concerning all analyzed parameters regarding color (brightness, hue intensity, color intensity of the meat, color saturation, and Hue index) observed in the anatomical region under study.

Keywords: Aubrac cattle, color, meat, quality

43 Evaluating pH in Aubrac cattle meat: Longissimus Dorsi and Semitendinosus at 0, 24, and 48 hours postmortem

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Abstract
This study aimed to measure the pH of meat from both male and female Aubrac cattle. The study focused on the M. Semitendinosus and M. Longissimus Dorsi muscles, comparing the pH values of the meat recorded at 0, 24, and 48 hours postmortem. Regarding the acidity of M. Longissimus Dorsi in males,

significant differences were observed between the average pH values at 0, 24, and 48 hours post-slaughter, with a slight decrease in the average from 6.05 at 0 hours to 5.5 at 48 hours. Similarly, significant differences were observed in females between the average pH values of M. Longissimus Dorsi at 0, 24, and 48 hours post-slaughter. Analyzing the acidity of M. Semitendinosus, significant differences were observed in both sexes between the average pH values at 0, 24, and 48 hours post-slaughter; for example, in males, average values ranging from 5.99 to 5.50 were obtained. In conclusion, these results highlight that the sex of the cattle influenced the average pH value at 0 hours for both muscle categories, collected from Aubrac cattle.

Keywords: Aubrac, Longissimus dorsi, meat, pH, Semitendinosus

44 Exploitation of the development potential of the Ciumeghiu commune, Bihor county

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Abstract
Agriculture has been and continues to be a vital field of human activity since ancient times. It remains the only source of food, an important supplier of raw materials for industry and at the same time the main activity of the rural population. The purpose of the work is to determine the most suitable crops, depending on the quality of the soil and the production capacity of the farm, so as to obtain the highest possible profit. The research methodology consists in the use of methods of collection, processing and interpretation of information and statistical data, the case study method and methods of presentation and mathematical-statistical processing. The paper presents the economic potential of the commune and a case study. At the end of the paper, the most profitable crops at the commune level are identified.

Key words: exploitation, potential, agriculture, crops, Ciumeghiu

45 Non-agricultural investments, engine of rural development in Siria commune, Arad county

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Abstract
The actual rural area in Romania requires investments in order to regenerate the population and to create alternative sources of income. The research carried out was oriented on two parts: the bibliographic study, of theoretical documentation in the strict field of the topic addressed and the own contributions that consisted in the collection of data from the institutions that deal with the implementation of the Communal Agricultural Policy (PAC) at the regional and territorial level, respectively the Agency for the Financing of Rural Investments (AFIR). The research approaches aspects of the financing funds for agriculture and rural development in Romania, as well as the need to implement the Common Agricultural Policy and access European funds, as means of improving the performance of agriculture and increasing the competitiveness of the agricultural sector - an essential element of the economy and rural development. submeasure 6.2., in Şiria commune, Arad County. At the end of the paper, the authors emphasize the fact that Measure 6.2. represents an easy way by which a farmer can obtain financial support to start his own business, as an alternative to agricultural activity, as shown in the presented case study.

Key words: rural area, Measure 6.2., investments, non-agricultural, alternative incomes

46 The antimicrobial activity of *Citrus aurantium* Amara

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Abstract
Citrus aurantium L. is an evergreen tree that can reach a height of up to five metres. It is also referred to as bigarade, bitter orange, sour orange, and Seville orange. A number of studies have been carried out on the bioactivity of substances extracted from *C. aurantium*. Plant disease-causing bacteria also have a significant financial impact. Plant pathogenic bacteria can occur both inside plants as pathogens and outside plants as saprophytes in a variety of environments. The main objective of this paper is to assess the antibacterial efficacy of *C. aurantium* essential oil against five plant bacterial pathogens both *in vitro* and *in situ*. *C. aurantium* essential oil (EO) has the potential to be used in various food applications due to its natural antibacterial properties. Using the disc diffusion method, we found the best antimicrobial potential against *Pectobacterium carotovarum*. Using vapor phase antimicrobial activity on carrot model, the best microbial activity was found against *Xanthomonas arboricola* bacteria. The results of the antibacterial test showed that EO exhibited antibacterial effect against each bacteria tested.

Keywords: bitter orange essential oil, plant bacteria pathogens, antibacterial activity

47 *Leptospermum petersonii* Bailey essential oil as antagonist against plant pathogen bacteria

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Abstract
Natural ingredients have been used in folk medicine since ancient times. These naturally occurring substances, which can come from plants, are often considered a priori harmless. Certain species of plants called *Leptospermum* are said to have considerable benefits in traditional medicine. The essential oils of *L. scoparium* are often used as antibacterial agents. The determination of the antibacterial activity of *L. scoparium* essential oil against representatives of plant bacteria was the aim of our experiment. The disc diffusion method was used for testing under *in vitro* conditions and the vapor phase method was used against five different bacteria under *in situ* conditions. Carrot was used as a model food for *in situ*. The best antibacterial activity of *L. scoparium* essential oil against *B. subtilis* was found using the disc diffusion method. This method was also used to test the antibiotic resistance of the model bacterial species, which was higher than the antibacterial activity of *L. scoparium* essential oil. *L. scoparium* essential oil showed the best antibacterial effect against *Xanthomonas arboricola* at a concentration of 62.5 µg/L in the carrot model. Therefore, it can be concluded that the essential oil has adequate antibacterial capacity and can be used as a suitable natural preservative to prolong the shelf life of carrots.

Keywords: disc diffusion method, vapor phase, antimicrobial activity, lemon tea tree essential oil

48 *Citrus nobilis* as antimicrobial agent against plant bacterial pathogens

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Abstract
Citrus essential oils (EOs) are used industrially in a wide range of products such as food and beverages, cosmetics and medicines. They are also used to combat some of the most important plant and food diseases. *Citrus* EOs are mostly found in fruit peels, which makes their extraction economically viable as fruit peels are wasted in the production of fruit juices. The aim of this study was to evaluate EO from *Citrus nobilis*, which was extracted by cold pressing of unripe pericarp, in terms of their ability to suppress the most prevalent plant diseases. The disc diffusion method was used to determine the antibacterial activity against plant diseases under *in vitro* conditions. It was found that the lowest concentration of EO had the best antibacterial effect against *Bacillus subtilis* in the vapor phase on the carrot model. The results of our experiments showed that *C. nobilis* EO had moderate antimicrobial activity.
Keywords: *Citrus nobilis*, essential oil, vapor phase, antimicrobial activity

49 *In vitro* and *in situ* antibacterial potential of *Citrus aurantifolia*

Andrea Verešová, Natália Čmiková, Miroslava Kačániová

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Abstract
Research on plant sources and screening of plant materials for new compounds has fostered increased interest in replacing synthetic antibacterial agents with natural ones. Spices and their essential oils have had varying degrees of antibacterial activity since antiquity. The need to find new antimicrobials has arisen from the emergence of bacterial resistance to currently marketed antimicrobial compounds. Thus, the aim of this study was to characterize the antibacterial properties of *Citrus aurantifolia* essential oil against these plant pathogenic bacteria: *Bacillus subtilis* CCM 2217, *Pseudomonas putida* CCM 7156, *Xanthomonas arboricola* CCM 1441, *Pectobacterium carotovarum* CCM 1008 and *Priestia* (*Bacillus*) *megaterium* CCM 2007. In this experiment, we measured antibacterial activity using two different methods. The antibacterial activity of the investigated bacterial strains was compared and their antibiotic resistance was evaluated using the disc diffusion method under *in vitro* conditions. The species strategy used on the surface of carrots was the antimicrobial activity under *in situ* conditions. The essential oil of *C. aurantifolia* was found to have the strongest antibacterial effect against *B. subtilis in vitro*. In addition, *in situ* monitoring of antibacterial activity was carried out and a concentration of 6.25-500 µg/L gave the best results against *X. arboricola*.

Keywords: *Citrus aurantifolia*, in situ, disk diffusion, antimicrobial activity

50 The antimicrobial potential of *Citrus sinensis* essential oil *in vitro* and *in situ*

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Abstract
Essential oils (EOs) are naturally occurring complex secondary metabolites of plants that play a role in the body's defence against pathogens, environmental factors and physiological stresses. They have a range of biological properties such as antibacterial, anticancer, anti-inflammatory and antioxidant properties. The mechanisms of their antibacterial activity have been thoroughly investigated. It is known that EOs can inactivate bacteria by targeting their cytoplasm, cell wall or cell membrane. The aim of our research was to observe the antibacterial activity of red orange (*Citrus sinensis*) EO *in situ* via vapor phase and *in vitro* using the disc diffusion method. In addition to the antimicrobial activity, the antibiotic activity against five plant diseased bacteria was also monitored. The results of our analyses showed that the disk diffusion approach and vapor phase were the most effective antibacterial strategies against *Pectobacterium carotovarum*. Plants have an innate ability to produce a diverse range of compounds, especially secondary metabolites, which, due to their biological properties, have been attributed a protective role against diseases. For integrated crop pest management, biological control is not a new idea and has recently attracted much attention.
Keywords: *in situ, in vitro*, antimicrobial activity, red orange essential oil

51 Antimicrobial activity of *Citrus reticulata* Blanko essential oil against plant pathogen

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Abstract
The tangerine, or *Citrus reticulata* Blanco, is a citrus fruit that dates back several centuries and is valued for its many nutrients and bioactive compounds that can have medicinal effects. The tangerine is valued for its many biological properties, which include anti-inflammatory, anti-cancer, anti-hyperlipidemic, anti-diabetic and antioxidant properties in addition to its great taste. The many phytochemicals found in tangerines, such as organic acids, sugars and amino acids, as well as secondary metabolites including flavonoids, phenolic acids, carotenoids and polyphenols, are responsible for these health benefits. The aim of this study is to assess the antibacterial efficacy of *C. reticulata* Blanco against specific plant pathogenic bacteria such as *Xanthomonas arboricola* CCM 1441, *Pectobacterium carotovarum* CCM 1008, *Pseudomonas putida* CCM 7156, *Bacillus subtilis* CCM 2217, *Priestia* (*Bacillus*) *megaterium* CCM 2007. In our investigation, two approaches were used to measure antimicrobial activity. The antimicrobial activity of the investigated bacterial strains was compared using the disc diffusion method under *in vitro* conditions and their antibiotic resistance was also evaluated. The antimicrobial activity under *in situ* conditions was a species approach applied to the surface of carrots. The essential oil of *C. reticulata* Blanco was found to have the strongest *in vitro* antibacterial activity against *P. megaterium*. In addition, *in situ* monitoring of the antimicrobial activity was carried out, with the highest results obtained against *P. megaterium* at a concentration of 125 µg/L. According to the present investigation, *C. reticulata* Blanco essential oil significantly inhibited the growth of various Gram-positive and Gram-negative bacteria.

52 Bacteriophages, a solution to the destruction of antibiotic-resistant bacteria

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Abstract
Bacteriophage is the generic name given to microorganisms that can destroy bacteria. The name (which comes from the Latin bacteria and the Greek φᾰγεῖν phagein - "to eat", "to devour") was introduced by the Canadian bacteriologist Félix d'Herelle in 1917, the year he discovered a virus possessing such characteristics. Also called bacteria-eating viruses, bacteriophages represent a group of viruses with a destructive effect on bacteria (lytic effect), being widespread in nature, in all living environments (water, soil, air). Discovered during the First World War and developed in the 1920s and 1930s, phage therapy is currently making a comeback and enjoying a renewed interest in countries such as the USA, Belgium and France, in parallel with the development of antibiotic resistance, in the face of the increasing resistance of bacteria to antibiotics, a challenge for the whole planet. Today, phage therapy has begun to be used to disinfect food. Also, before surgery, in some hospitals, bacteriophages are sprayed in the operating rooms

to reduce the risk of infection. Through their mechanism of action, bacteriophages can become a kind of additional immune system for organisms, and phage therapy, a therapy to be studied and perspective for maintaining human and animal health.

Key words: bacteriophages, lytic effect, phage therapy, antibiotic resistance.

53 Effect of twinning on calving ease and viability of calves

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Abstract
The aim of the current research was to evaluate the effects of twinning on calving ease and calves' viability in Romanian Spotted dual purpose breed. Data from 280 births (260 single and 20 twin births) were enrolled in order to assess the twinning and the dystocia incidence. Viability of calves was estimated based on a data base collected from 300 calves (260 singleton and 40 twin calves). The average incidence of twinning in herd was 7.14%. The mean incidence of dystocia in herd was 19.23%. The twin pregnancies proved to be the major factor related to dystocia, causing a higher prevalence compared to single pregnancies (15% *vs.* 4.23%, $p \leq 0.001$). Stillborn incidence was the most prevalent in twin compared to single births (7.5% *vs.* 1.15%, $p < 0.001$). Dystocia proved to be strongly correlated to both, twinning ($R=0.31$) and calves viability ($R=-0.44$). Despite these phenotypic associations, twinning has a low correlation with calves' viability ($R=0.19$). The twin calving indirectly induced a significant increase of morbidity than single births (12.5% *vs.* 5.38%, $p < 0.01$). Considering the detrimental effect of twinning on animal welfare and subsequent performance, allows the implementation of after-calving dam-calf care protocols in order to mitigate these effects.

Keywords: calving ease, dystocia incidence, Romanian Spotted, twinning, viability

54 Prevalence and identification of milk pathogens in clinical mastitis: an on-farm culturing approach

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Abstract
Mastitis, inflammation of the mammary gland, is a major economic burden in the dairy industry. It reduces milk production, quality, and cow fertility. Identifying the causative bacteria is crucial for effective treatment and control strategies. This study aimed to investigate the prevalence of bacteria associated with mastitis in dairy cows using an on-farm culturing system. A total number of 21 milk samples were collected from cows with clinical mastitis signs (visible abnormalities in milk) from farms across N-E Romania. A commercially available on-farm culturing system was used for rapid identification of common mastitis pathogens. The on-farm culturing system utilizes specific media and colony morphology to presumptively identify bacteria, including Staphylococcus spp., Streptococcus spp., Escherichia coli, yeast, algae, and other Gram-negative bacteria. The prevalence of each bacterial type isolated from the milk samples was calculated. The on-farm culturing system identified a variety of bacteria associated with mastitis. The most prevalent bacteria isolated were *Streptococcus dysgalactia* (33.33%) and *Streptococcus uberis* (26%). Additional bacterial isolated included *Staphylococcus aures*, *Staphylococcus chromogens* and *Escherichia coli*. The findings of this study provide valuable insights into the bacterial profile associated with mastitis in dairy cows of N-E Romania. The on-farm culturing system proved to be a practical tool for rapid pathogen identification at the farm level.
Keywords: Mastitis; pathogens, on-farm culturing; milk quality

55 Digital transformation in small and medium dairy farms to improve productivity and resilience

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Abstract
Small and medium-sized dairy farms (SMDFs) face increasing pressure to improve productivity, efficiency, and resilience in a competitive global market. Digital transformation offers a powerful set of tools to

address these challenges. Sensor-based monitoring of animal health and milking performance can provide real-time insights for informed decision-making. Additionally, the paper explores how automation in tasks like feeding, milking, and manure management can optimize resource allocation and reduce labour requirements. Furthermore, the integration of data analytics empowers farmers to identify trends, optimize feed rations, and predict potential issues, ultimately improving herd health and milk production. This integrated approach fosters not only productivity and efficiency gains but also strengthens farm resilience. By enabling proactive management practices and data-driven decision making, SMDFs can better adapt to fluctuations in market prices, resource availability, and environmental conditions.

Keywords: digital transformation; small and medium-sized dairy farms; animal health and milking performance; farm resilience

56 Estimation the genetic parameters for calving score using an animal model, in Aberdeen Angus breed

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Joint work: Pelmus R.S. and Rotar M.C.

Abstract
The objective of this study was to estimate the breeding value and heritability for calving score using an animal model for population from Aberdeen Angus breed. Data consisted of records of 1297 calves of Aberdeen Angus breed from Aberdeen Angus Association Romania. The mean for calving score was 1.007±0.002. The breeding values for calving score for calves were between -0.013 and 0.075. The heritability for calving score was low 0.08 in Aberdeen Angus breed. The animal model was adequate due it is simpler for calculate the genetic parameters for calving score.

Keywords: breeding value, cows, animal model, calving score

Acknowledgements
This work was supported by funds from the National Research Projects 8.1.2 granted by the Romanian Ministry of Agriculture and Rural Development and Perform project 8 PFE/2021 funds from Ministry of Research, Innovation and Digitalization and Aberdeen Angus Association Romania.

57 Effects of a diet including prebiotics and probiotics on intestinal inflammation in weaning piglets

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Abstract
In the nutrition of piglets after weaning, an important aspect is to develop alternative feeding solutions to counteract the negative effects of weaning and to reduce mortality in piglets. In this paper we aimed to investigate the effects of a feed product containing a synbiotic combination of grape seed and camelina by-products and *Lactobacilli* strains in weaned piglets. 24 cross-bred TOPIG hybrid piglets were randomly allocated into four experimental groups, as follows: Control group, LPS group challenged with lipopolysaccharides (LPS) and fed with control diet, SYN group receiving diet including 5% synbiotic and MSM+LPS group fed 5% SYN diet and challenged with LPS. The pro-inflammatory cytokines in intestinal samples were evaluated by ELISA. Our results showed that synbiotic combination induced a reduction of the concentration of IL-1beta, IL-6, IL-8 and IFN-gamma pro-inflammatory cytokines, while the protein concentration of IL-10 anti-inflammatory cytokine was increased in intestine of piglets receiving synbiotic feed compared to those treated with LPS. In conclusion, diet inclusion of a synbiotic combination of grape seed and camelina meals plus probiotic can be used in the nutrition of post-weaning piglets, as modulator of intestinal inflammation and as positive modulator of general health status.

Keywords: grape seed meal, camelina meal, Lactobacilli, synbiotics, weaning piglets, intestinal inflammation

Acknowledgement: This work was financed through the projects PED 660/2022 and 8PFE/2021 financed by Romanian Ministry of Research, Innovation and Digitalization.

58 Insects as a sustainable alternative source of animal proteins in human nutrition: pros and cons

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Abstract

Considering that the world's population is constantly increasing, there is a growing need to find alternative sources of animal proteins. In order to expand knowledge in this area and determine the direction of future research, the aim of this review was to provide information based on the currently available scientific literature on the edible insects as a potential sustainable source of animal protein, both in terms of chemical composition, nutritional value, food safety, current legislation, welfare conditions and impact on the environment and ecosystem.

Edible insects and their products are nutritionally valuable and healthy foods (high content of protein, essential fatty acids, fats and polyunsaturated fatty acids, vitamins and minerals) that have a number of beneficial properties for the human organism compared to conventional meat types. Insects do not differ from conventional meat types in terms of microbiological safety and spoilage. Potential consumer health hazards associated with the consumption of edible insects and their products include allergic reactions, contamination with pathogenic microorganisms (*Staphylococcus aureus*, *Clostridium* spp., *Bacilus cereus*, *Vibrio* spp. and *Streptococcus* spp.), viruses, parasites (*Dicrocelium dendriticum*, *Entamoeba hystolitica*, *Giardia lamblia* and *Toxoplasma* spp.), pesticide residues and toxic elements (cadmium, mercury, arsenic and lead). Compared to conventional rearing of farm animals, insect farming has a significantly lower impact on the environment (lower emission of greenhouse gases and ammonia, drastically smaller areas of land for rearing, smaller amounts of water, and easier, cheaper and simpler nutrition). However, there is no adequate legislation regarding insect welfare and safety and quality of edible insects and their products.

Based on the available scientific literature, it can be concluded that edible insects have a great potential as a sustainable source of animal protein. Further research is necessary to enable more efficient commercial rearing of edible insects, the implementation of appropriate legislation and the formulation of safer and higher quality products that would be more acceptable to consumers, so that edible insects and their products could be consumed globally.

Key words: edible insects, environment, food safety, legislation, nutritive value, welfare

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59 Establishing the hygienic behavior of honeybee colonies

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Abstract

The hygienic behavior of bee colonies was described as the bees' ability to detect and remove diseased brood from the combs, and it consists in two sequential acts: undoing the sick brood from a cell and removing the sick brood from the hive. This behavior is based on natural selection, which explains hygienic behavior as recessive and unhygienic behavior as dominant. It has been shown that timely removal of diseased pupae effectively limits the transmission of various pathogens in a hive, which keeps the bee's colony healthy. In addition, the method reduced the maintenance costs for bee colonies and the frequency chemicals treatments used.

Bees are social insects and are therefore more susceptible to disease outbreaks than solitary insects. In response to this increased risk, collective defenses such as grooming (bees cleaning each other) and hygienic behavior have demonstrated in the case of *Varroa* infestation a reducing or preventing reproduction of the mite (Mondet et al., 2021). This behavior has been variously named: "removal response," "removal behavior," "varroa-specific hygienic behavior," "suppressed mite reproduction" and "varroa-sensitive hygiene" (VSH). Bees performing this VSH behavior can recognize olfactory cues released by parasitic brood. VSH behavior helps limit *Varroa destructor* population growth in both *A. cerana* and *A. mellifera* colonies. (Panziera et al., 2017). In the present study, bees' hygienic behavior was evaluated in two different years (2016, 2021) for one week and using two beehives as experimental materials from the apiary of the Department of Apiculture and Sericulture. The technique applied was with liquid nitrogen on the frame. The results obtained highlight the fact that bee colonies tested show a high hygienic behavior, removing approximately 97,03% of juveniles killed by liquid nitrogen test, inducing a natural resistance to diseases.

In conclusion, the results within the present study evidence the fact that, as compared to other bee species or hybrids, *Apis mellifera carpatica* bees have a high and useful hygienic behavior in *Varroa destructor* control and reproduction. Consequently, the bee colonies mortality – as the main issue that beekeepers are facing, both at local and global level and which affects the economic market - is being reduced.

Keywords: honeybees, bee diseases, honeybee behaviour.

References:

1. Siefert, P., Buling, N., Grünewald, B. (2021). Honeybee behaviours within the hive: Insights from long-term video analysis *Plos One*, https://doi.org/10.1371/journal.pone.0247323;
2. Spivak, M., Danka, R.G. (2020). Perspectives on hygienic behavior in *Apis mellifera* and other social insects *Apidologie.* https://doi.org/10.1007/s13592-020-00784-z;
3. Pătruică, S., Căuia, E., Simiz, E., Siceanu, A., Bura, M., Bănăţean Dunea, I., Nicula, M., Fiştea, C. (2010). Research Regarding the Testing of Bee Family Resistance to Bee Brood Diseases *Scientific Papers: Animal SciResearchiotechnologies*, 43 (2);

4. Mondet, F., Blanchard, S., Barthes, N., Beslay, D., Mercer, A.R., Le Conte, Y. (2021) Chemical detection triggers honeybee defense against a destructive parasitic threat, Nature Chemical Biology volume 17, pages 524–530 ;
5. Panziera, D., van Langevelde, F., & Blacquière, T. (2017). Varroa sensitive hygiene contributes to naturally selected varroa resistance in honeybees Journal of Apicultural Research, 56(5), 635–642. doi:10.1080/00218839.2017.1351860

60 Evaluation of the influence of climate factors on Nectar gathering in Banat area

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Abstract
Permanent monitoring of climatic factors is of great importance for beekeepers. There is a direct correlation between nectar secretion, the gathering behavior of bees and climatic factors (mainly temperature and precipitation), with major implications in the productive potential of bee colonies. The attentive monitoring of these factors helps beekeepers to organize their technological activities within the holding in order to make the beekeeping production efficient. The present study was carried out between March 1 and July 30, 2024, in Timiş County, on 20 colonies of Apis mellifera carpatica bees, maintained in multi-storey and Dadant beehives. The bee colonies and also the climatic factors temperature and humidity were monitored using the BeeWatch Professional monitoring system. The results of the study show large oscillations, from year to year, of the analyzed climatic factors, producing gaps between the flowering periods and duration of honey plants and at the same time changing the flight behavior of worker bees.

Key words: bees, climate factor monitoring, honey production

61 A brief analysis of the health status of dairy cows by determining serum biochemical parameters

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Abstract
The research was carried out to follow the state of health of dairy cattle by determining the biochemical parameters in the serum. Animals of the BNR breed from a farm in the Moldova area were studied and blood samples were collected, later the following serum parameters were analyzed: albumin, alkaline phosphatase (ALP), alanine aminotransferase (ALT), aspartate aminotransferase (AST), cholesterol, gamma-GT, total proteins, triglycerides, and urea. At the same time, the obtained milk production was correlated with the biochemical parameters of bovine serum, thus there were distinctly significant

positive correlations between milk production and aspartate aminotransferase (AST), respectively urea, and an insignificant correlation was between milk production and albumin. Following the biochemical analyses, the liver parameters were very slightly above the limit provided by the specialized literature.
Keywords: biochemical parameters, bovine serum, health status

62 Advanced and relevant methods for the determination of mycotoxins in food and feed

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Abstract
Mycotoxins are primarily low molecular weight, polar organic compounds that are soluble in a variety of organic solvents and are generated by fungal secondary metabolism. Mycotoxins have a significant impact on both animal and human health. The purpose of this article is to highlight the use of different chromatographic separation techniques in the determination of mycotoxins in food and feed. The significant implications for human and animal health of the ingestion of these mycotoxins and the ensuing legislative requirements in many countries necessitated the development of analytical methods. High-performance liquid chromatography (HPLC) has become the predominant separation technique in mycotoxin analysis, while thin-layer chromatography and gas chromatography are still utilized. UV or fluorescence detectors have found widespread use in mycotoxin determination, even though HPLC has become the omnipresence method of choice. These systems either make use of the mycotoxin of interest's inherent UV absorption or fluorescence, or they derivatize it using techniques that have been developed to allow for suitably sensitive detection.

Keywords: methods, mycotoxins, TLC, ELISA, HPLC.

63 Growth performance, gut integrity and blood metabolites of laying hens fed pepper elder (*Peperomia pellucida L.*) kunth supplemented diets

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Abstract
The threat posed by the continuous application of antibiotics as growth promoters to poultry and humans who consume the products is too great to be under-estimated. The search for viable alternatives, such as phytonutrients has become necessary to keep the pace of healthy production and safe products to appreciable level. This study was therefore designed to evaluate the effect of *Peperomia pellucida* supplementation on performance, internal and external quality of the eggs, gut morphological indices, histopathological indices, haematological indices and lipid profile of laying hens in a 42-day feeding trial. Fifty-four 20-week-old Isa-brown laying hens were randomly assigned to three dietary treatments and replicated six times with three birds per replicate. Treatment 1 was a basal diet, while treatments 2 and 3 contained the basal diet with 0.5%, and 1% *Peperomia pellucida* powder, respectively. Performance indices were evaluated. On day 42, haematological indices, lipid profile, gut morphological indices, histopathological indices, internal and external quality of the eggs were examined following standard procedure. Data obtained were analysed using descriptive statistics and ANOVA *at* $\alpha_{0.05}$. The results showed that feed intake, white blood cell, monocyte, basophil counts, high density lipoprotein, total cholesterol, low density lipoprotein, yolk width, albumen height, haugh unit, were significantly influenced by dietary treatments. Diets had no significant influence on the gut morphological indices. Histopathological observations of the ileum showed that no visible lesion in the ilea of the birds on both experimental diets and basal diet. The villi of hens fed with 1% *Peperomia pellucida* diet appeared slightly stunted. Conclusively, 0.5 % *Peperomia pellucida* dietary level was considered the best level for laying hens as growth promoters thereby being a viable alternative to antibiotics.

64 Estimation the genetic parameters for age at the first calving and calving interval in Romanian Spotted, Simmental

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Abstract
The objective of this study was to estimate the genetic parameters for reproductive traits in Romanian Spotted, Simmental type cattle breed using animal model. The data of reproduction traits were from Romanian Breeding Association Romanian Spotted, Simmental type. The age at the first calving was

889.82±2.79 days and first calving interval was 391.55±2.08. The heritability value for age at the first calving was 0.25 and for calving interval was 0.14. The breeding values of cows with records for age at first calving were between -77.52 and 62.60 and for first calving interval between -31.149 and 44.55. Improvement the reproduction traits increase the profitability of farms.

Keywords: reproduction traits, cows, animal model, genetic parameters.

65 The importance of proactive approach to the microscopic laboratory techniques for the prevention and control of major silkworm diseases

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Abstract
The aim of the paper was to highlight the importance and relevance of the proactive approach of microscopic laboratory techniques for prevention and control of major silkworm diseases thus contributing to the improvement of silkworm health and to augmentation of the sericulture production. The examinations were carried out by direct microscopy and laboratory diagnostic methods for specific diseases according to the methodology of the OIE Manual, in the Laboratory of Genetics, Breeding and Pathology of Silkworms. Direct microscopic and bacterioscopic examinations were carried out to exclude the risk of the presence of pathogens in future generations selected for the conservation of the genetic background. The samples collected from the 84 breeds under conservation were subjected to direct microscopy and bacterioscopy on two developmental stages of silkworms - egg and larval stage. The results of the laboratory examinations required the elimination of inappropriate biological material from the reproduction, a fact that allowed obtaining disease-free reproductive material, of the best quality. In the present research paper, we demonstrated the importance of the proactive approach of microscopic laboratory techniques for prevention and control of major silkworm diseases in order to select breeds, lines and hybrids of silkworms with resistance to diseases owned by S.C.S. Baneasa, Bucharest. This work was supported by the financial support of ADER 24.1.1./2023.

Keywords: contagious and non-contagious diseases, laboratory diagnosis, silkworms

66 Development of an improved technology to increase efficiency in the sericulture farm

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Abstract
The process of developing a technology with the potential to increase efficiency in a sericulture farm represents one of the most important levers in the efficient exploitation of silkworms (*Bombyx mori*) and mulberry (*Morus spp*.)
The development of an optimized technology, with the aim of making the activities carried out in a sericulture farm more efficient, is the main objective of this study. At the same time, the concept of "*Pharma-Farming*" is being explored, which promotes an integrated and sustainable approach in the management of sericulture farms by integrating sericulture and moriculture products and by-products.
The use of the principles underlying the "*Pharma-Farming*" system could contribute to optimizing integrated processes and increasing the performance and sustainability of this agricultural sector. The integration of by-products obtained during the rearing of silkworms can represent a valuable opportunity not only to increase farmers' incomes through product diversification, but also to improve the quality of life.
Exploring this concept facilitates the integration of by-products obtained from the sericulture farm into the pharmaceutical production chain, contributing to the creation of an additional source of raw materials and promoting a circular and sustainable economy.
This research is carried out in a collaboration between three partners with expertise in the field of sericulture, and uses the resources of each to successfully address the development and implementation of the technology in different areas of Romania.
This work was supported by the financial support of Ministry of Agriculture and Rural Development – Bucharest, by reserarch Grant ADER 24.1.1./12.07.2023, entitled *„Family sericulture farm model for the innovative capitalization of secondary sericulture productions obtained from sericulture and moriculture in the Pharma-Farming system"*

Keywords: sericulture technology, Bombyx mori, Pharma-Farming

67 Bibliographic study on the interaction between electromagnetic fields and bees: the impact on behavior, health and the ecosystem

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Abstract
The interaction between electromagnetic radiation generated by current technologies (mobile phones and 4G/5G wireless antennas) and bees is an ongoing research topic with wider ecological and environmental implications, as bees play a crucial role in pollination and maintaining ecosystems. Since the interaction between bees and electromagnetic radiation is a complex and multifactorial issue, studies are needed in Romania to better understand the connection between non-ionizing electromagnetic radiation and bees. The aim of this paper was to highlight the importance and relevance of the impact of non-ionizing electromagnetic radiation on bees, in order to understand the potential threats to their health and the ecosystem. In order to explore the impact of electromagnetic radiation on bees, we considered publications accessible in the published scientific databases (2007-2024). Data were collected from more than 100 publications and finally 83 studies were considered, from which 76 studies were finally selected. The authors emphasized the negative effect on bees exposed to non-ionizing electromagnetic radiation (changes in flight behavior, disorientation, inability to identify the food source), emphasizing the relationship between the practical consequences of exposure to electromagnetic radiation and the decline of bee populations (CCD). This work was supported by the financial support of ADER 2.1.8/2023.

Keywords: bees, behavior, biodiversity, electromagnetic radiation, environment

68 The Influence of Laminitis on the Economic Efficiency of Dairy Cows

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Abstract
The influence of laminitis on the productivity of dairy cows varies depending on the type of condition encountered. The increase in the number of cases presenting lameness leads to economic losses by decreasing milk production/lactation and fecundity on the farm. The present work was carried out at the Research and Development Institute for Bovine Balotesti, where the production and reproduction performance of a herd of 60 dairy cows, diagnosed with different types of pododermatitis in the period 2021-2023, was monitored. The prevalence of cows with laminitis was 20.3% in year 2021, 18.6% in year 2022 and 17.4% in year 2023. The data obtained showed that 31.66% of the herd studied was diagnosed

with digital dermatitis, 43.33 % presented diseases at the level of the horn box (8.33% hemorrhagic ulcer, 28.33% double sole, and 6.66% abscesses of the white line) and 26.66% interdigital dermatitis. Laminitis caused economic losses by decreasing milk production and worsening reproductive indicators. Thus, cows diagnosed with digital dermatitis recorded a 5.7% lower milk production, in cows with horn box diseases the milk production was 4% lower and those with interdigital dermatitis 4.8% more small compared to the healthy cows on the farm.

Keywords: cow, laminitis, milk production, reproduction indicators

69 An overview of the Romanian banking system

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Abstract.
The banking industry in any country ensures, due to the specific nature of its activity, a key role in the functioning of economic mechanisms, with an impact on macroeconomic developments, on the dynamics of the business environment and on the improvement of the Romanian economy.
The 34 credit institutions that make up the banking sector in Romania had net assets of 803.4 billion lei in 2023 and have recorded an acceleration in profitability compared to recent years, achieving a net profit of 13.7 billion lei. In addition to the banks' lending role, they also attract deposits, thus protecting the savings of the population and companies.
Banks support the economy by granting loans, but it is important that they go to the sectors with the highest development potential and which create well-paid jobs.

Keywords: banking system, banks, credit, saving

70 Analysis of the stage of absorption of European funds

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Abstract.
The article presents an analysis on this topic, an important topic, because the European funds constitute the essential financial resource, part of the investment strategy, but also of the budgetary sustainability with multiple effects that contribute to the economic and social development of Romania. It should also be taken into account that anyone can become a beneficiary of a project financed from these funds, considered an important engine of growth, with positive consequences on the standard of living and the viable growth of the economy. The general objective of the article is to analyze the level of absorption of these funds with impact on the economy, infrastructure and the reduction of regional disparities.
We can conclude that an efficient use of these funds is crucial for Romania's regional and economic development, to which is also added the increase in absorption capacity, which will ensure local public authorities an adequate level of funding sources.

Keywords: absorption, budget, European funds.

71 Berry leaves as feed additive in poultry nutrition: effects on performance and oxidative stability

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Abstract
Cranberries, like other plants from the berry family, are very popular due to their composition rich in bioactive compounds with strong antioxidant activity. The leaves belonging to that species can be considered a cost-effective alternative in the context of reducing antibiotics strategy in animal nutrition. Studies on their potential effects as feed additive are limited in poultry nutrition. The aim of the current study is to assess the effects of inclusion of cranberry leaves in an omega 3 enriched diet of broilers on

productive parameters and also evaluate the markers of antioxidant defense system. An experiment was conducted on 120 COBB 500 broiler chickens, housed in an experimental hall with permanent wood shave litter, in boxes of 3 m^2. The dietary treatments were based on corn and soybean meal, and the experimental group fed diets supplemented with 1% cranberry leaves (E1) and other with combination of cranberry leaves (1%) and walnut meal (6%) (E2). The results showed that the presence of cranberry leaves in an omega 3 enriched diet affected the final body weight of broilers (C – 3140 g; E1 – 2649 g and E2 – 2538 g); the average daily gain (C – 92.91 g; E1 – 88.32 g and E2 – 84.63 g) compared to other two groups. No significant differences were recorded for average daily feed intake and feed conversion ratio. The antioxidant compounds from cranberry leaves structure positively affected the MDA concentrations determined in serum and liver samples (C – 0.153 ppm; E1 – 0.133 ppm for serum samples and C – 0.359 ppm; E1 – 0.319 ppm for liver samples). By inclusion in an omega enriched diet, no significant differences were detected compared to C for serum (E2 – 0.155 ppm) and almost 10% decreasing values were recorded for MDA values determined in liver samples (0.324 ppm).

Keywords: cranberry leaves, broilers, performance, MDA values

72 Enhancing the bioactive profile of bee-collected pollen through solid-state fermentation

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Abstract

Implementing solid-state fermentation with a select bacterial group (*Lactobacillus plantarum*, *Apilactobacillus kunkeei*, and *Lactobacillus acidophilus*) on bee-collected pollen innovates its nutritional and bioactive quality enhancement. This method adjusts its macronutrient balance, pH, acidity, and enriches it with lactic acid, polyphenolics, and flavonoids, improving health benefits. This investigation aims to assess the nutritional enhancement, bioactive compound augmentation, and antimicrobial prowess of bee-collected pollen post-fermentation, comparing the traits of both unfermented and fermented pollen, particularly focusing on amino acids, polyphenolics, flavonoids, and their effects on antioxidant and antimicrobial activities.

A mixed culture of *L. plantarum, A. kunkeei*, and *L. acidophilus* facilitated the bee-collected pollen's fermentation. This entailed comparative analysis of their macronutrient profiles, pH, acidity, lactic acid, and bioactive substances (polyphenolics and flavonoids), alongside examining antioxidant and antimicrobial efficacies against various bacteria.

The fermented pollen demonstrated a substantial increase in amino acids, polyphenolics, and flavonoids, thereby boosting antioxidant and antimicrobial effects, notably against *E. coli*. The analysis underscored the positive correlation between fermented samples and improved nutrient bioavailability.

Solid-state fermentation with a specific bacterial consortium markedly enriches bee-collected pollen's nutritional and bioactive attributes, suggesting its potential as an enhanced functional food ingredient. This study underlines the critical role of detailed analysis in validating the fermented pollen's health-promoting qualities and advocates for further scalability and application research in functional food and supplement development.

Keywords: bee pollen, fermentation, lactic acid bacteria

73 Comparative study regarding quality of quail eggs sold in supermarkets

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Abstract
Research on the importance of quail eggs has shown that regular consumption leads to a significant increase in resistance to diseases, stress, and revitalization of the body. In Romania, there has been observed a consistent consumer appetite for this category and their constant presence in the market, especially at supermarkets, since 2018-2019. Due to the inability of Romanian aviculture to consistently satisfy supply demands, products are partly imported. Hence, the main purpose of this paper is to establish the quality of quail eggs. Quality evaluation was based on determining specific physical indicators (weight, specific weight, white and yolk index, Haugh index, shell thickness), and chemical composition (% water, D.M., fats, and proteins). The values obtained for physical indicators were within the limits accepted by the literature (although there were differences of up to 8% in weight between batches, freshness indices showed very close values, highlighting the freshness of the product, and shell thickness fluctuated insignificantly with shell integrity at 100%). Chemical properties were characteristic of fresh eggs, with no significant differences between batches or literature references. The overall conclusion of the study was that marketed quail eggs comply with current norms, regardless of their origin.

Keywords: quail eggs; quality; physical indicators; chemical indicators; food safety

74 The quality of some acid dairy products obtained in the traditional system

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Abstract
The transformation of milk into acidic products has led to a significant increase in its nutritional and biological value. Containing all the components of milk, but in a more easily digestible form, readily metabolizable calcium, significant amounts of vitamins (from the B complex, synthesized by microorganisms in starter cultures), acid-dietetic products hold a significant and well-deserved share in human nutrition. Consequently, through this work, we aimed to identify qualitative parameters of raw milk, and of some assortments of acidic products obtained in a traditional system. In the case of raw milk, the parameters were within the limits imposed by company standards (acidity 17.1±0.60°T; density 1.027±0.002, fat 3.5±0.4%; average delivery temperature of 6±0.50°C) with fluctuations generated by the season. The Buttermilk assortment presented organoleptic and physico-chemical characteristics close to those provided in standards (characteristic taste and color, acidity 145±100°T, fat 2.1±0.1%, proteins 2.9±0.2%). In the case of the Sana assortment, the physico-chemical parameters showed slight modifications compared to the standard, with lower acidity (115±100°T), hence the weak expression of some sensory characteristics. The most important conclusion of this case study was that regardless of the classification of the unit, the physico-chemical and sensory properties of the products obtained are decisively influenced by strictly adhering to the technologies, otherwise risking more or less severe deviations from the imposed standards.

Keywords: technologies; sensory characteristics; quality; acid-dietetic dairy products

75 Nutritional profile and health properties of turmeric and curcumin extract: a comparative analysis

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Abstract
Turmeric has been used as a traditional medicine in Southeast Asian countries and can serve as a spice, food preservative, and coloring agent. Turmeric owes its unique properties and color to curcuminoids, biologically active substances that encompass curcumin, de-methoxycurcumin, and bis-demethoxycurcumin. The purpose of the study was to investigate the nutritional properties of turmeric

and curcumin extract, as potential dietary supplements for poultry nutrition. Turmeric was characterized by a content of 7.89 % crude protein, 4.61 % crude fiber, 1.76 % crude fat, and 7.47 % ash. The proximate composition of curcumin extract showed lower values when compared to turmeric. The chromatographic analysis of vitamin E isomers revealed α-tocopherol of 1.97 mg/kg in turmeric vs 8.09 mg/kg in curcumin, γ-tocopherol of 3.01 mg/kg in turmeric vs 10.4 mg/kg in curcumin, and δ-tocopherol of 13.84 mg/kg, while in curcumin was not detected. The antioxidant yellow pigments lutein and zeaxanthin were in higher amounts in curcumin extract, which was also characterized by an increased concentration of total polyphenols (76.50 mg/g GAE). Turmeric had higher levels of flavonoids (47.42 mg/g vs 24.71 mg/g). The outcomes of this study can serve as a foundation for developing innovative food products by using poultry nutrition and harnessing the potential benefits of this ancient spice.

Keywords: antioxidants, bioactive compounds, curcumin, nutritional value, poultry, turmeric

76 The influence of laying hen rearing systems and maintenance technologies on egg quality parameters: A review

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Abstract
This review article highlighted the effects of different rearing systems on egg quality parameters and the welfare of laying hens. Different housing systems for laying hens continue to cause controversy among consumers, researchers, environmentalists, and producers. The main concern and issue is the effect of these systems on bird health, behavior, and egg quality. In the European Union, public concern has increased about animal welfare in the poultry sector, since 2012 conventional battery cages (CC) for laying hens have been banned and replaced by other alternative housing systems: enriched cages (EC) and non-cages systems, such as aviaries (AV), and free-range system. The rearing systems and maintenance technologies of the laying hens can also influence the quality parameters of the egg. Conventional rearing systems can involve overcrowding of hens, poor hygiene conditions, or lack of access to space and natural light, which can lead to stress and disease in the birds and, by implication, reduced egg quality. The use of modern technologies in the breeding of laying hens can contribute to the improvement of egg quality parameters and the well-being of laying hens. These technologies include automated systems for feeding and watering, temperature and humidity control in rearing houses, artificial lighting, and the use of food supplements to ensure adequate nutrient intake.

Keywords: egg quality, hen welfare, laying hens, physical characteristics, production system.

77 Increasing the removal efficiency of pollutants from municipal wastewater using biological filters

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Abstract:
Biological filters are wastewater treatment systems that contain a granular filler, which forms a biologically active film that contributes to the bio-oxidation of impurities in wastewater. Recent research in this field has focused on improving conventional fixed aerobic film treatment plants by using cheap and readily available materials as filterable fillers. Experiments have been carried out on volcanic tuff-filled biofilters with diameters ranging from 20-100 mm, supplied with municipal wastewater from primary sedimentation. The efficiency of biological filtration was determined during continuous operation of the experimental plant by physico-chemical analysis of the water. The indicators analysed were those required by current legislation, namely: pH, chemical oxygen demand (COD), biochemical oxygen demand (BOD5), total suspended solids (TS), total nitrogen (TN), total phosphorus (TP), etc. The wastewater samples analysed were average samples. Treatment efficiency was calculated under different assumptions, depending on: plant capacity, hydraulic load, organic load.

Keywords: waste water, pollutants, biofilters, efficiency

78 Preliminary results on meat authenticity testing by ATR-FTIR combined with chemometrics.

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Abstract
Meat authenticity is a main concern for both consumers and authorities, leading to the need for quick, accurate and low cost techniques for fraud detection. The aim of this study was to investigate the utilization of Attenuated Total Reflection-Fourier transform Infrared spectroscopy (ATR-FTIR), in combination with chemometrics in meat authenticity tests (species level), as well as to evaluate the type of samples (raw or freeze-dried) leading to higher discrimination rates. Ninety-two meat samples (sheep, goat and beef) were analyzed, in raw and freeze-dried form, by ATR-FTIR. Principal component analysis (PCA) and Partial least squares-discriminant analysis (PLS-DA) were applied. The results of this study indicated that PCA failed to distinguish the samples for any form and type of sample, whether PLS-DA revealed successful samples clustering. More specifically, the identification of pork was better for raw samples with sensitivity, specificity, and accuracy values of 100% and for beef for freeze-dried samples with a sensitivity rate of 0.90 and specificity of 0.64. These preliminary results indicate that ATR-FTIR combined with chemometrics may act as a valuable tool for quick, accurate and operational low cost analysis in detecting meat fraud in raw or freeze-dried samples.

79 Principal component analisys on fixed effects who influences genetic evaluation of main beef traits on romanian cattle breeds

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Abstract
Genetic evaluation models play a crucial role in determining the accuracy and mathematical power capacity of the evaluation process in beef cattle breeding. In this paper, we analyze the fixed effects and traits utilized in the genetic evaluation of two beef cattle breeds, specifically focusing on birth weight (BW), weaning weight (WW), and average daily gain (ADG). Our analysis was performed using principal

component analysis packages from R, enabling us to investigate the relationships and correlations among these traits. Furthermore, we examine the influence of fixed effects such as farm, year of birth, and sex of the animals on the traits under evaluation. Understanding the impact of these factors is essential in developing effective evaluation models and optimizing breeding programs for genetic improvement in beef cattle. The analysis revealed a significant correlation between weaning weight (WW) and average daily gain (ADG) in both of the beef cattle breeds studied, with a correlation coefficient of 0.99 indicating a very high correlation. This suggests that animals exhibiting higher weaning weights tend to have greater average daily gains. Consequently, it is important to consider both traits simultaneously in the evaluation models to avoid redundancy and maximize the accuracy of genetic predictions for these breeds. In contrast, the analysis demonstrated that sex has little to no influence on birth weight (BW), weaning weight (WW), and average daily gain (ADG) of the animals, with an average effect close to -20%. This suggests that for beef cattle, the inclusion of sex as a fixed effect in the evaluation models may not provide substantial informational value. Breeders and genetic evaluators can prioritize other influential factors for more accurate predictions and decision-making. In conclusion, the analysis of birth weight (BW), weaning weight (WW), and average daily gain (ADG) in two beef cattle breeds demonstrated a strong correlation between weaning weight and average daily gain. This emphasizes the need to consider both traits simultaneously in the evaluation models to avoid redundancy and optimize genetic predictions. Additionally, the findings indicate that sex has little to no influence on the studied traits in beef cattle and can be excluded as a fixed effect in the evaluation models. Conversely, the year of birth plays a crucial role, significantly influencing all the traits. Genetic evaluation models should account for the influential fixed effects, such as the year of birth, to avoid biased predictions and make accurate decisions regarding breeding programs and genetic progress in beef cattle.

Keywords: beef traits; fixed effects; principal component analysis; data redundancy; relationship.

80 Perspectives for introgression of the 'slick' gene in romanian dairy cattle for heat tolerance

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Abstract

Europe is the fastest-warming continent and its temperatures are rising at roughly twice the global average rates according to the EU Climate Agency. It is well documented that in lactating dairy cows heat stress reduces feed intake, alters the metabolism, compromises milk yield and leads to fertility problems. As a result, there is a growing interest to reduce the severity of heat stress effects on dairy cattle throughout the introgression of specific genes that confer thermotolerance. The 'SLICK' gene, identified in Senepol cattle from the Caribbean Islands was recently introduced throughout crossbreeding in the American Holstein breed. SLICK is a prolactin receptor (PRLR) mutation, which consists of a single base pair deletion in exon 10, conferring animals a short hair coat. Holstein cattle carrying the SLICK gene mutation have been shown to have superior performances under both U.S. and Australian heath stress

conditions. In order to mitigate heath stress effects on the Romanian dairy sector, a project funded by the Ministry of Agriculture and Rural Development was set-up in 2023, to introduce and evaluate SLICK Holstein genetics. To this aim, semen was imported from two SLICK carrier bulls from the US (9HO162227 +2815 GTPI and 9HO16182 +2770 GTPI), and used to crossbreed with Romanian Black and White HF dairy cows, first gestations being obtained in early 2024. Further investigations will be carried out to evaluate growth rates, climate adaptation, production, reproduction and health of the SLICK gene carrier animals under Romanian production conditions.

Key words: dairy cattle, selection objectives, heat stress, SLICK gene.

81 Cytogenetic investigations in subfertile buffalo females

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Abstract
Cytogenetic investigation is a very important tool of evaluating the genetic health and fertility of farm animals. During the last years, a total number of 287 Romanian buffalo females belonging to the R&D Station for Buffalo Sercaia have been karyotyped by using peripheral blood lymphocytes culture. This work presents our observations concerning the role of chromosomal abnormalities as causes of reproductive failure in subfertile buffalo females. We identified 47 cases of chromosomal instability represented by a large number of mono-and bi-chromatidic breakages on autosomes and heterosomes, loss of chromosome fragments and gaps. Although the carriers have had a normal phenotype, the analysis of their reproductive activity revealed a degradation of the reproductive performances characterized by repeated inseminations, lack of oestrus and loss of pregnancy. Our investigation continued through SCEs-test and for animals with many chromosomal breakages the number of sister chromatid exchanges (SCEs) was very high (11-23 SCEs/cell) compared to the normal animals. It was also identified a Turner's syndrome (2n = 49,X0) in the case of a buffalo female with prominent withers, tight pelvis and reproductive disturbances. According to these results the identified chromosomal abnormalities, demonstrated once again their role in the ethiology of different levels of infertility.
Key words: buffalo, chromosomal abnormalities, reproductive disorder

82 The effect of year, event and level as factors in show jumping championships

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Abstract
The study described the National Winter Tour Championship over 2021-2023 years. In 2021 WTC registered a total number of 1719 starts, out of which a 42% finished with no penalties, the same result was in couples with more than one fault. Only 16% finished the tests with 4 points penalty. For the next year, the starts counted 3502 starts, the number of clear rounds increased to 44%, while the one fault percent was higher, 20%. The other couple's penalties decrease to a 36%. Over the 2023 WTC, the same good direction was, respectively, over 3103 starts, 48% finished with no penalties, 21% with one error and only 36% with more than 4 points penalization. Considering the rise of couples in performance, we grouped for analysis, the heights on three levels: beginners (60-85 cm), intermediary (90-115 cm) and high level (120-140 cm). Over the three years, for the first group the clear rounds varied from 48 to 63%, followed by the second group with 40-46% and the third one with 29-39% no penalties. The 4 points were registered by a 6-19% in the lowest height, and in the second and third groups it varied from 17 to 26%. More than one fault per round, comes out as follows: in beginner's 22 to 46%, in the middle height 26 to 39% and in high level from 38 to 56%.

Keywords: showjumping competitions, sport horse.

83 Focus review ons horse welfare

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Abstract
As an overall, horse welfare refers to the well-being and the quality of life of horses. This includes ensuring that horses are provided with proper nutrition, stable, veterinary care, training, and social intra and inter specific interaction. It involves protecting horses from harm, abuse, neglect, and ensuring their physical and emotional needs are met. Horse welfare is essential for promoting health, happiness, and longevity of horses, as well as fostering positive relationships between humans and horses. Welfare in the equestrian activities mirroring the ethical and responsible treatment of horses during mainly in all aspects of training activities. This includes ensuring that horses are provided with proper equipment that fits well and does not cause discomfort or injury, using appropriate training methods that prioritize the horse's physical and mental well-being, and monitoring the horse's health and fitness levels to prevent overexertion or injury. Sport horse welfare involves creating a positive and respectful relationship

between the rider and the horse, as well as promoting a safe and supportive environment for both the horse and the rider. Prioritizing welfare in equestrians is essential for the health, happiness, and longevity of the horse, as well as for the enjoyment and safety of the rider.

Keywords: sport horse, welfare, equestrian activities

84 Evolution ff the urban population In Romania (2012-2022)

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Abstract. The urban environment of Romania, from an administrative point of view, consists of 319 cities, of which 103 are municipalities. For our country, the urban environment is a particularly important socio-economic area, where lives 44.9% of the population. On July 1, 2022, the urban population was 12.337 million people, an increase of 1.514 million people compared to July 1, 2012 (10.823 million people). The female population on July 1, 2022 was 11.234 million people, increasing by more than 945,000 people compared to the same date in 2012 (10.289 million people). The average length of life in the urban environment was 75.42 years in 2022, up from 75.05 years in 2012. This paper is based on a content analysis of statistical materials from the period 2014-2024. Among the indicators that will be analyzed, we mention the urban population, the population by sex, the natural movement of the population, the natural increase of the population, the average life expectancy and migration flows.

Keywords: urban environment, population, evolution

85 Study on dynamics of feed intake in suckling calves

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Abstract
The aim of the study was to investigate the voluntary concentrates intake in relationship with age, as well as the growth rate of calves. Twenty-one calves divided into three groups were used. The body weight at birth and at weaning, total feed consumption and time that calves stayed in the study were measured.

Groups 1, 2 and 3 stayed in the study 17, 29 and 50 days, respectively. Daily concentrates consumption (kg) was determined by weighing the concentrates fed as well as the leftovers. Total feed and milk consumption per calf per day was 5 kg and 0 L, 5.57 kg and 3.31 L, and 9.57 kg and 5.16 L for group 1, 2, and 3, respectively. Total weight gain was 13 kg, 22 kg, and 43 kg for group 1, 2, and 3, respectively. In conclusion the growth rate is dependent of the age, feed consumption and the period of days of receiving concentrates.

86 Seasonal dynamics of mastitis in Romanian Brown cows

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Abstract
In this study, we investigate the season pattern during a three-year period of somatic cell score (SCS) in the first 3 lactations of Romanian Brown cows. The dataset consists of 1064 test-day milk records from a total number of 70 animals. For defining healthy, subclinical and clinical mastitis animals, we used the following thresholds: <200,000; 200,001-400,000 and >400,000 somatic cells/ml milk, respectively. The values of somatic cell count (SCC) recorded every 28 days were transformed to SCS. To determine the season pattern on SCS, a linear mixed effects model was built incorporating pedigree data, using the "lme4qtl" R package. Parity, days in milk, year and season of test day were included as fixed effects, while the animal was used as random effect. Season had a significant effect on the mastitis frequency and SCS ($p<0.05$). Thus, the frequency of healthy cows was higher in the summer and autumn compared to spring (58.90% and 62.21% vs. 53.27%). Also, spring was associated to a higher ($p<0.01$) SCS compared to summer and autumn. There was no significant effect of winter on either mastitis frequency and SCS. These findings demonstrate the impact of season on SCS. This research was funded by the projects 5143/2021 and ADER 7.1.9/2023.

87 Comparative effect of laying hens egg quality fed diets with Castanea sativa in low-protein diets

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Abstract
This study aimed to evaluate the effects of low protein diet and tannin supplement from Castanea sativa compared to a standard diet, on eggs quality parameters. For that a feeding trial was developed, on 90 laying hens of Lohmann Brown Classic hybrid, aged 51 weeks over a 6-week experimental period. The hens divided into three experimental groups, each group having 30 hens (6 replicates of 5 hens), were allotted to one of the three dietary treatments as follows: a control group fed a diet with 17.50% crude protein (CON), an experimental group fed a diet with 15.50% (LPL), and an experimental group fed a diet with 15.50% crude protein and supplemented with 0.5% Castanea sativa powder (LPC) as natural source of tannin. The limiting amino acids were supplemented to maintain equilibrated diets. The primary chemical composition of the eggs analysed at the end of the experiment, showed no effects among the groups. At the end of the trial, the egg weight and its components were not influenced by the experimental diets, when compared to the control diet. The albumen pH, revealed that LPL and LPC groups, had better scores when compared to the CON eggs. The LPC group, showed significantly higher Haugh Units, compared to the CON eggs, while the LPL had no significant effect. Yolk colour was significantly influenced by the LPL and LPC diets, when compared the CON diet, showing more yellowish egg yolks. The eggshell breaking strength showed that LPC, significantly improved shell quality, while the LPL had no effect compared with the CON eggs. During storage time, for 14 and 30 days at 5 and 20°C, the eggs collected from the LPC group, maintained higher egg quality characteristics in terms of albumen pH, Haugh units, yolk colour and eggshell breaking strength compared with both the CON and LPL groups. These results revealed that Castanea sativa powder, used in laying hens diets with lower protein levels (15.50%), will result in obtaining eggs without affecting the nutritional quality in terms of physical and primary chemical composition.

Keywords: poultry; egg quality; feed additives; tannins; low protein

88 Effects of dietary natural pigments on laying hens' egg quality during different storage temperature

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Abstract
Natural pigments in animal nutrition represents an alternative to synthetic pigments utilization. This 6-weeks study on 168 hens LOHMANN-BROWN (45-week-old) evaluated the natural carotenoids effects on egg quality. The hens were divided in 4 groups, and fed with: C (control-standard diet), E1 (standard diet+0.07% marigold extract), E2 (standard diet+0.07% paprika extract) and E3 (standard diet+0.02% marigold extract+0.05% paprika extract), and accommodated in 3-tier battery cages. A total number of 216 egg samples (18 eggs/group) were collected and analyzed at the final of the trial and after 28 days, stored at room (20°C) *vs*. refrigerated (4°C) temperature. At the end of the study, E1 (6.89), E2 (8.78), and E3 (8.4) groups registered a significantly ($p<0.05$) increased yolk color compared to C group (4.5). No significant differences were observed for the yolk color in eggs stored for 28 days at 4°C, while for eggs kept at 20°C after 28 days of storage, the color and albumen pH values increased significantly ($p<0.05$), correlated with a significant decreasing of Haugh Unit (HU). In conclusion, both natural extracts can be used in layers nutrition and are suitable for intensify egg yolk color.

Keywords: egg, laying hens, marigold, paprika, quality parameters, shelf-life.

89 Bioactive peptides preliminary profile assessment of indigenous Greek goat breed "Skopelos"

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Abstract
The "Skopelos" goat, a native Greek breed , located in the Northern Sporades islands, stands out for its exceptional milk productivity and unique milk characteristics that gives to it. This study presents preliminary data on the biopeptide profile of "Skopelos" goat milk from four producers in Magnesia,

Greece. Using High-Performance Liquid Chromatography-Mass Spectrometry (HPLC-MS), we identified bioactive peptides with potential health benefits, including antibacterial, anti-diabetic, anti-hypertensive, anti-thrombotic, antioxidant, and immunomodulatory activities. These preliminary results show the nutritional value and potential health-promoting properties of "Skopelos" goat milk. Further research will be taken place to fully characterize the biopeptides and assess the identification of functionality. The "Skopelos" goat breed, indigenous to the Northern Sporades islands, holds significant promise for the Greek economy through its unique milk production profile and bioactive peptide content.

90 Current research on the influence of some technological links on grain production in sunflower crop

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Abstract
Known as one of the main European countries producing sunflower seeds, Romania, through its agricultural sector, must capitalize its own potential and ensure the continuity of this distinguished agricultural crop, due to the high demand for edible oil, on our continent. From this perspective and also because of the remarkable fodder importance of the grains, as well as the secondary product obtained, namely the sunflower grit, it is necessary that the cultivation technology of this valuable species to be improved and constantly adapted, to ensure high productions, while respecting the current ecological concerns. Ordinarily, in the area of the Western Plain of Romania, sunflower cultivation gives good seed productions without the use of irrigation water or from the underground water found near the surface in lower regions, because of the sufficient precipitations from seed germination to the ripeness of the grains. At the same time, the high fertility of the soils from the researched area played an equally important role, with reference to the physical and chemical properties, which favor an aero-hydric regime beneficial to the growth and development of plants. Through this research, it was followed the behavior of two sunflower hybrids respectively *Pioneer P64LE137* and *Subaru HTC*, cultivated in two different tillage systems (the first one including discing, scarification and combiner and the second one discing, plowing and combiner) and using two different levels of fertilization: the first one included NPK compound fertilizer - 300 kg/ha + 15-15-15+10 sulphur at crop sowing, as well as a fertilizer based on nitrogen, calcium and magnesium - 250 kg/ha during the growing season and the second one included NPK compound fertilizer - 250 kg/ha + 15-15-15+10 sulphur at crop sowing and a fertilizer based on nitrogen, calcium and magnesium - 150 kg/ha + 150 kg/ha during the growing season.

Key words: sunflower, hybrids, tillage, fertilization, production

91 Effects of raw *Chelidonium majus* extracts on different strains of microorganisms

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Abstract
Chelidonium majus is a plant that grows mainly in Europe and Asia. It has small yellow leaves and flowers, which are often used for therapeutic purposes. Alcoholic extracts of *Chelidonium majus* have an antimicrobial effect, but there is little research in the scientific literature on the antimicrobial effect of aqueous extracts of this plant.
In this research, the effect of crude aqueous extracts of *Chelidonium majus* was investigated on different strains of *Escherichia coli*, *Staphylococcus aureus*, *Enterobacter cloacae* and *Candida albicans* microorganisms. *Chelidonium majus* was collected in different seasons (spring, summer, autumn, winter) from the city of Timisoara, Romania. Aqueous extracts were made by mixing 50 g of plant tissue with 50 mL of distilled water for 5 minutes. Different volumes of extracts were diluted with microorganism-specific media. Strain cultures containing different volumes of extracts were incubated for 20 hours under shaking and optical density was measured at the beginning of incubation and after 20 hours. The results showed that as the concentration of extracts in the culture media increased, the microorganisms grew much better. Therefore, aqueous extracts of *Chelidonium majus* have a beneficial effect on the growth of the strains taken in the study, contrary to the effect of alcoholic extracts discussed in other scientific studies.

Keywords: greater celandine, bacteria, yeast, aqueous extracts.

92 Influence of food on reproductive behavior in *Drosophila melanogaster*

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Abstract
In a constantly changing environment, animals are forced to make crucial behavioral choices for survival. Food determines whether wild animals evolve, whether populations decline, or how ecological groups are

structured. Animals have the ability to adapt their nutritional needs according to the availability of food, they detect and assimilate nutrients.
Dorosophila melanogaster, the fruit fly, is considered an important model for various studies. For example, in nutrition research and for understanding mechanisms of human disease.
In this study, we have provided an overview of fruit fly feeding behavior, how diet influences mating behavior and what volatiles attract flies. We show that mating behavior is very closely related to food and that egg laying is influenced by yeast, a very important source of protein.

Keywords: *Drosophila melanogaster*, fruit fly, feeding behavior, diet, mating behavior

93 Research on the consumption of meat products with plant-based protein additives

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Abstract
Today, consumers are increasingly initiating meat-free days as alternatives to their menu, reducing consumption for reasons of health, the environment, and animal welfare. The study aims to identify hybrid meat products that have been launched on the international market, determine the effects that protein additives have on the final product, and analyze consumers' attitudes towards these products. Hybrid meat products are meat products that contain varying amounts of plant-based additives (such as legumes, cereals, fruits, and vegetables in different proportions) that are not added as extensions, but for their positive connotation. The products analyzed include sausages, burgers, meatballs, and minced meat from different companies.

Key words: research, protein additives, meat products, producers, consumers.

94 Studies on different chemical parameters of dairy products by spectrophotometric methods

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Abstract
Milk, the fluid secreted by the female of all mammals, is often described as the most 'almost perfect' food. Pasteurization and processing result in many dairy products that are commonly consumed, and they are part of the category of foods that provide a balanced diet through the multitude of chemical compounds they contain (proteins, lipids, vitamins).
Over time, consumption of dairy products has increased, with more than 50 million tons of dairy products being sold in 2023. Due to the large quantities consumed, great attention must be paid to the way these foods are produced, as well as the ingredients contained and the nutritional value of the product.
The present research focused on the determination of chemical parameters for nine commercial dairy products using spectrophotometric chromogenic analysis. The concentration of reducing sugars, proteins and the presence of starch were determined using the 3,5-dintrosalicylic acid method, the bicinchoninic acid method, and the Lugol's reagent method. The results show that reducing sugars are predominant in dairy products, being found in an average concentration of 20.35 mg/mL, while proteins are present in small amounts compared to reducing sugars, presenting average concentrations of 0.64 mg/mL, a value more than 31 times lower.

Keywords: lactose, milk, pasteurization, protein, starch

95 Wine grape waste as an alternative solution for alleviating heat stress laying hens' diets – a comprehensive review

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Abstract
Raw or fermented grape pomace, grape seed extract or grape seed oil were considered a dietary solution for laying hens nutrition due to their positive effects noticed in different trial inclusion levels especially when tested in heat stress conditions. The by-products as stems, skins, and seeds generated after harvest,

constituting around 45% of total production, provide a cost-effective resource of valuable ingredients, particularly dietary fibers and natural antioxidant flavonoids, which provide significant biological benefits for animal. Different inclusion levels (ranging from 1% to 10%) were assessed laying hens' diets, under both normal and heat-stress conditions. The concentration of polyphenols is higher in seeds and stems compared to skins or leaves, though this can vary depending on factors such as winemaking process, soil/geographic conditions, and grape variety. Additionally, the antioxidant capacity can differ based on various analytical methods utilized. Heat stress environmental conditions compromises the antioxidant system, leading to the initiation of oxidative stress. Therefore, the grape by-products dietary inclusion could reduce the negative effects of heat stress, offers economic benefits for farmers and contributes to sustainable agricultural practices and the welfare of poultry production systems.

Keywords: antioxidants, grape waste, heat-stress, laying hens, nutrition, polyphenols

96 Effects of aqueous chili pepper extracts on various strains of microorganisms

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Abstract
Hot peppers, commonly called chili peppers, are varieties of peppers of the genus *Capsicum* belonging to the family Solanaceae, cultivated for their spiciness. Capsaicin, a substance soluble in alcohol and less soluble in water, is responsible for the hot taste of chili peppers, and its content ranges from zero to millions of heat units on the Scoville scale. The effects of chili pepper extracts are studied and their antimicrobial, antioxidant, anticancer, metabolic stimulant potential is known.
In this study, the effect of crude aqueous extracts of 8 varieties of *Capsicum* was investigated on different strains of microorganisms: *Escherichia coli*, *Enterobacter cloacae*, *Staphylococcus aureus*, and *Candida albicans*. *Capsicum* aqueous extracts were prepared by mixing 6 g of fruit tissue with 50 mL of distilled water for 3 minutes. Different volumes of extracts were diluted with microorganism-specific media. Optical density of the microorganisms cultures was measured at the beginning of incubation and after 20 hours. Contrary to expectations, the results showed that the microorganisms grew much better in the media containing *Capsicum* extracts, with the microorganisms reaching optical densities between 0.8-1.0, compared to 0.4-0.6 optical density of the control containing no extracts. *Capsicum annuum* var. *capia* extract had the best effect on the growth of microorganisms for all strains tested, starting with the lowest concentration. *Staphylococcus aureus and Candida albicans* grew best on all extracts of *Capsicum* varieties tested, except *Capsicum frutescens var. cerasiforme* extract, which showed an inhibitory effect.

Keywords: chili peppers, bacteria, yeast, aqueous extracts.

Funding: This research was funded by the GRANT PNIII-P3-284, ChitoWound—Biotechnological tools implementation for new wound healing applications of byproducts from the crustacean seafood processing industry.

97 Challenges of the comet assay on yeast cells

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Abstract
Comet assay or single cell gel electrophoresis is a sensitive, reliable and rapid method for the detection of double and single stranded DNA breaks, DNA alkaline labile sites and delayed repair sites in individual eukaryotic cells. Applications of the comet assay are targeted towards DNA repair studies, genotoxicology, clinical field, environmental biomonitoring and human monitoring. Yeast cells are eukaryotic cells, which are easy to grow, inexpensive and do not require much time to study. The main challenge of using yeast in the comet assay is the necessity to degrade the cell wall, which is why they are poorly studied.
In this work, the response of *Pichia pastoris* and *Saccharomyces cerevisiae* cells to the comet assay was investigated. Yeast cells were grown in specific culture medium and then collected by centrifugation. The cell wall of the collected cells was subjected to zymolase disruption. The standard protocol was used to perform single cell gel electrophoresis. DNA staining on microscopic slides was performed with ethidium bromide. According to the experimental conditions, the amount of DNA in yeast cells is low, and this part of the research remains under optimization and attention.

Keywords: DNA damages, cell wall, enzymes.

Funding: This work was supported by the grant PN3-P3-285, Polymeric NanoBioMaterials for drug delivery: developing and implementation of safe-by-design concept enabling safe healthcare solutions.

98 Antimicrobial effect of five essential oils

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Abstract
Essential oils are highly concentrated compounds extracted from plants (flowers, leaves, seeds, fruits) and have numerous benefits for human health. They are used in aromatherapy to reduce stress and pain, to aid sleep, and in infections due to their anti-inflammatory, antiviral, antibacterial, antiseptic, and antifungal properties.
This study focused on testing the effect of 5 commercial essential oils, peppermint, lavender, lavandin, lemongrass and oregano on 4 strains of microorganisms, *Staphylococcus aureus*, *Escherichia coli*, *Enterobacter cloacae* and *Candida albicans*. Commercial essential oils were diluted in microorganism-specific media 100, 20, 10 and 7 times. The optical density of cultures was measured at 600 nm at the beginning of incubation, at 30℃ and after 22 hours. The results showed that at 100-fold diluted oils of lemongrass, lavender and oregano had the strongest inhibitory effect on all strains used. Lavender oil followed by peppermint oil at the same dilution had the weakest inhibitory effect.

Keywords: volatile compounds, secondary metabolites, plant extracts.

Funding: This research was funded by the GRANT PNIII-P3-284, ChitoWound—Biotechnological tools implementation for new wound healing applications of byproducts from the crustacean seafood processing industry.

99 AI-driven innovation in food biotechnology: meeting challenges head-on

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Abstract
The integration of Artificial Intelligence (AI) into food biotechnology marks a significant advance, bridging the gap between conventional and modern technological approaches, while responding to different food preferences and encouraging the creation of innovative food alternatives. The application of AI in food biotechnology transcends traditional boundaries, offering a multitude of solutions adapted to meet the

needs of different lifestyles, including vegan, and vegetarian diets, but also personalized diets rich in proteins, or specific diets for athletes. AI is revolutionizing modern food biotechnology, facilitating the development of new food alternatives that meet the evolving food preferences and demands of consumers. For people who adhere to vegan or vegetarian diets, AI-based algorithms help formulate plant-based protein sources, mimicking the organoleptic properties and nutritional profile of traditional animal products. In addition, AI-based research is accelerating the discovery and cultivation of alternative protein sources such as insects or microalgae, providing sustainable alternatives to conventional meat and dairy products. These innovations cater to adventurous tastes and offer exciting alternatives to conventional staples such as milk, beef, and chicken, expanding the culinary landscape and encouraging culinary creativity. The integration of AI into food biotechnology represents a paradigm shift in the way we produce, consume, and perceive food. By harnessing the capabilities of artificial intelligence, researchers can bridge the gap between conventional and modern technologies, cater to diverse food preferences, and pioneer the development of innovative food alternatives that redefine the boundaries of culinary innovation.

Keywords: AI, food biotechnology

100 Effect of *Lactobacillus* probiotic on production performance and carcass quality of broiler chickens

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Abstract
The aim of this work was to find out the influence of probiotic on production performance and quality of carcasses of broiler chickens Ross 308 (n=100). The probiotic preparation contained a special strain of *Lactobacillus farciminis* CNCM MA 67/4R with a total number of 5×10^9 CFU/ml. The experiment divided chickens to control (n=50) and experimental (n=50) groups with an amount of 50 g per 1000 l of drinking water. The experiment was carried out from the 1st to the 37th day old chickens. During the experiment these following information were monitored: body weight, food intake, feed conversion, mortality and carcass yield. The result of this experiment defined that the experimental group had reached a higher body weight ($P<0.05$), better feed utility and mortality during and at the end of the experiment in comparison with the control group. The carcass yield and percentages of principal meat parts was not significantly influenced ($P>0.05$).
Key words: broiler chicken, probiotic, body weight, feed utility, carcass yield

101 Effect of dietary probiotic supplementation on egg quality in laying hen

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Abstract
This work was designed to investigate whether inclusions of probiotic to drinking water during laying period improves egg quality. Lohmann Brown classic layers (n=50) hens were randomly divided into control (n=25) and experimental (n=25) group with addition with an amount of 10 ml per 20 l of drinking water. Active ingredients of additive were *Lactococcus lactis* PCM B/00039 6.0 x 10^9 cfu/g, *Lactobacillus casei* PCM B/00080 6.0 x 10^9 cfu/g, *Lactobacillus plantarun* PCM B/00081 6.0 x 10^9 cfu/g, *Carnobacterium divergens* PCM KKP 2012p 6.0 x 10^9 cfu/g and yeast 6.0 x 10^7 cfu/g. A sample of 60 eggs from each group was collected randomly to determine egg quality every 30 days. There were significant effect of probiotic addition on egg weight, albumen index, yolk index, Haugh units and yolk colour ($P<0.05$). Egg shell quality for hens supplemented with probiotic was not different but was greater than for control hens ($P>0.05$). Supplementation of probiotic during the laying period decreased albumen and yolk percentage ($P<0.05$).

Key words: laying hen, probiotic, yeast, egg, egg quality

102 Multicriteria fractional model for feed formulation: economic, nutritional and environmental criteria

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Abstract
The traditionally used linear programming model for feed formulation has sought the least- cost combination of ingredients that satisfies a specific level of nutritional requirements. Together with the search for the lowest possible cost, other aspects such as maximizing diet efficiency in relation to proposed production objectives and minimizing any excess that may lead to unacceptable damage to the environment, are other factors that are gaining in importance in the world of animal nutrition. Taking into account all these factors forces us not only to bear in mind the individual concentrations of each of the nutrients in the feed but also the ratios of these with other nutrients.
In this work we show how a multi-objective fractional programming model is better adapted to current needs in feed design than the traditionally used least cost linear model.

Keywords: Multi-objective fractional programming, Diet formulation, Pig-nutrition, Environment

103 Evaluation of somatic cells count in relation to traits of milk components in breeding herd of the Slovak Spotted dairy cows

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Abstract
The aim this work was to evaluate the somatic cells count and milk components (control samples of milk production) in breeding herd of the Slovak Spotted dairy cows in the Liptov region of the Slovak Republic. A total of 342 dairy cows (2,487 control samples) from 2020 to 2024 years were observed during evaluation: milk in kg, fat in %, proteins in %, lactose in % and somatic cells count in ml^{-1}. The basic statistical and variability characteristics were evaluated using the SAS. The basic traits of milk components and somatic cells count in of Slovak

Spotted dairy cows were 24.60 kg milk, 4.08 % fat, 3.62% proteins, 4.70% lactose and 403.78 cells in ml^{-1}. In the year evaluation 2020 were analysed 318 samples with 22.52kg milk, 4.07% fat, 3.53% proteins, 4.61% lactose and 365.11 cells x ml^{-1} SCC. In the years 2021, 2022, 2023 and 2024 was found a higher average value of the control milk yield, components and SCC. Correlation between evaluated SCC and milk components were lower negative and statistically highly significant, scilicet between somatic cells count and kgs of milk, % of fat, % of proteins, % of lactose was r= -0.09758, r= -0.01242, r= 0.00248 and r= -0.34277. The linear model to represent R^2 on SCC was the highest effect of sire R^2 = 0.207775 and effect of herd-year-season R^2= 0.011778. This work was supported by the Slovak Research and Development Agency (Projects No. APVV-17-0060, APVV-20-0161) and project Erasmus+ 2021-1-SK01-KA220-HED-000032068 (ISAGREED).

Key words: cattle, dairy cows, milk components, somatic cells count, correlation

104 Physico-chemical and microbiological analyzes with a role in assessing the quality of sheep's milk

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Abstract
Milk and milk products from sheep are included in the human diet, due to the complex chemical composition determined by the macro and micronutrients they contain. Knowing the physico-chemical properties and the microbial load of sheep's milk are essential considering that it represents the source of obtaining dairy products. The quality of sheep's milk is affected by several factors: breed and genotype, animal health, age, stage of lactation, season, feed system, rearing system, milking techniques, etc. The study presents the results of the physico-chemical and microbiological analysis of milk samples from Turcana sheep from 2 experimental groups, sheep that benefited from a different feeding system: Group A - 100 sheep that grazed freely on the pasture area for about 10 hours, Group B - 100 sheep that grazed freely on the pasture area for about 10 hours, but which received additional feed. The milk collected from sheep's by milking manually was quantitative analysed, were determined: physical-chemical parameters (pH, freezing point, chemical composition: lactose (L), the content of fats (F), total proteins (TP), non-fat solids (Snf)), respectively the microbiological parameters: the total number of aerobic mesophilic germs

(NTG), the number of coliform bacteria (CT), the number of *Staphylococcus aureus* and the number of somatic cells (SCC). The administration of the fodder complex to the sheep in group B caused a slight increase in the content of fat, protein, and lactose. The microbiological parameters were within the allowed limits, indicating a good general state of health and the absence of a microbiological contamination of the milk samples.

Keywords: milk, chemical analyses, microorganism,

105 Analysis of the possible antibacterial potential of the ethanolic extract of *Agrostis Stolonifera*

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Abstract
Agrostis stolonifera, popularly called creeping grass, is a perennial grass that forms numerous stolon's that extend over the ground. The extracts obtained from the vegetative organs of the plant contain many phytotoxic compounds. The aim of the study was to identify the possible antibacterial effects of some ethanolic extracts obtained from different vegetative organs. Two ethanol extracts from the roots and leaves of A. stolonifera were tested in 5 different concentrations. The possible antimicrobial effects were analysed in 7 standardized bacterial strains: *Staphylococcus aureus* (*ATCC 25923*), *Streptococcus pyogenes* (*ATCC 196415*), *Enterococcus faecalis* (*ATCC 29212*), *Clostridium perfringens* (*ATCC 13124*), *Escherichia coli* (*ATCC 8739*), *Pseudomonas aeruginosa* (*ATCC 10145*), *Legionella pneumophila* (*ATCC 33152*). The diffusimetric method was used to determine the minimum inhibitory concentration (MIC), respectively was determined the cell viability test with 2,3,5 triphenyltetrazolium chloride. Gram+ bacterial strains: *Staphylococcus aureus* and *Enterococcus faecalis*, respectively Gram- bacterian strains: *Clostridium perfringens* and *Pseudomonas aeruginosa* show intermediate sensibility to the ethanolic extract of leaves from *A. stolonifera* for the first 3 concentrations of tested extract. The ethanolic extract from the root of *A. stolonifera* shows intermediate antibacterial potential against the Gram+ bacterial strains: *Streptococcus pyogenes*, *Enterococcus faecalis* and *Staphylococcus aureus*, respectively Gram- bacterial strains: *Escherichia coli*, *Pseudomonas aeruginosa*, *Clostridium perfringens* and *Legionella pneumophila* at the first concentrations tested, after that the antibacterial effect was absent.

Keywords: ethanolic extract, creeping bentgrass, antibacterial,

106 Biological pollution in the urban environment due to ragweed (*Ambrosia artemisifolia)* pollen

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Abstract
Ragweed pollen is an important component of biological pollution in the urban environment, responsible for increasing respiratory allergies and significantly contributing to the health impact of air pollution in the areas where it grows. The aim of this paper is to present data collected from monitoring devices on ragweed pollen distribution throughout the urban area over a two-year period, to place them in the context of local air pollution, public health regulations and available health impact data of ragweed pollen in the urban environment. Pollen data were correlated with major air pollutant concentrations and meteorological factors. Ragweed pollen monitoring data correlated with field data reported by patients and plant specialists confirm the rapid spread of ragweed in urban areas, in addition to some pressing local environmental problems due to air pollution. The number of patients referred to allergists has almost doubled from one year to the next, confirming the real alarming health impact of this environmental hazard. This study confirms the need for more coherent strategies to control the spread of ragweed, based on the application of existing local and international regulations, air pollution control and assessment of human health consequences.

Keywords: Ragweed pollen, Urban environment, Air pollution, Public health, Regulations

107 Characterization of muffins obtained with oleogels based on candelilla wax as a solid fat substitute

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Abstract.
Oleogelation is an alternative process to improve the nutritional properties of foods by creating soft matter structures with the same functionality as commercial fats. The method of structuring oil in a solid form is a promising strategy for the use of liquid oil, which allows the incorporation of vegetable oils rich in unsaturated fatty acids into the food matrix and which can provide solid fat functionality and improved

nutritional characteristics. In this study, oleogels were produced by adding organic candelilla wax in percentages of 3% w/w (DW-3), 5% w/w (DW-5) and 7% w/w (DW-7) in five vegetable oils: grape seed oil (GO), hemp oil (HO); olive oil (OO), sunflower oil (SO) and walnut oil (WO). The oleogels were then characterized physiochemically, rheological, texturally and sensorially. Organic candelilla wax influenced the oleogel formulations, giving higher values of color (L* and b*), texture, acidity index and low percentage of oil expelled from the oleogel mass. In the 5% and 7% oleogels, the brightness values decreased when the oleogel percentage was increased. Regarding the addition of oleogel in the muffin dough, an increase in the viscosity modulus and the elasticity modulus (G´) was observed. The percentage of margarine substitution in the product was 100%. The baked products were analyzed texturally and sensorially. Regarding the sensory evaluation, the products accepted by the tasters were those with the addition of oleogel with 3% candelilla wax. Texturally, it was appreciated that oleogels with 7% candelilla wax lead to obtaining muffins with high firmness. Therefore, this study demonstrates the feasibility of using organic candelilla wax-based oleogels in a real food model high in unsaturated fat. The textural properties of the oleogel were comparable to conventional greases, frequency measurements showed that oleogels formulated with vegetable oils and carnauba wax (7% w/w) had the highest storage modulus G' and loss modulus G' ' values compared to conventional fats.

Keywords: muffins, solid fats, physicochemical properties, rheological properties, texture, sensory properties

108 Classification of dog temperament – Method for stray dog population management

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Abstract
Stray dog population management is not efficient in Bulgaria. There are many reasons for this problem and the consequences present a real danger. Stray animals are a source of many anthropozoonotic diseases (echinococcosis, rabies, etc.). There are reports of people brutally bitten by dogs, sometimes lethally. Therefore, an updated and effective methodology is necessary for solving the issue of stray dog population. Classification of animal temperament is not currently implemented in Bulgaria. However, it can be useful in choosing the right approach towards an animal and development of a behavioural pathology can be avoided. Less animals will be abandoned to join the packs of strays.
Dogs do not belong on the street and active mandatory measures are necessary in order to tackle the problem. After being captured and treated dogs should not be returned on the street but kept in an animal shelter for potential adoption. Classification of temperament and proper training approach should be a must.

Key words: temperament, stray dog, behaviour

109 Typifying the nervous system of small breed puppies and building a behavioral model for them

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Abstract
The temperament of a total of 30 small puppies of 4 breeds in the period of their primary socialization was typified. The number of sanguines, cholerics, phlegmatics and melancholics was determined separately according to the breed of the animals. As well as the possibility of building a successful behavioral model for representatives of different breeds according to their temperament. The fastest socialization was reported in Shih Tzu puppies, followed by Bichon Frise, Pekingese, Dachshund, and lastly Poodle. There was a relationship between temperament and breed in dogs.

110 The effect of certain phyto-additives of fish reproduction – Review

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Abstract
Aquaculture plays a pivotal role in providing a sustainable and reliable source of protein, but its environmental impact remains a pressing concern. As a result, recent efforts have focused on fostering sustainable practices that mitigate adverse effects. One promising approach involves the use of phyto-additives, which have proven to be valuable tools for achieving sustainable aquaculture. They bolster fish immunity and growth, improve water quality and feed efficiency, and minimize pollution through enhanced digestibility and nutrient management. Along with these benefits, research indicates that phyto-additives can directly or indirectly influence the reproductive function of fish. This review aims to explore these aspects in depth, examining the existing body of knowledge on the potential benefits and implications of phyto-additives on fish reproduction. By better understanding the interactions between these additives and reproductive health, aquaculture practices can be refined to maximize productivity while minimizing unintended environmental consequences.

Key words: fish feed, phyto-additives, reproduction

111 Study on the evolution of tourist accommodation facilities in Cluj County

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Abstract

The authors of this article present the evolution of tourist accommodation structures in Cluj county. Thanks to its tourist attractions, the studied area has become, in recent years, a destination visited more and more often by tourists from all over the world. The aim of this article is to highlight the evolution of the tourist accommodation structures in the studied area taking into account the tourism potential of Cluj county. In 2023, almost 700,000 tourists visited Cluj county, an increase of 8.6% compared to the previous year. The number of foreign tourists increased by 30% compared to 2022. According to the data presented by the Cluj County Directorate of Statistics at Cluj County level, in 2023, 688,183 tourists were accommodated, an increase of 8.6% compared to 2022, of which 132,434 are foreign tourists, representing 19.2% of all tourists. It can also be seen that the number of tourist accommodation facilities has increased compared to previous years, reaching 596 in 2023 compared to 222 in 2010. Information obtained from local authorities and other bibliographic sources, as well as data provided by the National Institute of Statistics contributed to this article. Centralisation, analysis and data processing are some of the methods used to prepare this scientific approach.

Key words: tourists, Cluj, tourist accommodation structures, accommodation capacity

112 Antitumor effects of 1 Butyl-Ammonium Bromide on A357 cell line

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Abstract
Cancer is a major health issue worldwide, due to the increased rate of morbidity, mortality and resistance to therapy. Ionic liquids (ILs) are chemical compounds with various applications in biomedicine. In this study, the cytotoxic effects of 1-butyl-3-methylimidazolium bromide on human melanoma cancer cell line (A357) were investigated. 100µl of MCF7 cellular suspension ($5x10^4$ cells/ml) were cultureed in a 96 well plate. After 24 h, free serum medium containing different concentration (ranging from 5 to 20 mM) of 1 butyl-ammonium bromide based ionic liquid was added. Non-treated cells were used as control. After 24h, 48h and 72h, the MTT proliferation assay was performed. 1-butyl-3-methylimidazolium bromide can be useful in antitumor therapy. The assessment of cell morphology was carried out with a phase contrast microscope. At 24 h of incubation, we observed minimal cell damage in the groups incubated with the ionic liquid. If during the incubation with lower doses of IL we showed minimal lesions of cell degeneration, at the increased concentrations we observed agony lesions and cell death, evidenced by apoptosis and necrotic lesions. The inhibition rate was dose-dependent, with statistically significant differences observed between different treatments. However, the minimal inhibitory concentration (IC50) was not reached. More than half of the cells showed reduced growth after 48 and 72 h of continuous exposure to high doses of IL, 71.12% and 69.42% at 48 and 72 h, respectively. 1 butyl-ammonium bromide based ionic liquid, in 2D cell systems generated a moderate inhibitory response of cell multiplication, dependent on concentration and incubation period.

Keywords: 1-butyl-3-methylimidazolium bromide, A357, antitumor

113 Camera traps invisible to mammals and birds

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Abstract:
Mammals and birds can detect wild life cameras available in on line stores and shops.In order to observe the natural behavior of animal ,we have developed a camera trap that cannot be detected by them.
We have examined over 70 camera traps available in stores and online. We paid special attention to testing 1080p and 2K 4K resolution, 25,30,50,60 frames per second wildlife cameras. The results of the tests were startling because it turned out that there is no commercially produced wildlife camera series that would go unnoticed by the examined 27 mammal and bird species.
We tested the latest wildlife cameras with 840 nm and 940 nm LED (light-emitting diode) specimens multiple times in their natural habitats. During the tests, only one camera trap was deployed at a time period. Based on the large sample size, we can conclude that these cameras consistently alter the behavior of mammals and birds. The detection of camera traps depends on the following factors:
- The camera emits electromagnetic waves not within the spectrum range specified in the manufacturer's data, but with a starting decay below 800 nm;
- The camera emits sound (filter switching, relays);
- Some components of the camera have a mild but unfamiliar smell in the given habitat.
To study the natural behavior of animals and for disturbance-free research and filmmaking, we have developed a series of wildlife cameras that are undetectable by the mentioned species according to the listed criteria. They do not emit noise, visible wavelengths, disturbing odors and minimize electromagnetic pollution. The camera is available in both daytime (without LED) and daytime-nighttime versions, and we also produce telephoto, wide-angle, and dual-camera versions.
Keywords: Camera trap, wildlife camera, ethology, behavior science, animal observation, electromagnetic spectrum, non-disruptive, testing

114 A Python-based implementation of the animal model and test-day model based on the BLUPF90 family of programs

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Abstract
We have developed a software package which implements the animal model and test-day model as a wrapper for the BLUPF90 suite of programs. Although very powerful and extensively used in the field, the latter is relatively laborious to set up for a beginner in the field and is difficult to incorporate into more complex automated data analysis pipelines written in modern programming languages like Python and R. Thus, the main motivation behind the creation of this package was to make the implementation of the two previously mentioned statistical models more user-friendly and easier to plug into genomic data analysis pipelines. The software package is written in Python and installable via the pip and conda package managers. In addition, a Docker image was created and shared publicly, which further facilitates the accessibility and ease of use of this software. Data analysis tests were performed using previously published genotypic, phenotypic and pedigree data and results were obtained as expected. Furthermore, using the R package reticulate, the newly developed software package can also be included in data analysis pipelines implemented in the R programming language.

115 Assessment of birth weight in calves in selected breeding of the Montbéliarde cattle

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Abstract
The objective of the study was to evaluate the calf birth weight of the Montbéliarde cattle in Eastern Slovakia according to years of birth, period of bird, the sex and breed type. In this study was used the records from 2022 to 2024 and 474 calves from Montbéliarde cattle. The material for evaluation of agricultural enterprise Karpatovkain Eastern Slovakia. The basic statistical and variability characteristics were evaluate dusing the SAS, version 9.4 (TS1M2) Enterprise Guide 7.1 (SAS,2016).

The average value of BW of calves was 38.52±2.89kg, ranging from28.5 to 55kg. The linear model to represent R^2=0.2138 % incase of birth of weight (BW) of calves for all fixed effects. According analyses of the effect to BW of calves were most influenced by the sire R^2=0.106 % after that the effect of HYS R^2=0.0929 % and the effect of years of birth (YB)R^2=0.0916 %, (P<0.001). These results are similar with conclusions of different authors, who engage in similar analysis.
Based on the available data,we calculated the R^2 for calf birth weight for all fixed effects. We can conclude that the birth weight of the calves was most affected by the sire and the HYS.

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