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Ioana BOLOHAN (ACORNICESEI), Roxana LAZĂR, Bianca Maria MĂDESCU, Mădălina Alexandra DAVIDESCU, Paul Corneliu BOIȘTEANU

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Abstract:
Considering the continuous increase in global poultry meat consumption, along with a significant diversification of product ranges and increasingly sophisticated consumer demands, ensuring the microbial safety of carcasses and anatomically processed poultry cuts has become a fundamental priority in the food industry. This paper provides an integrated examination of bacterial contamination throughout the poultry meat processing chain - from poultry farms to the point of consumption - by identifying multiple sources of contamination. Consequently, the necessity of implementing advanced microbiological control strategies is highlighted, relying on rigorous standards and cutting-edge technologies that are essential for ensuring food safety, protecting public health, and optimizing economic efficiency by minimizing losses throughout the production chain.

Keywords: chicken meat, bacteria, food safety, meat chain, poultry.

2. Application of artificial intelligence and modern technologies in broiler chicken farming: a review

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Abstract:
The rapid growth of the global population and the increasing demand for animal protein exert significant pressure on the poultry industry, necessitating the adoption of sustainable and efficient solutions. Precision livestock farming, a continuously evolving field, integrates advanced technologies such as the Internet of Things (IoT), robotics, drones, and artificial intelligence (AI), offering new perspectives for optimizing production and enhancing animal welfare while also improving resource management and supporting farmers' activities. In the poultry sector, these technologies enable the individual monitoring of birds' physiological and behavioral parameters, early disease detection, and optimal environmental management, thereby reducing mortality rates and increasing production efficiency. Furthermore, advanced real-time data analysis, facilitated by AI algorithms, supports strategic and personalized decision-making in commercial farm management. Although the implementation of these technologies presents challenges related to costs, infrastructure, and the accuracy of predictive models, their long-term

benefits in terms of sustainability and operational efficiency are considerable. This paper provides a systematic review of the specialized literature on the application of artificial intelligence and modern technologies in broiler chicken farming, highlighting the latest technological innovations, key implementation challenges, and the impact of these solutions on animal health and welfare. Additionally, it examines the implications for food safety and sustainability, considering the increasingly stringent global requirements for production optimization and minimizing environmental impact.

Keywords: artificial intelligence (AI), broiler, modern technologies, precision animal husbandry, sustainability.

3. Infrared thermographic assessment of cold stress and growth performance in Romanian Spotted and Romanian Brown calves

Anton ANDREEA STEFANIA[1], Neamt RADU IONEL[1], Ilie DANIELA ELENA[1], Mizeranschi ALEXANDRU EUGeniu[1,2], Mihali CIPRIAN VALENTIN[1], Cziszter LUDOVIC TOMA[1,2]

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Abstract:
Infrared thermography (IRT) represents a non-invasive method for detecting temperature variations on the surface of the animal's body. By capturing infrared radiation emitted by the animal and converting it into thermal images, IRT enables the early identification of health and physiological disturbances. The aim of the study was to test the ability of Romanian Spotted (RS) and Romanian Brown (RB) calves to adapt to cold thermal stress. In this respect, 20 calves (10 RS and 10 RB) were included, having recorded the dynamic of the body temperature at the nose (BTN) and eye (BTE) and average daily gain (ADG) according to environmental temperature (ET) and calves' breed. Data were collected between January and March 2025, being expressed as average and standard deviation. Thermal images were collected twice daily, during the morning and afternoon, from 0.5 to 2 meters, using a FlirOne mobile infrared camera. Comparisons were performed using one-way ANOVA, with the categorical factor being the calves' breed. Decisions about the acceptance or rejection of statistical hypotheses were made at the 0.05 level of significance. No significant differences ($p>0.05$) were observed for BTN (23.24±3.14 ^{0}C *vs.* 24.3±2.86 ^{0}C for RS and RB) or BTE (33.4±2.44 ^{0}C *vs.* 33.9±2.97 ^{0}C for RS and RB). The ET proved to be an influential factor for both BTN and BTE, recording an average decrease by 1.25 ^{0}C for each unit of decrease in ET, and an average increase by 0.55 ^{0}C for each extra degree of it. No significant difference was recorded for ADG according to the calves' breed (0.818 *vs.* 0.784 kg/day for RS and RB, $p>0.05$). ET significantly influenced ADG in both breeds, with a value of ADG of 8.84% from January to February compared to February to March (35.15%, $p\leq0.001$). In conclusion, both breeds included in the study possess comparable abilities to adapt to their environment.

Keywords: cold stress indicators, weight gain, temperature measurements, cattle.

4. Biochemical characterization of bovine platelet-rich plasma: a review

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Abstract:
Platelet rich-plasma (PRP) is a valuable biological fraction obtained from animal blood, with significant potential in veterinary medicine due to its complex composition, rich in proteins, growth factors, immunoglobulins and bioactive molecules. This review analyzes the chemical composition of PRP and modern characterization methods and techniques such as spectrophotometry, electrophoresis, high-performance liquid chromatography (HPLC) and mass spectrometry. Emerging therapeutic applications of PRP are also presented, especially in the context of bovine gynecological health, where it is used for the treatment of metritis, endometritis and stimulation of postpartum uterine regeneration. Through its immunomodulatory and healing actions, PRP offers a promising alternative to classical therapies, contributing to reducing the use of antibiotics and improving fertility in dairy farms.

5. Effects of Plant Extracts Obtained Via Ultrasound-Assisted Extraction on Preventing Neonatal Diarrhea in Calves

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Abstract:
In cattle farming, neonatal diarrhea in calves is a major challenge that frequently leads to significant morbidity and financial losses. Ultrasound-assisted extraction-derived plant extracts have become increasingly well-liked in recent years as a safe and efficient way to extract bioactive ingredients and their use in preventing diarrhea in calves. This approach improves the extraction efficiency of phytochemicals such as polyphenols, flavonoids, and tannins, which have antibacterial, anti-inflammatory, and gut-protective activities. Studies have investigated the effectiveness of herbal extracts such as chamomile, mint, and oak bark obtained through ultrasound in reducing the incidence of diarrhea in calves.

Keywords: calves, ultrasound-assisted extraction, plant extracts, gut health.

6. Influence of the starvation period on the technological performance of juvenile carp in a recirculating aquaculture system

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Abstract:
Compensatory growth relates to a period of intensified feeding, typically following a brief period of starvation, and represents a technological opportunity to achieve the planned performance indicators. Experimental research lasted 28 days and was conducted in a recirculating aquaculture system. Two experimental rearing variants were utilized to evaluate compensatory growth: variant V1, the control variant (initial stocking density - 4.545 kg/m^3, number of carp fish- 40), where fish were fed continuously for 28 days, while in V2 (initial stocking density - 4.485 kg/m^3, number of carp fish- 40) the fish were starved for 3 days and then re-fed for 4 days, also for 28 days. The most significant technological indicators of crop biomass are as follows: the feed conversion factor recorded values of 1.18 g feed/g biomass spore in V1 and 1.25 g feed/g biomass spore in V2; the specific growth rate showed values of 1.735 %/day in the control variant and 1.67 %/day in the variant where the biological material was starved and then re-fed. The analysis of growth dynamics in the crop biomass highlights the potential of juvenile carp to recover the weight lost during the starvation period, reaching approximately the same biomass as in the control variant.

Keywords: carp, compensatory growth, recirculating system.

7. The role of biosecurity in controlling extensive and intensive pig herd health

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Abstract:
In an organized pig herd, individual animal health care is becoming less and less important. In today's conditions, where there is a large concentration of animals in a relatively small area, such a situation requires health care at the level of the whole farm. The importance of biosecurity measures in pig farming, aimed at preventing the introduction of pathogens into the farm and the spread of infection within the farm itself, is well known. The presence of various breeding diseases of bacterial or viral etiology leads to

a decrease in production results and requires additional effort from the farm's employees with increased consumption of medication, which consequently reduces the farm's economic profit. The program of health protection in organized farming should also include regular parasitological control since parasitic infections have a significant effect on the health status of animals, so parasitological diagnostics must be included in the regular monitoring of the health status of pigs. It is recognized that the key element in the implementation of biosecurity measures is the willingness of the farm personnel to implement measures that provide a high level of protection against the introduction and spread of pathogens on the farm. The implementation of these measures requires knowledge of the health status of the pigs. One of the most common risk factors is the purchase of boars, gilts, or weaned piglets of unknown health status. In addition to the measures already mentioned, vaccination programs also contribute to stabilizing the health status of pigs. The promotion of good health of pigs in organized herds includes the application of a system of prophylactic measures. This paper aims to provide an overview of our research on the importance of biosecurity measures in extensive and intensive pig production.

Keywords biosecurity, health care, breeding, pigs.

8. The effect of ovarian cyst puncture on the dairy cow pregnancy rate

Silviu-Ionuț BORȘ[1*], Adina-Mirela ARITON[1], Ioana POROȘNICU[1], Alina BORȘ[2], Amalia HÂRBU[3], Vasile VINTILĂ[1]

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Abstract:
In dairy cows' reproduction, ovarian cysts are one of the most significant contributors to infertility, leading to considerable economic losses. Over the years, there has been some debate regarding the diagnosis and treatment of ovarian cysts. While the OvSynch protocol is commonly used, the pregnancy rates following this treatment tend to be relatively low. The approach to treating ovarian cysts can vary depending on the type of cyst. For follicular cysts, the recommended treatment is the administration of GnRH. In contrast, luteal cysts are typically treated with PGF2α. If it is not possible to distinguish between follicular and luteal cysts, the suggested treatment is also GnRH. An alternative method for treating follicular cysts is cyst puncture. Thus, this study aims to evaluate the effects of ovarian cyst puncture on reproduction of dairy cows. For this study, twenty repeat-breeding dairy cows diagnosed with follicular cysts were divided into two groups, each consisting of 10 cows: the E group (n = 10) and the OCP group (n = 10). In the OCP group, the ovarian cyst puncture was performed on the day of cyst diagnosis, while the cows in the E group did not receive any treatment for 21 days. Compared to the E group, in which 20% registered a spontaneous recovery, in the OCP group, 60% of the cows recovered from the first punction, 40% required a second ovarian cyst punction. Finally, the pregnancy rate was 40% in the OCP group and 10% in the E group. This preliminary result provides the premises for future studies regarding ovarian cysts ultrasound-guided transvaginal puncture.
Keywords: Ovarian cyst, therapy, dairy cow, pregnacy rate.

9. Accessory corpus luteum in cattle reproduction - a mini-review

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Abstract:
In dairy cows, current methods for managing reproduction still need improvement. Future advancements will require new strategies to minimize additional interventions and maintain acceptance among veterinarians. As a result, the development of new therapies in dairy cows' reproduction poses a significant challenge for improving reproductive performances. In recent years, there has been an increasing interest in inducing accessory corpus luteum in dairy cows, but the results have been controversial. It is still uncertain whether this strategy, injecting gonadotropin-releasing hormone (GnRH) or human chorionic gonadotropin (hCG) early in the luteal phase following artificial insemination, can be utilized as a herd management tool to enhance reproduction. Our work suggests that implementing this strategy on the farm is feasible only for repeat-breeder dairy cows with low genetic merit for fertility. In the assisted reproductive technologies this strategy seems to improve reproduction in recipient heifers.

Keywords: dairy cow, reproduction, repeat-breeding, embryos.

10. The evaluation of birth weight of calves in a selected breeding herd of the Slovak Spotted cattle

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Abstract:
Growth traits of calves such as birth weight (BW) is of primary economical importance for the cow calf producer and for the farmers in general as shown others authors. The aim of the study was to evaluate the calf birth weight (BW) of the Slovak Spotted calves in Eastern Slovakia according to years of birth, period of bird, the sex and breed type. In this study was used the records from 2020 to 2022 and 763 calves from Slovak Spotted cattle for the birth weight (BW). The average value of BW of calves was 39.4±6.7 kg, ranging from 17 to 58 kg. In the evaluated set, the most recurrent mean weight was 40 kg. According to the years of evaluation, we found the average birth weight for calves was 38.7±6.1kg in 2020, 39.3±6.7 kg in 2021, and 40.1±6.9 kg in 2022, respectively. The average BW of calves by sex was 40.8 ±6.8 kg for bulls and 37.6±6.7 kg for heifers, with a similar trend for individual years, with slightly increasing average weights for both sexes. The linear model to represent R^2 = 0.292733% in case of BW of calves for all fixed effects. According analyses of the effect to BW of calves were most influenced by the sire R^2=0.195710 %

after that the effect of sex R^2 =0.058652 % and the effect of year-season R^2=0.019206% (P<0.001). In conclusion, our results show the most significant effect of sire factor on calf birth weight which is confirmed by statistical significance.
This work was supported by the Slovak Research and Development Agency (Projects No. APVV-20-0161, VEGA No. 1/0316/25) and project Erasmus+ 2021-1-SK01-KA220-HED-000032068 (ISAGREED).

Key words: Slovak Spotted cattle, calves, birth weight, factors, coefficient of determination.

11. The influence of live birth weight on milk production in Slovak dairy cows at first lactation

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Institute of Nutrition and Genomics, Faculty of Agrobiology and Food Resources, Slovak University of Agricultural in Nitra,

Abstract:
The Slovak Spotted breed is an important dual-purpose breed with a long farming tradition in Slovak Republic. The economic efficiency of dairy farms depends mainly on factors such as birth weight. Differences in birth weight are also used as an indicator of the overall weight of calves, their health status, developmental potential and also subsequent milk production.
The aim of this study was to evaluate the effect of birth weight of calves and other environmental influences on milk production of 1st and 2nd lactation cows in a breeding herd of the Slovak Spotted dairy cows. The data set consisted of records from 339 heifers born between the birth years 2020 and 2022 at a breeding farm in the East of Slovakia. To analyse the effect of season of birth weight, we divided the data into four categories (A-winter, B-spring, C-summer, D-winter). Distribution of data by birth weight of calves into four groups (1-L, 2-M, 3-H, 4-Hh). The statistical analysis of BW were analysed using the Statistical Analysis System (SAS). The average of birth weight was 37.6±5.8 kg and ranged over the study period from 17 to 53 kg, where the highest average weight was in the year 2022 (39.7kg). After all heifer selection criteria have been met and heifers have been entered into reproduction, 170 dairy cows have calved so far between 2023 and 2024. In the final evaluation set, the mean birth weight was 38.03±5.8 kg and ranged 25 to 51kg. The average first lactation 305-d milk yield in the evaluated herd was 7772.3 ± 1163 kg (Max= 11168kg) and second lactation 305-d milk yield in the evaluated herd was 9311.6 ± 1258 kg (Max= 11890kg). When evaluating the effect of season of birth weight, the highest average milk production in kg for cows was in the A season, namely 8296.3±1351.8kg, and the lowest in the C season, namely 7566.5±1169.7kg. The highest average milk production in kg was for calves at weights of 36-40kg (medium) namely 8117.6±1289.6 kg, in contrast the lowest average milk production in kg was for calves at weights of 45-51kg (highest) namely7574.6 ±998.3kg. In conclusion, although our results did not reach statistical significance due to the lower number of observations but may indicate some relationship between environment and birth weight of heifers as an important trait for their possible higher milk production.
This work was supported by the Slovak Research and Development Agency (Projects No. APVV-17-0060, VEGA No. 1/0316/25) and project Erasmus+ 2021-1-SK01-KA220-HED-000032068 (ISAGREED).

Key words: Slovak Spotted cattle, heifers, milk production, factors, coefficient of determination.

12. Preliminary Assessment of Replacing Fishmeal and Fish Oil with Black Soldier Fly Larval Meal and Oil on Growth Performance of Juvenile Common Carp *Cyprinus carpio*

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Abstract:
Concerns regarding the economic and ecological sustainability of fishmeal and fish oil have led to efforts in exploring alternative ingredients that could replace them. The Black Soldier Fly (BSF) *Hermetian illucens* larvae hold potential due to their high protein and fat contents. This study evaluated the growth performance and nutrient utilization of juvenile common carp (*Cyprinus carpio*) cultured on BSF larval-based diets. The experiment was conducted in a recirculating system, circular plastic tanks (350 L) in a completely randomized design. Four isonitrogenous (350 gkg^{-1} crude protein) and isolipidic (80 gkg^{-1} crude fat) diets were formulated in which fishmeal (400 gkg^{-1}) and fish oil (30 gkg^{-1}) were simultaneously replaced with a defatted BSF larval meal and BSF larval oil at 0, 25, 50, and 75% coded as Control (containing 0% BSF larval meal and oil), BSF 25, BSF 50 and BSF 75 diets, respectively. Fish (initial body weight of 96.30±8.35g, 15 fish per tank, 4 treatments, 3 replicates) were hand-fed at 3% body weight for 7 weeks. The result showed an increasing linear trend in the final mean weight, weight gain, and specific growth rate (SGR) indices with increasing dietary levels of BSF larval meal and oil. Fish fed the BSF 75% diet had the highest final mean weight, weight gain and SGR, similar to fish fed BSF 25 and BSF 50 diets but significantly higher ($p < 0.05$) than fish fed the Control diet. No significant difference ($P > 0.05$) was found in the feed conversion ratio (FCR). However, a decreasing linear trend was observed with increasing BSF larval meal and oil inclusion levels. These findings suggest that BSF larval meal and oil may partially replace dietary fishmeal and fish oil up to 75% without adversely impacting growth performance and nutrient utilization.
Keywords: Sustainability, alternative ingredients, growth rate, nutrient utilization.

13. Evaluation of egg albumen foaming capacity by an automated method

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Abstract:
The optimal conditions for egg albumen foaming were settled using an automated device for foam testing. The method is based on stirring albumen sample in a transparent column at 6000 rpm for 240 seconds and obtaining the appropriate volume of foam. The method was applied for testing the storage time effect (0- 28 days) on albumen foaming properties for shell eggs. At 14 days of storage the foaming capacity registered a positive correlation with albumen weight, and negative correlations with albumen height and Haugh units.
Keywords: foam testing, shell egg storage time.

14 Meat Quality of Fattening Cattle Fed Cowpea Seeds as Protein Source

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Abstract:
We assessed the effects of inclusion of cowpea seeds in a concentrate for fattening cattle. Sixteen young bulls (210 ± 6.8 days of age; 203 ± 0.13 kg body weight) belonging to a beef breed (Aberdeen Angus) were randomly assigned to two dietary treatments. The control diet was based on mixed alfalfa hay, corn, barley, oats, and sunflower meal. In the experimental diet, oats were equally substituted by rye, and sunflower meal was substituted with a locally produced cowpea seeds (Doljana variety). Animals were weighed every 2 weeks until the prefixed slaughtering weight of 520 kg. Bulls fed the cowpea-based diet showed a significantly greater average daily gain (1517 *vs*. 1431 kg/day), a shorter growing phase (207 *vs.* 213 days), and a better carcass conformation. Blood plasma metabolites were not influenced by the treatments. Meat from cowpea-fed group showed significantly lower fat content, texture attribute (i.e., hardness, gumminess, and chewiness), and saturated fatty acids than control group. Significant differences were also observed between the three muscles analyzed [*Longissimus dorsi* (LD), *Semimembranosus* (SB) and *Psoas minor* (PM)]. SB showed the most favorable fatty acids profile: lower SFA, higher PUFA, MUFA, ω-3, ω-6, CLA and, consequently, lower values for both atherogenic and thrombogenic indexes. These results showed that cowpea seeds can be used as an alternative protein source in the diet of young cattle bulls for the production of high quality meat. Additionally, in regions where cowpea can be cultivated locally, low-input farming systems would benefit from using this

ingredient in beef cattle feed. **ACKNOWLEDGMENTS:** This research was funded by the Ministry of Education and Research, Project PN 23-20.04.01.
Keywords: cowpea; cattle; performance; metabolic profile; meat quality.

15. Evaluation of Water Quality in the Danube River at km 181 area Chiscani Based on the Water Quality Index (WQI)

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Abstract:
The Danube River is one of the most significant freshwater resources in Europe, serving a vital role in sustaining natural ecosystems, as well as supporting economic and social activities.
In this study, the overall water quality was assessed on the basis of physico-chemical parameters of the Danube in the area of Chiscani locality at 181 km of the river. The Water Quality Index (WQI) was calculated and according to the obtained values the water quality category of the river section investigated.
The seasonal average values, year 2024, spring, summer, autumn and winter of the essential physico-chemical parameters were analyzed: pH, dissolved oxygen (DO), biochemical oxygen demand (BOD), organic matter, and concentrations of nitrogen compounds such as nitrites (NO_2^-) and nitrates (NO_3^-). The findings indicate a moderate water quality status, with nitrite and nitrate concentrations remaining within permissible limits-suggesting that the influence of agricultural and urban activities is relatively contained. However, the dissolved oxygen levels are at the lower threshold of ecological standards, reflecting a fragile equilibrium within the aquatic environment.
The analysis of the overall water quality of the Danube River in the Chiscani area (km 181) highlights the importance of maintaining a consistent monitoring program, as well as the need to implement, when necessary, proactive measures aimed at protecting aquatic biodiversity and ensuring long-term water quality.

Keywords: aquatic ecosystem, nitrites, nitrates, spectrophotometric methods.

16. Bigger is Better? A Review on the Relationship Between Body Size and Crop Pest Predator Efficiency

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Abstract:
Body size represents a key morphological trait that indicates how biotic communities respond to environmental changes and shape ecosystems processes. In agriculture, many carnivorous arthropods,

such as arachnids and beetles, represent valued crop pest predators that are used as a sustainable alternative to pesticide use. The scope of this review is to highlight how the body size of arthropod pest predators is influenced by various agricultural practices and, conversely, how it influences the predation efficiency of these organisms and their overall capacity to provide the ecological service they are valued for. We synthesize existing knowledge on the topic and discuss the ways through which body size shapes the resistance, behaviors and hunting efficiency of pest predators. We emphasis the advantages that larger body size offers, such as, increased prey consumption, feeding range and fecundity, while also accounting for potential disadvantages such as reductions of desiccation resistance, predator evasion capacity and the increased risk of toxic compound bioaccumulation. To conclude, we highlight knowledge gaps and propose future research directions which may serve to further enhance and popularize the use of natural pest predators as one of the means towards efficient ecosystem management and sustainable agriculture.

Keywords: arthropods - body size – functional traits - pest predators - predatory efficiency.

17. Identification of pathways associated with thermal stress in Romanian Brown breed

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Abstract:
This study aimed to identify the differentially expressed genes (DEGs) and their functional pathways associated with thermal stress (TS) in Romanian Brown cattle. To have a general understanding of the impacts of TS, during exposure to both heat stress (HS) and cold stress (CS), a transcriptome analysis was employed on 7 Romanian Brown multiparous lactating cows under thermoneutral conditions (TN, 13°C), heat stress (36°C) and cold stress (-7°C) exposure. The gene expression profile in the blood samples of the cows under investigation was determined using RNA-seq. The differential expression analysis was carried out using the R package edgeR, and the ClusterProfiler package was used for KEGG pathway enrichment. RNA-seq data analysis pointed out 1428 (732 up-regulated and 696 down-regulated) and 662 (527 up-regulated and 135 down-regulated) significantly differentially expressed genes ($p \leq 0.05$) in HS and CS, respectively, compared to TN. KEGG pathways for cows exposed to HS vs. TN highlighted the biological processes and pathways involved in cholesterol metabolism. The results for enrichment analysis of the DEGs of cows exposed to CS compared to TN were related to motor proteins, Influenza A, Viral life cycle - HIV-1, RIG-I-like receptor signaling pathway and Notch signaling pathway. These findings provide new insights related to molecular mechanisms involved in thermal response of Romanian Brown cows.

Keywords: differentially expressed genes, thermal stress, Romanian Brown breed.

18. Microbial Biopreparations In Broiler Nutrition: Production, Safety, Quality, And Regulation

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Abstract:
The increasing global demand for sustainable and high-quality protein sources in poultry production has intensified the exploration of microbial alternatives to conventional feed ingredients. This review provides a comprehensive overview of microbial biopreparations used in broiler nutrition, focusing on their production, composition, functionality, and regulatory considerations. The manuscript begins by addressing the current methods for obtaining biopreparations, with emphasis on fermentation technologies and biomass recovery processes. Special attention is given to microbial protein sources, including single-cell proteins (SCPs) derived from bacteria, fungi, algae, and yeasts. Among microbial biotechnology products, yeasts and mixed microbial cultures are discussed as versatile bioresources with high protein content, and potential probiotic benefits. The integration of brewery by-products and brewers' spent yeast as substrates or feed ingredients is highlighted as a sustainable approach to waste valorization and circular economy principles. The review further explores the qualitative aspects of microbial biopreparations, such as protein digestibility, bioavailability, and amino acid composition, which are critical for optimizing broiler performance. Safety concerns, including microbial contamination, mycotoxins, and the presence of anti-nutritional factors, are discussed alongside quality assurance practices. The manuscript also outlines the current legal frameworks and international standards governing the use of microbial proteins in animal nutrition, identifying challenges and opportunities for market integration. Lastly, the impact of microbial protein inclusion on broiler health, growth performance, gut microbiota, and immune response is critically evaluated based on recent experimental studies. This review aims to consolidate current knowledge and identify knowledge gaps in the field of microbial biopreparations, supporting their advancement as sustainable and functional alternatives in broiler nutrition.

Keywords: broiler, microbial biopreparations, broiler nutrition, yeast, brewer's spent yeast.

19 Analysis of the Freshness and Hygiene Status of the Cream Used in the Production of Table Butter

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Abstract:
In the dairy industry, the quality of raw materials is essential for producing safe, high-quality finished products. The aim of this study was to evaluate the freshness and hygiene of the cream used in the

production of table butter. Free acidity was measured using the Thörner titrimetric method, both before and after the application of heat treatments. In the first stage, the condition of the untreated cream was analyzed, and the results showed variations in acidity and hygiene characteristics depending on storage conditions. Subsequently, the high-temperature pasteurization process of the cream was validated, assessing the effectiveness of the thermal treatment by measuring free acidity and performing the peroxidase test to verify sterilization. The results confirmed a reduction in microbial load and an improvement in the chemical stability of the cream, demonstrating the effectiveness of pasteurization in maintaining quality. The research conducted generated relevant results, compared with specific standards, confirming the importance of rigorous control over the freshness and hygiene of the cream, as well as the effectiveness of the high-temperature pasteurization process in optimizing the quality of table butter.

Keywords: cream, freshness, pasteurization, acidity, butter.

20 Study on Smart Packaging in the Food Industry: Enhancing Food Safety, Quality, and Sustainability

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Abstract:
In the food industry, smart packaging represents a significant innovation aimed at improving the safety, quality, and shelf life of food products. These packages are equipped with advanced technologies that enable the monitoring of product conditions throughout the distribution chain, thus minimizing the risks of contamination and spoilage. Key functionalities of smart packaging include temperature indicators, which signal temperature fluctuations that may affect product quality, and labels that emit visual or audible signals to warn about product deterioration. Smart packaging can also interact with the products by modifying the atmosphere inside the packaging to extend food freshness, known as "Modified Atmosphere Packaging" (MAP). These technologies help reduce food waste by prolonging the shelf life of products and provide an effective solution as food safety requirements continue to tighten. The purpose of this study is to analyze the applicability and impact of smart packaging in the food industry, focusing on their benefits in extending the shelf life of perishable products, reducing food waste, and enhancing food safety. Additionally, the study explores the innovative technologies used in these packages and how they contribute to improving transparency and traceability of products throughout the supply chain. In conclusion, smart packaging represents an innovative solution for the food industry, enhancing not only the safety and quality of products but also their sustainability, helping to reduce food waste and protect the environment.

Keywords: smart packaging, food safety, modified atmosphere packaging (map), food waste reduction.

21. Results Obtained Regarding Growth Performance Following The Administration Of A Wheat Grass Juice Diet To Common Carp (Cyprinus Carpio L.)

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Abstract:
Wheat grass juice (WGJ) is a juice made from young plants (Triticum aestivum L.) that is used around the world for its health benefits. In this study, different feeds containing WGJ were tested on common carp (Cyprinus carpio L.): Control (C), WGJ 1% (P1), WGJ 2% (P2), WGJ 3% (P3). Fish with an average starting weight of 105 g each were raised in a recirculating aquaculture system. The results indicated that WGJ helped boost growth performance. Specifically. The final body weight increased by 15% at P1, 38% at P2, and 25% at P3, while other measures (feed conversion ratio, relative growth rate, specific growth rate, protein efficiency ratio, and condition factor), showed no changes. Body composition tests showed a significant drop in fat content at P2 and a significant rise in collagen and ash in the same group, while the protein content stayed the same. The results suggest that WGJ can be a beneficial feed additive for common carp. The current study aims to assess the impacts of wheat grass juice on growth performance and body composition to suggest the best concentration for feeding carp.

Keywords: aquaculture, common carp, Cyprinus carpio L., growth performance, wheat grass juice.

22. 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.

Keywords: tourists, Cluj, tourist accommodation structures, accommodation capacity.

23. Excessive Use of Technology Among Adolescents – Between Necessity and Addiction

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Abstract:
In the context of the accelerated development of technology, young people represent one of the age groups most exposed to the influences of the digital world. Technology brings remarkable benefits in education, communication and entertainment, but excessive and uncontrolled use can lead to a series of negative effects.
The paper analyzes how prolonged exposure to electronic devices influences the emotional state, cognitive development, social behaviors and lifestyle of young people. Symptoms such as anxiety, depression, insomnia, social isolation and decreased school performance are becoming increasingly common among adolescents who spend significant time in the virtual environment.
The paper also highlights the positive aspects of technology, such as access to information, the development of creativity and global connectivity, emphasizing the importance of a balance in its use. Through an argumentative analysis, we can confirm that technology addiction is not a simple myth, but an increasingly present reality in the lives of young people, and digital awareness and education are essential steps to prevent negative effects.

Keywords: technology, young people, digital addiction, social networks, education, behavior.

24. Development of food production systems in rural areas of Romania

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Abstract:
The development of food production systems in Romania's rural areas remains a critical factor for ensuring national food security, promoting regional development, and achieving sustainable agricultural practices. Despite Romania's advantageous position—characterized by fertile soils, favorable climate, and a rich tradition of farming—its rural agricultural systems continue to lag behind their European counterparts in terms of productivity, innovation, and competitiveness. This underperformance is driven by several structural and socio-economic constraints, including fragmented land ownership, insufficient infrastructure, aging farming populations, and a lack of access to modern technologies and financial capital.
This paper explores the current landscape of food production in rural Romania, identifying key strengths such as traditional agricultural knowledge, biodiversity, and community-based practices. It also examines weaknesses, particularly limited mechanization, low levels of education and digital literacy among farmers, and dependence on subsistence farming. Attention is paid to the multifaceted challenges that hinder modernization, including institutional inefficiencies, poor rural governance, and demographic decline through youth outmigration. Nonetheless, the analysis also highlights several promising opportunities for revitalizing the sector. EU funding mechanisms—particularly those offered through the Common Agricultural Policy (CAP) and NextGenerationEU—present pathways for investment in rural infrastructure, training, and green technologies. The adoption of agroecological practices and digital tools such as precision farming and smart agriculture could enhance efficiency and sustainability. Moreover, increasing consumer demand for locally sourced and organic food creates new market niches for rural producers. Ultimately, the paper argues for a multi-dimensional approach to rural development that combines innovation with tradition, integrates environmental and economic goals, and supports policy reform. Strengthening Romania's rural food systems is not only vital for national agricultural resilience but also for preserving cultural heritage, fostering rural vitality, and aligning with EU-wide sustainability targets.

Keywords: food security, factors, constraints, challenges.

25. The Challenges Facing EU Food Production Systems

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Abstract:
The European Union's food production systems are increasingly strained by a combination of interrelated challenges that undermine their sustainability, efficiency, resilience, and equity. These pressures arise from environmental degradation, including climate change, biodiversity loss, and soil erosion, alongside economic instability, policy fragmentation, and growing social inequalities. Together, these challenges threaten to erode the EU's capacity to ensure long-term food security, especially as global food demand increases, and environmental conditions continue to deteriorate.
The EU's food production system finds itself at a critical juncture, where the consequences of inaction could deepen crises in climate, food security, and rural economies. The agricultural sector is facing profound transformations, with the urgent need for climate adaptation and mitigation, the promotion of sustainable farming practices, and the reduction of food waste. However, policy fragmentation across member states and inconsistent implementation of regulations create barriers to addressing these complex issues in a coordinated and effective manner. Furthermore, the unequal distribution of resources, opportunities, and access to innovation exacerbates social inequalities within rural communities.
Despite these challenges, the EU has the potential to steer its food production systems toward a more sustainable and resilient future. By embracing systemic reforms, fostering technological innovation, and ensuring equitable policies that support smallholder farmers and rural communities, the EU can meet its sustainability goals while enhancing food security and economic stability. This paper classifies the primary challenges currently facing the EU's food production systems, examining their interconnected nature and exploring potential solutions. It highlights the need for a holistic, integrated approach that aligns environmental, economic, and social objectives to build a food system capable of thriving in the face of global uncertainties.

Keywords: Food systems, production, challenges, EU.

26. Enhanced Enzymes and Probiotic Viability in *Bacillus*-Fermented Oilseed Cakes for Animal Nutrition

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Abstract:
The growing consumption of oilseed-pressed cakes (OSC), a largely underutilized feedstock, plays a significant role for use in animal feed. The present study explores the potential of three OSC [flax (FSC), pumpkin (PSC), and hemp (HSC)] as substrate for *Bacillus subtilis* ATCC 6051a (BS) during solid-state fermentation (SSF) to enhance enzyme production and probiotic viability for animal feed. Spore-forming *Bacillus* strain are widely recognized for their probiotic benefits, including improved gut health and enhanced nutrient digestibility. SSF, an efficient and sustainable bioprocess, was employed to evaluate the microbial growth, sporulation efficiency, enzymatic activity, and *in vitro* digestibility of fermented OSC. Results indicate that bacterial growth and sporulation varied significantly among substrates ($p < 0.05$), with FSC exhibiting the highest spore resistance (86.48%), followed by PSC (82.87%), and HSC (81.23%). Enzyme activity confirmed the production of extracellular enzymes including protease, cellulase, xylanase, and phytase. Notably, protease activity was highest in HSC (184.67 U/g), while FSC supported maximum cellulase activity; HSC exhibited superior xylanase (1.86 ± 0.043 U/g, $p < 0.05$) and phytase production. pH variation analysis indicated a shift toward alkalinity, particularly in PSC and HSC due to proteolytic activity. Regarding the *in vitro* digestion model was used to assess BS survivability under simulated gastrointestinal conditions. FSC displayed the most stable bacterial population throughout digestion, suggesting its potential as an optimal carrier for probiotic applications. These findings highlight the viability of OSC-based SSF in producing bioactive, probiotic-enriched feed ingredients, enhancing the digestibility and nutritional value of agro-industrial by-products for sustainable animal nutrition.
ACKNOWLEDGMENTS: This research was funded by the Romanian Ministry of Agriculture and Rural Development (Project ADER 8.1.7) and the Ministry of Education and Research (PN 23-20.04.01).

Keywords: probiotics, solid-state fermentation, oilseed cakes, enzyme activity, digestibility, animal feed.

27. Alternative Protein Sources Used in Broiler Chicken Diets in Nigeria and Romania - A Review

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Abstract:
Alternative protein ingredients of plant and animal origin used today in broiler chicken feed, can only be used partially to partly substitute soya bean meal (SBM) in order to sustain production. The paper compared alternative protein ingredients in Nigeria and Romania, their nutritional content, availability, impact on performance, environment and sustainability of use in broiler chickens feed. This has been the norm and among the new trend of research practised by Animal Nutritionist and Scientist, to formulate cost effective diets with high nutritional quality and environmental benefits. Protein alternatives from various studies conducted in both countries have indicated that SBM and fish meal (FM) are the main conventional protein ingredients used. In Romania, in accordance with Regulation (EU) 2017/893, the use of processed animal proteins (PAP), including fish meal, is permitted in poultry and pig feed, provided that safety standards are met. Faced with many challenges, their utilization has gradually declined due high cost and competition as food for humans. More attention is tilted to use of non-conventional plant and animal alternative ingredients like roselle (*Hibiscus sabdariffa*) seed cake (RSC), baobab seed cake (BSC) and palm kernel seed cake commonly used in Nigeria, while peas and sunflower cake (SFC) were commonly used in Romania. Others include insect and worm meals (grasshopper, black soldier ant and maggot meal) and corn gluten. Dietary inclusion levels from 0.1 - 20 % in some cases of their incorporation into broiler chicken diets was reported to have a significant impact on weight gain, live weight, carcass, meat quality and health status of birds. In conclusion, Romania has numerous legume grain alternatives compared to Nigeria where most alternatives are grain/seed and their by-products, industrial and farm waste. Therefore farmers can partly substitute SBM with alternative feed ingredients in both countries to reduce production cost and increase profit.

Keywords: broiler chicken, soya bean meal, animal protein, plant protein, nutritional quality

28. Evaluation of Manure Nitrogen and Ammonia from Broiler Chickens Fed With Different Protein Sources

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Abstract:
Manure Nitrogen (N) is volatile and lost in the form of ammonia (NH_3) and N-containing compounds (NOx). Fraction of excreted N mineralised to NH_3 during storage depends on time and to a lesser extent temperature. The study was conducted to evaluate fresh and stored manure N and NH_3 levels from broiler chickens fed different protein sources. Four hundred and twenty (420) broiler chickens were randomly selected and assigned into seven dietary treatments, each replicated three times with twenty chickens per replicate in a completely randomised design. Control diet (I) consisted of soya bean meal (SBM)-maize diet, diets II, III, IV and V composed of 20% SBM partially substituted with another source of protein; groundnut and roselle seed cakes (GNC and RSC) without multienzymes (E), GNC +E and RSC +E, diets VI and VII contained animal protein at 10%; grasshopper meal (GHM) and fish meal (FM). Body weight (BW), feed intake (FI) and feed conversion ratio (FCR) for all groups were recorded for 7 weeks. Data collected were analysed and means were separated using Least significant difference (LSD). Results on BW showed that chickens fed FM, GHM and SBC were statistically ($P>0.05$) similar, GNC and GHM were not significant ($P>0.05$). Manure from group fed RSC +E had the least fresh manure N while those from GHM and FM had the least fresh and stored manure NH_3 levels. Multienzyme inclusion in the diets (GNC +E and RSC +E) significantly ($P<0.05$) reduced N levels from litter. The levels were also significantly ($P<0.05$) affected by dietary inclusion of other protein sources without multienzymes supplementation. Farmers can add SBM with FM, GHM, SBC and GNC in their chicken diets for higher performance, more so GNC +E, RSC +E, GHM and FM can be added to reduce manure N and NH_3 buildup in broiler chicken farms.

Keywords: animal protein, Fresh and stored manure, multienzymes, nitrogen, ammonia.

29. Preliminary assessment of electromagnetic field effects induced by high and medium voltage power lines on carbon assimilation in maize and sunflower cultivations

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Abstract:
The research aimed to develop an experimental model to evaluate the influence of electromagnetic fields generated by medium-voltage (1-35 kV) and high-voltage (35-275 kV) power lines on maize (*Zea mays L.*) and sunflower (*Helianthus annuus L.*) crops. The study was conducted in Dambovita and Iasi counties for high-voltage lines, in Prahova county for medium-voltage lines, and in Călăraşi county as a control location without electromagnetic influences. The carbon footprint was determined by analyzing the total organic carbon (TOC) content using biological samples collected at the maturity stage from roots, stems, leaves, and fruits/inflorescences. Measurement of electromagnetic field intensity at lateral distances of 30 meters and a height of 2.5 meters revealed maximum values of 5.9 µT for high-voltage lines in Dambovita county, 5.1 µT in Iaşi, and 0.3 µT for medium-voltage lines in Prahova county. The carbon content analysis in plants indicated that crops assimilate less carbon in areas exposed to high-voltage power lines (maize: Iaşi – 40,45% C, Calarasi - 46.96% C and sunflower: Dambovita - 41.66% C, Calarasi - 45.69% C) and that medium-voltage lines positively influence carbon assimilation (sunflower: Prahova - 46.48% C). A deeper understanding of EMF-induced effects on the carbon cycle may provide a scientific foundation for adaptive strategies and optimization of agricultural practices, aiming to minimize environmental risks while maximizing soil capacity as an efficient carbon reservoir.

Keywords: high-voltage power lines, maize, sunflower, carbon dioxide, footprint.

30. Causes and effect of endocervical inflammation on calving to conception in Holstein Friesian cows

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Abstract:
The aim of this study was to evaluate the causes and the effect of endocervical inflammation on calving to conception interval in subsequent lactation of Holstein Friesian cows. A total of 162 cows (58; 35.8% primiparous and 104; 64.2% multiparous) were sampled at 29-35 days postpartum (mean 32.5 ± 0.14 days) for diagnosis of endocervical inflammation using and adapted cytobrush technique. A total of 162 slides were obtained and were evaluated for the presence of neutrophil cells. A threshold of ≥ 5% neutrophils was used to select cows as positive for endocervical inflammation. The main events recorded at calving and in early part of postpartum period were assisted calvings, retained fetal membranes (RFM) within 12 hours post calving and puerperal metritis within 18 days postpartum (pp). The overall incidence of endocervical inflammation was 11.1% (n 18/162) and was higher in cows with puerperal

metritis (29.41%) and in cows with RFMs (28.12%). The probability (odds) of developing a endocervical inflammation at 29-35 days in milk (DIM) was higher in cows with puerperal metritis (odds ratio 6.25, 95% CI 2.23-17.46; p value 0.0002) and in cows with RFMs (odds ratio; 95% CI 1.88-14.67, p value 0.0007). Endocervical inflammation with more or equal to 5% neutrophils at 29-35 days pp was associated with decreased hazard of pregnancy within 140 DIM (hazard ratio 0.38 95% CI 0.29-0.53). The mean days from calving to conception for all artificial insemination until 140 DIM was 106.6 ± 20.9 days in cows without endocervical inflammation and 122 ± 17.9 days in cows with endocervical inflammation. Days open was increased with 15.4 days (SE 5.1, 95% CI 5.15-25.57, p value 0.0034). The findings of this study indicate which causal factors of endocervical inflammation should be monitored in pp dairy cows to limit the effects on consecutive reproductive performance.

Keywords: cytology, endocervical inflammation, fertility.

31. Parameters of abdominal vein and their association with milk production in dairy cows

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Abstract:
In this observational study we investigate morphological and blood flow parameters of milk vein and their associations with milk production stage in high milk-producing Holstein Friesian cows. Morphological parameters: distance of the milk vein from skin surface (parameter 1); vertical diameter from intima to intima of milk vein (parameter 2) in cm; and vein area in cross-section (parameter 3) in cm2 were measured from B-mod images. Blood flow parameters of milk vein were investigated with Spectral Doppler. Linear regression model was used to evaluate relationship between diameter of milk vein and blood flow volume (BFVol) in end of lactation, dry period and early lactation stages of milk production of dairy cows. Also, the same procedure was employed to investigate relationship between diameter, BFVol and maximum velocity (MaxV) of milk vein and milk yield in early lactation stage. Parameter 1 and Parameter 2 of milk vein had constant values in each lactation stage. Parameter 3 of milk vein in early lactation stage was significantly different compared with that in dry period. A very strong direct relationship was found between diameter of milk vein and BFVol in each lactation stage. R–Squared (R2) means that 84.1%, 78.5% and 95.4% of the variability of BFVol of milk vein in each lactation is explained by its diameter. An increase of the diameter of milk vein by 1 cm the value of BFVol increases by 3.315 l/min in the end of lactation, 2.9 l/min in dry period and 1.09 l/min in the early lactation stage of dairy cows. A very strong direct relationship was found between diameter, BFVol and MaxV of milk vein and milk yield of dairy cows in early lactation stage (R = 0.867, 0.924, and 0.947 respectively). R-Squared (R2 = 0.752, 0.853, and 0.898 respectively) means that 75.2%, 85.3%, and 89.8% of the variability of milk yield is explained by diameter, BFVol and MaxV of milk vein respectively of milk vein in early lactation of dairy cows. An increase of this parameters by 1 unit increases milk yield by 7.335 kg, 6.982 kg and 0.210 kg respectively.
This study showed that ultrasonography is a useful tool in calculating morphological and blood flow parameters of milk vein as indicators of high milk production in Holstein Friesian cows.

Keywords: milk vein, milk production, Spectral Doppler, ultrasound Holstein Friesian dairy cows.

32. TransformDairyNet project: A European effort to promote Cow-Calf-Contact dairy production systems

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Abstract:
TransformDairyNet (TDN) project aims to promote systems where calves are being kept with their dams for months, rather than being separated shortly after calving, as it is common in most conventional dairy farms. Cow-calf contact (CCC) systems have the potential to improve both animal welfare and health of farmed cattle and water-buffalo. The TDN project involves a number of 26 partners across Europe, including farmers, veterinarians, researchers, policymakers and industry experts, being funded by the European Union. One of the main aims of the project is to establish 11 National Innovation Practice Hubs (NIPs), in order to share knowledge about ongoing CCC practices, to develop innovative solutions to CCC challenges and guides for farmers, and to create a European network for exchanging information on sustainable dairy farming. TransformDairyNet project aims to enhance the resilience and sustainability of the dairy sector by creating a collaborative network to compile, co-create, and share practical knowledge and innovations in CCC systems across Europe. The project focuses on: i) Driving dairy innovation through Living Labs in NIPs, fostering new ideas and testing sustainability solutions; ii) Accelerating the adoption of CCC systems by mobilising a European Multi-Actor Network (EKIN) to address farmer needs and bridge knowledge gaps; iii) Building capacity for long-term impact throughout collaboration and ensuring future-ready CCC knowledge sharing; iv) Modernising the sector by combining science and practice to deliver validated best practices for CCC systems; v) Amplifying impact with digital tools and harmonised farmer resources to promote CCC systems widely. Beyond dairy, TDN aims to inspire transformation in other agricultural practices, addressing citizen demand for sustainable farming methods such as regenerative agriculture and zero-carbon systems. The Romanian NIP has been operational since December 2024, coordinated by the Research and Development Institute for Bovine, further details available on the project website [https://transformdairynet.eu]

Keywords: animal welfare, cattle, cow-calf-contact, dairy systems.

33. Types of smart devices used for beekeeping, their development and possible perspectives. An overview

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Abstract:
Honeybees are the most known managed social insect species with tremendous contributions to humankind. It is also a highly studied species. Despite extensive research, significant gaps remain in understanding its natural behaviour and survival mechanisms, particularly in the face of anthropogenic stressors such as climate change and intensive agricultural practices. In recent decades, advancements in digital monitoring technologies have facilitated real-time surveillance of colony health and behaviour, offering critical insights for improving hive productivity and reducing mortality. Modern sensor-based systems enable the continuous measurement of key hive parameters, with real-time data transmission to analytical platforms for in-depth processing. These non-invasive and cost-effective monitoring solutions have gained widespread adoption, providing beekeepers and researchers with unprecedented access to colony dynamics. This study presents a comprehensive review of current hive-monitoring technologies, evaluating their applications in assessing honeybee health, behaviour, and productivity. By leveraging these innovations, researchers can refine apicultural practices and develop strategies to enhance colony resilience in a rapidly changing environment.

Keywords: honeybees, hive monitoring, sensor technology, colony health.

34. Combined Effect Of Water Conductivity And Mercury Concentration On Oxidative Stress In Grass Carp (Ctenopharyngodon Idella): *In Situ* Study

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Abstract:
This study investigated the combined effects of mercury concentration and water conductivity on oxidative stress in grass carp (*Ctenopharyngodon idella*). Oxidative stress was assessed through malondialdehyde (MDA; nmol/L) levels, a critical marker of lipid peroxidation. The study was conducted *in situ* over a six-month period (April-November) on blood samples collected from 37 individuals of different sexes. Blood mercury concentration ranged from 0.00076 to 0.00555 µg/ml, while water conductivity ranged from 557 to 726 µS/cm. Mercury concentrations were analysed using an AMA 254, while water conductivity was measured by a conductivity meter at the sampling site. MDA levels were determined spectrophotometrically after reaction with thiobarbituric acid (TBA), with absorbance measured at 532 nm. GraphPad Prism 8.1 software was used for statistical analysis of the data. Despite the wide range of mercury concentrations and water conductivity, we found no significant differences in MDA levels between groups or a clear trend indicating the influence of these factors combined on oxidative stress. MDA levels ranged from 0.21 to 3.11 nmol/L with no significant changes related to mercury or conductivity variability. The absence of statistically significant results may be due to several factors, including low sample variability, limited number of subjects, or the matrix used, which may be less sensitive. At the same time, it is possible that the environmental factors investigated do not actually pose a significant burden to *C. idella* under the conditions. This work provides valuable in situ data on oxidative stress in fish and highlights the need for further research with larger sample sizes and a wider range of environmental conditions. The results may be useful in assessing ecological risks associated with mercury contamination and in planning monitoring programs for freshwater ecosystems.
This study was supported by The Ministry of Education, Research, Development and Youth of the Slovak Republic under the project VEGA 1/0571/23. This work was also supported by the Slovak Research and Development Agency under the contract No. APVV-21-0168.

Keywords: *in situ*, grass carp, oxidative stress, lipid peroxidation, mercury.

35. Impact of Mating of Youth Tsigai on Reproductives Indices and Body Weight at Adult Age

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Abstract:
The impact of age and body weight on reproductive indices was studied in 43 Tsigai sheep - rusty variety over four lambing seasons. At the time of the 1st mating, the sheep had an average body weight of 40.66 kg, which increased to 52.08 kg by the 1st lambing season, at an average age of 13.80 months (1.15 years). By the 4th reproduction season, the average body weight was 45.56 kg at mating, and 48.21 kg at lambing respectively, with the sheep age being 48.71 months (4.06 years). The study found that fertility indices were unaffected by age or body weight, as the fertility rate remained constant at 81.40% across both the 1st and 4th seasons. The highest prolificacy (117.14%) were observed in the 4th lambing season, while the highest lamb survival rate (94.74%) occurred in the 3rd lambing season, compared to a lower survival rate (82.35%) in the 1st lambing season, where the mortality rate was the highest, 17.35% respectively.
Keywords: female, fertility, lambs, prolificacy, survival rate.

36. Preliminary Findings on the Antibiotic Resistance Profile of *Campylobacter* spp. Isolated from Broilers

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Abstract:
Introduction and Aim:
Campylobacter spp. is the leading cause of foodborne infections worldwide, with poultry as its primary reservoir. The rapid emergence of antibiotic-resistant strains poses significant challenges to both public

health and food safety. Our study aimed to isolate and phenotypically characterise *Campylobacter* spp. from chicken cecum and to evaluate their antibiotic susceptibility profile using the microdilution technique.
Materials and Methods:
A total of 375 chicken cecum samples were collected from various local farms over a six-month period. Samples were aseptically obtained, stored at 4°C, and processed within 24 hours in the laboratory. Standard microbiological methods were employed for the isolation and phenotypic identification of Campylobacter spp. Antibiotic susceptibility testing was performed using the microdilution method, determining the minimum inhibitory concentration (MIC) for each antibiotic. Out of the 375 samples, 15 were positive for *Campylobacter* spp., and antibiogram testing was conducted on 12 isolates. We would like to emphasize that the current results are preliminary, as the study is ongoing and only a small portion of the total samples have been analysed.
Results:
The overall prevalence of *Campylobacter* spp. was 4% (15/375). Among the 12 isolates analyzed, 100% were resistant to ciprofloxacin, with MIC values ranging from 64 to 68 µg/mL, exceeding the EUCAST clinical breakpoint of 0.5 µg/mL, indicating high-level resistance. Resistance to tetracycline was observed in 33% (4/12) of the isolates, with a breakpoint of 2 µg/mL, while ertapenem resistance was detected in 8.3% (1/12), with a MIC of 4 µg/mL and a breakpoint of 0.5 µg/mL. In contrast, all isolates were susceptible to erythromycin, gentamicin, and chloramphenicol, with MIC values well below their respective clinical breakpoints, such as chloramphenicol ≤ 0.5 µg/mL vs. 16 µg/mL. Detailed analysis revealed that the isolates exhibited variable resistance patterns, with ciprofloxacin resistance being the most consistent. The use of both cloacal and carcass samples provided a comprehensive insight into the prevalence and distribution of resistant strains across different points of the poultry processing chain.
Conclusion:
These preliminary findings reaffirm the presence of antibiotic-resistant *Campylobacter* spp. in chickens, particularly the universal resistance to ciprofloxacin and the significant resistance to tetracycline. The complete susceptibility to erythromycin, gentamicin, and chloramphenicol suggests these antibiotics may still be effective for treatment. Continuous surveillance, rigorous antibiotic stewardship, and further research into alternative therapeutic strategies are imperative to mitigate the risk of resistant pathogens entering the food chain and impacting human health.
Keywords: Campylobacter, Poultry, Antibiotic Resistance, Foodborne Pathogens.

37. The Impact of Antibiotic Resistance in *Campylobacter* Spp.,on Clinical Severity And Strategies for Disease Mitigation

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Abstract:
The presence and detection of antibiotic resistant *Campylobacters* spp.-, particularly of *Campylobacter jejuni* and *Campylobacter coli,* represents a major public health concern. This resistance limits the effectiveness of commonly used antibiotics, such as fluoroquinolones and macrolides, complicating the

treatment of campylobacteriosis. The emergence of resistant strains is primarily driven by chromosomal mutations (e.g., *gyr*A mutation for fluoroquinolone resistance) and horizontal gene transfer mechanisms. The extensive use of antibiotics in poultry farming significantly contributes to the development and spread of resistant strains, increasing the risk of transmission to humans through contaminated food products. To mitigate this issue, alternative control strategies, such as probiotics, bacteriocins, and phage therapy, have been proposed as promising approaches to reduce *Campylobacter* colonization in livestock. Continuous surveillance of antimicrobial resistance patterns and the implementation of stricter regulations regarding antibiotic use in agriculture are essential for controlling the spread of resistant *Campylobacter* strains. This paper explores the clinical and epidemiological implications of antibiotic resistance in *Campylobacter* spp-., highlighting the need for integrated control measures to ensure public health safety.

Keywords: antimicrobial resistance, *Campylobacter jejuni,* foodborne pathogens, alternative treatments, public health, poultry farming.

38. Assessment of The Impact of Chromium, Nickel, and Lead Nitrate on the Growth and Physiology of *Lemna Minor*

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Abstract:
The present study investigates the potential toxicity of nitrate-based salts containing chromium, nickel, and lead on the aquatic plant Lemna minor. Two separate experimental methods were used: one focusing on evaluating plant growth inhibition, and another examining physiological responses through biochemical markers, including biomass (fresh weight), pigment content (chlorophyll), and concentrations of reducing sugars and proteins. In the growth assay, Lemna minor was exposed to five graded concentrations of each metal salt to determine their toxicological effects. The biochemical analysis utilized three concentrations per compound to assess metabolic alterations. The data revealed that elevated doses of chromium and nickel nitrates impaired plant health, while lead nitrate showed no measurable effect across all tested concentrations. All three salts led to a reduction in biomass at higher doses. Notably, chlorophyll levels decreased in response to chromium and nickel exposure but remained unaffected by lead. A decline in reducing sugar content was associated solely with high chromium nitrate concentration. Protein content dropped following high exposure to chromium and lead nitrates, while nickel nitrate caused this effect even at the lowest concentration tested. Based on observed toxicity, the impact hierarchy was established as $Ni(NO_3)_2$ > $Cr(NO_3)_3$ > $Pb(NO_3)_2$, with nickel nitrate classified as moderately toxic and the others showing minimal toxicity.

Keywords: ecotoxicological effects, duckweed, biochemical parameters, chromium, nickel, lead.

39. The Role of Laboratory Animals in Scientific Research

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Abstract:
Animals are used in behavioral and biological research in special and significant ways. . Many medical advancements that improve human life are based on laboratory animal research studies. Scientists carefully and thoughtfully select and justify the specific animal models used in their research, adhering to current legal requirements, the principles of the 3 R´s (reduction, reuse, and refinement), and ensuring that animals are used only when no other research solution is feasible or available. The laboratory animals most often used in biomedical research so far have been rodents (mice, rats, and guinea pigs), but in the current development of research, researchers have turned their attention to alternatives such as zebrafish and the Xenopus (clawed frog), although anatomically and physiologically different from humans, following the sequencing of their genomes, it was demonstrated that the main genes involved in certain pathologies in humans are similar to those in these animal models. The laboratory animals most commonly used so far in biomedical research have been rodents (mice, rats, and guinea pigs); however, given the current development of research, scientists have turned their attention to alternatives such as zebrafish and Xenopus frogs. Although anatomically and physiologically different from humans, genome sequencing has shown that the main genes involved in certain pathologies in humans are similar to those in these animal models.

Keywords: animal models, 3Rs principle (Replacement, Reduction, Refinement), animal research, animal welfare, biomedical research, in vivo experiments.

40. The impact of intensive and alternative rearing systems on the nutritional composition of poultry meat

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Abstract:
Poultry rearing systems significantly influence the nutritional composition of meat, with major implications for consumer health. This study compares the nutritional parameters of meat from intensive and alternative systems (free-range, organic), analyzing the content of protein, fat, essential fatty acids, minerals and vitamins. The results show that birds reared in alternative systems have a higher content of omega-3 fatty acids and a more favorable omega-6/omega-3 ratio, while intensive systems ensure rapid

growth and high economic yield. These findings suggest that alternative rearing methods can offer superior nutritional advantages, but require optimization of production costs and yield.
Keywords: poultry meat, intensive system, free-range, nutritional profile, omega-3 fatty acids.

41. Harnessing Modern Technology to Enhance the Behavioral Welfare of Farm Animals: Innovations in Monitoring and Management: a review

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Abstract:
Farm animal behavior is a key aspect of livestock management, influencing both animal welfare and productivity. However, understanding the complexities of animal behavior in farm settings is often challenging due to environmental factors, social dynamics, and the inherent nature of livestock. Recent advancements in technology have provided new opportunities to monitor, analyze, and improve the behavioral well-being of farm animals. This study explores the application of modern technologies—such as motion-sensing devices, biometric monitoring, and video surveillance—in the study of farm animal behavior. By integrating these tools into everyday farm operations, farmers and researchers are able to capture real-time behavioral data, offering deeper insights into animal stress responses, social interactions, feeding habits, and reproductive behavior. Moreover, these technologies facilitate the development of more effective strategies for reducing stress, enhancing animal comfort, and promoting healthier livestock populations. The potential for precision livestock farming to mitigate behavioral problems such as aggression, boredom, and abnormal behaviors is also discussed. Ultimately, the combination of technological advancements and behavioral science could lead to a new era in animal welfare management, providing farmers with the tools to optimize animal health and productivity while ensuring ethical farming practices.
Keywords: *animal welfare, farm animal behavior, technology in livestock farming.*

42. Monitoring Cattle Behavior Using Artificial Intelligence and IoT Sensors: A review

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Abstract:
In recent years, emerging technologies such as Artificial Intelligence (AI) and the Internet of Things (IoT) have revolutionized the livestock sector, providing efficient solutions for monitoring and managing cattle.

This study explores the use of IoT sensors and AI algorithms to analyze cattle behavioral patterns, aiming to improve animal welfare and farm efficiency. By integrating devices such as accelerometers, video cameras, and acoustic sensors, detailed data can be collected on the daily activities of cattle, including feeding behavior, movement, resting patterns, and social interactions. These data are analyzed using machine learning techniques to detect behavioral anomalies, indicating potential health issues or stress. The implementation of these intelligent systems in farms can lead to optimized herd management, reduced veterinary costs through early disease detection, and increased productivity. This study highlights the importance of adopting technology in the agricultural sector and the positive impact that advanced animal behavior monitoring can have on the sustainability of modern farms.

Keywords: *cattle behavior, internet of things (IoT), machine learning.*

43. 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.

44. 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 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.

45. The Biotechnological Impact of Royal Jelly, Apilarnil, and Propolis on Sturgeon: Review

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Abstract:
Bee products such as royal jelly, apilarnil, and propolis are well known for their bioactive properties and have shown significant applications across various fields, including aquaculture. This review provides a systematic analysis of the potential role of these substances in sturgeon biotechnology, focusing on their effects on growth, development, immune modulation, and stress resistance. The study synthesizes existing literature and highlights future perspectives regarding the use of apicultural products to enhance the biological performance and welfare of sturgeons in aquaculture systems.

Keywords: bee products, aquaculture, biotechnology, biological performance.

46. The evolution of peste des petits ruminants (PPR) in Romania and neighboring countries

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Abstract:
Peste des petits ruminants is a very serious viral disease that affects several species of small ruminants, both domestic and wild, highly contagious and with a very severe course, ending in death in 70-80%. The disease also causes significant economic losses in the livestock sector. On 19.07.2024, the first outbreak of peste des petits ruminants in Romania was confirmed. In August 2024, 56 outbreaks of peste des petits

ruminants were confirmed in Romania in Tulcea, Constanţa and Timiş counties. A total of 236,082 sheep and goats were killed, as a result of the measures instituted by the authorities. The first cases of the disease appeared on 11.07.2024, followed by deaths in the following days. Peste des petits ruminants also appeared in Greece, in goats and sheep kept in the municipal unit of Kalambaka, municipality of Meteora, in the regional unit of Trikala, region of Thessaly, which was confirmed on 11 July 2024. In 2018, among the countries closer to Romania, the disease was reported in Turkey, Georgia and, more recently, in Bulgaria. PPR is a highly contagious, transboundary disease associated with significant economic losses. Because they did not think about peste des petits ruminants, given that this virus had nowhere to appear, veterinarians suspected the development of some bacterial lung diseases exacerbated by the extremely high temperatures of this period. Only after 8 days, the virus was confirmed at the farm in Tulcea and, subsequently, at several farms in the county, after which it appeared, a few days later, absolutely mysteriously, in the farms in Constanţa. Tens of thousands of animals were killed, and extensive areas were quarantined. In January 2025, the first outbreak of peste des petits ruminants was confirmed in Hungary, in the Laboratory of the National Office for Food Chain Safety (Nébih) in Zal County, being the first cases of sheep plague in this country, and the sanitary-veterinary authorities went on alert. Measures were also taken in Slovenia.

Key words: peste des petits ruminants, outbreaks, sheep plague.

47. Impact of Dietary Oleaginous Seeds on Health Lipid Indices and Fatty Acids Profile on Broiler's Meat

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Abstract:
Over the past few years, there has been a growing preference among consumers for broiler meat, primarily due to its rich protein content and its suitability in the obtained of functional foods. In this context, a 42-day feeding trial was conducted on 192, day-old Ross 308 chicks obtained from a local hatchery and kept in an experimental hall on permanent wood shaves litter (16 broilers/m2 capacity). The broilers were randomly divided into 4 groups (C, E1, E2, and E3), each group consisted of four replicates (12 chick/replicate). All the groups received the same basal diet for ten days. After that, the experimental diet included vegetable seeds were enriched in polyunsaturated fatty acids as follows: 6% flaxseed (E1), 10% camelina seeds (E2) and 15% hemp seeds (E3). At the end of the study, 32 broilers (8 chick/group) were slaughtered and meat samples (breast and thigh) were collected to determine the meat quality (fatty acids profile, cholesterol content and health lipid indices of meat fat), and serum lipid factors. The concentration of polyunsaturated fatty acids (PUFA), especially the n3 fatty acid alpha-linolenic acid (ALA) increased significantly ($p = 0.0001$) in both breast and thigh samples for all experimental groups (E1, E2 and E3) compared to C group, but the n3-PUFA concentration decreases inversely proportional to the inclusion rate of raw materials rich in PUFA (g FAME/100 g Total FAME) from E1 (9.64 g) > E2 (7.47 g) > E3 (5.01g) > C (1.93 g) for thigh or E1 (8.61 g) > E2 (6.97 g) > E3 (5.40 g)

> C (2.23 g) for breast samples. The healthy lipid indices, especially the atherogenicity (IA) and thrombogenicity (IT) indices, registered lower values ($p \leq 0.05$) on all experimental groups (E1, E2, E3) feed with oleaginous seeds compared to C group. In conclusion, the supplementation of broilers' diet with oleaginous seed positively influenced meat characteristics, including the health lipid indices and n3 fatty acid alpha-linolenic acid (ALA) to promote an efficient conversion of ALA to EPA and DHA, which have implications for human health.

Keywords: broiler, meat, fatty acids, oleaginous seed, health lipid indices.

48. Analysis of Qualitative Milk Parameters on a Dairy Farm in Southern Romania

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Abstract:
This study examines the milk production quality of Montbéliarde dairy cows at Moara Domnească farm, in 2024, focusing on key indicators such as fat, protein, lactose, dry matter, and somatic cell count. The study highlights fluctuations in these parameters throughout the year, with factors like diet, season, and cow health influencing the results. Data analysis, including frequency analysis and statistical methods (mean, standard deviation, and coefficient of variation), was used to assess monthly trends. The results show variations in fat, protein, and lactose content, indicating possible dietary imbalances or health issues. The study underscores the importance of maintaining optimal cow health and diet for milk quality and production efficiency.

Keywords: cow, dairy farm, milk quality.

49. ANT22 - Aqueous Emulsion Control Method: Contribution to Rational Control of *Dermanyssus Gallinae* in Poultry

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Abstract:
Red poultry mite *Dermanyssus gallinae* (De Geer, 1778) is an ectoparasite that feeds on the blood of birds and mammals. Invasions of the ectoparasite *D.gallinae* in intensive poultry farming reach proportions unknown in the wild nature. They are classified as key health, economic, and ecological problems of the most intensive production of foodstuffs of animal origin. Annual losses worldwide are estimated at 3.92

billion USD and tend to grow further. This manifestation of the problem, to a large extent, results from inadequate control of *D. gallinae*. This study aims to optimize and rationalize the *D. gallinae* control by external application of inert oils. The ANT 22 method (working name) is based on "know-how" formulation and application technology. In this study, a manual application was carried out in the clinical conditions of 18 small industrial facilities (2,000 - 14,500 animals) of laying hens (cage system), with a total capacity of 151.300 laying hens, in a time frame of 25 months. The effects of *D. gallinae* control (suppression of infestation) in inhabited and empty non-conditional objects with one treatment lasted 4-10 months, and with two treatments lasted 8-10 months. The observed disadvantages of the method are common to inert oils, which can be minimized with care. The ANT 22 method is safe and does not develop resistance. It is a conditional method, which requires hygienic preparation and adequate application, and is optimal for empty buildings with rest. An important technical condition is the correctness of the applicator and a professionally performed application. Considering the control findings obtained so far, we believe that they justify testing the application of the ANT 22 method for control purposes in large industrial facilities, but also for the purpose of eradicating *D. gallinae.*

Key words: ANT 22 method, efficacy, *Dermanyssus gallinae* control, poultry.

50. Lungworm in the Domestic Mountain Horse and the Balkan Donkey in the Special Nature Reserve in Serbia

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Abstract:
The domestic mountain horse and Balkan donkey are considered autochthonous species whose numbers are declining, so they are classified as endangered species. Both population live in small herds in nature reserves Stara planina Nature Park (a mountainous region corresponding to the original habitat where this species was once bred); Zasavica Special Nature Reserve (a plain area at the mouth of the Zasavica in the Sava River), and Krčedinska ada (a marsh island on the Danube River near Novi Sad). Parasitic infections are a constant health problem in free-ranging animals. In our work, we present research on the presence of lung parasites in both populations of animals that are kept in free breeding in nature reserves. The research included 157 Domestic mountain horses and 60 Balkan donkeys. For fecal examination we use modified Baermann's technique and detection of larvae was based on their morphological characteristics. During examinations of the domestic mountain horse which are autochthonous breed, kept in a semi-free system together with donkey at Star Planina Mountain infection with *D.arnfieldi* we established at 83, 33% horses and 59% donkeys. Despite the high degree of infection, the intensity of the infections was low, so that milder clinical symptoms were present in only a few cases. In Zasavica dictyocaulosis was established at 97% of horses and 100% at donkeys. At population breed in Krčedinska ada dictyocaulosis was established in all examined animals from both population (100%).
Key words: domestic mountain horse, Balkan donkey, lungworm, *Dictyocaulus arnfieldi.*

51. The genetic parameters for average daily gain and Kleiber ratio in Charolaise breed

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Abstract:
The objective of this paper was to estimate the genetic parameters for average daily gain from 200 days to 365 days and Kleiber ratio in Charolaise breed with maternal animal model. The data were represented by 582 records of Charolaise cattle breed. The pedigree consisted in 1284 cattle: 123 sire, 579 dams and 582 cattle with performances. The data were obtained from Romanian Breeding Association for beef cattle. The direct breeding value of cattle were from -0.339 to 0.969 kg for average daily gain between 200 days and 365 days and maternal breeding value between -0.361 to 0.207. The direct breeding value of cattle for Kleiber ratio were between -0.318 and 0.678 and maternal breeding value between -0.354 and 0.205. The direct heritability for average daily gain from 200 days to 365 days was 0.570, the maternal heritability 0.183 and the total heritability 0.353. The direct heritability for Kleiber ratio was 0.414, the maternal heritability 0.201 and total heritability 0.189.

Keywords: breeding value, cattle, maternal animal model.

52. Poultry Meat: Nutritional, Sensory and Commercial Analysis from Production to Consumption

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Abstract:
The nutritional, sensory, and commercial value of poultry meat has positioned it as a key component in the modern food system. This study investigates the interconnected dimensions that contribute to the overall quality and relevance of poultry meat, providing a comprehensive overview of its benefits and challenges within the current agri-food context.
Nutritionally, poultry meat is a high-quality source of protein with excellent digestibility and bioavailability. It contains essential amino acids, a favorable lipid profile low in saturated fats and rich in polyunsaturated fatty acids, as well as important micronutrients such as selenium, iron, and B-complex vitamins. These characteristics make it a valuable option for promoting balanced diets and preventing nutrition-related disorders.

From a sensory perspective, consumer perception is strongly influenced by traits such as tenderness, flavor, juiciness, and visual appeal. These attributes depend on several intrinsic and extrinsic factors, including breed, feeding practices, slaughter age, and processing technologies. Enhancing sensory quality is essential to increase consumer acceptance and satisfaction.
Commercially, poultry meat holds a strong position in global markets due to its affordability, production efficiency, and adaptability to consumer demands. The development of value-added products, such as functional foods and convenience items, continues to expand its economic potential. Moreover, sustainability concerns and changing dietary patterns are driving innovation in both production and marketing strategies.
This paper highlights the need for a multidimensional evaluation of poultry meat, integrating nutritional value, sensory appeal, and market performance. Such an approach supports the optimization of product quality, aligns with public health goals, and enhances competitiveness within the food industry

Keywords: Functional food, lipid profile, protein bioavailability, shelf life, consumer behavior, value chain.

53. Climate Change and the Emerging Risk of Mycotoxin Contamination: A Food Safety Perspective

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Abstract:
Climate change is a major factor influencing agricultural production and global food security, causing significant changes in the ecology of toxigenic fungi and the profile of food contaminants. Rising average temperatures, humidity fluctuations, and the increased frequency of extreme weather events contribute to intensified abiotic stress on crops and promote conditions favorable to fungal mycotoxin biosynthesis, particularly in corn and wheat. Recent studies highlight a geographical expansion of the risk of mycotoxin contamination in regions previously considered safe, such as Southern and Eastern Europe. Aflatoxins produced by *Aspergillus flavus* are increasingly reported in areas affected by prolonged drought and high temperatures, whereas *Fusarium spp*. thrive in humid regions, producing toxins such as deoxynivalenol and zearalenone. These changes threaten not only crop quality but also public health, with potential implications for the incidence of chronic diseases linked to prolonged exposure to food contaminants. To enhance agricultural resilience and ensure consumer protection, it is essential to implement integrated strategies, including applied climate monitoring, the use of resistant crop varieties, improved harvesting and storage practices, and stricter regulations regarding mycotoxin control. This paper aims to analyze the interaction between climate variability and mycotoxin occurrence, with a focus on the implications for food safety and the identification of future research directions in the context of climate change.

Keywords: abiotic stress, agricultural resilience, climate change, food safety, mycotoxins, toxigenic fungi.

54. Prevention of Mycotoxin Contamination Risk in the Feed Chain through GHP and HACCP

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Abstract:
Mycotoxin contamination remains one of the most persistent and relevant safety challenges within the feed chain, with significant implications for animal health, the quality of animal-derived products, and, indirectly, public health. Mycotoxins are toxic secondary metabolites produced by filamentous fungi such as *Aspergillus*, *Fusarium*, and *Penicillium*, which can contaminate plant raw materials and compound feeds at various stages of the production process, particularly during the post-harvest phase. This paper analyses strategies for preventing mycotoxin contamination in the feed chain, focusing on the application of Good Hygienic Practices (GHP) and the HACCP (Hazard Analysis and Critical Control Points) system. Good practice guidelines provide an operational framework for hygiene, handling, storage, and transport, contributing to limiting the factors favoring the development of toxigenic fungi. In parallel, the HACCP system introduces a structured and preventive approach based on hazard identification and monitoring of critical control points (CCPs), tailored to the specific context of each facility or operation. The paper also explores the synergy between the two approaches - GHP and HACCP - and their efficiency in managing the risks associated with mycotoxin contamination, especially in the current context marked by climate change and strict food safety standards. Through an integrated approach, safe feed, animal health, and the confidence of the final consumer can be ensured.

Keywords: animal health, critical control points, food safety, post-harvest contamination, toxigenic fungi.

55. Ecotoxicological Assessment of Tarragon Aqueous Extract and Essential Oil on *Lemna minor*

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Abstract:
The aquatic ecotoxicity of tarragon (*Artemisia dracunculus*) aqueous extract and commercial essential oil was evaluated on *Lemna minor* (duckweed) through a growth inhibition test. Culture media served as the negative control (C-), and zinc chloride (0.5%) was used as the positive control (C+). The aqueous extract was tested in six dilutions, alongside the undiluted form. For the essential oil, seven different volumes

were tested, with mineral oil (C MO) as the control, where the oil droplets floated on the aqueous medium. The aqueous extract only caused a significant reduction in frond number at the undiluted concentration, suggesting that the absence of culture media may have contributed to the observed effect. In contrast, all tested volumes of the essential oil resulted in a decrease in frond number, with the lowest volume (0.5 µL) inhibiting growth by 50% compared to the negative control. Higher volumes of the essential oil caused a more pronounced reduction in frond number**, emphasizing the potential toxicity of tarragon oil.** The level of inhibition observed in the highest volumes was comparable to the effect of the mineral oil control. The lowest tested volume (0.5 µL) was also used to assess the biochemical effects on *Lemna minor*, including chlorophyll content, concentrations of reducing sugars and proteins, and catalase activity as an indicator of oxidative stress. These findings indicate the potential ecotoxicological risks associated with tarragon essential oil in aquatic systems.

Keywords: Tarragon, *Lemna minor*, Ecotoxicity, Essential oil, Biochemical parameters.

56. Study Regarding Calves Health Practice from Birth to Weaning on Romanian Dairy Buffalo Farms, Considering Farm Size

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Abstract:
This study explores the health management practices applied to dairy buffalo calves in Romania from birth to weaning, with a focus on preventive strategies and main disease occurrence in relation to farm size. The data were collected through a structured questionnaire distributed among a limited number of Romanian dairy buffalo farms, reflecting the relatively low national prevalence of this farming system. The most commonly reported preventive methods against technopathies included vitamin and selenium supplementation as well as environmental condition adjustments. However, due to the small sample size, the availability of comprehensive statistical data was limited. Preventive vaccination was not widely practiced among buffalo farmers. Large-scale farms reported the use of vaccines, small farms did not apply vaccination at all, indicating a gap in biosecurity and preventive care. Regarding disease occurrence, the incidence of renal disorders, diarrhea, and respiratory diseases among buffalo calves remained consistently low, below 5%, and showed no significant variation based on farm size. These findings suggest that while certain basic health practices are implemented, more structured preventive programs could benefit the overall health outcomes of buffalo calves, particularly in smaller farms where preventive measures are minimal or absent.

Keywords: dairy buffalo farms, calf health management, preventive practices, farm size effect.

57. The Perspective of Using Essential Oils in Swine: review

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Abstract:
In animal husbandry, the improper and excessive use of antibiotics has contributed to the emergence of bacterial strains resistant to their action. Over the past decades, the search for alternative strategies to antibiotics has received increasing attention. The antimicrobial properties of essential oils have made them viable alternatives in livestock production. Numerous researchers have investigated these natural compounds as potential substitutes for conventional antibiotics or as preventive measures against diseases in farm animals, including swine. However, in this species, research outcomes regarding the use of essential oils in both in vitro and in vivo (on-farm) conditions have been inconsistent. This variability is primarily due to differences in oil composition, purity, dosage, growth phases, and husbandry conditions. Some authors suggest that essential oils such as oregano, thyme, clove, or mint can improve the overall health status of pigs through their anti-inflammatory and antimicrobial properties. Other studies have highlighted their beneficial effects on gut microbiota balance, notably by inhibiting pathogenic bacteria and promoting beneficial microbial populations. Positive impacts on zootechnical performance have also been reported, including improved feed conversion efficiency and average daily gain. Additionally, certain studies point to a significant role in reducing oxidative stress and enhancing immune responses. The volatile and lipophilic nature of essential oils presents a challenge in ensuring their effective delivery to the pig intestine; however, this issue may be partially addressed through microencapsulation and nanotechnology. This review aims to assess how essential oils are currently used in swine feeding strategies and/or treatment protocols, focusing on their mechanisms of action as demonstrated by existing research.
Keywords: essential oils**,** swine**,** chemical composition, biological effects, nutrition, action on pathogenic microorganisms.

58. Valorization of Products and By-Products Resulting from Sericulture and Moriculture

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Abstract:
In addition to natural silk, sericulture activity also generates numerous by-products with high economic value, used in a wide range of fields: medicine, biotechnology, cosmetics, and agriculture. Their efficient management contributes to optimizing production and increasing the sustainability of the silk industry.

Silk proteins, fibroin and sericin, have a significant impact in the medical and cosmetic fields, offering innovative solutions for tissue regeneration, skin care and the development of advanced biomaterials. The intelligent use of sericulture waste transformed into organic fertilizers contributes to improving soil fertility and supporting organic agriculture. Silkworm chrysalis is a high-quality protein source due to its high content of protein and essential amino acids. It can be used both in animal feed, including poultry, pigs and fish, and in the human food industry, with the potential to become a sustainable alternative to conventional proteins. Mulberry leaves (*Morus* spp.) are the main food source for silkworms, having great importance not only in sericulture, but also in the pharmaceutical and food industries. Mulberries are also appreciated for their nutritional value and beneficial health properties, being used in the food industry to obtain juices, jams and other derived products. Sericulture is not just an activity based on silk production, but offers multiple resources with varied applications, which can add economic value and support the development of related industries.

Keywords: silkworms, silk, cocoon*, Bombyx mori, Morus spp.*

59. The influence of some technological elements on sunflower yields, cultivated in the Timis Low Plain

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Abstract:
Due to the outstanding biological qualities and the versatility of the oil obtained both for human consumption and for industrial and energy uses, in recent years, the national and international demand for sunflower seed production has become increasingly high, which has led Romanian farmers to include the cultivation of this species in their different crop rotations, year after year. Against a backdrop of favorable climatic and soil conditions, sunflower has become a traditional crop in Romania, as demonstrated by the dynamic of the areas and yields obtained in the last decade, which have consecutively placed our country at the top of the European and even world rankings. At the same time, this particular species also has a remarkable fodder value in terms of the secondary products obtained after processing the seeds, namely sunflower grit and sunflower cakes, which are used in various fodder recipes, for several animal species such as sheep, goats and cattle. It is not to be neglected either that this crop is of particular importance for honey production in our country.For these reasons, it is necessary to constantly improve and adapt the cultivation technology of this valuable species to the current economic and environmental challenges, in order to ensure the same high level of this crop's productivity. In this present paper, through research carried out over three experimental years (2022, 2023 and 2024), it was monitored the behaviour of two sunflower hybrids, adapted and cultivated in the pedo-climatic conditions of the Timiș Low Plain, an area recognized for its favourable results in sunflower seed production, both due to the high natural fertility of the soils and the sufficient water supply from rainfall. At the same time, the impact on production of some technological element essential for cultivation was observed, namely the chemical fertilization carried out on two distinct levels.

Keywords: seed production, fodder, cultivation technology, tillage systems, fertilization.

60. Beyond the Surface: Infrared Thermography and Biomarker Insights in Mastitis Detection

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Abstract:
Mastitis, an inflammation of the mammary gland, remains one of the most prevalent and economically significant diseases in the dairy industry. Traditional diagnostic methods such as somatic cell counts, microbiological cultures, and the California Mastitis Test, though widely used, often lack the sensitivity to detect subclinical forms or the capacity to localize early inflammatory changes. In recent years, advancements in non-invasive technologies have opened new frontiers in early mastitis detection, with infrared thermography (IRT) and molecular biomarkers emerging as powerful complementary tools. This review explores the potential of infrared thermography to detect mastitis-related thermal asymmetries in the udder, offering a rapid, stress-free, and animal-friendly diagnostic approach. In parallel, the review examines biomarkers in milk and blood as indicators of mammary gland inflammation and systemic stress. These biomarkers not only reflect the host immune response but also provide valuable insight into the severity and progression of infection. When combined, thermographic imaging and biomarker profiling offer a holistic, multi-dimensional approach to mastitis monitoring, particularly valuable for detecting subclinical or emerging cases. This paper highlights current findings, technological limitations, and future research directions in integrating IRT and biomarker-based diagnostics into herd health management programs.

Keywords: Dairy Cattle, Non-Invasive Diagnostics, Inflammation, Subclinical Mastitis, Heat Shock Proteins, Precision Livestock Farming.

61. From Tank to Table: Seasonal Trends in Density and Dry Matter and Their Impact on Dairy Processing

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Abstract:
Milk composition varies significantly with environmental conditions and farm management practices, influencing its suitability for dairy processing. This study investigates seasonal variations in milk density and dry matter content based on weekly bulk tank samples collected from a dairy cattle farm. Higher temperatures in summer months often lead to a reduction in dry matter due to heat stress and changes in feed intake, while cooler seasons typically promote higher concentrations of solids. Understanding and

predicting these variations is essential not only for maintaining consistent product quality but also for improving yield forecasts and optimizing processing strategies throughout the year. Through statistical analysis, we identify clear seasonal patterns in milk quality parameters and explore their implications for the theoretical yield of dairy products such as cheese and yogurt. Using established yield estimation models, we assess how fluctuations in milk composition across seasons can affect product yield and processing efficiency. This approach demonstrates that compositional monitoring at the farm level can provide valuable insight into potential processing outcomes. Our findings offer practical recommendations for both dairy producers and processors seeking to optimize production based on seasonal quality trends.

Keywords: seasonal variation; cheese yield; yogurt yield; dairy processing; bulk tank milk; milk quality monitoring.

62. Analysis of Honey and Pollen Exposure to Multiple Pesticides Residues in The Hive

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Abstract:
The presence, levels, and types of pesticides found in honey can vary greatly based on the region and the various pesticide treatments applied to the environment. Additionally, use of protective agents also results in the occurrence of pesticide residues in honey and perga. The use of agents against Varroa mites, *Varroa destructor*, leads to the possibility of the presence of pesticides in the hive, bees and their products. The food – processing by worker bees contribute to the degradation and metabolism of pesticides in the hive over time. The analytical method used for sample preparation and analysis of pesticides in bee matrix was modified and adapted QuEChERS extraction. In the next step, pesticide detection was followed by gas chromatography with mass detection (GC/MS). The active agent employed against Varroa mites is Varroadez. The presence of the pesticide amitraz and its metabolites was confirmed in the samples obtained for the analysis of honey and perga. These tests are important in terms of looking at the consequences, but also the health risks that can be caused by the effects of pesticides.

Keywords: beehive, GC/MS, honey, pesticides, amitraz.

63. Meat Packaging: A Determinant of Product Quality and Shelf Life

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Abstract:
Packaging technologies play a central role in preserving meat quality, ensuring food safety, and promoting sustainability in the food industry. As consumer preferences increasingly favor minimally processed, high-quality, and eco-friendly products, packaging has evolved beyond its traditional role of containment and protection. Modern solutions such as modified atmosphere packaging (MAP), vacuum sealing, and biotechnology-based active and intelligent systems contribute significantly to extending shelf life and maintaining the physicochemical and microbiological stability of meat products throughout distribution and storage. This paper explores the intersection of biotechnology and packaging innovation, with a focus on sustainable materials and smart technologies that respond to both product conditions and environmental requirements. The use of biodegradable materials, sensors, and antimicrobial components is gaining traction as a way to meet sustainability goals while ensuring food safety and reducing waste. The integration of biotechnological advances into packaging systems has the potential to reshape meat preservation strategies, making them more efficient, transparent, and environmentally responsible.
Keywords: meat packaging, food safety, biotechnology, modified atmosphere packaging (MAP), sustainable materials, active packaging.

64. General Aspects Regarding the Evolution of the Main Macroeconomic Indicators in Romania

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Abstract
The authors of the paper focused on the analysis of the evolution of macroeconomic indicators and emphasized the dynamics of GDP, the contribution of the main components of GDP to economic growth, the inflation rate and the level of the labor market (average number of employees, unemployment rate,

average net wage). Gross domestic product, being the representative indicator of results, is analyzed in accordance with resources and uses. In the quantitative analysis, the period 2014-2023 was taken into account. The paper aims to identify and analyze macroeconomic developments against the backdrop of uncertainties, pressures created by rising energy prices and the erosion of the population's purchasing power. The Romanian economy has been marked by transformations in the last 30 years. GDP followed an increasing trend, reaching 357 billion euros in 2024. As a result of structural changes in the economy, foreign investments and accession to the European Union, the Romanian economy is marked by accelerated economic growth.
Keywords: Gross Domestic Product (GDP), labor market, inflation rate

65. Exploring Global Agriculture

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Abstract
Agriculture plays a central role in the development and prosperity of human society. It is essential nowadays, as a result of supporting the global economy, but also by ensuring food security. Although agriculture contributes modestly to the world's Gross Domestic Product (GDP), it nevertheless represents an essential pillar of many national economies, especially in developing countries.Global agriculture is being significantly affected by climate change, and the Covid-19 pandemic has created additional financial problems for farmers. To cope with this climate change and combat its effects, it is necessary to increase productivity in agriculture and promote jobs in this sector. The paper analyzes the structure of the total area, by use, the production of the main agricultural products and the number of animals in the period 2013-2022. By capitalizing on its natural advantages and agricultural tradition, Romania can contribute to strengthening food security at the regional and European levels and can have a prominent role in the global economy.

Keywords: food security, economic development, animal husbandry, plant cultivation, agricultural area, total production

66. Perspectives on the Influence of Sunflower, Rapeseed, and Linseed Cakes on the Fatty Acid Profile of Cow's Milk

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Abstract:
This article explores the influence of different types of oilseed cakes used in cow feed on the fatty acid profile of milk, with a focus on the Omega-6/Omega-3 ratio. Sunflower, rapeseed, and linseed cakes are analyzed from the perspective of their lipid composition and their effects on milk quality. Studies show that linseed cakes significantly increase the Omega-3 content in milk, achieving a balanced Omega-6 to Omega-3 ratio, which is favorable for cardiovascular health and inflammation reduction. Conversely, rapeseed cakes provide a balanced fatty acid profile, with high oleic acid content. Sunflower cakes result in a high Omega-6 to Omega-3 ratio, which may promote inflammatory processes if not supplemented with Omega-3-rich sources. Predominantly using linseed cakes or combining them with rapeseed cakes can significantly improve the fatty acid profile of milk. Although sunflower cakes provide a high Omega-6 content, adjustments through supplementation with Omega-3 sources are necessary to ensure an adequate lipid profile. These findings are relevant for optimizing cow feed strategies to obtain a nutritionally superior milk product, characterized by an improved fatty acid composition that can benefit both human health and dairy industry standards. Tailoring feed strategies with appropriate oilseed cake combinations offers opportunities to produce higher-quality dairy products with superior lipid profiles, addressing consumer demand for healthier options.

Keywords: fatty acids of milk, Omega-3, Omega-6, sunflower cakes, rapeseed cakes, linseed cakes.

67. Factors Influencing the Quality of Chicken Meat

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Abstract:
The quality of poultry meat has become an increasingly prominent topic in scientific and industrial discourse, driven by the global rise in poultry product consumption and growing consumer expectations regarding nutritional composition, food safety, and sensory appeal. This review paper synthesizes current

knowledge from the scientific literature on the diverse and interconnected factors that influence poultry meat quality.
Special attention is given to the dynamic interaction between genetic type, nutritional management, environmental conditions, and pre- and post-slaughter practices. While selection for rapid growth rates and increased pectoral muscle yield has improved production efficiency, it has also been associated with the emergence of muscle disorders and quality defects such as pale, soft, and exudative (PSE) meat, white striping, and woody breast.
Nutritional interventions particularly those that regulate protein intake, fatty acid balance, and antioxidant levels play a crucial role in maintaining muscle integrity and oxidative stability. Environmental stressors, especially heat stress, along with animal transport and handling, significantly alter meat quality parameters, including pH, water-holding capacity, and storage stability.
In addition, postmortem procedures such as chilling and packaging have a major impact on meat quality preservation. Through a critical evaluation of existing studies, this review highlights areas of convergence as well as unresolved challenges, proposing an integrative approach to guide future research and optimize quality management throughout the poultry production chain.
Growth systems directly influence poultry meat quality. Alternative systems, such as free-range farming, provide meat with superior sensory properties and nutritional value, while intensive systems yield higher production efficiency but may negatively affect meat texture and composition.

Keywords: quality of poultry meat, meat texture, poultry welfare, tenderness, slaughtering conditions, oxidative stability.

68. The inclusion of sunflower and flax seeds in the diet of Mangaliţa breed

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Abstract:
The purpose of this study was to examine how sunflower and flax seeds in the diet of fattening Mangaliţa pigs affect the fatty acid content in their meat. Twenty Mangaliţa pigs were split into two groups: one group received a diet with 10% sunflower seeds (group S) and the other had a diet with 10% flax seeds (group F). The pigs were given feed and water freely. The fattening period lasted from when the pigs weighed 40 kg to when they reached 100 kg. The diet with added flax seeds significantly raised the levels of oleic acid, vaccenic acid and docosahexaenoic acid – DHA, compared to the diet with sunflower seeds. On the other hand, the total amount of saturated fatty acids and polyunsaturated fatty acids in the meat increased with the sunflower seeds diet, while the total amount of monounsaturated fatty acids decreased compared to the flax seeds diet. It can be concluded that there are no significant differences in the overall levels of fatty acids in the meat between the diets with sunflower of flax seeds, except for the differences in oleic acid, vaccenic acid and docosahexaenoic acid.

Keywords: sunflower, Mangaliţa, acids, flax, seeds.

69. Identification of DNA fingerprint pattern variability of known retrotrasposons in *Plantago lanceolata* L.

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Abstract:
Plantago lanceolata L. belongs to important medical plants and is numerously represented in the plant communities of meadows, fields, pastures and permanent grasslands. Here, analysis of the presence of selected transponable elements sequences in the genome of *Plantago lanceolata*, L were performed. Retrotransposon are an inevitable part of plant genomes are one of the DNA markers that possess good amplification profiles useful for variability analysis. Known sequences of retrotransposons Tst-1, Cassandra, BARE-1, FaRe-1 and HACRE1 were used for a total of 10 specific primer designation and IRAP analysis as well as selected iPBS markers. The presence of the known retrotransposon sequences were confirmed by PCR analysis with different polymorphic potential. A total of 22 different iPBS markers were used from which 15 were confirmed to amplify polymorphic fingerprint patterns. Comparing obtained fingerprint profiles, iPBS markers resulted in more abundant profiles with higher potential to detect intraspecific differences for *Plantago lanceolata* L.

Key words: *Plantago lanceolata*, iPBS, retrotransposons.

Acknowledgement: This study was support by VEGA 1/0059/24 Chemical properties and biological activity (in vitro, in vivo and in situ) of plant volatile mixtures, their main components and inclusion systems and project KEGA 001SPU-4/2025 Internationalization of teaching texts of genetic and molecular safety subjects in the context of activating education

70. Analysis of the correlation between feed quality and dairy cow productivity on farms in Călăraşi

Andreea Ionela ZINCA[1], Veronica-Denisa LUNGU[1*], Roxana Elena (VASILIU) ŞTEFAN[1], Georgiana Magdalena (GHECIU-PÎRLEA) PÎRLEA[1], Dumitru DRAGOTOIU[1]

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Abstract:
Milk is essential in human nutrition, primarily due to its rich nutritional profile and benefits. The composition and quality of milk can vary significantly depending on several factors such as: breed, lactation, nutrition, animal husbandry system, feeding system, milking system, and environmental conditions. This study investigates the correlation between feed quality and dairy cow productivity in a Holstein dairy cow farm located in Călăraşi County, Romania. Holstein cows in Romania are widely raised

due to their adaptability to various environmental conditions and ability to produce large quantities of milk. By conducting comprehensive analyses of different feed types and their nutritional profiles, the research aims to understand how different feeding strategies influence milk production and composition. The study incorporates data collected from 420 cows, examining key factors such as feed quality, chemical composition, and milk yield. The results indicate a significant relationship between high-quality feed and improved milk production, demonstrating that improved feed quality leads to higher yields and better milk composition, especially in terms of protein and fat content.

Keywords: cow farm, Holstein breed, milk production, milk quality, rearing systems.

71. Trends in mycotoxins co-occurrence in the complete feed for farm animals in southern Romania during 2021-2024 period

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Abstract:
Common naturally occurring contaminants of cereals and fruits, mycotoxins have been linked to negative effects on health in both humans and animals. Although the toxicity and mechanisms of action of many of these mycotoxins have been already studied, there are still worries about the long-term effects of exposure, even at low concentrations. Furthermore, apart from aflatoxins (EC 574/2011), the European Commission elaborated only a guideline (EC 1319/2016) for the maximum concentration of mycotoxins that can be accepted in feed of farm animals. Considering their variety, toxic effects, but also the fact that not many details are yet known about the cumulative effects of co-contamination with various mycotoxins, it is necessary to monitor the evolution of their presence in animal feed.
The aim of our study was to analyse during four-year period (2021-2024) the co-occurrence of six mycotoxins (Total aflatoxins-AFT, Fumonisins-FB, Deoxynivalenol-DON, Zearalenone-ZEA, T2/HT2 and Ochratoxin (A+B)-OTA), the most frequently encountered in the south area of Romania in poultry, piglets and pig's complete feed.
Our results showed that in complete feed of pigs and sows over 78% of the samples were contaminated with all six mycotoxins studied, with the highest positivity rate of 96% being recorded in 2024. High positivity rates for all six mycotoxins were also observed for complete feed for piglets and gilts and in 2021 and 2024 the percentage reached 100%. Similar results were observed in complete feed for poultry, in which a minimum of four mycotoxins were detected simultaneously. Although the recommended concentrations were not exceeded, co-occurrence of DON-ZEA, ZEA-T2/HT2 and DON-T2/HT2 with positive correlations were observed during the 2021-2024 period regardless of the type of complete feed studied. Our survey study provides important data regarding the degree of contamination with mycotoxins of pig and poultry feed, including the simultaneous presence of different mycotoxins in this complete feed. Constant monitoring of the presence of these natural contaminants is necessary since the sub-chronic and chronic exposure to low concentrations of mycotoxins and specially co-contamination is more common than acute exposure, leading over time to low defence capacity, inflammatory reactions and intestinal issues, which in the long term could have important economic consequences.
Keywords: mycotoxins, complete feed, southern Romania, poultry, pigs, piglets.

72. Apple and carrot industrial wastes as enhancers of the intestinal health in piglets after weaning

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Abstract:
In piglets, weaning transition affects especially the gastrointestinal tract, resulting in intestinal inflammation, oxidative stress and perturbation of intracellular signaling pathways. The current focus in piglets' nutrition is to enhance their health status, by positive modulation of intestinal integrity and functioning, intestinal immunity and of gut microbiota. This paper aims to describe nutritional studies on the effects of bioactive compounds from apple and carrot wastes in main aspects affected by weaning transition in piglets (growth performances, intestinal morphology, oxidative stress and inflammation markers and gut microbiota). These bioactive compounds could reduce the oxidant and inflammatory processes and positively modulate the microbiota, enhancing the intestinal health in piglets after weaning. The scientific information indicated that apple wastes could be used in weaning piglets' nutrition, whereas for carrot by-products more studies should be developed. In the context of the development of the circular economy emphasized by European Union, these by-products are inexpensive source of beneficial bioactive compounds and can be use in weaning piglets feeding as valuable in-feed antibiotic replacers.
Keywords: Weaning piglets, apple by-products, carrot by-products, feed, bioactive compounds, intestinal health.

Acknowledgements: This research was supported by funds from the Core Program (PN-III 23-20-02.01 project), granted by the Romanian Ministry of Education and Research.

73. A Review about Behavioral Indicators of Stress in Broilers: Insights from Digital Monitoring Technologies.

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Abstract:
Early detection and management of stress are very important to ensure welfare in broiler production systems and significantly influences poultry's health, behavior, and productivity. Main stress-related behaviors, such as social interaction, excessive pecking, increased aggression, and reduced locomotion, are best analyzed using smart video surveillance systems and machine learning algorithms capable of real-time data processing and pattern recognition. Also, the integration of wearable sensors (e.g., temperature and heart rate monitors) represents a complementary tool to enhance the precision and

reliability of behavioral data. This review offers a comprehensive study of current digital solutions aimed to enhance animal welfare through automated, continuous, and non-invasive stress monitoring in broiler flocks. It discusses the use of video cameras equipped with computer vision and behavioral pattern recognition algorithms, presenting real-time applications for identifying signs of social isolation, aggression, and abnormal movement patterns. Additionally, the review emphasizes the role of machine learning algorithms in training neural networks to analyze large datasets generated from video recordings and behavioral reports. Finally, the review examines the wearable sensors tools like temperature and heart rate monitors, emphasizing how they enhance visual observations by providing valuable information about internal physiological states. Each of these technologies is evaluated in terms of accuracy, feasibility, and implementation challenges in commercial poultry systems. The integration of such tools can significantly enhance our ability to monitor broiler welfare dynamically, paving the way for predictive management strategies and improved animal care.

Keywords: detection, pattern recognition, animal welfare, video recordings, physiology

74. Study on the Influencing Factors of Consumer Choices Regarding Pheasant Meat

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Abstract:
Pheasant meat has a balanced nutritional profile, characterized by a high content of high-quality proteins, a low fat content, a moderate caloric intake, and the presence of essential vitamins and minerals. These aspects recommend the meat as a healthy alternative in the human diet, but its popularity among consumers is relatively low. This study proposes to investigate the factors that influence consumer preferences for pheasant meat, through a research based on the application of a questionnaire. The research study aimed to collect data on the socio-demographic profile of the respondents, consumption habits, level of information, perceptions related to the qualities of pheasant meat, as well as the criteria that influence the decision to buy it. The questionnaire also includes questions about the preferred form of product presentation, market availability and attitudes towards sustainability. The information obtained from the analysis will contribute to a better understanding of consumer behaviour and to the development of effective strategies for the promotion and valorisation of pheasant meat.

Keywords: meat origin, nutritional values, purchase intention, sensory attributes.

75. Hydroponics – A Solution for Sustainable Urban Agriculture: A Comparative Study on Plant Growth and Resource Consumption

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Abstract:
Urban agriculture faces increasing pressure to become more sustainable due to limited space, declining soil fertility, and high water consumption in traditional farming. Hydroponic systems present a promising alternative by enabling efficient plant growth without soil, using minimal water and space. This study investigates the comparative growth performance of basil (*Ocimum basilicum*) cultivated in a hydroponic system versus a conventional soil-based environment. The experiment was conducted over a six-week period under controlled conditions using a small plastic greenhouse to maintain consistent light, temperature, and humidity. Key variables monitored included plant height, leaf number, and total water consumption. Microscopic analysis of the leaves was performed to assess overall plant health and identify structural differences. The results showed that the hydroponically grown basil exhibited faster growth, required significantly less water, and demonstrated healthier leaf structures with fewer visible defects. These findings support the potential of hydroponic agriculture as a viable and sustainable solution for urban food production, offering environmental advantages such as reduced water usage, no need for arable land, and the absence of chemical fertilizers or pesticides. This research highlights the practicality of hydroponics for urban settings and educational environments, encouraging further exploration into its scalability and integration into modern agricultural practices.

Keywords: urban food production, ecological farming, water efficiency, sustainable systems, plant physiology, controlled environments

76. The Role of Metabolomics in Personalized Medicine: Unlocking New Pathways to Precision Health

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Abstract*:*
Personalized medicine is revolutionizing healthcare by tailoring medical treatment to the individual characteristics of each patient. Metabolomics, the comprehensive analysis of small-molecule metabolites in biological systems, has emerged as a critical component in this paradigm shift. By capturing the dynamic biochemical changes associated with disease states, drug responses, and lifestyle factors, metabolomics provides real-time functional insights that support other multi-omic data. This review explores the foundational principles of metabolomics, its integration into personalized healthcare strategies, and its applications across various medical domains, including oncology, cardio-metabolic diseases, and pharmacology. We also discuss the technological advancements, analytical challenges, and translational barriers from laboratory to clinical implementation. Also, we outline future directions and innovations poised to enhance the role of metabolomics in precision medicine. As this field matures, metabolomics is expected to play an increasingly pivotal role in delivering truly personalized healthcare solutions.
Keywords: metabolomics, biomarkers, healthcare.

77. Nanobiotechnology in Drug Delivery: Innovations, Challenges, and Future Directions

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Abstract:
Nanobiotechnology represents a convergence of nanotechnology and biotechnology, offering innovative solutions for overcoming the limitations of conventional drug delivery systems. By engineering nanoscale

carriers with biocompatible materials, researchers have developed platforms capable of targeted, controlled, boosted, and efficient drug deliveries. These systems enhance therapeutic efficacy while minimizing side effects by enabling precise delivery to diseased tissues or cells. This review explores the diverse array of nanobiotechnological platforms—including liposomes, polymeric nanoparticles, dendrimers, and biologically derived vesicles—and their mechanisms for drug encapsulation, release, and cellular targeting. Taking all these into consideration, the key strategies are passive and active targeting, as well as stimuli-responsive designs tailored for specific pathological environments. Our review paper also highlights current clinical applications, regulatory considerations, and emerging challenges, such as toxicity, immunogenicity, and scalability.

Keywords: Nanocarriers, target therapy, drug delivery systems.

78. Agrotechnical Features, Palatability and the Effects on Milk Production of *Cichorium Intybus*

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Abstract:
The current study aimed to assess the Cichorium intybus agrotechnical and nutritional features, also the impact of it on milk production related to perennial gramineous and legumes. The agrotechnical evaluation based on the Braun-Blanchet scale was performed in the sequence of three vegetative cycles. Palatability was assessed based on analysis of variance. No significant differences ($p>0.05$) were recorded between alfalfa and chicory (90.14% vs. 87.56%). The lowest palatability was associated to gramineous (71.35%, $p\leq0.001$). The chicory shown an increased preferability degree in the sequence of daily feeding bouts, compared to alfalfa (82% vs 78%, $p\leq0,05$) also compared to gramineous or its mixtures (82% vs. 66%, $p\leq0.001$). The effects on milk production was assessed according to botanically structures. Comparable productions were recorded for alfalfa and chicory (17.5 kg vs. 17.2 kg, $p>0.05$). Positive effects were associated to chicory comparing to gramineous (17.5 kg vs. 14.6 kg, $p\leq0.001$) or its mixtures (17.5 kg vs. 15.5 kg, $p\leq0.01$). Chicory proved it efficiency in cows feeding comparing to legumes and gramineous, by an increased palatability and preferability degree. The positive effects on milk yield were comparatively evaluated according to the botanically species. In this respect, based on the obtained results, the chicory proved to be rightfully considered as an alternative forage for dairy cows.
Keywords: agro-technical, chicory, cows, milk yield, nutrition.

79. The genetic parameters for average daily gain and Kleiber ratio in Aberdeen Angus breed

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Abstract
The objective of this paper was to estimate the genetic parameters for average daily gain from birth to 200 days and Kleiber ratio in Aberdeen Angus breed with maternal animal model. The data were represented by 1206 records from Aberdeen Angus cattle breed. The pedigree was formed from 2563 cattle: 154 sire, 1203 dams and 1206 cattle with performances. The data were obtained from Aberdeen Angus Association Romania. The direct breeding value of cattle ranged between -0.401 and 0.772 for average daily gain and maternal breeding value between -0.191 and 0.243. The direct breeding value of cattle for Kleiber ratio ranged between -0.341 and 0.292 and maternal breeding value were between -0.147 and 0.105. The direct heritability for average daily gain from birth to 200 days was 0.218, the maternal heritability 0.082 and the total heritability 0.200. The direct heritability for Kleiber ratio was 0.181, the maternal heritability 0.078 and total heritability 0.202.
Keywords: average daily gain, beef breed, Kleiber ratio, maternal animal model

80. Biogas Plant and Photovoltaic System Built in ULST Campus as an Example for Sustainable Development

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Abstract:
Electricity consumption University of Life Sciences "*King Mihai I*" from Timisoara, Romania is approximately 1850 MWh, while the natural consumption is approximately 790000 m^3 per year. Taking into account the electricity and natural gas consumption, the carbon footprint of each person working or studying in the campus is about 0.32 tonnes of CO_2 equivalents and approximately 2465 tonnes of CO_2 equivalents for the entire campus. The carbon footprint of the campus and its inhabitants can be decreased by harnessing local renewable resources by converting these resources into electricity and thermal energy for consumption at the campus. Moreover, this approach will significantly reduce GHG emissions on the teaching farm by reducing the emissions of CH_4 and N_2O in manure management.

The energy system constructed between 2023 - 2025 consists of two installations: a biogas plant with a combined heat and power unit with an installed capacity of 100 kW and a photovoltaic panel installation with an installed capacity of 150 kW. The total electricity production capacity of the system is approximately 825 MWh/year, which can cover approximately 40% of the total electricity consumption of the campus. This production will displace fossil-fuelled power from the grid, natural gas currently used for heating purposes and mitigate methane emissions. Total equivalent CO_2 emissions savings are 2400 tons per year. The purpose of the completed energy system is to serve as a demonstration project for the local community, farmers, food industry as well as a perfect case for involving students for a hands-on experience in developing circular bioeconomy and renewable energy competences.
Keywords: carbon footprint, circular bioeconomy, renewable energy.

81. Estimating the potential milk production in *Oryctolagus Cuniculus*

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Abstract:
Milk production is a quantitative trait, and its inheritance is complex due to the involvement of multiple genes and various environmental factors. Estimating the potential for milk production has been the focus of numerous researchers seeking effective methods to assess lactation capacity in *Oryctolagus cuniculus* (domestic rabbit) females. The present study employed an indirect method to estimate milk production potential. This approach is based on the premise that the rabbit offspring's average daily weight gain during the 0–21 day nursing period primarily reflects the mother's lactational performance. It is considered that 1 gram of body weight gain in offsprings corresponds to an intake of 1.82 grams of maternal milk, as reported by Lebas (1971). Moreover, the phenotypic correlation coefficient (rp) between offspring weight gain and maternal milk production has a high value of 0.90, supporting the validity of this indirect estimation method. The biological material used in this study consisted of domestic rabbits from the *New Zealand White* (NZW), *Chinchilla Large* (CHL), and *Californian* (CAL) breeds, as well as hybrids derived from their crossings. These included simple F1 hybrids (♀NZW × ♂CHL) and triracial F2 double hybrids (♀F1 × ♂CAL). The findings revealed that the highest milk yield per female used as a maternal form in the experimental crossbreeding occurred during the final week of lactation (days 15–21), representing 42% of the total lactation yield in *New Zealand White* rabbits and 40% in the simple F1 (NZW × CHL) hybrid females. The highest average total milk production was observed in the F1 (NZW × CHL) hybrid females, which served as the maternal line for the F2 (F1 × CAL) hybrids. These F1 females exhibited an average total milk yield of 5040.90 ± 105.85 grams, with an average prolificacy of 8.50 ± 0.58 offsprings per litter.
Key words: milking capacity, hybrids, breeds, *Oryctolagus Cuniculus*.

82. Quantity and quality researches of sperm in *Oryctolagus Cuniculus* depending on the sampling frequency

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Abstract:
Artificial insemination (AI) biotechnology represents an effective tool for accelerating genetic improvement in domestic rabbit herds, primarily by significantly increasing the selection pressure exerted through male lines. The objective of this experiment was to evaluate the quantity and quality of semen in domestic rabbits as influenced by collection frequency—an essential parameter in the optimization of genetic improvement programs. The biological material used in the study consisted of breeding males from the *New Zealand White*, *Large Chinchilla*, and *Californian* breeds, as well as simple F1 hybrids (♀NZW × ♂CHL), all of which were of appropriate age and optimal body weight for intensive reproductive use. Semen quality analysis was performed using the IVOS Computerized Sperm Analysis System, Version 12 (HAMILTON-THORNE BIOSCIENCE). The results demonstrated that both the quantitative and qualitative parameters of sperm are inversely proportional to the frequency of semen collection. Based on the findings, it is recommended that semen be collected at a frequency of 2–3 times per week. Under this regimen, sperm production is maintained at optimal levels in terms of both volume and quality, supporting its use in artificial insemination protocols for genetic improvement purposes.

Key words: sperm, domestic rabbits, hybrids, breeds, *Oryctolagus Cuniculus*.

83. Marketing Researchon the Apiarian Products Market in Romania

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Abstract:
Apiculture, as a branch of agriculture has at its basis the bees' instinct of storing feed reserves beyond their consumption needs, such reserves being used by the beekeeper.

The economic importance of apiculture is determined by the value obtained from the utilization of beekeeping products harvested by humans from bees: honey, propolis, pollen granules, royal jelly, venom, bee brood, beebread and wax, as well as by the value of products obtained from cultivated and wild plants through pollination. Additionally, apiculture is the only branch of agriculture that gathers the necessary raw materials from all forms of property without creating financial obligations.
This paper presents the evolution of the main indicators regarding the number of bee colonies, honey production and honey consumption.

Keywords: apiculture, economic importance,main indicators

84. Study regarding greenhouse gas emissions and carbon footprint in Romanian sheep farms

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Abstract:
Greenhouse gas emissions from animal breeding contribute to the global phenomenon of climate change by about 2%. According to European Parliament statistics, Romania ranks 10th in the European Union in greenhouse gas emissions. The present study was based on the use of the life cycle assessment (LCA) methodology in 92 sheep farms in Romania. Also known as life cycle analysis, it is a methodology for assessing the environmental impact associated with all stages of the life cycle of a product, process or commercial service. Our results showed that the gross CO2 emissions at the dairy sheep farm level, related to the product unit, are about 5.17 kg of CO2 equivalent/L commodity milk. From these emissions, 3.18 are enteric emissions, 1.07 are emissions due to effluent management, 0.14 emissions are due to nitrogen fertilization of crops or pastures, 0.08 are emissions due to fuel and electricity consumption, and 0.68 are due to emissions of compound feed purchased at the farm level. As for the carbon stored at the farm level, it is at the level of 1.43 kg CO2 equivalent/liter of commodity milk. The highest amount is stored at the level of pasture (1.09) and at the level of permanently cultivated meadows (0.43). In conclusion, the carbon footprint at the dairy sheep farm level is, on average, at the level of 3.75 kg of CO2 equivalent/L commodity milk, slightly higher than the European average (3.5)..

Keywords: climate change, dairy sheep, carbon storage, life cycle assessment.

85. Effect of season on milk chemical composition in Romanian buffalo

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Abstract:
The aim of the study was to determine the effect of season on the milk chemical composition in Romanian buffalo. A database of 812 test day milk records collected during four years, from a farm located in Timiş county was used. The studied chemical components were: solids non-fat (SNF), fat (MF), protein (MP), and lactose (ML) percentages in buffalo milk. A one-way ANOVA was used to find out the season effect on milk components. Generally, the season had a significant effect on milk chemical composition of buffalo milk ($p<0.01$). Solids non-fat was not significantly influenced by the season ($p>0.05$) even though the SNF in winter was double than in the other seasons (23.04% vs. 9.97% in spring, 10.73% in summer, and 11.31% in autumn). Milk fat was significantly influenced by the season ($p<0.001$). The highest MF was observed in autumn (12.0%), followed by winter (10.92%), summer (9,11%), and spring (8.91%). Also, protein content of buffalo milk was significantly influenced by the season ($p<0.001$), with the highest percentage in autumn (6.65%) followed by winter (6.08%), summer (5.05%) and spring (5.02%). Season had a significant effect on buffalo milk lactose ($p<0.001$). The highest ML percentage was obtained in autumn (4.80%), followed by summer (4.77%), winter (4.58%) and spring (4.53%). In conclusion, we could state that season had a significant influence on buffalo milk composition except for solids non-fat, and autumn milk had the highest content in fat, protein and lactose.

Key words: buffalo, chemical composition, fat protein, lactose, milk, solids non-fat.

86. Mathematical model of the energy and proteic metabolism applied to pigs

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Abstract:
The paper presents a mathematical model to calculate the energy and protein requirements of the growing and fattening pigs.
Traditionally, the energy and protein allowances are designed to produce as high as possible performance (we shall refer subsequently to the daily weight gain). Only few systems of assessing the energy and nutrient requirement offer the possibility to monitor carcass quality expressed mainly by the lipid to protein ratio. The purpose of this paper is to present a viewpoint on a possible solution for this aspect.
The model is used to develop a procedure for diet calculation.

Keywords: mathematical modelling, energy metabolism, protein metabolism, pig nutrition

87. STUDY OF MACROPHAGE SURVIVAL DURING CO-CULTIVATION WIT BACTERIA IN A NANOFIBER SCAFFOLD 3D CELL CULTURE SYSTEM

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Abstract:
The survival of macrophages during co-cultivation with bacteria is critical for understanding immune responses and developing effective treatments. This study investigates the survival rates and apoptosis levels of macrophages co-cultivated with *Staphylococcus aureus* and *Streptococcus uberis* on nanofiber scaffolds made from different materials. Macrophages were differentiated from isolated CD14+ peripheral blood monocyte cells using GM-CSF. These cells were cultured on nanofiber scaffolds made from synthetic polymer polycaprolactone (PCL), PCL combined with natural polymer silk fibroin (PCL/SF) and compared to traditional 2D culture using flow cytometry.
Our findings demonstrate that macrophages cultured on PCL/SF scaffolds exhibited significantly higher survival rates and lower necrosis percentage compared to those on PCL and control 2D culture. While PCL scaffolds showed improved macrophage survival rate over 2D cultivation controls, the PCL/SF scaffolds were markedly more favorable for macrophage survival both in the bacteria-unaffected cell culture and also under bacterial stress. The bacteria induced stress was measured at 1-hour, 3-hour, and 24-hour co-cultivation intervals. The differences were most pronounced at the 24-hour mark, highlighting the potential of PCL/SF scaffolds in enhancing macrophage resilience in 3D cell culture systems.
These results suggest that PCL/SF scaffolds provide a much better environment for macrophage growth and survival during bacterial co-cultivation. These outcomes offer promising implications for future research and cell culture applications.
This study was supported by The Ministry of Education, Research, Development and Youth of the Czech Republic under the project number 8J23FR005 (Barrande Programme). This work was also supported by the Internal Grant Agency of Faculty of AgriSciences at Mendel University in Brno, project number IGA25-AF-IP-023 and by the Ministry of Agriculture of the Czech Republic by project number RO0523.

Keywords: 3D cultivation, nanofiber scaffold, macrophage, cell survival, co-culture.

88. Evaluation of Herbicide–Adjuvant Combinations for the Control of Ambrosia artemisiifolia weeds in Sunflower (EXPRESS Hybrid)

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Abstract:
Ambrosia artemisiifolia is an invasive species of agronomic and public health concern, known for its aggressive competition with cultivated crops and high allergenic potential. In this context, the present study aimed to evaluate the efficacy and mode of action of several herbicide–adjuvant combinations in controlling this weed, under the pedoclimatic conditions of Hodoș, Timiș County, Romania, in a sunflower crop (EXPRESS hybrid). The following treatment variants were tested: halauxifen-methyl + tribenuron-methyl (50 g/ha) + Vivolt (0.1% V/V); halauxifen-methyl + tribenuron-methyl (50 g/ha) + ACTIROB B (0.5 L/ha); halauxifen-methyl + tribenuron-methyl (50 g/ha) + CODACIDE (1 L/ha); halauxifen-methyl + tribenuron-methyl (50 g/ha), without adjuvant; halauxifen-methyl (1 L/ha), single registered dose; and halauxifen-methyl (1 L/ha) + tribenuron-methyl (45 g/ha) + Vivolt (0.1% V/V). These were compared based on their efficacy in controlling Ambrosia artemisiifolia, expressed as a percentage. The results revealed significant differences among the tested variants. The treatment with halauxifen-methyl 1 L/ha, single dose, demonstrated the highest efficacy (95%), followed by the full combination of halauxifen-methyl (1 L/ha) + tribenuron-methyl (45 g/ha) + Vivolt (0.1% V/V) (87.5–90%). Other variants that included adjuvants such as CODACIDE or Vivolt, but with lower doses of active substances, achieved efficiencies between 80–85%, while variants without adjuvant (70–75%) or with less effective adjuvants (ACTIROB B – 75%) provided reduced control of the target weed. The study conclusions underline the importance of using high-quality adjuvants and optimal dosing in increasing the efficacy of herbicide treatments.

Keywords: Ambrosia artemisiifolia, sunflower, halauxifen-methyl, tribenuron-methyl, adjuvants.

89. Probiotic Intervention as a Tool for Pediatric Precision Medicine in Food Allergies and Obesity

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Abstract:
Food allergies and obesity are increasingly prevalent in pediatric populations, with growing evidence linking both conditions to gut microbiota dysbiosis. Probiotics have emerged as promising modulators of the intestinal microbiome, with potential therapeutic roles in regulating immune responses and metabolic pathways. This study investigates the clinical and microbiological impact of targeted probiotic interventions in two distinct pediatric cohorts: children with food allergies and children diagnosed with obesity.
We conducted a multicenter, observational intervention study involving children aged 4–12 years. Participants received a standardized probiotic formulation containing strains with documented immunomodulatory and metabolic benefits over a 12-week period. Fecal samples were collected pre- and post-intervention for microbiota profiling via 16S rRNA sequencing. Clinical outcomes were evaluated through allergy symptom scores, metabolic biomarkers (insulin resistance, lipid profiles), and quality-of-life assessments.
Preliminary data indicate significant shifts in microbial diversity and abundance of short-chain fatty acid-producing taxa post-intervention, correlating with improvements in allergy severity and metabolic markers. The results support the hypothesis that probiotic supplementation may restore microbiome balance and contribute to the alleviation of immunological and metabolic dysfunctions in children.
This work highlights the importance of microbiome-targeted therapies in pediatric precision medicine and underscores the potential of probiotics as adjunctive strategies for managing food allergies and obesity.

Keywords: microbiome, childhood obesity, allergies, probiotics, microbiome modualtion, allergies.

90. Antibacterial activity of *Crocus sativus* essential oil against selected phytopathogenic bacteria and its insecticidal potential

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Abstract:
Many studies have demonstrated the potential use of essential oils as a food preservative to extend the shelf life of food products. The essential oils has been shown to be effective against a wide range of microorganisms, both Gram-positive and Gram-negative bacteria. In combination, the antifungal and antioxidant activity of essential oils allows it to be substituted for synthetic preservatives. *Crocus sativus*, commonly known as saffron crocus, is a plant that looks delicately fragrant and produces stigmas. When harvested and dried, these stigmas become saffron. Saffron is a spice that has been used by humans since ancient times. It is one of the more expensive spices in the world, so its cultivation is of great economic significance wherever it is grown. The aim of our study was the investigation of the antibacterial potential of *Crocus sativus* essential oil against plant pathogens and its insecticidal activity. The bacterial species *Agrobacterium radiobacter, Pectobacterium carotovorum, Priestia megaterium, Pseudomonas syringae* and *Xanthomonas arboricola* were used to test the antimicrobial activity and insect *Megabruchidius dorsalis* was used for insecticidal effect. The antimicrobial activity was monitored by disk diffusion method under *in vitro* and gas phase conditions on fruit (strawberry) and vegetable (carrot) model. Under *in vitro* condition, the best antimicrobial activity was found against *X. arboricola*, and under *in situ* condition, the best antimicrobial activity were found against *A. radiobacter* on strawberry model and against *P. megaterium* on carrot model at the lowest concentration of *C. sativus* essential oil. The best insecticidal activity was found at the highest concentrations 100 % of *C. sativus* essential oil used. Our study demonstrated the antibacterial and insecticidal activity of *C. sativus* essential oil.

Key words: *Crocus sativus*, antibacterial and insecticidal activity, *in vitro, in situ.*

Acknowledgement: This research was funded by the grant APVV-20-0058 "The potential of the essential oils from aromatic plants for medical use and food preservation and by the grant VEGA 1/0059/24 "Chemical properties and biological activity (*in vitro, in vivo* and *in situ*) of plant volatile mixtures, their main components and inclusion systems.

91. *In vitro* and *in situ* antibacterial and insecticidal activity of *Fragaria ananassa* essential oil

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Abstract:
In folk medicine, the leaves and fruits of *Fragaria ananassa* are used as a vitamin-containing, anti-inflammatory, diuretic, diaphoretic and choleretic agent. It is used in the treatment of anemia, in diseases of the gastrointestinal tract. Besides, the leaves have a styptic, astringent, wound-healing effect and are used for preparation of infusions, tinctures and tea. Infusion and decoction of leaves are applied at inflammation of mucous membranes of an oral cavity, at a headache, at jaundice, as an antiseptic and externally - at rashes and dermatitis. Infusion of leaves of *F. ananassa* shows antibacterial activity with respect to various microorganisms. The essential oil of *F. ananassa* was used in this study to determine its antibacterial potential against Gram-negative and Gram-positive bacteria and its insecticidal activity against insect. Bacteria from the Czech Collection of Microorganisms *Bacillus subtilis, Paenibacillus larvae* and *Listeria ivanovii* from the group of Gram-positive bacteria and *Enterobacter aerogenes, Klebsiella pneumoniae* and *Shigella sonnei* from the group of Gram-positive bacteria were used in the study to test the antibacterial activity. *Megabruchidius dorsalis* was used as the model insect for insecticidal activity. The best antimicrobial activity was found against *P. larvae* under *in vitro* conditions, as well as under *in situ* conditions on pear and parsley models. Insecticidal activity against *M. dorsalis* was observed at the highest concentrations. *F. ananassa* essential oil demonstrated very good antibacterial activity against various bacterial species under *in vitro* and *in situ* conditions, as well as good potential against insects.
Key words: insecticidal activity, antibacterial potential *in vitro* and *in situ*, *Fragaria ananassa* essential oil.

Acknowledgement: This research was funded by the grant APVV-20-0058 “The potential of the essential oils from aromatic plants for medical use and food preservation and by the grant VEGA 1/0059/24 “Chemical properties and biological activity (*in vitro, in vivo* and *in situ*) of plant volatile mixtures, their main components and inclusion systems.

92. Antifungal activity of *Lonicera caprifolium* essential oil against selected phytopathogenic fungi and its insecticidal activity

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Abstract:
Honeysuckle (*Lonicera caprifolium*) essential oil is extensively used in aromatherapy to improve mood and well-being, along with several therapeutic health benefits. Honeysuckle essential oil is believed to possess various beneficial biological properties. Its anti-inflammatory, antioxidant, and antimicrobial

properties make it a wonderful oil for the prevention of bacterial and fungal infections and for the relief of aching joints and sore muscles. In our work, the main objective was to monitor antifungal activity against plant pathogens and insecticidal activity. Among the microscopic filamentous fungi, *Monilia fructigena, Fusarium solani, Botrytis cinerea,* and *Trichoderma harzianum* were used for antimicrobial activity and *Megabruchidius dorsalis* for insecticidal activity. Fruit and vegetable models (apricot and radish) were used for *in situ* studies. For *in vitro* antifungal activity, it was found that *Lonicera caprifolium* essential oil was the most effective against *Botrytis cinerea*. On the fruit and vegetable model, the best antifungal activity was found against *M. fructigena* on both tested models*. L. caprifolium* essential oil proved to be a suitable antimycotic agent against phytopathogenic fungi and insecticidal agent against *Megabruchidius dorsalis*.

Key words: microscopic filamentous fungi, insecticidal and antifungal potential, in vitro and in situ condition, *Lonicera caprifolium* essential oil.

Acknowledgement: This research was funded by the grant APVV-20-0058 "The potential of the essential oils from aromatic plants for medical use and food preservation and by the grant VEGA 1/0059/24 "Chemical properties and biological activity (*in vitro, in vivo* and *in situ*) of plant volatile mixtures, their main components and inclusion systems.

93. Insecticidal activity and antimycotic effect of *Pinus silvestris* essential oil against yeasts of the genus *Candida*

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Abstract:
Nowadays, the attention of researchers in this field is focused on the discovery of new bioactive compounds, which can be used for various purposes. A large group of such compounds is represented by phenolics. The common pine is a coniferous tree with a wide range of pharmaceutical and food processing applications, in addition to its use as a timber tree. With a high environmental flexibility, its more efficient use will emphasize the qualities of bioactive compounds with a beneficial role on human health. The aim of our work was to investigate the antifungal potential of *Pinus sylvestris* essential oil against introduced species of *Canida* yeasts and its insecticidal activity against the insect *Megabruchidius dorsalis*. The antifungal activity was monitored against the yeasts *C. albicans, C. glabrata, C. krusei, C. parapsilosis,* and *C. tropicalis* under *in vitro* conditions by disc diffusion method and under *in situ* conditions in a fruit and vegetable model. The highest concentration of *P. silvestris* essential oil showed the best insecticidal activity against the insect *M. dorsalis*. The best antifungal activity of *P. silvestris* essential oil was found against the yeast *C. albicans* under *in vitro* conditions. In the apple model, the best antimicrobial activity was found against the yeast *C. albicans*, and in the carrot model, the best antimicrobial activity was found against the yeast *C. tropicalis*. The results of our work suggest that *P. silvestris* essential oil has a good repellent potential and can serve as an antifungal agent against yeasts of the genus *Candida*.
Key words: *Pinus silvestris* essential oil, anti-candidal activity, insecticidal potential.

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94. *Thuja occidentalis* essential oil: *in vitro* and *in situ* antibacterial potential against phytopathogenic bacteria and insecticidal activity

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Abstract:
Essential oils derived from many aromatic plants are well known to have cytotoxic, antioxidant, antifungal, insecticidal, and antimicrobial activities. In folk medicine, *Thuja occidentalis* has been used to manage bronchial catarrh, enuresis, cystitis, psoriasis, uterine carcinoma, amenorrhea and rheumatism. However, these days, due to improper use of drugs, germs are developing antibiotic resistance day by day. New diseases are emerging as a new menace. To solve such problems, new drugs have to be investigated and developed. Plants are rich resources of antimicrobial components. Different essential oils are used in everyday life to combat bacterial and fungal diseases. The aim of our work was to investigate the antimicrobial activity of *Thuja occidentalis* essential oil under *in vitro* and *in situ* conditions, and the insecticidal activity against *Megabruchidius dorsalis*. Bacteria *Xanthomonas arboricola, Pectobacterium carotovorum, Pseudomonas syringae,* and *Agrobacterium radiobacter* were used under *in vitro* and *in situ* conditions. The bacteria tested under *in situ* conditions were used in fruit and vegetable models. Strawberries were used as the fruit and beetroot as the vegetable model. The best antimicrobial activity was found against *X. arboricola* using the disc diffusion method. Under *in situ* conditions, the best antimicrobial activity of *T. occidentalis* essential oil was found at the lowest tested concentration on the strawberry model against *P. carotovorum,* and on the beetroot model against *X. arboricola*. The greatest insecticidal activity of *T. occidentalis* essential oil was observed against *M. dorsalis* at the highest concentrations. *T. occidentalis* essential oil demonstrated very good potential for antimicrobial and insecticidal activity in our evaluation.

Key words: *Thuja occidentalis* essential oil, phytopathogenic bacteria, antibacterial and insecticidal effect.

Acknowledgement: This research was funded by the grant APVV-20-0058 "The potential of the essential oils from aromatic plants for medical use and food preservation and by the grant VEGA 1/0059/24 "Chemical properties and biological activity (*in vitro, in vivo* and *in situ*) of plant volatile mixtures, their main components and inclusion systems.

95. Antibacterial activity of *Picea mariana* essential oil against selected animal pathogens and insecticidal activity against *Megabruchidius dorsalis*

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Abstract:
Black spruce has been used as a key ingredient in wound and bite healing balms for many years, largely due to the powerful antimicrobial and antiviral properties of the oil. These antimicrobial benefits have made black spruce an extremely popular ingredient for commercial domestic detergents, meaning that using the essential oil in your own personal cleaning routine can be an effective way to eliminate microorganisms. The objective of our work was to evaluate the antimicrobial and insecticidal activity of *Picea mariana* essential oil. The antimicrobial activity was evaluated against the Gram-negative bacteria *Escherichia coli, Salmonella enterica,* and *Yersinia enterocolitica*, and the Gram-positive bacteria *Enterococcus faecalis, Listeria monocytogenes,* and *Staphylococcus aureus* by the disc diffusion method. In addition, antimicrobial activity was determined under *in situ* conditions on pear and potato models. Insecticidal activity was determined against *Megabruchidius dorsalis* using different concentrations of the *P. mariana* essential oil. The best antimicrobial activity of *P. mariana* essential oil was found against *Escherichia coli* under *in vitro* and *in situ* conditions. Insecticidal activity was detected at the highest concentrations of 50 and 100 %. The results of our experimental work indicated that *P. mariana* essential oil has good antimicrobial and insecticidal properties and is a suitable agent against Gram-positive and Gram-negative bacteria, as well as against insect *M. dorsalis*.

Key words: *Picea mariana* essential oil, *Megabruchidius dorsalis, in vitro*, vapour phase, antimicrobial and insecticidal effect.

Acknowledgement: This research was funded by the grant APVV-20-0058 "The potential of the essential oils from aromatic plants for medical use and food preservation and by the grant VEGA 1/0059/24 "Chemical properties and biological activity (*in vitro, in vivo* and *in situ*) of plant volatile mixtures, their main components and inclusion systems.

96. Management Of Protected Areas And The Anthropogenic Impact On Them

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Abstract:
Protected areas represent natural treasures, and the anthropogenic impact on them can affect biodiversity, therefore it is very important to plan, coordinate and implement effective measures that can protect these areas. In Romania there are several types of protected areas, and the analysis of the anthropogenic impact on them is extremely important to ensure a balance between economic development and nature conservation in the long term.

Key words: protected areas, management, biodiversity conservation.

97. Strategies For Developing Ecological Tourism In Mehedinţi County

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Abstract
Practicing responsible tourism in Mehedinti County is very important because it allows for the protection of the environment but also for the valorization of the natural and cultural resources of this area. In this region, numerous ecotourism activities can be carried out, including visiting some of the objectives that we encounter, namely the Iron Gates National Park, the Danube Boilers, the Lilac Forest at Ponoarele, etc. Our study shows that Mehedinti County stands out for a multitude of strengths, namely: natural diversity, the beauty of the landscapes, the preservation of traditions, local gastronomy, etc., but there are also weaknesses that need to be improved, such as the difficult access to certain areas, the lack of human resources specialized in ecotourism. Local actors in Mehedinți County must get involved in implementing strategies to promote sustainable tourism and minimize the impact of tourism on the environment.

Keywords: development strategies, ecological tourism, environmental protection

98. Enzymatic Hydrolysis of Sheep Wool to Obtain a Plant Fertilizer

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Abstract
In our study, enzymatic hydrolysis techniques of sheep wool were applied in order to define the optimal hydrolysis conditions to obtain a product that can be used as a culture medium for the multiplication of microorganisms, with a potential effect in improving agricultural production, plant health and restoring soil biodiversity.
Hydrolysates obtained both by alkaline (chemical hydrolysis), as well as catalysed by lipases and proteases (enzymatic hydrolysis) were tested by disk diffusion method on agar media as a qualitative method for establishing the quality of inhibitor / nutrient of the products obtained by the different hydrolysis techniques.
Culture media formulations using as substrate the enzymatic hydrolysates of sheep wool were used for cultivate two types of microorganisms known to have positive effects on agricultural production, plan health, soil biodiversity (bacteria from the genera *Rhizobium* and *Bacillus).*
The obtained results demonstrate that, applying the enzymatic hydrolysis method, keratin hydrolysates can be obtained from raw sheep wool and from sheep wool thermally pretreated by pelletizing. Keratin hydrolysates obtained by applying the described methodology, not only that does not inhibit the development of tested microorganism, but can be used as culture media to grow the tested microorganisms. Keratin hydrolysates preserve their nutritional qualities if are stored at low temperatures (by freezing) and lose their nutritional qualities, if they are conditioned by dehydration at the water evaporation temperature.
Keywords: keratin hydrolysates*, Bacillus, Rhizobium*, sheep wool

99. Sustainable enzymatic approach for the release and detection of periplasmic peroxidases in *Escherichia coli*

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Abstract:
Chemical methods used for cell lysis during protein isolation and purification are often harmful to the environment and can introduce toxic compounds that affect the structure of the target proteins.

Mechanical methods, although effective, require expensive and sophisticated equipment. In the case of proteins expressed in the periplasmic space of bacteria, complete cell disruption is inefficient and reduces purification yield. Therefore, the use of hydrolytic enzymes acting progressively from the outside on the cell walls for the controlled release of periplasmic or even internal enzymes of interest is a desirable approach.
In this study, the optimal expression time for two recombinant peroxidases produced in *Escherichia coli* BL21 (DE3) was determined, both intracellularly and in the periplasm. The detection method for enzymatic activity was also optimized using (2,2'-azino-bis (3-ethylbenzothiazoline-6-sulfonic acid)) (ABTS) (2.5 mg/mL) and H_2O_2 (0.35%). Preliminary results indicated that citrate buffer at pH 4 is the most suitable for enzymatic reaction development. The reaction product (oxidized ABTS), which has a maximum absorbance at 420 nm, remains stable for at least 30 minutes, with a maximum absorbance value observed at 10 minutes of reaction. This method is further used to monitor peroxidase activity released progressively into the extracellular space through enzymatic degradation of the bacterial cell wall using hydrolases such as lysozyme. This enzymatic approach for isolating periplasmic proteins offers multiple advantages over chemical and mechanical purification techniques.

Keywords: recombinant peroxidases, protein expression, protein isolation, hydrolytic enzymes.

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100. Technological and nutritional suitability of some local cereals enriched with termites for pastification

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Abstract
The main aim of this study is to contribute to the development of termites and the suitability of our local cereals for pastification through the formulation of enriched pastes. Once the winged termites (Macrotermes subhyalinus) had been collected and the cereals (maize, rice and sorghum) purchased at nearby markets, they were subjected to technological treatments (sorting, winnowing, washing, drying and grinding). A mixing plan was drawn up using Expert Design software and enabled us to obtain cereal formulas with different levels of incorporation of M. subhyalinus. Physico-chemical, nutritional and rheological analyses were carried out on the raw materials and the pastes formulated. These analyses show that the water, ash, lipid, protein, carbohydrate and energy contents of M. subhyalinus are respectively 6.96g/100g DM; 3.47g/100g DM; 43.12g/100g DM; 48.75g/100g DM; 4.66g/100g DM and 601.44 Kcal/100g. With regard to the physico-chemical composition of the various formulas, the termite-enriched pastes have the following values: (8.61 - 13.91 g/100g DM) for water content; (1.69 - 2.57g/100g DM) for ash content; (7.68 - 20.72g/100g DM) for crude protein content; (3.48 - 16.63g/100g DM) for lipids; carbohydrate content (60.34 - 87.82g/100g DM) and, finally, for crude energy, the respective

differences (1940.28 - 1065.58 kJ/100g) were obtained. At the end of our work, it appears that our local cereals (rice, sorghum, maize) adapt well to pastification and that the enrichment of pasta based on M. subhyalinus has significantly increased the crude protein content and energy value of pasta formulated in this way, which can be used to reduce undernourishment.

Keywords: Formulation, *Macrotermes subhyalinus*, undernourishment, pasta, nutritional value.

101. Formulation and characterisation of a mushroom-based pate enriched with *Macrotermes subhyalinus*

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Abstract
The aim of this work was to produce and characterise termite-enriched mushroom-based pâté. To achieve this, the following methodology was adopted. Six formulas were generated by incrementing the additions of edible mushrooms and termites, named P-100, P-80, P-60, P-40, P-20, and P-CO. Various parameters were then evaluated, including pH, water-holding capacity, oil-holding capacity, foaming capacity, emulsifying capacity, thiobarbituric index and nutritional parameters. The results showed that water retention capacity ranged from 27.98 to 80.98%, and pH values from 5.55 to 6.06. Foaming capacities ranged from 1.12 to 2.43, while emulsifying capacity and emulsion stability values ranged from 48.05 to 39.74% and 97.29% to 80.64% respectively. After cooking the pâtés, physico-chemical analyses revealed that protein content ranged from 0.8 to 8.8%, fat content from 8.87 to 29.16% and dry matter from 64.53% to 32.25%. The TBA index fluctuated between 0.73 mg MDA/kg and 0.14 mg MDA/kg. The textural analyses carried out on the different pâtés varied between 29.17 N and 7.05 N. The hedonic test carried out on the different pâtés led to the conclusion that all the pâtés were appreciated by the panelists, with the emphasis on the p-60 formulation. This study has shown that it is possible to formulate termite-based pâtés. This new product would significantly increase the protein content, which would lead to better feeding.

Keywords: termites, fungi, hedonic test, nutritional values

102 Valorization of *Tithonia diversifolia* leaves in fish feed

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Abstract
The main objective of this present work is a contribution to the valorization of industrial effluent which is spent grain and legume leaves with the aim of reducing the production costs of fish feed. To achieve this,

the following methodology was adopted. Firstly, it was a question of harvesting and drying the fresh leaves of *Tithonia diversifolia*. Subsequently, using Excel VBA software, we were able to generate nine (9) iso-energy formulas. Thirdly, it was necessary to formulate the pellets themselves, carry out bromatological and rheological analyzes and finally carry out a profitability study. From this approach, it appears that the protein, lipid and crude fiber contents of the dried leaves of *T. diversifolia* were respectively: 26.63g/100g DM and 32.15g/100g DM; 3.93g/100g MS and 4.36g/100g. Furthermore, the physicochemical composition of the different pellets varies respectively between (87.50 - 91.30%) for dry matter; (31.07 - 37.19 g/100gDM) ash content; (8.93 - 13.59g/100gDM) for the lipid content; (21.02 – 34.23g/100gDM) for protein content. While the energy parameters oscillate between (21.8 - 38.88g/100gDM) for the carbohydrate content, and (319.19-320.68 Kcal/100g) for the energy value. Regarding the rheological characteristics, the buoyancy index of all 9 pellets presented buoyancy ≥ 75% and friability ranged between 25.82 and 32.34%. At the end of this work, it appears that the P2 pellet has fulfilled as many criteria as possible for the choice of the best formulation both in terms of physico-chemical results and for results in terms of rheological characteristics. Incorporating legume leaves into fish feed increases not only its protein content but also its energy value and its production cost.

Keywords: Legumes, pellet, formulation, buoyancy, rheological characteristics.

103 Formulation and characterisation of a light margarine based on oil from cockchafer larvae

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Abstract

Cameroon, like other developing countries in Africa, has a population that is growing exponentially. Most of the population is young and requires a daily food intake that is mainly energy-giving. Imports of margarines into Cameroon (2015-2016) amounted to USD 4.22 million. The aim of this study is to develop a light margarine based on chafer oil. To achieve this, 2 kg of adult chafer larvae were hot-pressed to extract the fat. After characterising the fat, an emulsion was made with soya milk and carrot juice. A mixing plan was generated and used to produce formulas for eight (08) margarines. The extraction yield was 55.6%. The acid and peroxide values of the sundew oil obtained were 4.8 and 13 respectively. At the end of these formulations, it emerged that only 03 margarines took in mass and presented good spreadability. At the end of the hedonic analysis, formula 961 was selected for its viscosity, colour, aroma and taste. It also had the following energy parameters: total sugar content 7.00 g/100g DM, fat content 69.75 g/100g DM, protein content 32.77 g/100g DM and energy value 804.30 Kcal. The viscosity of the latter was 74 mm2/s. The various acid values of the margarines obtained were below the codex alimentarius standard.

Keywords: beetle, *Rhynchophorus phoenicis*, fat, extraction, viscosity.

104 Walnut Meal as Feed Additive in Broilers Nutrition: Effects on Performance and Thigh Meat Quality

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Abstract
The aim of the study was to evaluate the effect of a 6% dietary walnut meal inclusion on the productive performance of broiler chickens and the quality of their meat. A nutritional trial was conducted on 80 Ross 308 broilers, raised under semi-intensive system conditions, housed on permanent wood shavings litter (10–12 cm thick) in pens of 3 m^2 (40 broilers per group, each housed in a single pen), with ad libitum access to feed and free access to water. At 42 days of age, six birds from each group were slaughtered, and thigh meat samples were collected.
The walnut meal supplementation negatively affected the final body weight. However, in terms of the proximate composition of thigh meat, a decrease in crude fat content was observed by the end of the experiment (12.66% vs. 10.49%). Moreover, significant improvements in lipid quality were recorded, with higher omega-3 concentrations (2.22% vs. 2.90%) and a more favorable omega-6 to omega-3 ratio (3.28 vs. 2.66). The synthesis of long-chain fatty acids appeared to be stimulated, as the concentrations of eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) were higher in the experimental group compared to the control.
In conclusion, walnut meal supplementation positively influenced the nutritional profile of broiler thigh meat by reducing fat deposition and improving lipid quality.

Keywords: broilers, walnut meal, fatty acids, crude fat, meat quality, productive parameters

105 Evaluating the Impact of *Castanea Sativa* on Functional Egg Traits Under Protein-Restricted Diets of Laying Hens

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Abstract
This study investigates the effects of *Castanea sativa* (chestnut) supplementation on egg quality in laying hens fed low-protein diets. Three dietary treatments were evaluated: control (CON), low-protein diet (LPD), and low-protein diet supplemented with Castanea sativa (LPC). Egg physical traits, internal and external quality parameters, chemical composition, antioxidant profile, and shelf-life under two storage temperatures (5°C and 22°C) were assessed. *Castanea sativa* demonstrated notable nutritional and antioxidant properties, with high levels of vitamin E (124.80 mg/kg), total phenolic content (45.68 mg/g GAE), and DPPH antioxidant activity (167.52 mM Trolox). *Castanea sativa* supplementation improved total polyphenol content in egg yolks (LPC = 0.52 mg/g GAE vs. CON = 0.25 mg/g GAE), increased eggshell breaking strength (LPC = 5.14 kgF vs. CON = 4.07 kgF), and maintained comparable levels of crude protein and fat. After 30 days at 22°C, LPC eggs retained higher albumen height (3.61 mm) and Haugh units (53.35) compared to CON (3.12 mm and 48.28, respectively), indicating better freshness. Similarly, yolk index was more stable in LPC (0.24) versus CON (0.22). At 5°C, all groups preserved quality better, but LPC still showed advantages in shell strength and yolk height (17.14 mm vs. 16.57 mm in CON). Compared to initial values, egg weight and albumen quality as expected, declined during storage across all treatments, especially at 22°C. However, LPC eggs exhibited the least deterioration, highlighting the protective role of *Castanea sativa*. These findings suggest that chestnut supplementation enhances egg antioxidant stability, maintains structural integrity, and egg quality during storage, offering a functional nutritional strategy for hens on protein-restricted diets.

Keywords: Egg quality; Laying hens; Egg storage stability; Protein quality; Functional feed; Additives.

106 Soxhlet Extraction of *Achillea Millefolium* Stem, Flowers and Leaves and Gc-Ms Analysis

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Abstract
Extraction is the first step in separating the desired compounds from plants. The extraction progresses through the following stages: (1) the solvent penetrates the solid matrix of the plant; (2) the solute dissolves in methanol; (3) the solute diffuses out of the solid matrix; (4) the solutes are collected in the extract. The properties of the extraction solvent, the size of the solid particles of the raw material, the solvent-solid ratio and the extraction time have a major impact on the extraction efficiency. This study aimed to test different extraction methods using methanol as an organic solvent to highlight the presence of phytochemical compounds from yarrow. Extraction from the stem, flowers and leaves was carried out using the soxhlet apparatus for a number of 16 extraction cycles. Maceration and ultrasound extraction was also performed using the same extraction solvent. To identify the presence of bioactive compounds extracted from the plant material, the organic extract was concentrated by evaporation and subjected to gas chromatography and mass spectrometry (GC-MS) analysis. Investigations have shown a higher percentage of compounds extracted using soxhlet extraction compared to other applied methods. GC-MS results indicated the presence of sesquiterpenes such as germacrene D (1.80%), monoterpenes such as geranyl-alpha-terpinene (1.69%), and also geranyllinalool (4.53%) which is an acyclic diterpene alcohol, but further studies are recommended for the quantification of pure phytochemicals in yarrow for use in the pharmaceutical industry.

Keywords: GC-MS, phytochemicals, extraction methods, *Achillea millefolium*

107 Therapeutic potential of synthetic compounds in neurodegenerative pathology

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Abstract
Neurodegenerative disorders are characterised by the progressive loss of neuronal cells, resulting in different clinical symptoms depending on the brain region affected. Although there are drugs available to treat these pathology, they have relatively low efficacy and are not able to alter the evolution of the disease. It is necessary to obtain new active compounds that involve low costs and reduced time for development. Morpholine derivatives cause various biological activities, showing promise for the treatment of central nervous system (CNS) disorders. These derivatives have no structural analogues of natural origin, being synthetically obtained. The metabolism of these compounds can be difficult and toxicity increased. The reasons are numerous, ranging from inadequate understanding of CNS biology to the lack of experimental models, and also due to the effects associated with the blood-brain barrier (BBB), a dynamic and selective membrane that restricts the flow of exogenous agents, thus requiring fine chemical modifications of therapy candidates. In general, agents with large size, large surface area with polar areas and a high degree of hydrogen bonds, are not compatible with the passive diffusion of molecules through BBB. The blood-brain barrier is a unique and complex multicellular structure, being a semipermeable filter that allows the passage of O2, CO2, water and small molecules, while restricting the entry into the CNS of pathogens and most macromolecules. The BBB is a unique and complex multicellular structure, being a semipermeable filter that allows the passage of O2, CO2, water and small molecules, while restricting the entry into the CNS of pathogens and most macromolecules. BBB consists mainly of pericytes, astrocytes, basal membrane, neurons and endothelial cells. Between the endothelial cells, occlusive junctions are established that obstruct the passage of various molecules. Morpholine has physicochemical characteristics for generation of new drugs for brain pathology, being a possible candidate with increased efficiency for BBB penetration.

Keywords: morpholine-derived compounds, neurodegenerative diseases, blood-brain barrier

108 GC-Ms Analysis of Turmeric Dried Milled Rhizomes

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Abstract
Turmeric, also called "The Golden Spice", is a rhizomatous herbaceous perennial plant belonging to the ginger family Zingiberaceae. Modern medicine has begun to recognize its importance in the last 25 years, as evidenced by the presence of numerous articles published in specialized literature. Curcumin, also known as diferuloylmethane, is the main curcuminoid found in the rhizomes of turmeric. The extraction process is a crucial step in the recovery of bioactive compounds from the plant matrix. This study focused on the extraction of turmeric, using the conventional Soxhlet technique. The advantage of the chosen technique is conferred by the recirculation of the extraction solvent, which leads to the processing of a larger amount of material with a lower solvent cost and an increased extraction yield. Thus, the extraction was carried out using different organic solvents such as: acetone, ethanol and methanol and the chemical content of each extract was investigated using gas chromatography coupled with mass spectrometry (GC-MS). The GC-MS data revealed a high degree of similarity in the chemical profile of the extracts. The extraction solvents did not affect the concentration of the major compounds such as AR-turmerone (32.64%), curlone (12.53%) and curcumin (5.55%), instead it had an impact on the minor constituents. Constituents such as 2-methoxy-4-vinylphenol, a member of the phenol class represented cca. 3.57% and α-zingiberene a phytochemical from the sesquiterpene class represented cca. 0.68%.

Keywords: Curcumin, GC-MS, Soxhlet, bioactive compounds

109 The Influence of Tumor Microenvironment on the Progression of Glioblastoma

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Abstract
Glioblastoma (GBM) is a prevalent and highly aggressive primary brain tumor originating from glial cells. The etiology of GBM remains incompletely understood, although certain risk factors (advanced age, exposure to ionizing radiation, and specific genetic mutations) have been identified. TME in GBM is a multifaceted and dynamic system consisting of diverse cell types and extracellular matrix constituents. The TME comprises tumor cells, immune cells (macrophages,T and dendritic cells), stromal cells (fibroblasts, endothelial cells), and soluble factors (cytokines, growth factors). Several unique features characterize the TME in GBM, such as a disrupted blood-brain barrier, hypoxia, acidosis, and a highly immunosuppressive milieu, which collectively contribute to the disease's invasive and aggressive nature and its resistance to conventional therapies like chemotherapy and radiation. Immune cells within the TME can exert pro- or anti-tumor functions, but in GBM, the balance favors a pro-tumor environment. Tumor-infiltrating lymphocytes are scarce in GBM, and their function is often impaired or immunosuppressed. Tumor-associated macrophages (TAMs) are the most abundant immune cell type in the TME, making up to 30% of the tumor mass. TAMs in GBM have a distinctive pro-tumor function characterized by the low production of inflammatory cytokines, the lack of T cell co-stimulation, and the release of immunosuppressive factors. In addition to immune cells, stromal cells and extracellular matrix constituents within the TME can also contribute to tumor growth and invasion. For instance, astrocytes and neurons can provide mitogenic signals to promote tumor growth, while extracellular matrix constituents like hyaluronic acid and tenascin-C can enhance tumor invasion and metastasis. The intricate and dynamic interactions within the TME in GBM pose significant challenges for developing effective therapies. The importance of TME has led to research and engineering of models to allow better understanding of TME, its interaction with the tumor and its effect on tumor progression.

Keywords: tumor cells, extracellular matrix, glioblastoma

110 Effects of matrix metalloproteinase-9 and cortisol in the early puerperium

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Abstract
Matrix metalloproteinase-9 (MMP-9) belongs to the matrix family of metalloproteinases involved in the local proteolysis of the extracellular matrix and tissue remodelling, and cortisol is the stress-associated hormone. The disorder of each one can induce delayed tissue healing or long depressive symptoms. In the early puerperium (in this case the first three days postpartum), clinical data and analyses of 40 mothers who gave birth in July 2022 at the Obstetrics and Gynaecology Clinic of the "Pius Brînzeu" County Emergency Clinical Hospital in Timişoara were collected. All adult mothers with a mean age of 29.97 years had a mean level of MMP-9 M = 144.57 ng/ml, SD = 33.67 ng/ml, and mean serum cortisol M = 24.79 µg/dl, SD = 6.39 µg/dl. Between them is a significant mean negative Pearson correlation r = 0.4 and $p < 0.05$. The Spearman correlation indicated a small insignificant negative relationship ($p > 0.05$) of cortisolemia with education, r = 0.24, depression, r = 0.03, postpartum anxiety, r = 0.15. Cortisolemia, in simple linear regression, does not explain ($p > 0.05$) depression, $R^2 = 0.04$, $\beta = -0.02$, or anxious state, $R^2 = 0.03$, $\beta = -0.02$. Logistic regression has been shown to significantly predict cortisol and MMP-9 levels ($p < 0.05$). Serum concentrations of MMP-9 are similar to the literature and it has been proven that during childbirth and early puerperium the balance of MMP-9/tissue metalloproteinase inhibitors is altered, favouring tissue degradation and remodeling of the postpartum endometrium; MMP-9 is also present in breast milk in concentrations that do not change significantly in relation to milk maturation. MMP-9 intervenes in the recovery and health of postpartum mothers, and cortisol is essential for their physical and mental health.

Keywords: early puerperium, MMP-9, cortisolemia, tissue remodelling

111 Integrated Multi-Trophic Aquaculture in the context of the circular economy - Review

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Abstract
Aquaculture is among the fastest-growing industries worldwide, playing a key role in feeding a continuously expanding global population. This accelerated development calls for the adopting of innovative technologies, efficient culture systems, and sustainable production practices. In this context, recirculating aquaculture systems (RAS) are considered a strategic solution for meeting the increasing demand for aquatic products, thanks to their capacity to optimize resource use and reduce environmental pressure. Additionally, the integration of new and adaptable species into Integrated Multi-Trophic Aquaculture (IMTA) or aquaponic systems, especially in freshwater environments, significantly enhances the efficiency and sustainability of modern aquaculture. Integrating IMTA into RAS enables efficient water use, more rigorous biosecurity control, and a significant reduction in nutrient emissions. Moreover, incorporating hydroponic components enhances the benefits of these systems by allowing the cultivation of edible plants that utilize residual nutrients and contribute to strengthening the circular nature of the system. Through resource valorization, waste reduction, and production diversification, IMTA emerges as a key model for modern, sustainable, and responsible aquaculture, with a positive impact on ecosystem health and global food security. This review synthesizes the most recent research on IMTA, highlighting its potential in the transition towards sustainable aquaculture, in full alignment with the principles of the circular economy. IMTA involves the co-cultivation of species from different trophic levels within a system that transforms organic and inorganic waste into valuable resources for other cultured organisms. This model optimizes nutrients use, reduces environmental impact, and diversifies production, while also offering additional economic opportunities.

Keywords: Integrated Multi-Trophic Aquaculture; circular economy; recirculating aquaculture system

112 Mechanistic insights into biofilm-related processes of *Campylobacter jejuni*: control strategies in poultry settings

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Abstract
Campylobacter, especially *C. jejuni*, remains a central zoonotic threat globally, with poultry production acting as the dominant source of human infections. In recent times, human campylobacteriosis cases have increased, increasing the need to better understand how the pathogen survives and spreads. One of the key factors aiding *C. jejuni* persistence is its ability to form biofilms, which has a significant input in contaminating poultry products. This review outlines the steps involved in biofilm development.
Campylobacter's capacity to attach and grow on surfaces such as stainless steel, plastic, and glass serves as a fundamental mechanism for survival. These biofilms, known for their durability, shield the cells from harsh conditions like extreme pH levels, desiccation, and chemical sanitizers. The article delves into the genetic and molecular pathways behind biofilm formation, focusing on genes regulating environmental sensing, movement, and stress adaptation. Key structural proteins such as *flaA*, *flaB*, *flaG*, and adhesion molecules like *cadF* and *flpA* are central to biofilm development. Additionally, the role of polymicrobial biofilms, where *Campylobacter* joins biofilms formed by other microorganisms to increase chances of survival, is explored. Given the growing concern over antimicrobial resistance, the review also examines alternative approaches to reduce *C. jejuni* in poultry farming. These include the use of synbiotics, probiotics, prebiotics, bacteriocins, bacteriophages, vaccines, and organic acids. Their mechanisms, ranging from inhibiting colonization to disrupting biofilm structure, are discussed. Compounds like Carvacrol and Eugenol, as well as acid blends, have been shown to suppress genes linked to adhesion and movement, weakening biofilm formation. Environmental elements such as oxygen concentration and temperature also influence biofilm behavior. By understanding how these factors affect biofilm growth, strategies can be developed to optimize industrial settings and reduce contamination risks.
In conclusion, controlling *Campylobacter* in poultry requires a comprehensive strategy that combines genetic insights with targeted interventions. Enhancing our knowledge of biofilm biology and regulatory mechanisms is vital for developing better food safety solutions and safeguarding public health.

Keywords: *Campylobacter*, biofilms, poultry, mechanisms, inhibition, persistence

113 Studies on the antibacterial capacity of some *Thymus pulegioides* extracts

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Abstract
Thymus pulegioides is a well-known aromatic plant, increasingly used in traditional and modern medicine, and recently in the pharmaceutical industry. Over time, thyme has been used in traditional medicine to treat various types of diseases, such as: gonorrhea, respiratory, liver and kidney diseases, stomach pain, hypertension, bacteriological and fungal dermal infections. Among the biological properties of thymus extracts: antibacterial, antifungal, analgesic, antioxidant, antispasmodic and antimutagenic properties can be listed. Studies on the chemical composition of thyme essential oil have highlighted thymol and carvacrol as primary compounds. Ethanol extracts from the root and young branches of thyme were tested by applying the cell viability test for antibacterial capacity. The spectrophotometric method used allowed the determination of the inhibition rate (%) determined by the biologically active compounds present in the ethanolic extract. The study was conducted on standardized bacterial strains: *Staphylococcus aureus* (ATCC 25923), *Streptococcus pyogenes* (ATCC19615) (Gram+ bacteria), and *Escherichia coli* (ATCC 25922) (Gram- bacteria). The antibacterial effects of the tested *T. pulegioides* extracts varied depending on the type of vegetative organ from which the extract was made, the concentration of the ethanolic extract tested, and the bacterial strain studied. The antibacterial effect of *T. pulegioides* leaf extract in the bacterial strains studied decreases: *Staphylococcus aureus* > *Streptococcus pyogenes* > *Escherichia coli*. The antibacterial effect of *T. pulegioides* stem extract in the bacterial strains studied decreases: *Staphylococcus aureus* > *Escherichia coli* > *Streptococcus pyogenes*. The biologically active compounds in the tested extracts showed a more obvious antibacterial effect on Gram+ bacteria compared to Gram-.

Keywords: bacteria, cell viability, ethanolic extract

114 Hormonal control of estrus in the non-breeding season of Turcana breed sheep

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Abstract
Reproduction management in sheep microfarms is a key element in increasing fertility, birth rate and economic and financial impact at the farm level. Fertility in microfarms is influenced by the ability to induce estrus and ovulation in non-breeding season, as sheep are acyclic animals. Factors that influence estrus induction and ovulation can be represented by: breed, season, photoperiod, duration of the lactation period, nutritional and health status of the sheep, duration of the postpartum period, the ratio between the number of rams and ewes, the time of introduction of the ram into the flock, administration of hormonal preparations, type of hormonal preparation and administration schedule. The administration of hormonal preparations in sheep plays a major role in the synchronization of estrus and the control of reproduction in non-breeding season: among the hormones most frequently used for this purpose we mention: progestogens, PGF2α and its analogues, pregnant mare serum gonadotropin (PMSG or eCG), gonadotropin-releasing hormone (GnRH), melatonin which is administered alone or in combination with other hormones. Among these, progestogens are the most frequently used during but also in non-breeding season, PGF2α and its analogues are used during the breeding season, and melatonin is usually used in non-breeding season. The current concerns of many groups of researchers are related to studies on the mode of action of hormonal preparations for inducing and synchronizing estrus, respectively stimulating ovulation in sheep in the non-breeding period to ensure increased birth rates in microfarms.

Keywords: fertility, birth rate, progestogens, melatonin

115 The Polymorphism of the Alpha-S1 Casein Gene and Its Influence on Milk Composition in White Banat Goats

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Abstract
Romania ranks third in goat breeding within the EU, with over 1.6 million goats, primarily Carpathian and a smaller proportion of White Banat breeds. The White Banat dairy breed, resembling its paternal ancestors, emerged from crossbreeding White German and Saanen goats with local Carpathians females in southwestern Romania. Casein-rich goat milk is essential for cheese production, sustaining small producers who dominate goat farming in Romania. Strong alleles (A, B) of the CSN1S1 gene are linked to higher casein content and cheese yield, while the defective F allele significantly reduces alpha S1-casein synthesis (3.5 g/L to 0.45 g/L) due to exon skipping and RNA instability caused by an SNP deletion in exon 9. This study aimed to evaluate the frequency of the main CSN1S1 alleles (A, B, and F) and genotypes, and their effect on milk composition in White Banat goats. Blood samples from 88 goats at the SCDCOC Caransebes Research Station were genotyped using PCR-RFLP analysis of exon 9. Milk samples collected individually from these genotypes twice during lactation, were analysed using a MilkoScan device (Foss Electric). Milk composition parameters (e.g. total protein, casein, milk fat, non-fat solids, dry matter etc) were assessed in relation to CSN1S1 genotypes, grouped as follows: Group 1 (AA, AB, BB), Group 2 (AF, BF), and Group 3 (FF). Genotyping revealed a high frequency of the defective F allele (0.32), homozygous FF (0.19), and heterozygous AF or BF (0.26) genotypes. Group 1 genotypes positively influenced milk composition, essential for cheese yield, whereas genotypes carrying at least one copy of the F allele negatively affected these parameters. Selecting strong expression alleles could improve milk composition in White Banat goats, benefiting breeders.

Keywords: White Banat goat, alpha-S1 casein, genotypes, milk composition

116 Overview of the Effects of Bee Pollen on the Intestinal Microbiota and Productive Performance in Broiler Chickens

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Abstract
Bee pollen is a natural substances which honeybees (*Apis* genus) produce, currently showing rising potential as feed additives for broiler chicken nutrition. The aim of the present overview is to summarise the recent studies about bee-derived product such as bee pollen and its chemical composition, effects on the gastrointestinal system, and the productive characteristics of broiler chicken during feed trials. Reviewed studies indicated that adding pollen at concentrations between 0.5% to 2 % (5 to 20 g/kg) in the diet offers a richness of protective bioactive compounds that exhibit antioxidant, antimicrobial, and anti-inflammatory capacities together with natural multivitamin-rich contents found in bee pollen. Many studies from the literature illustrate how bee pollen supported intestinal health by improving the populations of beneficial bacteria, namely *Lactobacillus* populations and gut structures, favouring enhanced nutrient absorption. Different studies have been reported that dietary interventions showed positive effects on blood biochemical parameters, impacted growth performance as well as improved meat quality and feed conversion ratio. In conclusion, this review documented that bee pollen demonstrated beneficial potential as supplements in poultry nutrition, paving the way towards healthier meat production from broiler chicken, that prioritizes sustainable poultry farming.
Keywords: Honeybee (*Apis mellifera*), Pollen, Poultry, Performance indices, Growth parameters, Apiculture

117 Equine Welfare: Review of some benefits from Herbal and Plant-Based Therapies in Horses

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Abstract
Herbal, or botanical medicine, is the foundation of modern pharmaceuticals and can be used to promote optimal health and remedy a wide range of issues. Botanical-based horse care often aims to support health, enhance performance, and aid in the management of various conditions. Here are some common plant-based therapies and approaches used in equine care: simple herbal uses (dried cuts, powders, tinctures, teas), essential oils (in proper dilutions, essential oils can be beneficial due their aromatherapy properties and topical applications), dietary supplements (from herbs, seeds, other botanical sources

enhance the diet), homeopathy and flower essences (combine homeopathic treatments or flower essences, such as rescue remedy, for behavioral issues or stress), ayurvedic and traditional Chinese veterinary medicine (old practices often use plant-based remedies, focusing on balancing the horse's energy and bodily systems while combining acupuncture, herbal formulas, and dietary), nutraceuticals (plant-derived compounds that offer health benefits beyond basic nutrition: antioxidants, probiotics, and prebiotics derived from plant sources). Plant-based therapies encompass a range of alternative and complementary treatments that utilize herbal/botanical supplements for health, manage chronic conditions, and support conventional treatments. As herbivores, horses naturally seek out various plants for self-treatment. Herbal supplements are increasingly recognized for their potential health benefits, especially when supported by scientific research. These products can aid in various equine health: joint support, digestive and respiratory health, reproduction and others. The efficacy of herbal supplements can vary based on individual horse needs, so tailored approaches are always the most beneficial. The dietary herbal supplements market appears to have a positive growth trajectory, fueled by increasing consumer interest in natural and alternative health solutions. While plant-based therapies can be a valuable part of holistic equine care, providing beneficial alternatives to conventional treatments, caution is essential. Research and professional guidance are crucial to ensure the health and well-being in horses.
Keywords: herbal therapy, botanical based diet, horse

118 Stereotypies and Vices as signs of Stress in Leisure Horses

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Abstract
Stereotypic behaviors in horses are repetitive, invariant behavior patterns that seem to have no obvious purpose and are often associated with stress, frustration, or environmental factors. These behaviors are considered unwanted and can be disruptive to both the horse's well-being and management. The available scientific literature emphasizes the significance of environmental conditions, social interactions, and individual factors in the expression of these stereotypic behaviors.
While domestic horses in free pasture settings are generally better off and less prone to stereotypies than those kept in boxes or other confined spaces, they can still exhibit some behaviors and vices under certain conditions. Attention to their social structures, environmental enrichment, health care, and overall well-being, crucial to maintaining a healthy, happy group. Proper management aims to enhance their quality of life and prevent the emergence of undesirable behaviors.Surveys and questionnaires distributed among horse owners, riders and trainers, confirmed that box full living conditions, are not an optimal mood, even the studied horses are having daily training and paddock sessions. In some cases almost a half of them registered unwanted stereotypes. Of course, understanding the individual temperament or past experiences that influence behavior, always may provide a more large area of view. Among these behaviors, cribbing and weaving are generally the most widely recognized and studied stereotypies, especially in stabled horses. Box walking and pawing also ranks high in frequency, while windsucking is less common but still noteworthy. Tail swishing is common but not always classified as a stereotypy, as it can be a normal response to environmental stimuli. Recognizing the type and the underlying causes and making appropriate changes to a horse's management and living conditions can help mitigate these unwanted behaviors and improve their overall welfare.
Keywords: cribbing, weaving, pawing, windsucking, tail swishing

119 Insights Into the Genetic Background of Tsurcana Sheep Based on Autosomal SNP Markers: Can its Ecotypes be Considered Breeds?

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Abstract
In Romania, the sheep population exceeds 10 million, with the Tsurcana breed being the most prevalent, raised for milk, meat, and wool. The first records of differentiated ecotypes within this breed appeared after 1960. Small populations emerged in few geographical areas: Bala in Alba, Oachesa in Alba and Bistrita, and Bucalaie and Breaza in Hunedoara, through empirical selection from local populations, or undocumented crossbreeding. After 1980, these ecotypes spread mainly within the Carpathian Basin, where crossings with other heterogenous Tsurcana populations expanded their gene pool but also significantly increased their phenotypic variability. Although these ecotypes exhibit phenotypic differences, a fundamental question remains: Can they be classified as distinct breeds from a genetic perspective? To investigate the genetic background of Tsurcana ecotypes and their relation to other Romanian and Euro-Asian breeds, we used the GGP Ovine 50K chip to genotype samples from Tsurcana ecotypes e.g. Bala (N=45), Oachesa (N=22), Bucalaie (N=32), Breaza (N=13) and Tsigai (N=47), Racka (N=30), Karakul (N=24), Palas Merino (N=21) and Transylvanian Merino (N=20) breeds. An additional dataset from other breed, e.g. Australian Merino (N=24), Spanish Merino (N=13), Hungarian Merino (N=24), Romanov (N=10), Alai (N=15), and Gisr (N=15), was used for comparison. PCA analysis of autosomal SNPs revealed that Tsurcana and Tsigai clustered between Merino-type, Asian-type breeds, and Racka, consistent with population structure analysis indicating an admixed genetic background. When comparing Tsurcana ecotypes alone, PCA and structure analysis showed differentiation among Bala, Oachesa, and Bucalaie, while Bucalaie and Breaza shared a common genetic background, likely due to their close geographic origin. Although some populations within the same ecotype exhibited genetic homogeneity, differentiation increased across populations despite shared phenotypic traits, likely due to inconsistent breeding and uncontrolled crossings. To classify these ecotypes as distinct breeds, an appropriate breeding plan, combined with genomic monitoring, must first be implemented.

Keywords: Tsurcana, ecotypes, breeds, genetic background, SNP markers

120 Differentiating Farm Animals and Game Species from Biological Samples Using Mitochondrial and Autosomal DNA Markers

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Abstract

Labeling meat products with their species of origin and the proportion of mixed ingredients is essential for consumer protection and fair competition among producers. Fraud often involves substituting expensive raw materials with cheaper alternatives, such as replacing beef with pork. In niche game meat products, fraud may include substituting wild boar with pork or replacing deer and roe deer with other ruminants. DNA-based species-specific markers provide an effective tool for preventing such practices. This study evaluated a DNA-based method for species identification in reference samples from farm animals (cattle, sheep, goats, and pigs) and game species (wild boar, red deer, and roe deer). Fragments of the mitochondrial cytochrome B gene (*MT-CYTB*) were amplified using species-specific primers, separated via 2.5% agarose gel electrophoresis, and sequenced for comparison. Similar-sized PCR fragments from pigs and wild boar, as well as red deer and roe deer, were sequenced. Additionally, a fragment from exon 1 of the melanocortin receptor 1 (MC1R), a key pigmentation-related gene, was amplified in pigs and wild boar samples using a single set of primers and sequenced. Electrophoresis showed that cattle, sheep, and goats could be differentiated based on species-specific *MT-CYTB* fragment sizes, including from the Sus genus (pig and wild boar) and deer samples. Sequencing of *MT-CYTB* fragments successfully differentiated red deer and roe deer due to a high number of polymorphic SNPs, while pig and wild boar remained indistinguishable due to low polymorphic content. Sequencing of the *MC1R* amplicon confirmed the presence of the wild-type E^+ allele in wild boar. This allele functioned as a genetic marker for distinguishing wild boars from domestic pig breeds, such as Large White, Bazna, and Duroc, which carried different *MC1R* alleles. This method is currently being tested on meat products in the market.

Keywords: meat products, game meat, authenticity, DNA markers

121 Innovative digital tools applied to sustainable Meat Science and Technology Higher Education: a link between industry and academia

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Abstract
InnoMeatEdu educational platform focuses on the development and implementation of innovative digital tools used for education in the field of Meat Science and Technology. The platform also serves as a bridge between the industry and academia, offering innovative digital learning materials aimed at students, educators, and professionals in the meat sector.
The educational content was selected based on a review of current academic curricula at participating universities and feedback from the meat industry regarding skills gaps observed in their technically specialized workforce. The developed digital materials cover topics such as meat production and processing, safety, quality, entrepreneurship, and sustainability in the meat sector.
This material will be freely accessible as Massive Open Online Courses (MOOCs) through an interactive platform developed as part of the project and made available in multiple languages. InnoMeatEdu is founded on collaboration between various academic institutions and industry partners, involving numerous meat-related enterprises and organizations. This partnership connects the academic community with the meat industry, initially through associated partners and via the interactive platform, which will serve as a dissemination tool for educational content to all stakeholders.
The project team consists of six partners—including European universities, research institutions, and businesses—and more than 35 associated partners, mainly meat industry companies and associations related to meat and food science and technology from across Europe. InnoMeatEdu, funded with support from the European Commission (KA220-HED Erasmus+ Cooperation Partnerships- 2022-1-ES01-KA220-HED-000087202) aims to leverage Europe's human and social capital from higher education institutions and the meat industry to facilitate knowledge and expertise exchange in meat science and technology. It also seeks to establish a network that provides continuous learning, training opportunities, and collaboration among stakeholders.

Keywords: Lifelong education, Knowledge transfer, Meat industry, Industry-academia collaboration

122 Quality Parameters of Pasteurised Liquid Egg

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Abstract
Currently, the main egg-derived products are liquid (refrigerated or frozen) and dehydrated products (egg powder). Regardless of the advancements in egg preservation or processing techniques, it is essential that these products strictly comply with a series of food safety conditions, while maintaining their nutritional qualities. Consequently, through this paper, we aimed to analyze specific quality indicators of pasteurized egg melange. The working material was sourced from two producers, with determinations carried out on day 0 (upon opening the packaging), day 4, day 7, and day 11, with the products being stored under refrigeration. The analysis of the data corresponding to the four time points allowed us to conclude that the analyzed products maintained a high level of quality, even beyond the expiration date specified by the manufacturer.
Keywords: quality, pasteurized egg, melange, egg products.

123 Quality Parameters of Selected Scalded-Curd Cheese Varieties Marketed in Supermarkets

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Abstract
Although recent years have seen an increase in demand for dairy-derived products, this trend has also brought about additional requirements concerning quality assurance. The quality of scalded-curd cheeses sold in supermarkets can be influenced by a wide range of factors, both along the production chain and during transportation and retail distribution. Under these circumstances, we aimed to analyze selected products from this category through a series of physicochemical tests, in order to obtain specific information regarding their quality. We analyzed two types of semi-hard cheese — Dalia and Rucăr — produced by three well-established dairy processors. The overall conclusion of the study was that both processors and distributors complied with the necessary hygiene and quality standards, as evidenced by the final properties of the examined products.
Keywords: dairy products, quality, cheese.

124 The importance of biobelts from the point of view of the biodiversity of epigeic groups

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Abstract
The importance of biobelts lies mainly in the natural greening of the ecosystem. The loss of biodiversity is currently one of the biggest problems and the final challenge we face. The agricultural landscape is becoming increasingly less suitable habitat for many species of plants and animals. The answer to the decreasing biodiversity in the agricultural landscape is various measures that support biodiversity. The aim of the work was to evaluate the abundance, structure and dominance of the occurrence of epigeic groups present in biobelts in the southwestern part of Slovakia. Biobelts perform many primarily positive functions within agroecosystems. The ground trap method was used to determine the presence of epigeic groups. 19 taxonomic groups were obtained, with a dominant representation of Coleoptera, Collembola, Acarina, Formicoidae, Opilionida Araneida. From the point of view of biodiversity, minorly represented groups such as Heteroptera, Diplopoda, Chilopoda, Dermaptera, Lumbricidae, etc. are also important. The calculated diversity index reached a value of 2.243 in the 1st year and 1.778 in the 2nd year. The faunal similarity of the variants reached a value of 94.44%. Despite the fact that these are ecological areas intended for target groups of animals, in the case of all types of biobelts, these are areas from which the entire biosystem benefits
Keywords: biodiversity, biobelts, epigeic groups, fauna, flora

125 A Colorimetric Approach to Assess the Composition of Sheep Colostrum

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Abstract
Colostrum is a major source of immunity for newborn lambs and other ruminants because it contains a significant number of antibodies. These antibodies are transferred via colostrum to the gastrointestinal tract and into the bloodstream within the first hours after birth, and this acquired immunity is essential for their survival. Moreover, colostrum serves as the exclusive source of nutrients for newborn lambs. The aim of this study was to determine whether there is a correlation between the Brix refractive index and the protein or fat percentage, as well as the yellow colour of colostrum. The study found that the yellow colour of colostrum was negatively correlated with lightness. When assessing colostrum quality, we observed that it was positively correlated with refractive index, protein percentage, and fat percentage. The protein percentage could explain more than 85% of the Brix refractive index, making it a reliable and simple parameter for evaluating the nutritional quality of sheep colostrum at the farm level.

Keywords: sheep colostrum, composition, Brix refractive index, correlations

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