



The Book of Abstracts

National Scientific Conference
"Knowledge - Key to Success 2019"



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National Scientific Conference
„Knowledge – Key to Success 2019”
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The Book of Abstracts

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Editor:

Kępczak Norbert
Firaza Agnieszka

Graphics:

Byczkowska Paulina

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e-mail: fundacja@promovendi.pl
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CONFERENCE INFORMATION

The National Scientific Conference „Knowledge – Key to Success 2019” III edition
is organized especially for you.

The Conference has an interdisciplinary character. It is addressed to young scientists, starting with first and second degree students, through Ph.D. students, to people who have obtained a doctoral promotion in the last 3 years.

Our initiative aims to create opportunities for exchange of experiences and good scientific practices by representatives of the scientific community. Additionally, it aims to underline the important role of young researchers in the development of Polish science.

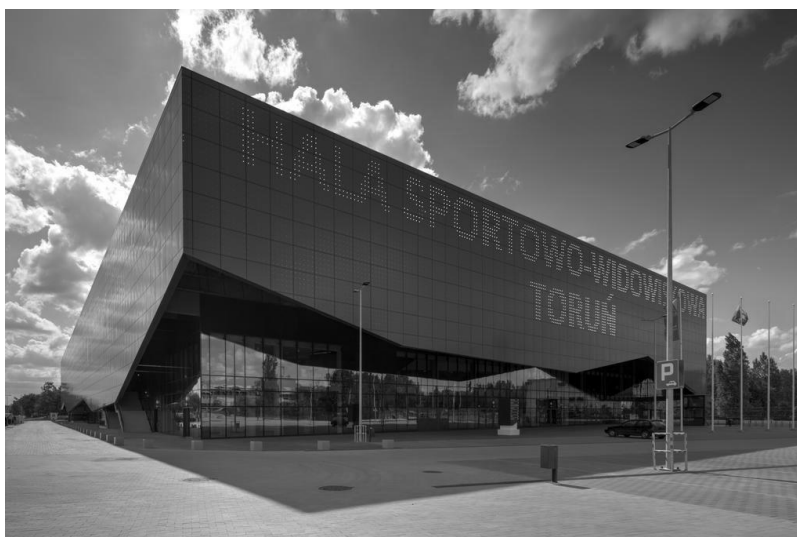
In the Conference, two types of participation are possible: passive or active, with active participation giving the opportunity to choose an oral presentation or poster. The conference materials will be published in the form of the Book of Abstracts and Book of Conference Articles with assigned ISBN numbers.

Scientific part of the Conference is supervised by Scientific Committee which contains of doctors and independent research workers from various Polish and foreign universities and industry representatives.

CONFERENCE PLACE

Welcome to **Hotel Meeting ***** – a place where the highest comfort meets the major sports events. Professional customer service will make your stay truly enjoyable and relaxing. It is located near Toruń Arena – one of the most advanced sports arenas in Poland and Europe to guarantee a truly unforgettable experience.

Hotel Meeting offers 24 rooms, all air conditioned, fitted with a modern bathroom, HDTV with access to an extensive channel package, DVD player and wireless internet access. A passenger lift facilitates access to all floors. The guests can use two 130 m² conference rooms, a spacious underground car park and an outside car park (with bus parking spaces).



CONFERENCE SCHEDULE

Hotel Meeting ***
Generała Józefa Bema 73/89, Toruń
January 19, 2019

08:00 – 15:00	Registration (Reception)	
08:40 – 09:00	Opening of the Conference (Hall 1)	
09:00 – 11:00	Poster Session (Hall 3)	
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P-02	Balewski Alan, Sikorska Agnieszka, Skrzypek Emilia	SCENT OF SEX. OLFACTORY IMAGINATIONS OF SEXUAL INTERCOURSE
P-03	Burchardt Sebastian	THE ROLE OF CATALASE IN THE FUNCTIONING OF THE ABSCISSION ZONE IN LUPINUS LUTEUS
P-04	Ceregrzyn Jakub	STRENGTH OF BONES OF BROILER CHICKENS DEPENDING ON THEIR HUSBANDRY SYSTEM
P-05	Czajkowski Mikołaj	THE INFLUENCE OF MESOPOROUS CARBONS MODIFICATION ON THEIR ABILITY TO ADSORB PARACETAMOL
P-06	Czechowicz Paulina	ANTIMICROBIAL PEPTIDES – SUCCOR OF TRADITIONAL ANTIBIOTIC THERAPY?
P-07	Duda Łukasz	ANALYSIS OF METHODS PREVENTING STALING
P-08	Florkiewicz Aleksandra	MAPK KINASES IN REGULATING FLOWER ABSCISSION IN YELLOW LUPINE (LUPINUS LUTEUS L.)
P-09	Głowacki Bartosz, Gorzka Sandra	EFFECT OF MINERAL FERTILIZATION ON YIELD AND QUALITY OF MILLING WHEAT GRAIN
P-10	Godula Krzysztof	SELECTED QUALITY CHARACTERISTICS CURD CHESSE (TVAROG) OF LACTOSE-FREE DURING STORAGE
P-11	Janas Mateusz	-
P-12	Kaczorowska Małgorzata	IDENTIFICATION AND DETERMINATION OF PAHS CONTENT IN FOOD BY HIGH-RESOLUTION MASS SPECTROMETRY METHODS
P-13	Kłosiński Karol	BIOCHEMICAL ANALYSIS OF CARBOXYMETHYL CHITOSAN HYDROGELS
P-14	Łańcucki Wojciech	COSTS OF POLISH CITY INFRASTRUCTURE INVESTMENTS PLANNED IN PRL ERA
P-15	Maciak Karina	COMPETITION BETWEEN PROTEUS MIRABILIS CLINICAL STRAINS BELONGING TO O77 AND O78 SEROGROUPS
P-16	Mazur Michał	CRYSTALLIZATION OF NEW TRANSCRIPTION FACTORS OF ESCHERICHIA COLI K-12
P-17	Mulawka Elżbieta	TYPE OF STARTER CULTURE AND SELECTED PHYSICO-CHEMICAL CHARACTERISTICS OF CURD CHEESE (TWAROG) DURING STORAGE
P-18	Pietuszyński Aleksander	-
P-19	Piotrkiewicz Paulina	A POSSIBILITY TO OBTAIN AN AL ₂ O ₃ -Cu-MO COMPOSITE VIA SLIP CASTING METHOD
P-20	Szwarc Karolina	WHY DON'T CUSTOMERS USE SELF-SERVICE CHECKOUTS?
P-21	Werner Klaudia	INFECTION OF POTATO PLANTS BY POTATO VIRUS Y IN VITRO
P-22	Zgagacz Wiktoria	DETERMINATION OF SULPHIDE IONS BY PYRYLIUM SALTS IN WATER FROM SPA BUSKO ZDRÓJ AND UNIEJÓW USING TECHNIQUES HPLC / UV-VIS
P-23	Zielińska Anna	HOW CAN YOU TRAVEL CHEAPLY, QUICKLY AND COMFORTABLY?
P-24	Zielińska Wioletta	OXYMATRINE IN THERAPY OF VARIOUS DISEASES

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14:10 – 14:20	Ścieszka Sylwia	ANTIFUNGAL ACTIVITY OF LACTIC ACID BACTERIA GROWN IN THE PRESENCE OF ALGAE CHLORELLA VULGARIS
14:20 – 14:30	Rum Jędrzej	STRUCTURAL STUDIES OF COLD-ADAPTED AMINOTRANSFERASE
14:30 – 14:40	Kaźmierczak Marta	THE BIODEGRADATION PROCESS OF NATURAL AND STYRENE-BUTADIENE RUBBERS
14:40 – 14:50	Kobylińska Milena	DETERMINANTS OF CHANGES IN EATING BEHAVIOR
14:50 – 15:00	Malec Mirosław	SUPPLEMENTS: ARE THEY WORTH IT OR WORTHLESS?
15:00 – 15:10	Łoś Karolina	FREE-TIME BEHAVIOR OF HIGH SCHOOL STUDENTS ON THE EXAMPLE OF STUDENTS OF THE 5TH HIGH SCHOOL IN RZESZÓW IN THE 2017/2018 SCHOOL YEAR
15:10 – 15:20	Mazek Diana	ENOTOURISM IN THE PODKARPACIE REGION
15:20 – 15:30	Nieznańska Paulina	ACTIVE TOURISM AS AN ESSENTIAL PART OF THE LIFESTYLE ON THE BASIS OF STUDENT OF ACADEMIC YEAR 2017/18
15:30 – 15:40	Łoboda Dominik	DIAGNOSIS OF THE CONDITION AND PROSPECTS OF THE DEVELOPMENT OF THE MATERIAL BASE BIESZCZAD
15:40 – 15:50	Werner Klaudia	INTERACTIONS BETWEEN VIRUSES, FUNGI AND PLANTS
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16:10 – 16:20	Kulus Dariusz	CRYOGENICS: A PATH TO IMMORTALITY?
16:20 – 16:30	Radziuk Hanna	SELECTED PROBLEMS FOR ADAPTATION OF SOIL CONSERVATION PRACTICES IN BELARUS
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17:20 – 17:30	Piekarska Lidia	ROSA SP. AS A SOURCE OF COMPOUNDS WITH BACTERICIDAL POTENTIAL
17:30 – 17:40	Olejniki Agata	THE EFFECT OF HUMIDITY LEVEL ON YIELDING PARAMETERS OF SELECTED SPRING WHEAT GENOTYPES (TRITICUM AESTIVUM L.)
17:40 – 17:50	Sawicki Maciej	ANTAGONISTIC ACTION OF YEAST ON SELECTED MOLD FUNGI
17:50 – 18:00	Strąk Ewelina	EFFECT OF HOP ACIDS ON THE EFFICIENCY OF FERMENTATION PROCESS AND COMPOSITION OF THE DISTILLATES OBTAINED
18:00 – 18:10	Kraskowiak Dominika	RED GRAPEFRUIT JUICE (CITRUS PARADISI) AS A NATURAL SUBSTANCE LIMITING THE QUALITY CHANGES DURING THE EGGS STORAGE
18:10 – 18:20	Ceregrzyn Jakub	FEATHER PECKING - POULTRY BEHAVIORAL DISORDER
18:20 – 18:30	Wiśniewska Monika	TECHNOPATHIES - DISEASES RESULTING FROM POULTRY REARING TECHNOLOGY
18:30 – 18:40	Nowak Monika	REMOVAL OF ZEARALENONE FROM VARIOUS TYPES OF CULTURE MEDIA BY ENTOMOPATHOGENIC FUNGI OF THE GENUS METARHIZIUM

18:40 – 18:50	Zająkała Monika	RULES FOR THE USE OF PLANT PROTECTION PRODUCTS IN AGRICULTURE
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09:20 – 09:30	Czajkowska Aleksandra	PROCEDURE FOR ASSESSING THE ESP'S TECHNICAL STATE
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09:40 – 09:50	Plaga Magda	TECHNOLOGY OF OBTAINING HUMAN ORGANS' MODELS FOR LAPAROSCOPIC TRAINING
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10:00 – 10:10	Szachewicz Anna	THE USE OF THREE-DIMENSIONAL SOLUBILITY PARAMETERS IN THE SELECTION OF PROTECTIVE POLYMERIC MATERIALS RESISTANT TO CHEMICALS
10:10 – 10:20	Czepułkowska Weronika	COMPARISON OF SURFACE ROUGHNESS OF NI-CR ALLOY AFTER ABRASIVE BLASTING USING AL2O3 AND SIC
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10:30 – 10:40	Taczała Joanna	3D GEOMETRY OPTIMIZATION OF THE FRAGMENT OF REMOVABLE PARTIAL DENTURE METAL FRAMEWORK WITH SINGLE INCISOR IN NUMERICAL ANALYSIS
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13:00 – 13:10	Adamska Dagmara	ASSESSMENT OF THE KNOWLEDGE OF PARENTS OF CHILDREN LIVING IN RUDA ŚLĄSKA ABOUT A GLUTEN-FREE DIET
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13:20 – 13:30	Rzeszot Janina	MOVEMENT IN THE FIGHT AGAINST DISEASES OF THE FUTURE
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13:10 – 13:20	Konopnicki Paweł	CHALLENGES IN ENTERPRISE RISK MANAGEMENT (ERM) IMPLEMENTATION
13:20 – 13:30	Konopnicki Paweł	HISTORICAL SIMULATION IN ASSESSMENT OF INVESTMENT PROFITABILITY. CASE STUDY OF THE PHOTOVOLTAIC POWER PLANT
13:30 – 13:40	Konopnicki Paweł	HAVE ELECTRICITY PRICES IN POLAND REALLY INCREASED?
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13:50 – 14:00	Jaeschke Andrzej	METHODS FOR EFFECTIVE DETERMINATION OF GREITZER MODEL PARAMETERS
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15:40 – 15:50	Leonik Szymon, Sojka Maciej	TREATMENT OF SEVERE HEART FAILURE, COMPLICATED OBSTRUCTIVE PULMONARY ARTERY WITH A CONTINUOUS FLOW PUMP
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16:20 – 16:30	Pacholik Ewa	ESTIMATE OF MERCURY CONTENT IN THE GONADS OF WILD BOAR
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POSTER SESSION

EFFECT OF CORM-A1, CORM-2 AND CORM-3 ON BLOOD PLATELET AGGREGATION IN VITRO

Weronika Adach*, Beata Olas

*Department of General Biochemistry, Faculty of Biology and Environmental Protection,
University of Lodz, Lodz, Poland*

*weronika.adach@biol.uni.lodz.pl

A few words about the author:

I am a student of General Biochemistry at the Faculty of Biology and Environmental Protection at the University of Lodz.

Abstract:

CORM's (Carbon Oxide Releasing Molecules) is a new group of chemical compounds that have the ability to release controlled amounts of carbon monoxide into cells and tissues to produce direct biological activity.

It is very important that the modulating of hemostasis (including blood platelet activation) may be induced by oxidative modifications of proteins or lipids, and oxidative stress has been reported in different pathological conditions of cardiovascular systems. The aim of our experiment is to examine the effect of CORM-3, CORM-A1 and CORM-2 on blood platelet aggregation stimulated by different physiological agonists (thrombin, collagen and ADP) in vitro.

The tested CORM-A1 (at concentrations: 0.1, 50 and 100 μ M) did not change blood platelet aggregation induced by various agonist (ADP, collagen and thrombin). Only CORM-2 (at the highest tested concentration – 100 μ M) and CORM-3 (at the two highest tested concentration 50 and 100 μ M) reduced platelet aggregation induced by ADP.

Keywords:

hemostasis, carbon monoxide, aggregation, blood platelets

SCENT OF SEX. OLFACTORY IMAGINATIONS OF SEXUAL INTERCOURSE

Emilia Skrzypek (1), Alan Balewski (1)*, Agnieszka Sikorska (2)

(1) SWPS University of Social Sciences and Humanities, Faculty of Psychology, Sopot

(2) SWPS University of Social Sciences and Humanities, Faculty of Psychology, Warsaw

*abalewski@st.swps.edu.pl

A few words about the authors:

We are third-year psychology students at SWPS University. The main areas of our interest are cognitive processes, olfactory perception and psychosexuality.

Abstract:

Theories of embodied cognition assume that cognitive representations posit senses-based characteristics. Nonetheless, some studies concentrate on the concept of olfactory modality, neglecting this sense and failing to provide clear characteristics.

In this work, the problematic aspects of olfactory concepts based on sexual intercourse are explored. In a three-step procedure, subject people were asked to imagine a smell accompanying an active situation of sexual intercourse (sample trial) and falling asleep (control trial) in order to distinguish the dominating characteristics mutual for both scenarios. The described notions were divided into nine olfactory groups providing a multilayered analysis of smell imagination.

The obtained results provided a characteristic of an olfactory sex notion, which included dominating animal and fruit aspects and increased pleasure, intensity, warmth, airlessness and sweetness. The analysis confirmed the ability to obtain an olfactory representation of a sexual intercourse and the individuality of such imaginative experiences.

The research data gets us closer to discovering specific fragrances associated with sexual intercourse and generally, human sexuality. It also sheds a light on how humans represent and describe smell in a situational context.

Keywords:

embodiment, mental simulation, imagination, sexuality, cognition / cognitive processes

THE ROLE OF CATALASE IN THE FUNCTIONING OF THE ABSCISSION ZONE IN LUPINUS LUTEUS

**Sebastian Burchardt* , Tomasz Przywieczerski, Aleksandra Florkiewicz,
Katarzyna Panek, Magdalena Wolska, Emilia Wilmowicz**

*Chair of Plant Physiology and Biotechnology, Nicolaus Copernicus University,
1 Lwowska Street, 87-100 Toruń, Poland*

*sabo44@wp.pl

A few words about the authors:

The authors are involved as researchers in a research project exploring the physiological and genetic control of generative organ development in leguminous plants, which is financed by the Ministry of Agricultural and Rural Development.

Abstract:

The abscission zone (AZ) is a structure found in flower pedicels, and the activation of its cells is a prerequisite if these organs are to be separated. The accompanying changes involve transformations of cellular walls, and the key role in regulating this process is played by reactive oxygen species – operating in the plants as signaling molecules – such as hydrogen peroxide (H₂O₂). Accumulating in plant cells, this compound may cause damage to DNA, proteins and cellular membrane and wall structures. Catalase is an enzyme that catalyzes the dismutation of H₂O₂. In the peroxisomes, mitochondria and cytosol of plant cells, this enzyme transforms two H₂O₂ molecules into two molecules of water and one molecule of oxygen. Catalase is used as a marker for oxidative stress.

In this paper immunocytochemical and biochemical methods were used to show that the stress accompanying AZ activation in yellow lupine flowers leading to decreased yielding was association with both the activity and transport of catalase.

Keywords:

catalase, abscission zone, yellow lupine

STRENGTH OF BONES OF BROILER CHICKENS DEPENDING ON THEIR HUSBANDRY SYSTEM

**Jakub Ceregrzyn*, Ewelina Misiec, Monika Wiśniewska, Kamil Kawa,
Justyna Batkowska**

Uniwersytet Przyrodniczy w Lublinie

*jakub.ceregrzyn@gmail.com

A few words about the authors:

We are young group of students from veterinary medicine. We are a part of Poultry Science Section of Student Research Group of Biologists and Animal Breeders.

Abstract:

The mortality incidences of birds resulted from leg defects and disorders of the locomotor system cause high financial losses for farmers as well as for slaughterhouses. However, it is difficult to indicate one reason for these diseases. They may result from genetic conditions, including breeding work as well as from improper feeding of birds (deficiencies of minerals and vitamins) or the way of birds' rearing. Therefore, poultry rearing system should be treated as a comprehensive factor containing all these elements.

The aim of the work was to assess the impact of the chickens rearing system for the strength indicators of their bones.

The material consisted of 240 Cobb 500 broiler chickens, they were divided into 2 groups. The control group of chickens was kept in an intensive system, while the experimental group under extensive farming conditions (green runs, farm fodders). Birds were slaughtered at the age of 12 weeks. The femoral bones of were dissected and analyzed for mechanical properties based on a three-point bending test.

Birds from extensive system were characterized by both a higher body mass and a higher bone mass, compared to intensively treated chickens. There were no effects of the maintenance system on bone physical indicators and the parameters estimated on their basis. Slightly more strength and energy needed to break required the bones of chickens from intensive system.

Keywords:

mechanical properties, technopathies, rearing system, slaughter chicken

THE INFLUENCE OF MESOPOROUS CARBONS MODIFICATION ON THEIR ABILITY TO ADSORB PARACETAMOL

**Mikołaj Czajkowski (1)*, Anna Stasiłowicz (1), Dominika Siąkowska (1),
Joanna Gościańska (2), Judyta Cielecka-Piontek (1)**

*(1) Department of Pharmaceutical Chemistry, Faculty of Pharmacy,
Poznań University of Medical Sciences, Grunwaldzka 6, 60-780 Poznań, Poland*

*(2) Faculty of Chemistry, Adam Mickiewicz University in Poznań,
Umultowska 89b, 61-614 Poznań, Poland*

*czajkowski.mikolaj@gmail.com

A few words about the authors:

Authors of the study are Head of the Department, Lecturer and Pharmacy students.

Abstract:

Introduction: Advancement in development of new mesoporous carbons of different structure allowed to adsorb active pharmaceutical ingredients (API). The most important here is the sorption capacity of the materials determined by their high surface area and porosity. During the study three types of mesoporous carbons were used as carriers of paracetamol. The API has analgesic and antipyretic properties and it works by inhibiting COX in central nervous system.

Aim: The aim of the study was to investigate the effect of mesoporous carbons modification on their adsorption capacity and dissolution profiles towards paracetamol.

Methods: In the first stage, the carbon materials were synthesized by hard or soft template methods and functionalized with carboxylic groups. This was followed by a series of paracetamol adsorption processes. In vitro drug solubility test was conducted in paddle apparatus. The changes of apparent solubility of paracetamol were measured with HPLC with UV absorbance detection.

Conclusions: The results confirmed the effective binding of paracetamol on the surface of the mesoporous carbons prepared, which has impact on apparent solubility of API. The sorption capacity of materials towards paracetamol is mainly affected by specific surface areas, pore volumes and presence of organic functional groups.

Acknowledgments: The scientific work was supported by SONATA grant from the National Science Centre Poland- No. 2016/23/D/NZ7/01347.

Keywords:

Mesoporous carbons, API adsorption, Paracetamol

ANTIMICROBIAL PEPTIDES – SUCCOR OF TRADITIONAL ANTIBIOTIC THERAPY?

Paulina Czechowicz

*Department of Microbiology, Faculty of Medicine, Medical University in Wrocław,
Chalubinskiego 4, 50-368 Wrocław*

paulina.czechowicz@student.umed.wroc.pl

A few words about the author:

New and the youngest researcher in Microbiology Department, first-year PhD student. Interested in new approaches to fighting against resistant bacteria and fungi, particularly using AMPs.

Abstract:

Nowadays it is well known that increasing number of resistant bacteria became global problem and the ‘Golden Era’ of antibiotics is definitely over. The need to develop new strategies for fighting against microorganisms became extremely urgent.

Currently antimicrobial peptides (AMPs) are most likely to become a new weapon to deal with MDR bacteria, especially Gram(-).

On the one hand AMPs can become new antibiotics or can be used as a basis to develop new antimicrobial substances.

On the other hand a new approach using AMPs in infections has been lately investigated. It has turned out that AMPs which don’t have any antimicrobial properties alone can be used in sub-inhibitory and nontoxic concentrations in combination with conventional antibiotics. These peptides can increase antibiotic activity and sensitize bacterial cells to their effects. AMPs given as adjuvants can be used to neutralize resistance of microorganisms such as impenetrability of the outer membrane or production of efflux pumps. Thanks to this well known ‘old’ antibiotics could be used again and could be clinically effective.

Moreover there are a few preliminary researches which indicate that AMPs could, likewise in sub-inhibitory concentrations, activate natural immune defense mechanisms and host defense peptides, e.g. lysozyme or defensins.

Both of these approaches are inspiring and promising so I will bring them a little closer in my poster.

Keywords:

Antimicrobial peptides, multidrug resistant bacteria, antibiotics

ANALYSIS OF METHODS PREVENTING STALING

**Łukasz Duda (1, 2)*, Karol Kłosiński (2), Barbara Kościelska (1, 2),
Izabella Kwaśniewska-Karolak (1), Piotr Arkuszewski (2), Zbigniew Pasięka (2)**

*(1) Institute of Food Technology and Analysis, Faculty of Biotechnology and Food Sciences,
Technical University of Lodz, Wólczajska 171/173, 90-924 Lodz Poland*

*(2) Department of Experimental Surgery, Faculty of Medicine, Medical University of Lodz,
Pabianicka 62, 93-513 Lodz Poland*

*lukaszduda@onet.eu

A few words about the author:

A graduate of Food Technology and Human Nutrition at the Faculty of Biotechnology and Food Sciences at the Lodz University of Technology. Independent laboratory clerk in the Department of Experimental Surgery, Medical University of Lodz.

Abstract:

Staling bread leads to a series of adverse organoleptic changes. The skin becomes soft and dull, while the crumb is dried and brittle which is associated with the redistribution of water during storage.

The addition of wheat gluten, other proteins or high-protein raw materials such as soy flour or dairy products has a positive effect on the various characteristics of the bread. The supplement used to obtain certain more beneficial properties of bread is whey, which allows you to improve the aroma and flavor, porosity, elasticity and give a more intense color to the bread crust. The best choice is the use of a high concentration of acidic whey, 60% dry matter, and has a positive effect on the overall quality of the bread.

Freezing bread is considered a method that allows to maximally extend durability while maintaining the sensory characteristics and nutritional value of the bread. Freezing bread and then storing in this state is counted among effective ways of delaying the staling process, it also allows to extend shelf life and shelf life.

Another method is storage in a modified atmosphere. An important issue is the appropriately selected composition of the atmosphere (CO₂, N₂). The durability of bread depends on the species.

The total stoppage of this process is practically unachievable, however, the search for methods capable of prolonging the storage life of the bread is undertaken all the time, and may in the future completely stop the staling process.

Keywords:

bread, supplements, bakery

MAPK KINASES IN REGULATING FLOWER ABSCISSION IN YELLOW LUPINE (*LUPINUS LUTEUS* L.)

Aleksandra Florkiewicz (1)*, Tomasz Przywieczerski (1), Sebastian Burchardt (1), Agata Kućko (2), Magdalena Wolska (1), Katarzyna Panek (1), Emilia Wilmowicz (1)

*(1) Chair of Plant Physiology and Biotechnology, Nicolaus Copernicus University,
1 Lwowska Street, 87-100 Toruń, Poland*

(2) Department of Plant Physiology, Warsaw University of Life Sciences-SGGW (WULS-SGGW)

*a.florkiewicz21@gmail.com

A few words about the authors:

The authors are involved as researchers in a research project exploring the physiological and genetic control of generative organ development in leguminous plants, which is financed by the Ministry of Agricultural and Rural Development.

Abstract:

Generative organ abscission is a physiological process that may be the consequence of unfavorable environmental factors such as, for example, biotic and abiotic stresses. Reception of such stimuli, transmission of information and intercellular signaling are possible thanks to the launching of pathways that involve mitogen-activated protein kinases (MAP kinases or MAPKs). Their activity affects cellular division, differentiation and apoptosis.

In this paper, an LIMPCK cDNA fragment was identified and the variability of its transcriptional activity was examined in the abscission zone (AZ) – a structure of fundamental significance for generative organ abscission in yellow lupine. The LIMPCK amino acid sequence obtained in silico contained all the domains characteristic of MAP kinases. The LIMPCK mRNA level was higher in the active AZ cells than in the inactive control cells and was additionally elevated by the soil drought stress. This was reflected in the results of our immunocytochemical analyses. A signal indicating the location of the kinase was observed within the cytoplasm of the AZ cells, but was not found in the inactive AZ cells.

This research indicated that MAPKs may be molecules involved in modulating the functioning of the AZ in yellow lupine.

Keywords:

abscission zone, kinases, immunolocalization

EFFECT OF MINERAL FERTILIZATION ON YIELD AND QUALITY OF MILLING WHEAT GRAIN

Bartosz Głowacki (1)*, Sandra Gorzka (2)

UWM Olsztyn:

(1) Department of Agroecosystems, Faculty of Environmental and Agricultural Development

(2) Department of Commodity Science and Food Research, Faculty of Food Sciences

*bartosz.glowacki@uwm.edu.pl

A few words about the authors:

Bartosz Głowacki, Faculty of Environmental and Agricultural Sciences, UWM Olsztyn, PhD student of the first year in the field of science Agronomy.

Sandra Gorzka student of commodities Faculty of Food Sciences, UWM Olsztyn.

Abstract:

Sustainable management of fertilizer components in agriculture is not only economic, but also ecological and qualitative. In Poland and around the world, there is an increasing interest in food with high nutritional and taste values [Sulewska 2004]. The term "biological value of the crop" from which food is produced determines a series of characteristics that determine their potential impact on the metabolic, physiological and health status of consumers.

In order to present the research problem, a wide range of secondary information. The implementation of the assumed research objectives was possible thanks to the test carried out in 2016-2017 in the vegetation hall IUNG - PIB in Puławy using Mitscherlich vases (with a capacity of 7 kg of soil). The response of winter wheat varieties: Arkadia, Linus, Artist and Hondia to 3 levels of nitrogen fertilization: 1.2; 2.4; 3.6g N/vase was tested.

The study found that wheat varieties showed a different reaction to the nitrogen dose used in the experiment. The increase in yield at the dose of 2.4g N/vase occurred in all varieties, while the variety Arkadia and Hondia intensively used fertilization of 3.6g N/vase. In all studied wheat varieties, with the increase in the level of nitrogen fertilization to 3.6g N/vase, there was a significant increase in the total protein content and the amount of leached gluten. Increasing the nitrogen dose generally reduced gluten quality, but did not lower the sedimentation rate.

Keywords:

Yield, Fertilization, Health, Quality

SELECTED QUALITY CHARACTERISTICS CURD CHESSE (TVAROG) OF LACTOSE-FREE DURING STORAGE

Krzysztof Godula*, Izabela Dmytrów, Elżbieta Mulawka

*Zakład Technologii Mleczarskiej i Przechowywania Żywności
Wydział Nauk o Żywności i Rybactwa
Zachodniopomorski Uniwersytet Technologiczny*

*krzysztof.godula@zut.edu.pl

A few words about the author:

Zajmuję się realizacją badań obejmującą badanie cech jakościowych oraz stabilność przechowywalniczą mleka i produktów mleczarskich, jak również zastosowaniem techniki turbscan w spożywczych układach emulsyjnych i dyspersyjnych.

Abstract:

Physico-chemical, rheological and organoleptic properties of traditional and lactose-free acid curd cheese (tvarog) were analyzed during 3-week refrigerated storage ($5 \pm 1^\circ \text{C}$). The analysis of curd cheese was made on the day of purchase and on 3rd, 7th, 14th and 21st days of cold storage. The examined acid curd cheeses (tvarogs) were evaluated for active and titratable acidity, water and fat content, water activity, whey syneresis, hardness and organoleptic characteristics.

Storage time of acid curd cheeses (tvarog) significantly influenced changes in acidity, hardness, whey syneresis and water content. There was a statistically significant increase in the above indicators. Acid curd cheeses (tvarogs) were characterized by stable fat content and water activity during the whole test cycle. Traditional curd cheese (tvarog) was characterised by lower titratable acidity, higher whey syneresis and higher water content during storage compared to lactose-free cheese. Organoleptic evaluation of experimental acid curd cheese (tvarog) showed that traditional curd cheese was characterized by better taste and smell during storage.

Keywords:

acid quark (tvarog), lactose-free quark, physico-chemical characteristics, hardness, organoleptic evaluation

IDENTIFICATION AND DETERMINATION OF PAHS CONTENT IN FOOD BY HIGH-RESOLUTION MASS SPECTROMETRY METHODS

Malgorzata A. Kaczorowska

Faculty of Chemical Technology and Engineering, UTP University of Science and Technology, Seminaryjna 3, PL-85326 Bydgoszcz, Poland

Malgorzata.Kaczorowska@utp.edu.pl

A few words about the author:

Dr hab. M. A. Kaczorowska is involved in research in the field of application of high resolution and tandem mass spectrometry methods for identification and structural elucidation of supramolecular complexes, peptides, polymers and organic compounds.

Abstract:

This article reviews the suitability of the high resolution mass spectrometry methods (also in combination with gas/liquid chromatography) for the identification and determination of polycyclic aromatic hydrocarbons (PAHs) in different food samples. As many PAHs have toxic, mutagenic/carcinogenic properties and one of the major routes of humans exposure to these compounds is consumption there is a need for fast and simple techniques for determination of polycyclic aromatic hydrocarbons in food. The mass spectrometry and tandem mass spectrometry methods combined with gas/liquid chromatography are an excellent tool for the analysis of PAHs content in complex food matrices, because they provide highly accurate results and enable the simultaneous detection of many different compounds. Moreover, the typical HRMS experiment is relatively uncomplicated and takes just a few minutes, and the analysis of the resulting spectra using the available chemometric methods is a simple and fast process.

Keywords:

High-Resolution Mass Spectrometry, Food, PAHs

BIOCHEMICAL ANALYSIS OF CARBOXYMETHYL CHITOSAN HYDROGELS

**Karol Kłosiński (1)*, Małgorzata Girek (2), Barbara Kościelska (1), Łukasz Duda (1),
Radosław Wach (3), Piotr Arkuszewski (1), Paweł Szymański (2), Zbigniew Pasieka (1)**

*(1) Department of Experimental Surgery, Faculty of Medicine, Medical University of Lodz,
Pabianicka 62, 93-513 Lodz, Poland*

*(2) Department of Pharmaceutical Chemistry, Drug Analysis and Radiopharmacy, Faculty of
Pharmacy, Medical University of Lodz, Muszyńskiego 1, 90-151 Lodz, Poland*

*(3) Institute of Applied Radiation Chemistry, Faculty of Chemistry, Lodz University of Technology,
Wroblewskiego 15, 93-590 Lodz, Poland*

*karol.klosinski@umed.lodz.pl

A few words about the author:

Karol Kłosiński – Master of Science, graduate of the Lodz University of Technology, PhD student at the Medical Faculty of the Medical University of Lodz, senior specialist in science and technology at the Department of Experimental Surgery.

Abstract:

Hydrogels are materials of properties of solids and liquids, and have numerous uses in medicine, such as wound dressings or drug controlled release systems. The purpose of the study is to produce flexible, carboxymethyl chitosan (CMCS) hydrogels of uniform structure, and mechanical strength similar to hydrogel dressings that are commercially available. A macromonomer – PEGDA – used here as crosslinker was added to the CMCS solution in order to increase the degree of crosslinking. To assess the effect of the generated hydrogels on the survival of fibroblasts, the hydrogels produced were subjected to the viability XTT test of mouse fibroblast (L929 cell line) and the Live-Dead test for human fibroblast. The lack of cytotoxicity of the cells was shown, but the cell viability decreased with the increase of the cross-linking agent used in the synthesis of hydrogels. In addition, based on the XTT assay performed with dilutions of individual hydrogel extracts, it has been shown that CMCS can promote fibroblast growth at low dilutions, i.e. at a relatively high concentration of CMCS in hydrogels. In order to further evaluate the biocompatibility, an in-vivo test was carried out on a laboratory rat model based on the standard ISO 10993-6: 2016 - Biological evaluation of medical devices. Hydrogels containing a smaller amount of cross-linking agent did not show significant cytotoxicity and adverse effects on animal organisms and therefore may be considered as potential wound dressings.

Keywords:

hydrogel, chitosan, carboxymethyl chitosan, radiation crosslinking, PEGDA

COSTS OF POLISH CITY INFRASTRUCTURE INVESTMENTS PLANNED IN PRL ERA

Wojciech Lech Łańcucki

Szkoła Główna Handlowa w Warszawie

w20wojtek@gmail.com

A few words about the author:

Wojciech Lech Łańcucki – Master of Economics, Warsaw School of Economics graduate. His scientific career concentrates on Polish political transformation 89' and its impact on economy.

Abstract:

1970 was a breakthrough year in Polish history. Edward Gierek became First Secretary of the Polish United Workers' Party. Western capital brought to Poland some "fresh air". Most of this capital was gained by credits from other countries, which boosted economy just for 6 years, before everything was stopped by the oil crisis. During that time, several things have been done. Some of them, we can admire even today like motorway Warszawa- Katowice or Northern Harbour in Gdańsk. Most of the investments were stopped in 1980s, but having more money nowadays, we come back to old plans. Should we implement them in the same form as 30 years ago? Does anybody need wide highways through the city centers today? What are their costs of building and maintenance. Can we design those plans again in other form having new look on architecture trends and ecology?

Keywords:

Infrastructure, economy, transport, costs

COMPETITION BETWEEN *PROTEUS MIRABILIS* CLINICAL STRAINS BELONGING TO O77 AND O78 SEROGROUPS

Karina Maciak (1)*, Dominika Drzewiecka (2)

University of Łódź, Stefana Banacha 12/16, 90-237 Łódź, Poland:

(1) Faculty of Biology and Environmental Protection Student

(2) Department of General Microbiology, Institute of Microbiology, Biotechnology and Immunology

*maciak.karina@gmail.com

A few words about the author:

Final year Microbiology student, University of Łódź. Interested in the laboratory diagnostics and multidirectional impact of dysbiosis on human health.

Abstract:

Proteus bacteria demonstrate an intensive swarming growth on solid surfaces. A competition between the swarming strains can be observed. It is not clear why some strains dominate the others. One possible reason could be their O-antigen type. The aim of the study was to check the potential connection between *Proteus mirabilis* strains domination and their O serotype. Selected different 20 clinical isolates belonging to O77 (10) and O78 (10) serogroups, which are widespread among patients in Łódź area, were included in the research. The competition between non-kin strains was studied using the Dienes test on LB plates (1,5% agar). The surface competing strains were inoculated each one another by spotting 5 µl of liquid cultures (1.0 MF density). A strain ability to inhibition of the other strains growth was checked by its inoculation (5 µl, 1.0 MF) opposite to another strain and to mix of both strains (1:1). The results of the tests were examined after 20 h of incubation at 37°C under aerobic conditions. Representatives of O77 serogroup dominated in 58% of successful results for territorial competition test and in 64% cases for growth inhibition test. The two strongest O77 strains blocked the swarming growth of all the studied O78 strains and territorially dominated most of them. To conclude, in general the O77 serogroup seems to be stronger in direct competition than the O78 one. In the next step of research, the representatives of less common serogroups will be included.

Keywords:

Proteus mirabilis, Dienes test, competition, O-antigen, swarming growth

CRYSTALLIZATION OF NEW TRANSCRIPTION FACTORS OF ESCHERICHIA COLI K-12

Michał Mazur, Agnieszka J. Pietrzyk-Brzezińska*

*Institute of Technical Biochemistry, Faculty of Biotechnology and Food Sciences,
Lodz University of Technology, Stefanowskiego 4/10, 90-924 Lodz, Poland*

*agnieszka.pietrzyk-brzezinska@p.lodz.pl

A few words about the author:

I am an undergraduate, attending Lodz University of Technology, class of 2019; pursuing a degree in Biotechnology with specialization of Technical Biochemistry.

Abstract:

In order to survive, bacteria adjust to constantly changing environmental conditions by using complex molecular mechanisms. One of these mechanisms is related to the activation of genes encoding proteins that are responsible for bacterial survival under particular stress conditions. The key regulators of this process are transcription factors, that control gene expression in response to a particular signal i.e. presence of chloramphenicol. Escherichia coli genome contains around 300 species of these transcription factors, however, currently the regulatory function of one-fifth of them are not known. The understanding of the mechanisms of action of these still unknown transcription factors is important in terms of finding new methods of fighting microbial infections. Using X-ray crystallography we can determine the exact structure of these proteins. During this study the crystallization conditions for three new transcription factors related to different stress (oxidative, hypochlorite stress and the presence of chloramphenicol) were screened in order to grow good quality, well-diffracting crystals that could be used in the diffraction experiment.

Keywords:

Transcription factor, crystallization, protein

TYPE OF STARTER CULTURE AND SELECTED PHYSICO-CHEMICAL CHARACTERISTICS OF CURD CHEESE (TWAROG) DURING STORAGE

Elżbieta Mulawka*, Izabela Dmytrów, Krzysztof Godula

Zakład Technologii Mleczarskiej i Przechowywania Żywności

Wydział Nauk o Żywności i Rybactwa

Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

*elzbieta.mulawka@zut.edu.pl

A few words about the author:

W Zakładzie zajmuję się między innymi realizacją badań w zakresie przydatności technologicznej mleka w zależności od rasy zwierząt i środowiska hodowlanego oraz produkcją mlecznych wyrobów fermentowanych z zastosowaniem kultur probiotycznych.

Abstract:

Physicochemical, rheological and organoleptic properties of acid curd cheese (tvarog) produced from cow's milk with the addition of MSO and MSO-11 starter cultures were analysed during 21-day storage at $5 \pm 1^\circ\text{C}$. Tested samples produced in laboratory conditions were vacuum-packed. The analysis of curd cheese (tvarog) was performed immediately after production and after 3, 7, 14 and 21 days of cold storage. The acid curd cheeses (tvarog) were characterized by appropriate organoleptic characteristics and normative water content, water activity, fat content, titratable and active acidity, whey syneresis size and hardness. It was found that curd cheeses differed in water and fat content, active and potential acidity. The effect of storage time on water and fat content was statistically significant only in the case of curd cheese (tvarog) produced by inoculation of milk with starter culture MSO. Despite the increase of water activity in MSO cheese and its decrease in case of MSO-11 cheese during the storage, only slight differences were noticed and the influence of time is not statistically significant. A significantly higher water activity in the whole research period was observed in curd cheese produced with the use of MSO culture.

Keywords:

Cow's milk, curd, acid curd cheese, physicochemical, rheological, starter cultures

A POSSIBILITY TO OBTAIN AN $\text{Al}_2\text{O}_3\text{--Cu--Mo}$ COMPOSITE VIA SLIP CASTING METHOD

Paulina Piotrkiewicz*, Justyna Zygmuntowicz, Agata Łukasiak, Waldemar Kaszuwara

Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland

*6697@pw.edu.pl

A few words about the author:

PhD student at Faculty of Materials Science and Engineering Warsaw University of Technology.

Abstract:

Ceramic metal composites are the group of materials formed by combination of two different kind of materials with completely different properties. Combination between tough, but brittle ceramic matrix and ductile metal reinforcement gives us as a result a completely new material with properties combining advantaged of both components. Among many composite types we can distinguish, hybrid composites are the ones deserving to be taken into account. This particular group of composites contains more than one reinforcing phase in the structure. The structure of the final material could be formed as a result of reactions between components during the sintering.

In this work composite samples from ternary $\text{Al}_2\text{O}_3\text{--Cu--Mo}$ system were obtained by slip casting and characterized. Initial materials were: Al_2O_3 (Almatis), Cu (Sigma Aldrich), Mo (Createc). The obtained composites were identified using XRD and SEM. The relative density was measured using Archimedes method.

Results shows the possibility to obtain ternary $\text{Al}_2\text{O}_3\text{--Cu--Mo}$ composites with no visible defects on the sample surface, high relative density and homogeneous metal distribution in the structure.

Acknowledgments:

The study was accomplished thanks to the funds allotted by The National Science Centre within the framework of the research project 'OPUS 13' no. 017/25/B/ST8/02036.

Keywords:

hybrid composites, slip casting, ternary Al_2O_3 - Cu - Mo system

WHY DON'T CUSTOMERS USE SELF-SERVICE CHECKOUTS?

Karolina Szwarec

Uniwersytet Technologiczno-Przyrodniczy w Bydgoszczy

karolinamagdalenaszwarc@wp.pl

A few words about the author:

Jestem studentką Zarządzania i Inżynierii Produkcji na Uniwersytecie Technologiczno-Przyrodniczym im. Jana i Jędrzej Śniadeckich w Bydgoszczy. W wolnym czasie lubię podróżować, chodzić do kina i teatru.

Abstract:

Self-service cash registers are devices where the customer scans products. Ultimately, they are introduced to reduce queues, increase customer confidence in the network, and to create a modern store and open to the needs of a loyal and potential customer. However, when you go to the store, you can often see that there is a queue for traditional cash desks and there are very few people at self-service. What is this caused? Fear of a mistake or modern technology, or maybe a form of payment imposed - payment cards? I will try to get the answer based on my own experience and the research carried out in selected self-service shops: Auchan, Ikea.

Keywords:

kasy samoobsługowe, klient

DETERMINATION OF SULPHIDE IONS BY PYRYLIUM SALTS IN WATER FROM SPA BUSKO ZDRÓJ AND UNIEJÓW USING TECHNIQUES HPLC / UV-VIS

Wiktoria Zgagacz (1)*, Robert Zakrzewski (1), Ramón Martínez-Máñez (2)

(1) Department of Environmental Chemistry, Faculty of Chemistry, University of Łódź

(2) Department of Organic Chemistry, Faculty of Chemistry, University of Valencia

*wiktoria.zgagacz@vp.pl

A few words about the author:

Since 2017 I have been a PhD student at the Department of Environmental Chemistry at the University of Lodz. My research concerns the determination of sulphide ions, amines and amino acids in environmental and food samples.

Abstract:

Sulphide ion is commonly found in nature. It is present in water, soil, air, rocks and organic matter. It is used in many branches of industry and agriculture. Compounds containing sulphide ion are used e.g. in water, soil, air, rocks and organic matter. It is used in tanneries, for the production of sulphuric acid (VI), dyes and cosmetics.

The aim of the study was to develop two methods of determination of sulphide ions using pyrylium salts: 4-[p-(N,N-dimethylamino)phenyl]-2,6-diphenylpyrile chlorate (LN1) and 2,4,6-triphenylpyrile tetrafluoroborate (L1) in samples of sulphide water coming from the health SPA in Busko Zdroj and Uniejów. The experimental technique was high-performance liquid chromatography (HPLC) with a UV-VIS detector. The developed method has been validated on the basis of which it can be concluded that it is simple, sensitive, reproducible and precise.

Keywords:

HPLC/UV-VIS, sulphide ions, pyrylium salts

HOW CAN YOU TRAVEL CHEAPLY, QUICKLY AND COMFORTABLY?

Anna Zielińska

Uniwersytet Technologiczno-Przyrodniczy w Bydgoszczy

aniazielinska82@gmail.com

A few words about the author:

Jestem studentką Zarządzania i Inżynierii Produkcji na Uniwersytecie Technologiczno-Przyrodniczym im. Jana i Jędrzeja Śniadeckich w Bydgoszczy. Moją pasją są podróże.

Abstract:

Transport has accompanied humanity from the beginnings of the development of civilization. Public transport in larger cities makes life easier for residents and helps non-motorized people travel between cities, while smaller ones are still very limited. Territorial development of cities for many years is in contradiction with the need to quickly move from areas permanently inhabited to places of temporary stay, it is work, school. Therefore, expectations regarding travel time and price increase. Many people give an in-depth analysis of what is more important for them, price, comfort of travel or time. I will carry out research on three selected means of transport between Bydgoszcz and Toruń, taking into account the above criteria.

Keywords:

transport, komunikacja publiczna, Bydgoszcz, Toruń

OXYMATRINE IN THERAPY OF VARIOUS DISEASES

**Wioletta Zielińska*, Klaudia Mikołajczyk, Marta Hałas-Wiśniewska,
Magdalena Izdebska, Alina Grzanka**

*Department of Histology and Embryology, Faculty of Medicine, Nicolaus Copernicus University
in Toruń, Collegium Medicum in Bydgoszcz, Bydgoszcz, Poland*

*wzielinska94@hotmail.com

A few words about the author:

I graduated from Nicolaus Copernicus University with a master's degree in Medical Biotechnology. Currently I work as a Senior Technician in Department of Histology and Embryology of Collegium Medicum in Bydgoszcz.

Abstract:

In the process of searching for new therapeutic substances, scientists are increasingly turning to compounds of natural origin. One of the promising sources are used for centuries traditional Chinese herbs, the representative of which is *Sophora flavescens*. Literature data have shown that the alkaloid oxymatrine derived from the root of *Sophora* species is able to induce various effects in the body. The compound exhibits anti-viral, anti-asthmatic, anti-fibrotic, anti-inflammatory and cardio protective properties. These characteristics provide the basis for the use of oxymatrine in such conditions as hepatitis B, renal fibrosis, asthma or autoimmune diseases. Moreover, the compound evinces anticancer properties like promotion of cancer cells apoptosis or inhibition of their proliferation. Furthermore, some studies confirmed its anti-angiogenic and anti-multidrug resistance effects. The oxymatrine cancer chemopreventive character has been confirmed, among others in the case of lung, gastric, prostate, pancreatic, breast cancer cells, as well as in melanoma and leukaemia. There are also studies designed to analyze the effect of combination therapy consisted of oxymatrine and chemotherapy or radiotherapy. The results shown that the compound is able to prevent or at least reduce toxicity induced by both types of conventional approaches.

Keywords:

oxymatrine, alkaloids, cancer, natural medicine

PLENARY SESSION

NATURAL SCIENCES

ALGAE AS A FUTURE OF FERMENTED FOOD

Sylvia Ścieszka*, Elżbieta Klewicka

*Institute of Fermentation Technology and Microbiology, Faculty of Biotechnology and Food Science,
Lodz University of Technology, Łódź, Poland*

*sylvia.scieszka@edu.p.lodz.pl

A few words about the author:

I am a PhD student and working with the Probiotic Group Research in The Institute of Fermentation Technology and Microbiology, Lodz University of Technology, Poland.

Abstract:

Algae are common all over the Earth. They produce a broad spectrum of bioactive secondary metabolites and valuable bioactive substances, such as proteins, carbohydrates, lipids, polyunsaturated fatty acids, polyphenols, and polysaccharides. Moreover, they possess antioxidant, antibacterial, antiviral, and also antifungal properties. Therefore, algae may be used for construction of fermented functional food. Studies on the use of algae as a component of fermented food will open new horizons for the food industry. Combination of fermented products offering a high content of lactic acid bacteria with algae allows to compose products with a high content of nutrients and to create a brand new segment of fermented food.

Keywords:

algae in the food industry, fermented food, lactic acid bacteria

ANTIFUNGAL ACTIVITY OF LACTIC ACID BACTERIA GROWN IN THE PRESENCE OF ALGAE CHLORELLA VULGARIS

Sylvia Ścieszka*, Elżbieta Klewicka

*Institute of Fermentation Technology and Microbiology, Faculty of Biotechnology and Food Science,
Lodz University of Technology, Łódź, Poland*

*sylvia.scieszka@edu.p.lodz.pl

A few words about the author:

My interests are connected with lactic acid bacteria, fermented food, diet and functional foods.

Abstract:

The aim of this study was to determinate antifungal activity of lactic acid bacteria grown in the presence of algae *Chlorella vulgaris*. The biological material were four strains of *Lactobacillus brevis*, isolated from cucumber, beetroot and cabbage silage. The influence of algae in a concentration of 1.5% was investigated by the slab method.

It was found that all of *Lactobacillus* strains used in the study have the ability to limit the growth of fungi strains. However, lactic acid bacteria grown in the presence of *Chlorella vulgaris* possess larger zones of inhibition to all tested fungi. Therefore, algae can be a protective factor during products storing.

Keywords:

algae, *Chlorella vulgaris*, antifungal activity, lactic acid bacteria, *Lactobacillus brevis*

STRUCTURAL STUDIES OF COLD-ADAPTED AMINOTRANSFERASE

Jędrzej Rum^{*}, Anna Bujacz, Maria Rutkiewicz

*Institute of Technical Biochemistry, Faculty of Biotechnology and Food Sciences,
Lodz University of Technology, Stefanowskiego 4/10, 90-924 Lodz, Poland*

*jedrzej.rum@gmail.com

A few words about the author:

Protein crystallography group is a part of Institute of Technical Biochemistry which is a part of Faculty of Biotechnology and Food Sciences. Team successfully crystallized, solved structures and published numerous of proteins.

Abstract:

Cold adapted aminotransferase isolated from *Psychrobacter* (PsyArAT) seems to be a good candidate for industrial applications because it allows for costs reduction, higher stability of substrates and high yields with essentially no heating. The reaction of transamination conducted by this enzyme is a transfer of amine groups from α -amino acid to α -keto acid, which is crucial for sustaining of metabolism but also in obtaining enantiomerically pure amines, which can act as drugs or substrates for further synthesis.

To broaden our knowledge in this important enzyme a protein crystallography was used. Detailed analysis of protein structure on molecular level allows to learn more about the mechanism of action, conformational changes and macromolecule's features. Thus structures of three complexes of PsyArAT with hydroxyanalogs of phenylalanine, tyrosine and aspartic acid. These ligands are competitive inhibitors of enzyme's substrates and allow us to show PsyArAT's ability to bind compounds which differ in chemical character and size.

Diffraction data of the presented complexes were collected on 14.2 line of the BESSY synchrotron and processed in P21 monoclinic space group to the resolutions of 2.52 Å and 2.31 Å for PsyArAT/FOH and PsyArAT/YOH complexes, respectively. The PsyArAT/DOH complex was determined in P6522 hexagonal space group to the resolution of 1.62 Å. The native structure of PsyArAT (PDB: 4RKC) was used to solve the structures of the presented complexes.

Keywords:

crystal structure, aminotransferase, cold-adapted enzymes, X-ray crystallography

THE BIODEGRADATION PROCESS OF NATURAL AND STYRENE-BUTADIENE RUBBERS

Marta Kaźmierczak*, Tomasz P. Olejnik

*Institute of Food Technology and Analysis, Lodz University of Technology,
Stefanowskiego 4/10, 90-924 Lodz*

*martakaz@o2.pl

A few words about the author:

I'm the third year PhD student. I am interested in biology and environmental problems. I believe in technological improvement and its' help in solving scientific problems.

Abstract:

One of the global environmental problems is the storage and utilization of rubber wastes. The storage of it requires large areas and its' spontaneous decomposition lasts several dozen years. The basic process of utilization of rubber waste is thermal method, mainly pyrolysis or thermal decomposition process, which proceeds without oxygen. This process requires the installation of expensive equipment and they are harmful to the environment.

The use of biological methods to decompose toxic compounds is the most environmentally friendly, although it takes a long time. In waste disposal sites, including rubber waste, appear microorganisms which are able to use waste as a source of coal and energy in their metabolic pathways. Due to the current problem concerning rubber waste, in my research work, I focused on developing an effective method of utilization of natural rubber and butadiene-styrene rubbers.

The aim of my PhD thesis is to develop an effective process of degradation of various types of rubber and rubber waste using a bacterial strain initially pre-classified as *Gluconoacetobacter xylinus*, along with determining the kinetics of the process.

After the degradation process of selected rubber waste on a laboratory scale, I conclude that the strain which was initially pre-classified as *Gluconoacetobacter xylinus* is able to obtain the elements that are needed for them from rubber materials and thus it is able to partially degrade them.

Keywords:

natural rubbers, styrene-butadiene rubbers, bacterial cellulose, degradation process

DETERMINANTS OF CHANGES IN EATING BEHAVIOR

Milena Kobylińska*, Marta Plichta

*Katedra Organizacji i Ekonomiki Konsumpcji, Wydział Nauk o Żywieniu Człowieka i Konsumpcji,
Szkoła Główna Gospodarstwa Wiejskiego, ul. Nowoursynowska 166, 02-787 Warszawa, Poland*

*kobylińska.milena@wp.pl

A few words about the author:

PhD student at the Department of Consumption Organization and Economics at the Warsaw University of Life Sciences, passionate about healthy eating and promoters of a healthy lifestyle.

Abstract:

Human behaviors in the nutritional sphere are conditioned by various factors that constitute an integrated and mutually interacting system. The aim of the work was to present the determinants of the propensity to change eating behavior based on available literature. The results of many scientific studies have shown that the way a person behaves towards food determines who a person is, what his or her state of knowledge is, what his or her concerns are, and what are its expectations in relation to himself. The attitudes towards nutrition play an important role. Emotional states can be the cause of both the consumption of food and the consequence of what is consumed. Consumer habits and preferences are difficult to change. However, consumers' taste preferences for specific dishes and products are often so strong that even information about their negative impact on human health can be ignored. Despite the availability of knowledge about the principles of proper nutrition, in practice, nutrition often deviates from nutritional recommendations. It seems necessary to conduct research in the population on the factors conditioning the change in eating behavior. Knowledge about factors that are both a hindrance and facilitation in making a change can be used in dietary counseling in order to increase its effectiveness.

Keywords:

nutritional behaviors, change in eating behavior, determinants of change

SUPPLEMENTS: ARE THEY WORTH IT OR WORTHLESS?

Mirosław Malec

*Uniwersytet Medycznym in. Karola Marcinkowskiego w Poznaniu
Katedra i Zakład Farmacji Klinicznej i Biofarmacji*

miroslawmalec90@gmail.com

A few words about the author:

Mirosław Malec – pharmacist, traveler, blogger. Currently Ph.D. student at the Department of Clinical Pharmacy and Biopharmacy and the Department of Anaesthesiology and Intensive Pediatric Care at Poznan University of Medical Sciences.

Abstract:

Dietary supplements are a contentious topic in the nutrition world, with some dietitian arguing that a balanced diet means you don't need to be popping pills, as all of the vitamins and minerals should be accounted for. Meanwhile, others point out that it can be difficult to get all the nutrients we need from our plates alone and advocate supplements as an easy alternative to keeping our bodies in peak condition. Concerned about the health of reach for often purchased without a prescription dietary supplement in the hope that the body will improve, accelerate or improve the appearance of treatment. It's not always like that. For example, preparations with calcium and magnesium are not recommended for people with hypertension and diseased joints. Not only that with these diseases, but dietary supplements also will not help, they may still be harmful. After new research revealed that, contrary to popular belief, omega-3 supplements do nothing to prevent heart attacks, while vitamin C capsules could be doing more harm than good, it's clear that when it comes to supplements, not everything is as it seems. However, creatine monohydrate is one of the most researched supplements available to buy and also one of the cheapest. Due to the many studies on the benefits and safety of this form of creatine, it is one of the few, which can be recommended to patients. In this work, I will consider the pros and cons of using commercially available supplements.

Keywords:

dietary supplements, vitamins, minerals, pharmacy

FREE-TIME BEHAVIOR OF HIGH SCHOOL STUDENTS ON THE EXAMPLE OF STUDENTS OF THE 5TH HIGH SCHOOL IN RZESZÓW IN THE 2017/2018 SCHOOL YEAR

Karolina Łoś*, Diana Mazek, Paulina Nieznańska, Dominik Łoboda

Uniwersytet Rzeszowski, Wydział Wychowania Fizycznego, Studenckie Koło Naukowe Podróżników

*karolina.los@onet.pl

A few words about the authors:

Studenci I roku studiów magisterskich na Uniwersytecie Rzeszowskim, członkowie Studenckiego Koła Naukowego Podróżników.

Abstract:

Admission

Free time accompanies people every day, how we spend it affects health and well-being. During high school, a very important aspect is how students spend their free time, because teenagers are becoming more and more independent, during puberty they manifest various kinds of emotional imbalances. Both the family and the school shape passions and interests in the young man.

Methodology of research

The aim of this work is to determine the amount of free time available to high school students, and what determines them to undertake specific activities. The tool used was a questionnaire independently prepared by the authors of this work. The survey technique used in the work was a questionnaire. The questionnaire contained questions of single or multiple choice. He was completely anonymous. 100 respondents took part in the study.

Findings

Summing up the considerations, the amount of free time determines how the high school youth spends it. According to the analysis of research carried out by the authors of the work, young people choosing passive spending of free time decide to meet friends or listen to music. However, when actively spending free time, young people choose sports fields or cinemas. The above work and studies that have been carried out can show how parents and educators could organize classes for their children and students so that they would spend their free time properly.

Keywords:

free time, free time behavior, youth

ENOTOURISM IN THE PODKARPACIE REGION

Diana Mazek*, Paulina Nieznańska, Karolina Łoś, Dominik Łoboda

Uniwersytet Rzeszowski, Wydział Wychowania Fizycznego, Studenckie Koło Naukowe Podróżników

*dina-m@wp.pl

A few words about the authors:

Studenci I roku studiów magisterskich Turystyki i Rekreacji na Uniwersytecie Rzeszowskim, należących do Studenckiego Kała Naukowego Podróżników.

Abstract:

Enotourism, or wine tourism, has recently become very fashionable. According to statistics, it is one of the fastest growing areas on the tourist market. In recent years a lot of vineyards have been built in Poland and new ones are still being established. They are distributed in different voivodships but mainly in małopolska and podkarpacie. The revival of the polish wine industry caused a sudden increase interest in tourism. On the territory of Poland, enotourism is developing rapidly. This is a great idea for the tourist promotion of the regions.

Research methodology

The main purpose of the work was to determine what is adults' knowledge about enotourism in Podkarpacie. In the work there was applied the method of diagnostic survey. The tool used was inquiry form on one's own developed by authors of present work. The research technique used in work was survey. The inquiry form included single or multiple choice questions. He was completely anonymous. In the survey took part 100 respondents. 56 women and 44 men.

Findings

The results of the research have shown that enotourism is still in the development phase. Tourists are more often using services related to wine tourism. They take part in festivals, taste regional delicacies and tipples. After analyzing the research, it can be stated that there is growing interest in wine routes and visiting vineyards, which is linked with bigger interest in enotourism.

Keywords:

enotourism, vineyard, wine, Podkarpacie

ACTIVE TOURISM AS AN ESSENTIAL PART OF THE LIFESTYLE ON THE BASIS OF STUDENT OF ACADEMIC YEAR 2017/18

Paulina Nieznańska^{*}, Diana Mazek, Karolina Łoś, Dominik Łoboda

Uniwersytet Rzeszowski, Wydział Wychowania Fizycznego, Studenckie Koło Naukowe Podróżników

**paulina.nieznanska@op.pl*

A few words about the authors:

Studenci I roku studiów magisterskich na Uniwersytecie Rzeszowskim, członkowie Studenckiego Koła Naukowego Podróżników.

Abstract:

Activity is included in the way of moving, programming and experiencing. Active tourism is a way of life that lets you know the "taste of adventure". This means that active tourism is composed of many activities. It's not just sport or recreation. An important element is also the surrounding nature. So we can use various forms without focusing only on one and this aspect decides on generalization in active tourism.

Methodology of research

The main purpose of the work was to determine how active tourism is organized by students of the 2017/2018 academic year affecting their awareness of the basic elements of health. The method of diagnostic survey was used in the work. The tool used was a questionnaire independently prepared by the authors of this work. The research technique used in the work was a questionnaire. The questionnaire contained questions of single or multiple choice, it was completely anonymous. The study was attended by 100 students, including 70 girls and 30 men aged between 20-25 years

Summary

The research shows that in the majority of respondents prefer to cultivate it in some company, with family or friends. They are also aware that it has a very big impact on health. For the most part, young people choose hiking or climbing. However, many people lead a passive lifestyle that negatively affects their health. However, their taking any kind of activity testifies to their awareness in this topic.

Keywords:

active tourism, students, tourism, physical activity

DIAGNOSIS OF THE CONDITION AND PROSPECTS OF THE DEVELOPMENT OF THE MATERIAL BASE BIESZCZAD

Dominik Łoboda*, Karolina Łoś, Diana Mazek, Paulina Nieznańska

Uniwersytet Rzeszowski, Wydział Wychowania Fizycznego Studenckie Koło Naukowe Podróżników

*dodo19-95@wp.pl

A few words about the authors:

Studenci I roku studiów magisterskich turystyki i rekreacji na Uniwersytecie Rzeszowskim, członkowie Studenckiego Koła Naukowego Podróżników.

Abstract:

In the time of development of the 21st century, where the man puts emphasis on rest and tourism, a very important aspect accompanying the place of rest is tourist development of the region. Attention is paid to tourism development in the Bieszczady region. It is worth noting that tourists are increasingly choosing areas of Bieszczady as their travel area. In recent years, a high increase in the number of accommodation facilities has been observed, which increases the tourist absorption of the region.

Methodology of research

The aim of the research was to check the tourist development status of Bieszczady by tourists in the opinion of tourists. The tool used was a questionnaire independently prepared by the authors of this work. The research technique used in the work was a questionnaire. The questionnaire contained questions of single or multiple choice. He was completely anonymous. 100 respondents took part in the study.

Findings

To sum up the considerations, the Bieszczady Mountains as a tourist region are well developed, which does not change the fact that their further development can be properly targeted. According to the analysis of the research carried out by the authors, it can be concluded that the accommodation is suited to the tourist visiting this region. That is why, in this region, there are summer cottages, mountain hostels and private accommodation as well as guest houses and holiday centers. However, a small percentage of the infrastructure are hotels.

Keywords:

Bieszczady, material base, tourist region

INNOVATIVE SUSTAINABLE SOLUTIONS FOR IMPROVING THE SAFETY AND DIETARY PROPERTIES OF SEAFOOD IN SEAFOODTOMORROW PROJECT – PROJECT OVERVIEW

Piotr Eljasik (1)*, Malgorzata Sobczak (1), Remigiusz Panicz (1), Jacek Sadowski (2)

*Faculty of Food Science and Fisheries, West Pomeranian University of Technology,
Szczecin, Poland, Kazimierza Królewicza 4, 71-550 Szczecin, Poland*

(1) Department of Meat Science

(2) Division of Aquaculture

*peljasik@zut.edu.pl

A few words about the author:

I am a PhD student at the Department of Meat Science at the West Pomeranian University of Technology in Szczecin, member of SEAFOODTOMMOROW project. Interested in genetics, conservation genetics and food technology.

Abstract:

SEAFOODTOMORROW is a project funded from Horizon 2020 program, which is the biggest EU Research and Innovation initiative thus far. The main aim of the project is to improve environmental and socioeconomic sustainability of seafood production and processing industry by validating and optimizing commercial solutions, while ensuring product quality and safety. Ongoing activities include exploitation of agro and seafood by-products to develop sustainable feeds for three commercially important fish species i.e. atlantic salmon (*Salmo salar*), common carp (*Cyprinus carpio*) and gilthead seabream (*Sparus aurata*) additionally fortified with essential nutrients, such as iodine, selenium and n-3 PUFAs. Another goal is to create attractive, functional and nutritionally adapted seafood for seniors, youths and pregnant woman. Prototype products will be established by culinary schools across the Europe, and one recipe for each group will be commercialized. Project also takes under consideration strategies to prevent and remove contaminants from seafood, optimize sensors for safety evaluation, as well as development of a system to ensure quality at each point of supply chain. This will include, among others, setting up genetic reference database for species authenticity and providing a digital traceability system. As a result of all activities greater user acceptance, higher visibility of innovative solutions and increased availability of healthier seafood to improve consumers diet are expected.

Keywords:

Aquaculture, Nutrition, Seafood DNA barcoding, Seafood quality and safety, Technology development

INFLUENCE OF LAYING HEN'S AGE ON THE CHANGE OF EGG SHELL MINERAL COMPOSITION

**Kamil Drabik (1)*, Justyna Batkowska (2), Agnieszka Adamczuk (3),
Dominika Krakowiak (1), Emil Dados (1)**

University of Life Sciences in Lublin:

(1) Poultry Science Section of Student Research Group of Biologists and Animal Breeders

(2) Institute of Biological Basis of Animal Production

(3) Central Laboratory of Agroecology

*kamil.drabik2@gmail.com

A few words about the author:

All authors are related to University of Life Sciences in Lublin and poultry scientists.

Abstract:

With the age of the laying hen, a number of changes occurs in her body, which consequently result in a reduction in the eggs quality. One of the most common changes is the weakening of the shell's strength. The negative effect of this phenomenon affects the economy of poultry production, regardless of the birds' use. Both in breeding flocks as well as in production stocks, there is a loss of raw egg material, which translates directly into the producers profit. The purpose of the work was to assess changes in mineral composition and microelements surface distribution of the egg shells depending on the age of laying hens.

The experimental material consisted of egg shells obtained from the Ross 308 parental stock at various age (29, 36, 53, 72 weeks). The mineral composition of shells was analyzed by atomic absorption spectrometry (AAS) and the content of trace elements by inductively coupled plasma mass spectrometry (ICP-MS). The analysis of changes in the surface distribution of microelements was also performed with scanning microscopy with the X-ray energy dispersion detector (SEM-EDS).

The results obtained in the experiment indicate a significant effect of the laying hens' age, not only on the qualitative parameters of eggshells, but also on their mineral composition.

Keywords:

egg quality, hen's age, mineral composition

CRYOGENICS: A PATH TO IMMORTALITY?

Dariusz Kulus

*Laboratory of Ornamental Plants and Vegetable Crops, Faculty of Agriculture and Biotechnology,
UTP University of Science and Technology in Bydgoszcz, Poland, Bernardyńska 6, 85-029 Bydgoszcz*

dkulus@gmail.com

A few words about the author:

Dr. Dariusz Kulus, currently living in Bydgoszcz. A graduate of biotechnology at the University of Technology and Life Sciences in Bydgoszcz (2011). The doctoral degree in biotechnology received in 2015 at the University of Life Sciences in Poznań.

Abstract:

Humans were searching for ways of one's life prolongation and even immortality since ancient times. This, however, is not easy to achieve, especially with animal tissues. Plants, on the other hand, due to a great regeneration capacity even from a single cell, may have this "opportunity". This is because the development of modern biotechnology and cryogenics. Maintenance of biological material at ultra-low temperature of liquid nitrogen (-196°C), the so-called cryopreservation, is the most safe and efficient long-term storage method. Preparation of cells for the stress related to hibernation, however, is quite complex and requires optimization of numerous key factors. Over the years, several cryopreservation techniques have been developed. They can be applied for storage of plant shoot tips, meristems, callus and embryos. As for plants, its application is currently limited only to stem, sperm, and egg cells, but may expand in the future. The aim of this presentation is to summarize some basic information on biological material cryopreservation.

Keywords:

biodiversity; cryopreservation; liquid nitrogen; storage

SELECTED PROBLEMS FOR ADAPTATION OF SOIL CONSERVATION PRACTICES IN BELARUS

Hanna Radziuk

Nicolas Copernicus University in Torun

anka.radziuk@gmail.com

A few words about the author:

Hanna Radziuk, uczestnik studiów doktoranckich w zakresie geografii.

Abstract:

Belarus has agriculture orientated economy. Although agriculture gives only 6-7 % of country's GRP (on 1.01.2018), it is a main user of land resources (8880,6 thousand hectares from 20760 thousand hectares of total area or 42,7%). Currently agriculture in Belarus faces different challenges included consequences of climate changes, lack of water, soil erosion, expansion of soil degradation (soil compaction, lost of humus and nutritions, humus mineralization). Conservation agriculture could help to decrease these negative effects, and Belarus has adequate resources to implement soil conservation practices (CA).

In 2015-2016 years Belarus together with Ukraine initiated of FAO UN the project TCP/RER/3501 "Soil Management Practices: Ways Forward to Adopt Saving Technology" aimed at the assessment of readiness of the countries to use principles of CA. As a result of analysis state documents, internet sources and specific informational resources for land users were specified some problems in implementation of CA in Belarus:

- ineffective distribution of material and financial resources through state agricultural organization (users of 98 % of total area agricultural lands) and farmers;
- lack of specific knowledge about soil physical properties, soil heterogeneity and resistance to erosion;
- lack of information resources for stakeholders;
- lack of state policy focused on maintenance saving technologies;
- deficiency of qualified staff and others.

Keywords:

land users, conservation agriculture, Belarus

TRADITIONAL PRODUCTS AS AN ELEMENT OF PRESERVATION OF THE REGIONAL CULTURE

Agata Satowska*, Emil Skutecki, Monika Szymczuk, Jakub Kalinowski

Sekcja Hodowli i Biotechnologii Świń, University of Life Sciences in Lublin

*agata.satowska@onet.pl

A few words about the author:

Student of the 3rd year of "Food safety".

Abstract:

Consumers increasingly value traditional products with a lower degree of processing, as well as ecological products, representative for culture of relevant region. The very concept of a regional product evokes positive reactions among customers, due to the unique, characteristic taste and smell of this type of product, among others.

Among the traditional products of the Lubelskie Voivodeship in the category "Meat products", announced by the Ministry of Agriculture and Rural Development, there are three breeds of pigs - Puławska, Wielka Biała Polska and Polska Biała Zwisłoucha. Those breeds distinguish themselves by high milk yield, good feed utilization, or high meat content in the carcass, especially regarding Polska Biała Zwisłoucha. It's also worth to mention that WBP (Large White Pig) and PBZ (Polish Domestic Pig) breeds are free of the RYR1T gene, responsible for stress, which is a factor of great importance to the palatability of pork. Numerous, healthy litters of WBP and PBZ breeds, combined with good adaptation to Polish environmental conditions, additionally affect breeding value of breeds and hence high economic benefits of producers.

The fact of announcing the mentioned breeds of pigs influences both the popularization of the Lublin region in the aspect of tourist attractions. It also improves the local economic and development situation through increasing the sales of products.

Keywords:

regional culture, traditional product, Puławska, WBP, pig

EFFECT OF LEAF AND TWIG EXTRACTS OF SEA BUCKTHORN (*ELAEOAGNUS RHAMNOIDES* (L.) A. NELSON) ON THE ADHESION OF PLATELETS TREATED WITH THROMBIN AND ADP TO FIBRINOGEN

Bartosz Skalski (1)*, Beata Olas (1), Jerzy Żuchowski (2), Anna Stochmal (2)

*(1) Department of General Biochemistry, Faculty of Biology and Environmental Protection,
University of Łódź, 90-236 Łódź*

*(2) Department of Biochemistry, Institute of Soil Science and Plant Cultivation, State Research
Institute, 24-100 Puławy*

*bartosz.skalski@biol.uni.lodz.pl

A few words about the authors:

Bartosz Skalski – PhD student.

Beata Olas – Professor at the University of Lodz.

Jerzy Żuchowski – doctor, employee of the National Research Institute in Puławy.

Anna Stochmal – professor, employee of the National Research Institute in Puławy.

Abstract:

Sea buckthorn (*Elaeagnus rhamnoides* (L.) A. Nelson) is a plant with a number of medicinal properties. It is a rich source of health-promoting compounds like: vitamins (E and C), phenolic compounds, tocopherols, carotenoids, amino acids and fatty acids especially “omega” fatty acids. Recent studies have focused on determining the antiplatelet properties of extracts isolated from various organs of sea buckthorn.

Depending on the degree of activation, blood platelets will be differently adhering to adhesive proteins, such as fibrinogen. In this work, the effects of extracts from leaves and twigs of sea buckthorn on blood platelet adhesion to fibrinogen were studied in vitro.

Our results show that adhesion to fibrinogen of blood platelets activated by thrombin and by ADP in the presence of twigs and leaves extract (at a dose ranged from 0.5 - 50 µg/ml) was reduced, and this process was statistically significant. The extract from sea buckthorn twigs (at the highest tested concentration - 50 µg/ml) inhibited platelet adhesion stronger than the extract from sea buckthorn leaf. Inhibition of platelet adhesion for twig extract was about 60%.

Keywords:

Sea buckthorn, adhesion, blood platelets

PRODUCTION AND CONSUMPTION OF PORK IN THE ASPECT OF CONSUMER PATRIOTISM

Emil Skutecki*, Agata Satowska, Amelia Kowal, Radosław Tandeniewicz

Sekcja Hodowli i Biotechnologii Świń, University of Life Sciences in Lublin

*eskutecki@gmail.com

A few words about the author:

Emil Skutecki – student of veterinary.

Abstract:

Judging on the observations done by the Polish Consumer Market the choice in the selection of country products, that include regional and local ones is an important social-economic factor.

The aim of our article was to define the shopping preference of Lubelskie voivodeship residents. We took into account, the country origin of raw pork meat and manufactured pork products.

A survey has been conducted within Lublin's residents using a questionnaire. The aim of the questions was to verify how often residents of Lubelszczyzna consume pork, what are the most influential factors in the selection of pork and if the origin of the product is a significant factor for them.

A hundred people have undertaken the survey, 68% of participants were under the age of 30, 42% participants were above the age of 30.

Significant components playing a decisive role on the selection of pork included, taste attributes and the difficulty level of preparation. Participants below the age of 30, concentrated more attention to the ingredients and nutritional value of the pork and pork products. For older participants the same importance was placed on the country of origin and the manufacturer above 70% of the people declared that they only purchase pork meat of Polish origin.

Overall, basing on the results we have obtained, it is safe to conclude that pork still plays a major role in the diet of Polish people, and country's consumers awareness in the ethnocentric aspect is high.

Keywords:

pork meat, regional and local, country of origin

ROSA SP. AS A SOURCE OF COMPOUNDS WITH BACTERICIDAL POTENTIAL

Lidia Piekarska*, Elżbieta Klewicka

Institute of Fermentation Technology and Microbiology, Lodz University of Technology

*lidia.piekarska@edu.p.lodz.pl

A few words about the author:

Lidia Piekarska is a PhD student at Institute of Fermentation Technology and Microbiology, Lodz University of Technology. Her scientific interests include issues related to lactic bacteria, polyphenols, and their action towards pathogenic bacteria.

Abstract:

Rosa sp. - one of the species belonging to the Rosaceae family, is not only a common decorative plant. For years it has also been used in traditional and alternative medicine. Pharmaceutical preparations based on wild rose extracts are considered to have diuretic, antiallergic, anti-inflammatory and antioxidant properties. However, in addition to the high content of ascorbic acid, β -carotene, or lycopene, the fruit pulp of Rosa sp. contains high concentrations of polyphenols.

One of the most well-known properties characterized by secondary metabolites of plants (polyphenols) is their antimicrobial potential. The widespread use of antibiotic therapy and the use of chemical compounds in the fight against bacterial epidemics has increased the resistance of some pathogenic strains. Therefore, it is very important to conduct research aimed at discovering and acquiring new compounds with bactericidal properties.

Infectious diseases continue to be one of the main causes of mortality in the world. The incidence of illness is not dependent on the region. It equally applies to residents of areas with high potential for economic development as well and residents of poorly developed areas. Many pathogenic microorganisms with resistance to antibiotics are distinguished to be cause of food-borne diseases. One example of this are bacteria classified as Staphylococcus, which often become a cause of purulent skin infection and systemic inflammation.

Keywords:

Rosa sp., polyphenols, antimicrobial properties

THE EFFECT OF HUMIDITY LEVEL ON YIELDING PARAMETERS OF SELECTED SPRING WHEAT GENOTYPES (TRITICUM AESTIVUM L.)

Agata Olejnik*, Katarzyna Parkitna

*Department of Genetics and Plant Breeding, Faculty of Nature and Technology,
Wrocław University of Environmental and Life Sciences, Wrocław*

*a.olejnikk@gmail.com

A few words about the author:

We are students of Plant biotechnology at the Wrocław University of Environmental and Life Sciences. We also participate in student research group of Genetics and Plant Breeding.

Abstract:

The purpose of the experiment was to define the effect of humidity level on yielding parameters of selected spring wheat genotypes. The research material consisted of 7 genotypes of wheat: Harenda, Torridon, Tybalt, Ostka Smolicka, M5, M6, and M7. The experiment was established in Wagner vases in a vegetation hall in 2016 with 4 levels of humidity – 30%, 50%, 70%, and 90% – as the differentiating factor. After harvest, the following data was collected: grains number and mass of main and lateral shoots and mass of a thousand grains (MTZ) of main and lateral shoots.

Data analysis revealed that in 30% humidity, Harenda showed the most negative reaction in the form of lower yielding parameters while Torridon showed the best reaction in 90% humidity in comparison to wheat that grows in field conditions. A rising trend can be noticed in almost all of the considered yielding parameters along with an increase in humidity.

Keywords:

Wheat, Drought, Humidity, Yield

ANTAGONISTIC ACTION OF YEAST ON SELECTED MOLD FUNGI

Maciej Sawicki*, Hanna Rekosz - Burlaga

Uniwersytet Mikołaja Kopernika w Toruniu

*maciejsawicki215@gmail.com

A few words about the author:

Mainly, I'm interested in molecular biology, genetics and neurobiology. In the future i'm hoping to work in one of this fields. Dr Hanna Rekosz - Burlaga's interests are: rhizosphere and phyllosphere microorganisms, endophyte bacteria and fungi.

Abstract:

The problem associated with the chemical protection of plants and fruits is increasingly controversial, which sought alternative forms of protection. This led to the development of biocontrol methods that limit the negative impact of chemical preparations on the natural environment. Biological protection agents include various strains of bacteria, yeasts and some fungal species.

In the conducted studies, yeast antagonist activity against molds isolated from apples, pears and peppers was evaluated. In preliminary studies, one of the 19 strains of yeast used was selected which in the pan tests inhibited the development of apple-like mold. The effectiveness of this strain of yeast was tested in an experiment carried out on apples infected with *Mucor* sp. And then stored in a cold store. In the study, it was found that *Torulopsis candida* T1, a yeast isolate derived from the phyllosphere of the plant, effectively inhibited the development of *Mucor* sp. In cultures carried out on Sabouraud's medium and on apples stored after harvest.

Keywords:

microbiology, biocontrol, yeast, antagonism, apples, *Mucor* sp.

EFFECT OF HOP ACIDS ON THE EFFICIENCY OF FERMENTATION PROCESS AND COMPOSITION OF THE DISTILLATES OBTAINED

Ewelina Strak* , Maria Balcerek, Katarzyna Pielech-Przybylska

*Institute of Fermentation Technology and Microbiology, Lodz University of Technology,
Wolczanska 171/173, Lodz, Poland*

*ewelina.strak@edu.p.lodz.pl

A few words about the author:

A student at the Faculty of Biotechnology and Food Sciences. Specialization is spirit and yeast technology.

Abstract:

The aim of this study was to compare the fermentation efficiency of rye-based mashes with pH 4 and 5, and the content of the fermentation by-products, i.e. acetaldehyde and ethyl acetate in the obtained agricultural distillates. The rye mashes were prepared using native (granular) starch (temperature of a process was 35 °C, 30 min). The fermentation was conducted at 35±1 °C for 3 days.

Based on the obtained results it may be concluded that preparation of distillery mashes using native rye starch, the correct starch saccharification and fermentation was observed, providing ethanol yield from 71% (for mashes with pH 5) to 79% of the theoretical value (for mashes with pH 4). Higher ethanol yield was found for mashes with an addition of hop acids, which ranged from 72% (for mashes with pH 5) to 89% (for mashes with pH 4).

The concentrations of acetaldehyde fulfilled the requirements concerning its limit in agricultural distillates (<0,1 g/L absolute alcohol- LA100%), except distillates from mashes with an initial pH of 4.0 without addition of hop acids, which was marked slightly above the norm (0,12±0,01 g/LA100%). Moreover, in all obtained distillates ethyl acetate (characteristic fruity aroma) was determined. Its highest concentration was marked in distillates from mashes with pH 5 supplemented with hop acids (0,27+ 0,01 g/LA100%), while the lowest in distillates obtained after the fermentation of mashes with pH 4, without addition of hop acids (0.16±0.01 g /LA100%).

Keywords:

native starch, hydrolysis and fermentation

RED GRAPEFRUIT JUICE (CITRUS PARADISI) AS A NATURAL SUBSTANCE LIMITING THE QUALITY CHANGES DURING THE EGGS STORAGE

**Dominika Krakowiak (1)*, Marzena Wieczorek (2), Kamil Drabik (1),
Małgorzata Stopyra (1), Łukasz Wlazło (3), Justyna Batkowska (2)**

University of Life Sciences in Lublin:

(1) Poultry Science Section of Student Research Group of Biologists and Animal Breeders

(2) Institute of Biological Basis of Animal Production

(3) Department of Animal Hygiene and Environmental Hazards

*dominika.krakowiak19980@gmail.com

A few words about the authors:

All authors are related to university of life sciences and poultry research.

Abstract:

From the moment of egg laying there are many changes that cause its quality deterioration. Many factors, mainly related to the eggs storage, have an impact on these changes. Maintaining the highest possible level of table eggs quality during their storage forces to look for methods of freshness preservation.

The aim of the study was to evaluate the possibility of using red grapefruit juice (*Citrus paradisi*) as a material covering the shells of chicken eggs, which may help to slow down the aging process of eggs during their storage.

The experimental material was 390 table eggs collected on the same day. At the day 0 of experiment quality traits of 30 eggs (control group) were evaluated. The remaining 360 eggs were divided into 3 groups (120 eggs each). In the control group (1st) egg shells were not subjected to any treatment. The experimental group eggs was covered with fresh grapefruit juice (2nd group) and an aqueous solution of sugar mixture, identical to the one previously found in the juice (3rd group). Then the eggs were placed on transport trays and stored at 14 °C and 70% humidity.

On the basis of the obtained results it can be assumed that the use of grapefruit juice does not limit adverse changes occurring in eggs during their storage. Nevertheless, in other authors' studies, the biostatic and biocidal properties of grapefruit juice have been proven for many groups of microorganisms, thus contributing to reduction of microflora development on the eggshell.

Keywords:

Citrus paradisi, egg storage, quality change, shells coating

FEATHER PECKING - POULTRY BEHAVIORAL DISORDER

Jakub Ceregrzyn*, Ewelina Misiec, Monika Wiśniewska, Karolina Wengerska,
Justyna Batkowska

Uniwersytet Przyrodniczy w Lublinie

*jakub.ceregrzyn@gmail.com

A few words about the authors:

We are young group of students from Veterinary Medicine. We are a part of Poultry Science Section of Student Research Group of Biologists and Animal Breeders.

Abstract:

One of the most complex problems faced by producers of table eggs is the poor condition of laying hens plumage. This phenomenon is referred to as feather pecking and it is defined as a type of behavioral disorder consisting in pecking feathers and often in eating them. Plucking feathers causes pain, increases the risk of injury and cannibalism occurrence. It is a multifactorial problem, and factors contributing to its occurrence can be grouped into internal, as genetic predisposition, resulting in aggressive behavior or increased motor activity of birds. It is believed that the incidence of feather pecking is significantly higher in systems where birds do not have the ability to manifest their natural behaviors, such as flapping their wings, running, burying, feeding. For the prevention of feather pecking, various nutritional supplements and modifications are considered. It seems that the collected feathers can act as a dietary fiber. Nutritional modifications also concern the level of protein and its amino acid composition in feed. The form of feed is also important, birds fed with pelleted mixture have a higher frequency of feathers tapping than those fed with a loose mixture. The aim of the work was to approximate the definition and etiology of feather pecking in laying hens, but also ways to prevent its occurrence.

Keywords:

cannibalism, plumage, laying hens, technopathies

TECHNOPATHIES - DISEASES RESULTING FROM POULTRY REARING TECHNOLOGY

**Monika Wiśniewska*, Ewelina Misiec, Jakub Ceregrzyn, Kamil Drabik,
Justyna Batkowska**

Uniwersytet Przyrodniczy w Lublinie

*wisniewskamonika004@gmail.com

A few words about the authors:

We are young group of students from Veterinary Medicine. We are a part of Poultry Science Section of Student Research Group of Biologists and Animal Breeders.

Abstract:

Technopathies, i.e. diseases of birds resulting from the technology of their rearing, can be divided into several categories. Technopathies associated with physiological changes include partial or total blindness of birds, resulting from the limitation of the light intensity, disorders of the long bones structure due to the rapid body weight gain and considerable limited bird immobility. The nutrition of high-production birds should also be considered as a "technological" factor. Deficiencies of vitamins and minerals can lead to diseases, such as rickets, hip dysmoplastia, inhibition of long bone growth. On the other hand, excess of certain substances may contribute to metabolic disorders, such as round heart syndrome, ascites, pulmonary hypertension.

The so-called stress of mass rearing, resulting from a large accumulation of birds on a relatively small area, may result, among others, in sudden death syndrome or behavioral disorders (feather pecking, cannibalism). It is also possible to distinguish a group of technopathies that directly affect the quality of the obtained raw material, such as myopathy, green muscle disease or foot pad dermatitis as a result of contact with wet litter, which can lead to pressure sores and ulcers on the breast and chest of birds spending most of the time lying. Both of them decrease the quality of carcasses and meat.

The aim of the study was to present the most common diseases caused by meat-type-poultry rearing technology.

Keywords:

poultry rearing technology, welfare, poultry diseases

REMOVAL OF ZEARALENONE FROM VARIOUS TYPES OF CULTURE MEDIA BY ENTOMOPATHOGENIC FUNGI OF THE GENUS METARHIZIUM

Monika Nowak*, Sylwia Różalska

Department of Industrial Microbiology and Biotechnology, Faculty of Biology and Environmental Protection, University of Łódź, Banacha Street 12/16, 90–237 Łódź, Poland

*monika.nowak@unilodz.eu

A few words about the authors:

We are a research team at the Department of Industrial Microbiology and Biotechnology at the University of Lodz. I carry out my research as part of doctoral studies under the supervision of prof. dr hab. Sylwia Różalska.

Abstract:

Zearalenone (ZEN) is a secondary metabolite produced by various *Fusarium* species, e.g. *F. graminearum*, *F. culmorum*, *F. equiseti* or *F. semitectum*, which occur naturally in soil. ZEN is oestrogenic mycotoxin, causing contamination of cereal crops worldwide, which in turn is a threat to people and animals consuming food made from polluted crops. It can affect reproductive disorders in cattle or chickens and hyperestrogenic syndromes in humans.

The aim of the study was to determine whether the entomopathogenic fungi of the genus *Metarhizium* commonly found in soil are capable of removing ZEN from different types of culture media. *M. anisopliae* ARSEF7487, *M. brunneum* ARSEF2107, *M. majus* ARSEF1914, *M. lepidiotae* ARSEF7412 and *M. flavoviridae* were used in this research. The removal of ZEN from three types of culture media was investigated, i.e. Lobos (L), Czapek-Dox (CzD) and Czapek-Dox II (CzDII).

All tested species showed the ability to remove ZEN. It has been found that the elimination efficiency depends on the type of culture medium. The best removal activity was observed for CzD culture medium wherein *M. anisopliae*, *M. brunneum* and *M. majus* eliminated 100% of added mycotoxin in concentration 0.5 mg L⁻¹. For *M. lepidiotae* and *M. flavoviridae* the best culture medium was CzDII (90% of ZEN elimination) and L (100% of ZEN elimination), respectively. *M. anisopliae* showed 100% efficiency to remove ZEN from all types of culture media.

Keywords:

zearalenone, secondary metabolites, entomopathogenic fungi, *Metarhizium* species, removal

RULES FOR THE USE OF PLANT PROTECTION PRODUCTS IN AGRICULTURE

Monika Zająkała

University of Science and Technology in Bydgoszcz, Faculty of Agriculture and Biotechnology

monika_zareba@interia.pl

A few words about the author:

PhD student in the field of agronomy at the Faculty of Agriculture and Biotechnology at the University of Science and Technology in Bydgoszcz. In my research I deal with issues related to agriculture.

Abstract:

Modern, conventional agriculture is characterized by high efficiency, thanks to the use of modern means of production, including chemical origin. The use of plant protection products helps to maintain plant health, guaranteeing good economic results. However, plant protection is a specific area of agricultural practice where decisions have an impact not only on plants, but also on the safety of humans, animals and the environment.

Professional users, i. e. farmers, are obliged to comply with the current legislation on crop protection. Legislation prescribes the safe and sustainable use of plant protection products.

Therefore, the most important requirements for those using chemical preparations have been reviewed. Compliance with the code of good plant protection practice allows the production of quality food that does not contain undesirable residues of plant protection products. All this ensures food security for people and animals, while at the same time protecting the ecosystem.

Keywords:

plant protection, rules for the use, agriculture

MANAGEMENT OF AGRICULTURAL PROPERTY STOCK OF THE STATE TREASURY

Monika Zająkała

University of Science and Technology in Bydgoszcz, Faculty of Agriculture and Biotechnology

monika_zareba@interia.pl

A few words about the author:

PhD student in the field of agronomy at the Faculty of Agriculture and Biotechnology at the University of Science and Technology in Bydgoszcz. In my research I deal with issues related to agriculture.

Abstract:

The National Centre for Agricultural Support, established on 1 September 2017, is the state administration organ managing the agricultural property of the State Treasury. The institution's task is to distribute the agricultural land it owns to farmers operating in the country.

Currently, there are nearly 1400 thousand hectares of agricultural land in the resource, of which nearly 75% is leased to farmers. For the last two years, the main form of development has been leasing based on tenders and auctions. The sale of State-owned land by law is currently blocked.

The policy of the institutions is aimed at enlarging family farms and encouraging the young generation to take over from their parents.

Keywords:

The National Centre for Agricultural Support, State Treasury resources

PLENARY SESSION

TECHNICAL SCIENCES

METHODS OF COMPLETING ORDERS ON THE EXAMPLE OF A SELECTED SERVICE COMPANY

Weronika Ręba

Uniwersytet Technologiczno-Przyrodniczy w Bydgoszczy

weronikareba@onet.eu

A few words about the author:

Studentka Wydziału Zarządzania Uniwersytetu Technologiczno-Przyrodniczego w Bydgoszczy.

Abstract:

In the era of technical progress the consumer expects for companies to adapt to their needs. To meet expectations, the segment delivering orders to the address provided by the client, have developed very intensively.

Companies implement the service have the task to correctly matching the goods according order specification. The degree of complexity depends on the quantity of assortment available in the offer.

For the needs of the study, were analyzed three types of order picking. Traditional picking list, picking list with division into departments and order picking with the use of pre-picking. These methods will be analyzed in terms of quality and economic factors which will allow you to assess the individually indicated factors, affecting the final quality of the service.

The purpose of the paper is to present the described methods and select the most beneficial ones for a company of order picking. Using them in the right way will improve the quality of the service by reducing time of formatting the load and its correct selection in accordance with the order specification.

Keywords:

Picking, order, delivery, service, customer

THE PROCESS OF RECOGNIZING THE ELECTROSTATIC PRECIPITATOR'S TECHNICAL STATE

Aleksandra Czajkowska

University of Science and Technology in Bydgoszcz, Faculty of Mechanical Engineering

czajkowska.aleksandra91@gmail.com

A few words about the author:

PhD Student on Mechanical Engineering Faculty at the University of Science and Technology in Bydgoszcz. Specialization in terms of the electricity generation, diagnosing and operation of the ESP. Currently she works in IT company, as Product Manager.

Abstract:

The Polish energy sector started developing rapidly in the 1960s when forced industrialisation triggered a sudden demand for electricity. When power plants were constructed, no one realised that power units would have to be temporarily shut down for reasons other than emergencies or repairs. To facilitate the process of planning service activities, modernisations and repairs of any failures of the facility, an appropriate methodology for controlling the electrostatic precipitator's operation and diagnosing its individual components' degradation should be applied. The actions taken will make it possible to improve the electrostatic precipitator's operation and will significantly reduce costs of maintaining its operability during the facility's operation.

The process of diagnosing the technical state of the electrostatic precipitator, which is among critical equipment in the power unit, should clearly make it possible to identify certain components, parts, material in the context of recognizing their degradation. The procedures for diagnosing the electrostatic precipitator's state and controlling the facility's operability, list individual steps dedicated to the Maintenance Services which develop maintenance, modernization or service plans for the facility. Additionally, the specific procedures were supplemented with algorithms to ultimately localise damage and to control the progressive degradation of the existing ESPs' state.

Keywords:

the electrostatic precipitator, ESPs' technical state, power units, the procedures for diagnosing ESPs' state

PROCEDURE FOR ASSESSING THE ESP'S TECHNICAL STATE

Aleksandra Czajkowska

University of Science and Technology in Bydgoszcz, Faculty of Mechanical Engineering

czajkowska.aleksandra91@gmail.com

A few words about the author:

PhD Student on Mechanical Engineering Faculty at the University of Science and Technology in Bydgoszcz. Specialization in terms of the electricity generation, diagnosing and operation of the ESP. Currently she works in IT company, as Product Manager.

Abstract:

To correctly assess the electrostatic precipitator's technical state, it is important to use tools providing a full insight into its current operation. Given its important function (purification of waste gases from harmful dust particles resulting from the fuel combustion process), the electrostatic precipitator must be guaranteed failure-free operation. The proposed scope of the procedure includes an assessment of the machine's (electrostatic precipitator's) technical state performed during operation and control activities to analyse the facility's operation on an ongoing basis, and activities to detect damage: fatigue, aging, random damage, and the electrostatic precipitator's deteriorating structural and mechanical components. As part of the procedure for assessing the electrostatic precipitator's technical state, procedure for individual teams supervising the facility's operation should be distinguished.

Keywords:

electrostatic precipitator's technical state, Maintenance Department, control activities to analyse the facility's operation

LAPAROSCOPIC SKILLS TRAINING FOR LAPAROSCOPIC SURGEONS AND MEDICAL STUDENTS

**Ewelina Bek, Justyna Gołabek*, Anna Lubocha, Magdalena Pieczykolan, Magda Plaga,
Joanna Rokicka, Anna Szachewicz**

*Faculty of Chemical Technology and Engineering,
West Pomeranian University of Technology, Szczecin*

*gj33153@zut.edu.pl

A few words about the author:

I am a Chemical Technology student at the West Pomeranian University of Technology in Szczecin. I'm interested in listening to music, playing piano and reading books.

Abstract:

Laparoscopic surgical technique is a widely used method which helps to avoid a laparotomy - classical surgery involving extensive cutting of the abdominal wall. Laparoscopy provides shorter treatment time, low invasiveness and traumatization, reliable and quick diagnostics and reduces postoperative pain as well, in comparison to a classic surgery.

Excellent eyesight and precise hand manipulation are the key to success in minimally invasive surgery, so mastering of these skills is highly desired. Intensive training of simulated laparoscopic surgery shortens the time of surgery and increases efficiency of doctors and students. Appropriate equipment is required to conduct such a training.

The cost of synthetic organs essential to exercise oscillates between 27,000 and 30,000 PLN. There are some cheaper eye-hand coordination exercise kits allowing to develop the skills of gripping, carrying, cutting or surgical stitching, but synthetic organs do not reflect the real organs and tissues.

Analysis of arguments mentioned above carried out by Polymer Institute of the West Pomeranian University of Technology in cooperation with Pomeranian Medical University in Szczecin, proved that we can obtain synthetic organs for training purposes that reflect appearance and structure of real human organs. They are a significantly cheaper substitute for models currently available and can be used to simulate cholecystectomy, appendix resection, enucleation of ovarian cysts or hernia surgery.

Keywords:

laparoscopy, surgical education, laparoscopic training

TECHNOLOGY OF OBTAINING HUMAN ORGANS' MODELS FOR LAPAROSCOPIC TRAINING

**Ewelina Bek, Justyna Gołabek, Anna Lubocha, Magdalena Pieczykolan, Magda Plaga*,
Joanna Rokicka, Anna Szachewicz**

*Faculty of Chemical Technology and Engineering,
West Pomeranian University of Technology, Szczecin*

*magdaplaga@gmail.com

A few words about the author:

I am a Chemical Technology student at the West Pomeranian University of Technology in Szczecin. I am also a member of the Students' Scientific Association "Skondensowani".

Abstract:

Students' Scientific Association "Skondensowani" (Polymer Institute, West Pomeranian University of Technology in Szczecin) in cooperation with the Pomeranian Medical University in Szczecin has undertaken to create human organs' models made of organogel. A series of tests was conducted, as a result of which models of female reproductive organs, liver with gall bladder and element of the small intestine with the appendix were obtained.

The models of endometrial ovarian cyst and gall bladder were also successfully obtained by surrounding certain materials by a thin latex film. All of the obtained models allow carrying out a simulation of laparoscopic operation.

The obtained models are characterized by a significantly lower price compared to the models currently available on the market. Unlike organs of animal origin, they do not require specialized utilization, and the material from which they are made is fully biodegradable. Bearing in mind all the properties of the obtained models, it can be concluded that they constitute a promising alternative to commercially available training sets.

Keywords:

laparoscopic training, human organs' models, organogels

DEVELOPMENT OF AN ALGORITHM BASED ON HANSEN SOLUBILITY PARAMETERS TO POLYMERS SOLUBILITY PREDICTION

Joanna Rokicka*, Ewelina Bek, Justyna Gołębek, Anna Lubocha, Magdalena Pieczykolan, Magda Plaga, Anna Szachewicz

Zachodniopomorski Uniwersytet Technologiczny w Szczecinie

*joanna.rokicka@zut.edu.pl

A few words about the author:

Joanna Rokicka has a PhD in technical sciences (West Pomeranian University of Technology) with a specialization in polymer chemistry. The main field of research is the synthesis of multi-block thermoplastic elastomers.

Abstract:

The solubility between two substances was described by Hildebrand in 1949 by the concept of solubility parameter. The solubility parameter, δ , of a solvent is the square root of the vaporization energy divided by its molar volume. Charles Hansen solubility parameters quantify the cohesive energy density of a solvent in terms of contributions from three types of weak interactions: van der Waals or dispersive interactions (δ_D), dipole–dipole or polar interactions (δ_P), and hydrogen-bonding interactions (δ_H). Each solvent is thus a point on a 3-D plot in which the axes represent the three HSPs. The distance from the origin to that point represents the total cohesive energy density of the solvent. In the present study, we develop a new HSPs-based software for interpreting the solubility of a polymer in a chemicals. Based on the experimental data, proprietary computer tool was used to calculate the HSPs (the center of the sphere) and radii, R , of the polymer spheres.

Keywords:

Polymer Solubility, Solubility Parameters, Protective Material, Chemical Aggressors

THE USE OF THREE-DIMENSIONAL SOLUBILITY PARAMETERS IN THE SELECTION OF PROTECTIVE POLYMERIC MATERIALS RESISTANT TO CHEMICALS

**Ewelina Bek, Justyna Gołabek, Anna Lubocha, Magdalena Pieczykolan, Magda Plaga,
Joanna Rokicka, Anna Szachewicz***

*Faculty of Chemical Technology and Engineering,
West Pomeranian University of Technology, Szczecin*

*szachewicz.anna@gmail.com

A few words about the author:

Student at the chemistry department at West Pomeranian University of Technology in Szczecin, also a member of Students Scientific Association "Skondensowani".

Abstract:

Hansen Solubility Parameters explain why a solvent can dissolve a different type material. This is because three parameters describe solvents and represented as points in three-dimensional space. Correlations of this parameters for different solvents is represented by sphere named "Hansen's Soluble Sphere".

Bearing this in mind, swelling tests of commercially available protective gloves were carried out. Gloves made of latex, nitrile, vinyl, rubber and mixtures of vinyl-nitrile gloves and "latex rubber" and natural rubber were tested. Twenty-seven solvents with known solubility parameters were used for testing. To obtain the most correct results, three representative glove samples were placed in each solvent. The swelling process was carried out for forty-eight hours. The obtained test results were introduced into the program, where they were subsequently simulated into "Hansen's Soluble Sphere".

Keywords:

solubility parameters, chemical resistance, swelling, protective materials

COMPARISON OF SURFACE ROUGHNESS OF NI-CR ALLOY AFTER ABRASIVE BLASTING USING AL₂O₃ AND SiC

Weronika Czepulkowska*, Leszek Klimek

*Institute of Material Science and Engineering, Faculty of Mechanical Engineering,
Lodz University of Technology, Stefanowski str. 1/15, 90-924 Lodz*

*weronika.czepulkowska@p.lodz.pl

A few words about the author:

PhD student at the Lodz University of Technology. I have a Master's degree in Dental Techniques obtained at a Medical University of Lodz.

Abstract:

In the literature data, there are no tests that concern the proper preparation of the Ni-Cr alloy with blast-abrasive treatment for the connection with ceramics, which directly affects the roughness. The aim of this study was to analyze the impact of abrasive blasting using Al₂O₃ and SiC abrasives on the surface roughness of the nickel-chromium alloy. In this research three particle sizes (50, 110, 250 µm) and pressures (0.2, 0.4, 0.6 MPa) was used. Roughness was measured on Hommel-Etamic T8000 device. The highest values of parameters before Al₂O₃ treatment were obtained for 110 µm particles, under pressure 0.4-0.6 MPa and for 250 µm particles under 0.6 MPa. For SiC abrasive the highest parameters was noticed for particles of 250 µm and 0.4 and 0.6 MPa pressures. For the smallest size of abrasives similar values of roughness are observed under each pressure. Finally, the highest roughness parameters obtained for both abrasives may be best for nickel-chromium alloy and ceramics bond.

Keywords:

Ni-Cr alloy, roughness, abrasive blasting, prosthetics, metal-ceramic bond

3D GEOMETRY OPTIMIZATION OF THE FRAGMENT OF REMOVABLE PARTIAL DENTURE METAL FRAMEWORK WITH SINGLE INCISOR IN NUMERICAL ANALYSIS

Joanna Taczala

Institute of Materials Science and Engineering, Lodz University of Technology

joanna.taczala@p.lodz.pl

A few words about the author:

Ph.D. student and researcher on Lodz University of Technology. I'm graduated Dental Techniques on Medical University of Lodz on bachelor level. Then I continued this on MSc. I studied Computer Graphics and Multimedia Techniques too.

Abstract:

This instance focuses on geometry analysis and optimization of 3D models of the fragment of removable partial denture metal framework with single incisor. It is considered in the context of numerical analysis. To compare were created, two 3D models. The first model had a straight base plate. In second model geometry of base plate and metal framework were curved. Created geometries have been checked by numeric analysis in ANSYS program. Two kinds of analysis were performed. In first one load was added on the area of incisor edge, in second- on side surfaces of the whole tooth. The distribution of the most considerable deformations and stresses were checked, and they were very similar in all tests. More critical are stress distributions and their values, because fracture may occur in places of greatest stress. It can be concluded that the curve of the base plate has little influence on stress distribution and deformations. So curved base plate is more like in natural conditions, that means the in the mouth of the patient the stresses are slightly larger than in the initial simulations.

Keywords:

removable partial denture metal framework, finite element method, stress distribution, PMMA, 3D geometry

OPTIMIZATION OF A CELLULAR AUTOMATA ALGORITHM FOR DETERMINING STRESSES IN THE MICROSTRUCTURE OF AN ALLOY

Anna Staszczuk

*Institute of Materials Science and Technology, Lodz University of Technology,
Stefanowskiego 1/15, 90-924 Łódź*

anna.staszczuk@p.lodz.pl

A few words about the author:

The author is a PhD candidate in the Numerical Methods team at the Institute of Materials Science and Technology. Her scientific interests include simulations in materials science and software development.

Abstract:

A numerical method for calculating stresses in the microstructure of a precipitation-hardened aluminum alloy is presented. The algorithm is based on the Cellular Automata method that allows performing simulations on the microscopic scale. The domain for calculation is created from the real-life images of microstructure obtained from Scanning Electron Microscope. The described methodology allows recognizing different phases in the material basing on their appearance in photographs. The algorithm was optimized regarding mesh sensitivity to determine the desired image size. The author also tested different solutions for iteration schemes to save up on solution time. The results show applications of the optimized algorithm on different microstructures.

Keywords:

numerical modeling, cellular automata, precipitation hardening, stress states

PLENARY SESSION

MEDICAL SCIENCES

DISTURBED CALCIUM HOMEOSTASIS IN PC12 CELLS CAUSES CHANGES IN RESPONSE INDUCED BY CCL5

**Tomasz Radzik (1)*, Bożena Ferenc (1), Maciej Studzian (2), Łukasz Pulaski (2),
Ludmiła Żylińska (1)**

(1) Department of Molecular Neurochemistry, Medical University of Lodz, Poland

*(2) Department of Molecular Biophysics, Faculty of Biology and Environmental Protection,
University of Lodz, Poland*

*tomasz.radzik@umed.lodz.pl

A few words about the author:

Tomasz Radzik is a PhD student at Department of Molecular Neurochemistry, Medical University of Lodz. Tomasz Radzik's scientific interests include issues related to chemokines and impact of their biological activity on aging brain.

Abstract:

Plasma membrane Ca^{2+} -ATPase (PMCA) is one of the most important enzymes responsible for maintaining cytoplasmic Ca^{2+} at basal, very low level. The enzyme exists in four main isoforms, out of which PMCA2 and PMCA3 are the most sensitive calcium detectors. Those isoforms are also specific to neuronal cells. Using differentiated neuronal-like PC12 cells with disturbed calcium homeostasis due to reduction of PMCA2 or PMCA3 expression, the effect of proinflammatory CCL5 chemokine on Ca^{2+} transients was assayed. CCL5 binds to specific receptors (CCR1, CCR3, CCR5), activates phospholipase C, and produced IP3 subsequently releases calcium ions from endoplasmic reticulum (ER).

In PMCA-reduced lines CCL5 released more Ca^{2+} from ER and the time required for Ca^{2+} clearance was prolonged. However, reduction of PMCA3 was not as detrimental to the cells as deficiency of PMCA2. Altered PMCA composition also induced changes in CCR5 and IP3Rs expression level in comparison to the control cells. In the aging brain the decreased amount and activity of PMCA have been reported in several studies, as well as increased BBB permeability and augmented leukocytes infiltration. Enhanced CCL5 action and resulting long-lasting Ca^{2+} dyshomeostasis might be responsible for potential neurotoxicity.

Keywords:

calcium homeostasis, plasma membrane Ca^{2+} -ATPase, chemokine receptors, CCL5, IP3 receptors, PC12 cells

ASSESSMENT OF THE KNOWLEDGE OF PARENTS OF CHILDREN LIVING IN RUDA ŚLĄSKA ABOUT A GLUTEN-FREE DIET

Dagmara Adamska (1)*, Paweł J. Pawlica (2), Maria Calka (3)

(1) Górnośląskie Centrum Zdrowia Dziecka im. Jana Pawła II w Katowicach,

(2) Wydział Lekarski w Katowicach, Śląski Uniwersytet Medyczny w Katowicach,

(3) Wydział Zdrowia Publicznego w Bytomiu, Śląski Uniwersytet Medyczny w Katowicach

*dag.adamska@gmail.com

A few words about the author:

We are young scientists from Silesia. Two of us- Dagmara & Paweł are doctors and Maria is a student. We interest medicine, healthcare and public health.

Abstract:

Recent years have witnessed an increase of interest in gluten-free diet in our society. Growing demand for knowledge and informational chaos in media lead to misconceptions among parents and in consequence to introducing eliminatory diet without medical indication. Knowledge of the gluten sources and medical indications of introducing eliminatory diet seems to be insufficient. The aim of the study was an evaluation of knowledge about gluten-free diet of parents of children living in Ruda Śląska. An original questionnaire available as a paper and electronic version was used as a research tool. The survey was anonymous and voluntary. The examined group consisted of parents. A total of 112 respondents were surveyed, most of them were women (72%). More than half of the respondents (62,2%) has children up to 6 years old. Higher education was declared by 58,4% of respondents, 39,8% declared secondary education. Internet is a source of knowledge about gluten for 69,4% of parents, 33,3% identified family and friends as such, while only 25,2% chose the doctor. Most of the respondents came across the term „gluten-free diet”. Measures necessary for the improvement of cooperation between parents and doctors on health and diet of children should be introduced. Education campaigns in social media aimed at more informed and healthy diet choices are necessary.

Keywords:

children, gluten- free diet, parent's knowledge, evaluation

SEXUAL ACTIVITY OF STUDENTS OF WROCLAW MEDICAL UNIVERSITY AND STUDENTS OF THE UNIVERSITY OF TECHNOLOGY

Paulina Kostrzewska*, Amanda Mandra, Anna Pawlikowska, Ewa Szuster

Wroclaw Medical University, Wybrzeze Pasteura 1, 50-367 Wroclaw, Poland

**sknkardioseksuologii@gmail.com*

A few words about the authors:

The students of medicine at Wroclaw Medical University; the members of the cardiosexology students science club.

Abstract:

Medical studies determine the consciousness about physiological and pathological issues of human body. It could be considered that because of easy access to the medical sources, the doctors and the professional medical knowledge about contraception, sexually transported diseases, medical students take sexual activity more frequent and more gladly. A comparison of sexual activity of students of Wroclaw Medical University and students of the University of Technology was conducted in order to assess the occurrence of the relationship between access to professional medical knowledge and sexual activity. 563 students (130 students of Wroclaw Medical University and 433 students of University of Technology), age 19-32, took part in the survey. We used the anonymous online survey, which contained the IIEF 5 questionnaire. In last 4 weeks 76,2% students of Medical University and 83,4% students of University of Technology took sexual activity. 88,3% students of Medical University and 88,5% students of University of Technology felt satisfaction of sexual intercourse. The number of sexual active students of University of Technology is higher than that of Medical University, but it is not statistically significant. (1) Students from both Universities present high level of satisfaction with their sexual intercourse. (2) No statistically significant differences between the frequency of sexual intercourse in both Universities were proved.

Keywords:

sexual activity, student

MOVEMENT IN THE FIGHT AGAINST DISEASES OF THE FUTURE

Janina Rzeszot

Uniwersytet Medyczny w Lublinie

danuta.rz@op.pl

A few words about the author:

Przyszły doktorant nauk o zdrowiu.

Abstract:

„Movement”- (philosophy)(latin motus, motio)- in modern philosophy, changing the place of space relative to a fixed point or considered as such in classical metaphysics from the time of Aristotle movement is an update of what is possible motion is a change: quantitative or local everything is finished. Based on the literature of various sources, it appears that the movement is indicated for people suffering from these diseases. Physical activity- Dr. Kavitz focused on the functioning of dopanin signaling. A deficiency of the D2 receptor is sufficient to explain the lack of activity in obese individuals- people with obesity are less active. This may contribute to the cessation of stigmatizing such people by painting out their weaknesses. Problems with joints more and more often in the third or even the second decade of life. About 50% of fifty-year-olds and 60-70% of seventy-year-olds are struggling with degeneration. Problems with joints are the most common cause of disability among people under 65. Diabetes is a serious disease, if left untreated and poorly regulated, can lead to very serious complications of diabetes and even death. Encouraging physical activity and education in this direction is very much needed.

Keywords:

Physical activity, obesity, joint degeneration, diabetes

THE EFFECT OF SELECTED NATURAL COMPOUNDS ON NON-SMALL CELL LUNG CANCER CELLS LINE A549

**Wioletta Zielińska*, Klaudia Mikołajczyk, Marta Hałas-Wiśniewska,
Magdalena Izdebska, Alina Grzanka**

*Department of Histology and Embryology, Faculty of Medicine, Nicolaus Copernicus University in
Toruń, Collegium Medicum in Bydgoszcz, Bydgoszcz, Poland*

*wzielinska94@hotmail.com

A few words about the author:

I graduated from Nicolaus Copernicus University with a master's degree in Medical Biotechnology. Currently I work as a Senior Technician in Department of Histology and Embryology of Collegium Medicum in Bydgoszcz.

Abstract:

Introduction

Tumors are an increasing problem of health care among aging societies. One of the most dangerous is non-small cell lung cancer. It kills 1.3 million people annually, which makes it the second most lethal cancer disease. At the same time, the fight against this type of cancer absorbs \$ 7 billion annually just from the USA budget. In the search for new, more effective methods of treatment, more and more attention is brought to compounds of natural origin. The anti-cancer properties of compounds derived from tea, red wine or plants have been known for many years. These compounds are tested both in monotherapy and in combinations with conventional cytostatics, giving promising results.

Materials and methods

The study was an assessment of the activity of various types of natural compounds (including oxymatrine, quercetin or green tea extract) on non-small cell lung cancer line A549. All of the studies included evaluation of cell viability (MTT assay), death mechanism (double staining with annexin V and propidium iodide) along with the changes in the cytoskeleton structure (fluorescent staining) in response to selected doses of the compounds chosen.

Result and conclusion

Our research suggests that all of the substances described have a cytostatic effect on the survival of non-small cell lung cancer cells line A549, which makes them promising tool to fight this type of cancer. On the other hand, the natural environment can be a source of new anti-cancer substances.

Keywords:

NSCLC, oxymatrine, quercetin, green tea, cytostatics

ASSOCIATION OF FEEDING WAY IN PEOPLE WITH APOE GENOTYPE ON COGNITIVE FUNCTIONS

Martyna Andreew

*Department of Internal Diseases, School of Public Health in Bytom, Student's Scientific Society,
Medical University of Silesia in Katowice, Źeromskiego 7, 41-902 Bytom, Poland*

martyna.andreew@med.sum.edu.pl

A few words about the author:

I am a clinical dietitian and masters student of psycho-dietetics. I passionate about nutrition therapy of elderly people, especially in neurodegenerative diseases. I like to deepen extraordinary and innovatory ideas and implement them in life.

Abstract:

Consumption of fish and fish oil may improves cardiovascular health, especially omega-3 fatty acids (FAs). Some of reports proved that eicosapentaenoic acid (EPA) increases concentration of HDL-C and decreases concentration of triglycerides, and docosahexaenoic acid (DHA) moreover positively associates with LDL-C. Apolipoprotein E (APOE) genotype can impact concentration of EPA and DHA (deficits). Carriers of E4 isoform are more exposed to occurence of cognitive decline.

Studies conected with E4 are inconsistent, but some of them indicated that reduction in intake of saturated FAs could reduce in LDL-C. A large scale cross-sectional analysis suggested that interactions between APOE and EPA were significant with HDL-C and particle concentrations of large and total HDL. Research conducted on mices aimed at comparing concentration of omega-3 FAs in E4 specimens and with other APOE isoforms established that E4 had a bigger depletion of omega-3 FAs in organs and tissues and also that early supplementation of DHA may counteract Alzheimer's disease (AD), it's progression and consequences such as lack of spatial memory and increased anxiety.

Storage of amyloid in brain, E4 isoform might reduce DHA supply to cerebrospinal fluid (CSF) in AD. There are such diffrences between concentrations of EPA and DHA in blood plasma and CSF, and researches on E4 human are higly needed with designation of nutritional treatment.

Keywords:

APOE genotype, cognitive functions, diet

CYTOTOXICITY ASSESSMENT OF A CHEMOTHERAPEUTIC AGENT FOR HUMAN MELANOMA CELL LINES

**Klaudia Mikołajczyk*, Wioletta Zielińska, Marta Halas-Wiśniewska,
Magdalena Izdebska, Alina Grzanka**

*Katedra i Zakład Histologii i Embriologii,
Wydział Lekarski Collegium Medicum im. Ludwika Rydygiera, ul. Karłowicza 24, 84-092 Bydgoszcz*

*klaudia199527@wp.pl

A few words about the author:

I am student of the fifth year of Biotechnology. I am interested in issues in the field of oncology, in particular innovations in this fields.

Abstract:

Cytotoxicity assessment of a chemotherapeutic agent for human melanoma cell lines.

Background: Determining the cytotoxicity of cell chemotherapeutic compounds is an important introduction to the generally understood toxicological studies necessary to determine the proper action and safety of the drug. Cytotoxicity of the compound is determined for both normal and tumor cells.

Aim: The aim of the study was the use of cellular assays that primarily determine the number and change in cell proliferation after chemotherapy. To determine the cytotoxicity of the compound, the cells were treated with increasing doses of chemotherapeutics.

Materials and Methods: Evaluation of cells viability was elucidated by MTT assay. The clonogenic test also allowed for the analysis of cells viability and their ability to form colonies. Cytometric analysis allowed to evaluate the cell cycle and cell death. The migration test determined the ability of cancer cells to migrate with the increasing concentration of a chemotherapeutic agent.

Conclusion: The use of cell models in toxicological studies to determine the cytotoxicity of the compounds used has many advantages such as: speed and ease of testing cell and molecular processes, repeatability, the possibility of using small amounts of test substances, or the possibility of working on human cells.

Keywords:

anti-cancer activity, cell viability, compounds cytotoxicity

PLENARY SESSION

HUMANITIES SCIENCES

THE SENSE OF COMMUNITY AMONG SCIENTISTS

Wioleta Gałat

Cracow University of Economics

wioleta.joanna.gawel@gmail.com

A few words about the author:

PhD student at the Faculty of Economics and International Relations at the Cracow University of Economics. A graduate of masters studies in Economics with a specialization in Personnel Management and Consulting at the Cracow University of Economics.

Abstract:

Since the beginning, the University has been a special institution. He distinguished himself from other entities functioning in the Middle Ages. He focused his community around the central value of the apotheosis of reason. The essence of the university was the community that created it. Her most important duty was to seek the truth. However, the progressing globalization processes as well as the change of socio-economic conditions have also left their mark on the universities facing new tasks, as well as the requirements for the functioning of the university. The community, on the other hand, is becoming more and more individualized by people of science. There are also issues of individual career paths or the fragmentation of structures at universities, which also negatively affects the building of community. The problem of individualism also arises from the illusory conviction that it results from autonomy, privacy and responsibility in the context of personal freedom. Opposed to individualism is a community in which a group of people is connected with each other through axiological beliefs. They share a special bond and concern for the common good. What is also important is the very awareness of the community, which allows you to take action for the common good. The aim of this paper is an attempt to analyze the threats to the sense of community in the academic community and to analyze factors that influence the strengthening and weakening of community.

Keywords:

community, university, tradition

SATISFACTION WITH LIFE AND STYLES OF COPING WITH STRESS AND AFFECTIVE TEMPERAMENTS

Katarzyna Magnuszewska

Cathedral of Individual Differences, Department of Psychology, University of Warsaw, Warsaw

magnuszewskakasia@gmail.com

A few words about the author:

Graduate student of the Psychology Department of the University of Warsaw. Enthusiast of psychology of individual differences and psychotherapy. A writer of her own book, dogs lover.

Abstract:

The main aim of the work was to find a relationship between life satisfaction, styles of coping with stress and affective temperaments. No study to measure the phenomenon has been carried out so far. The hypothesis assumed the existence of dependence between the mentioned variables. 110 non-clinical people took part in the study. Satisfaction with life was measured using the SWLS scale, styles of coping by CISS questionnaire, and temperamental temperaments using the TEMPS-A scale. The results of the study showed the existence of a positive correlation between life satisfaction and the style focused on the task and hypertymic temperament as well as the negative dependence of life satisfaction with the style focused on emotions and the other four affective temperaments. The task style correlates positively with the hypertymic temperament and negatively with the depressive, cyclothymic and anxious temperament. A style focused on emotions shows the opposite relationship with hypertymic temperament and a positive relationship with the other four affective temperaments.

Keywords:

satisfaction with life, styles of coping with stress, affective temperaments

THE COMMUNICATION SIGNIFICANCE OF THE ODER IN THE 19TH AND 20TH CENTURIES IN SILESIA

Ślawomir Stanowski (1, 2)

(1) Department of the History of Material Culture, Univeristy of Wrocław

(2) Museum of History of Katowice

stanowski.slawek@gmail.com

A few words about the author:

The research scientist specialized in the issues of broadly defined technological progress in Silesia region. Author's main interests encompass the history of industrialization and the history of industrial architecture.

Abstract:

The Oder river became one of the main communication artery running across Prussia already in 18th century. Despite the advantageous localization and known importance in the economy, was left unmodified without any strategic significance until the 19th century. ongoing wars and the lack of development lead to its collapse. Only in 19th century some economic changes started out, cities started developing, the idea of the waterway connecting Szczecin with Raciborz was made. What's more important political decisions, especially the geopolitical ones, lead to the real projects. Some of them were able to come to life yet in the 19th century, in the Second Reich, others were put aside and waited to be actualized until the contemporary times.

Keywords:

Silesia, II Reich, Poland, Odra, River, development

LEON CHWISTEK'S VIEW ON AESTHETICS

Gabriel Bednarz

Jagiellonian University

gabriel.bednarz@student.uj.edu.pl

A few words about the author:

Doctoral student, Department of Philosophy. My PhD research is dedicated to establishing relationships between Leon Chwistek's ontology and aesthetics. I attempt to provide fundamentals for aesthetics as a domain connected to logic.

Abstract:

Leon Chwistek is the author of the theory of plurality of realities. The aim of the presentation is to analyse connections between this theory and Chwistek's aesthetics, namely the theory of plurality of realities in art. Chwistek differentiates four types of realities and, correspondingly, four types of art. Realities are described with axioms which also can serve as norms regulating artistic practice within the type of art which corresponds to a particular reality.

Keywords:

Chwistek, aesthetics, logic

DEGRADED SPACES IN THE CITY CENTER - BYDGOSZCZ

Justyna Wójcik

UTP University of Science and Technology, Al. prof. S. Kaliskiego 7, 85-796 Bydgoszcz, Poland

justyna.wojcik613@gmail.com

A few words about the author:

Master's degree student of architecture at UTP University of Science and Technology. Lover of art and sociological aspects of architectural design. Associated with the historical reenactment of the material culture of Slavs and Vikings since 2016.

Abstract:

Areas with low aesthetic values, specifically those degraded, disgrace the city skyline. It is not only an urban problem, but also a technical and a social one, with its impact on the functioning and the mood of the people who deal with such spaces. Bydgoszcz's city centre features many objects and areas with their architectural values and technical condition leaving much to be desired. The potential of those neglected parts of the urban structure is not used, all while they deteriorate and negatively affect the city landscape.

A noted reaction to these problems are, among others, student projects that are proposals for the revitalization of such neglected spaces. One of them is the architectural concept of the Bydgoszcz Folklore Centre, which is the subject of my diploma thesis. The neglected part of the urban structure, in close proximity to the Old Market Square, has become an inspiration for the creation of a new, multi-purpose facility dedicated to Arts and Culture. The area in question once prominently featured the Bydgoszcz Castle, now replaced with a deteriorated kindergarten building intended for demolition. The concept advocates the creation of a multifunctional object in its place.

As the degraded spaces in city centers are a glaring problem, their elimination may have a positive impact on the economic, environmental and social aspects of everyday life. It is only possible with the awareness and cooperation of residents, investors and the city itself.

Keywords:

architecture, urban planning, revitalization of cities, degraded areas

I-ORPHEUS. POETIC FIGURE IDENTITY WITH GENESIS OF SŁOWACKI

Klaudia Jeznach

Jan Długosz University in Częstochowa

klaudia.pompa@gmail.com

A few words about the author:

I study literary science and I work as a teacher in a primary school. I am interested in the nineteenth century, mainly the work of Juliusz Słowacki and his reference to mythology. In my free time I listen to classical music and watch good movies.

Abstract:

The main aim of the following article is to present how in the late works of Słowacki a poetic figure of the poet's identity with Orpheus is highlighted.

The first part concerns the work from before the Genesis period. Anelli is a poem preceding the last period of the poet's work, from which the elements of Genese thought resonate and identify with Thracian lyricism. The poet's moodiness and diary poems contributed to the nonchronologically reading of Anella and included it in the article concerning the late artistic work.

The following excerpts of the article refer primarily to rough poems which are the fullest indicator of poetic declaration. Lyric poetries reveal the intimate sphere of I speaking after the revelation, portray suffering and effort associated with the mission entrusted by God, and several times quoted of the Genesis thought confirms her high rank and strength rooted in the imagination of the poet.

The last part is the quintessence of the whole work of late Słowacki. King-Spirit is bringing echoes of the Genesis thought and at the same time contains all the figures of a poetic identity with Orpheus. Priest, civilizer, religious reformer, poet and perfect interlocutor with nature are the roles that permanently appeared in the poet's work. This is something more than only a motive, because the poet's expressive attitude of "I-Orpheus" allows him to be himself, and at the same time is the only cultural-religious-poetic figure that is possible for Słowacki.

Keywords:

Orpheus, genesis literature, mystical Słowacki, poetic identity figure

THE ROMANTIC WANDERER. IN THE FOOTSTEPS OF ZYGMUNT KRASIŃSKI

Anna Szewczykowska

Jan Długosz University in Częstochowa

annaszewczykowska1@gmail.com

A few words about the author:

I'm a student of literary science. The title of my master thesis was: Witness to the Epoch. Krasiński as an Epistolographer. I wanted to elaborate on the topic, so I decided to write about Krasiński as a pilgrim.

Abstract:

The main aim of the article is to present Zygmunt Krasiński as a romantic pilgrim, always on the move, which greatly affected his character and personality.

A particular attention was paid on the mark that historical events left on Krasiński. His romantic ideas alienated the poet from everyday life. Elementary values such as family did not play a significant role for him.

However, it is not surprising that Krasiński distanced himself from his family. Dominated by his father, he was aware of his inability to follow his passions. This domination, combined with his belief in his unique destiny as a great poet, caused his permanent dissatisfaction.

It turns out that travelling, despite its positive influence, can also play a destructive role in a person's life. Despite his numerous friends he met during his voyages, the author of the "Un-Devine Comedy", paradoxically, remained lonely. His constant health problems or rather hypochondria were another reason for his continued unhappiness.

Keywords:

travelling, loneliness, Romanticism, disease, love

THE INFLUENCE OF SOCIAL MEDIA ON THE DESTINATION OF POTENTIAL TOURISTS

Agata Rybarczyk*, Joanna Piasecka

Uniwersytet Rzeszowski

*agata_rybarczyk@wp.pl

A few words about the authors:

Agata Rybarczyk and Joanna Piasecka study Tourism and Recreation at the Faculty of Physical Education at the University of Rzeszów. Their second field of study is Landscape Architecture. The area of authors' interest is the online tourist market.

Abstract:

The goal of the article was to present the impact of social media on decisions made by tourists. The research methods used in the article were based on the analysis of collected materials, literature on the subject and Internet resources. The first part Social media – theoretical considerations concerns popular social media, including Facebook and Instagram. Tourists choose services and products that are promoted on social media. Social media marketing, viral marketing, destination marketing and influencer marketing are the most commonly used types of marketing used on social media. Blogs and vlogs are currently very popular and effective channels used to promote products and tourist destinations. Social media and its impact on tourists, is another part of the article, discussing psychological and sociological processes regarding potential tourists on social media. This part explains what FOMO is and how it affects the decisions made by potential tourists. Social media can motivate and demotivate the desire to travel. Summary: the power of the internet will grow. The enterprises of the tourist market are searching for new ways to encourage tourists to buy services and products through social media. The power with which media influences potential tourists depends on their own character and level of self-awareness.

Keywords:

Social media, Facebook, social media marketing

PRIVATE LABELS OF RETAIL CHAINS - A COMPARATIVE ANALYSIS OF SHOPPING BASKETS 2017-2018

Maksymilian Czeczotko

*Faculty of Human Nutrition and Consumer Sciences,
Department of Organization and Consumption Economics, Warsaw University of Life Sciences*

makszczecz@vp.pl

A few words about the author:

PhD student at the Faculty of Human Nutrition and Consumer Sciences, Department of Organization and Consumption Economics, Warsaw University of Life Sciences. Main research topics: private labels, retail markets, consumer behavior.

Abstract:

The aim of this study was to compare basic shopping baskets of food products that are in permanent offer of 2 store discount formats: Lidl and Biedronka. The comparative analysis was focused on the private labels assortment, i.e. products created exclusively for a given retailer with a unified name, logo, graphic design or weight. The empirical research was conducted in March 2017 and November 2018. For the analysis of selected 25 basic food products excluding fresh products, i.e. bread, fruit, or vegetables. The price was taken as the distinguishing criterion. The list of results presents a comparison of the prices of particular assortment items and the total amount needed to complete the purchase of 25 products in each of the previously mentioned chain stores. In 2017 and 2018, the basket with the lowest value was realized in the Lidl shopping network, but the amount needed to complete purchases in 2018 increased by over 6% compared to 2017 (from PLN 69 to PLN 74). Similar values are formed in the competitive format of discount stores, i.e. Biedronka (about 72 against 76 PLN). The difference between shopping baskets realized in discount chains in 2017 and 2018 was around PLN 2.

Keywords:

private labels, shopping basket, compare, retailing, discount stores

MODERN TEACHING METHODS (E-LEARNING) AND MODERN DIGITAL THREAT: BINGE-WATCHING

Iwona Wilczek

Akademia Sztuk Pięknych w Katowicach

iwona.wilczek@gmail.com

A few words about the author:

Ph.D. student on Academy of Fine Arts in Katowice. Graduate of Photography on Collegium da Vinci in Poznań. Participant of many courses and photo exhibitions. Daily working in Bielsko-Biała, but flexible and open to work nationally.

Abstract:

The aim of the article is to try to outline the image of contemporary education and pointing out new directions in 21st century educational systems based on new information and communication technologies. Research was carried out (May – November 2018, 260 respondents, 24 questions in the anonymous questionnaire) on three groups of students: artists (students of the Academy of Fine Arts in Katowice) humanists (students of the Opole University), and exact students (questionnaire addressed to students of the Opole University of Technology); the purpose of the survey was to learn about the use of modern teaching methods like e-learning and the concept of binge watching - new digital threat.

Analysis of the state of awareness and competence of young users of media, including the ability to safe, conscious, effective and efficient use new media's tools.

Keywords:

mobile generation, education of the 21st century, digital age, FOMO (Fear of Missing Out), Binge-watching

MACRO-LEVEL BARRIERS TO EDUCATIONAL CHANGE

Bartosz Atroszko

Uniwersytet Gdański, Wydział Nauk Społecznych

bartosz.atroszko@gmail.com

A few words about the author:

Bartosz Atroszko is a PhD student of Pedagogy at the University of Gdańsk. His scientific interests are focused on changes in contemporary education, barriers to educational change, and the methodology of social sciences.

Abstract:

Research problem: Since 1989, the education system in Poland is being constantly reformed. Nevertheless, the dominant model of education in Polish schools has not been fundamentally changed. The question remains: what is blocking a permanent change in education?

Aim: Barriers to educational change occur on the macro-, meso- and micro-level. The aim of the literature review was to recognize the most important categories of barriers to educational changes occurring on the macro-level. This should help to understand the reasons for the immutability of educational system in Poland.

Method: A narrative review of the key English and Polish literature on changes in education was conducted.

Results: Two main categories of barriers to change on the macro-level were distinguished: educational policy of the state and the dominant paradigm in education. In the literature, attention is paid to the ineffectiveness of the basic educational policy instrument in the form of education reforms. It is emphasized that the key factor for the success of reforms is not only their content, but also the manner of introducing changes. It is suggested that excessive centralization and bureaucratization of education in Poland is also the barrier to change. According to Polish pedagogues, specificity of Polish education is that reforms do not serve the purpose they are supposed to serve. Therefore, they are sham activities, not real attempts of changing education.

Keywords:

Educational change, macro-level, barriers to change, educational policy, educational paradigm

MICRO-LEVEL BARRIERS TO EDUCATIONAL CHANGE

Bartosz Atroszko

Uniwersytet Gdański, Wydział Nauk Społecznych

bartosz.atroszko@gmail.com

A few words about the author:

Bartosz Atroszko is a PhD student of Pedagogy at the University of Gdańsk. His scientific interests are focused on changes in contemporary education, barriers to educational change and the methodology of social sciences.

Abstract:

Research problem: Since the transformation of the political system in 1989, the Polish educational system is constantly changing, especially at the macro-level. However, despite all changes, the dominant model of education in Polish schools remains unchanged. Therefore, the question arises about the reasons for the immutability of the education system.

Aim: Barriers to change occur on the all levels of educational system: macro-, meso-, and micro-level. The aim of the literature review was to distinguish the key categories of barriers to educational changes occurring on the micro-level. It is assumed that this will help to understand the reasons for the invariability of school system in Poland.

Methods: A narrative review of the most important English and Polish literature on changes in education was made. Furthermore, the Polish literature review on teachers and teachers education was carried out.

Results: Three main categories of barriers to change on the micro-level were distinguished: teachers' resistance to change, the situation of teachers-innovators in Polish schools, and routinization of teachers' activities during lessons. Teachers' resistance to change is definitely one of the most important categories of barriers to educational change, both in English and Polish literature. It is associated with a sense of threat related to change, the gap between educational theory and practice, as well as the general reluctance to change occurring in teachers' community.

Keywords:

Educational change, micro-level, barriers to change, teachers, resistance to change

PLENARY SESSION

ENGLISH SESSION

USING GROUNDED THEORY TO SUPPORT QUANTITATIVE ANALYSIS OF CLUSTERING

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

Grounded Theory is a research framework devised within sociology, dedicated to qualitative research. However, the flexibility and universality of Grounded Theory is applicable also in quantitative research. We present the proposal of applying Grounded Theory to the statistical analysis of clustering. The thesis is that making Grounded Theory key component of research using analysis of clustering gives a chance to eliminate many mistakes and abuses resulting from mindless use of statistics. It also makes the research process more rigorous and its results more substantive. We show that the use of Grounded Theory is in the interest of decision-makers, because it allows a more rational justification of the way the research is conducted (which can often be labour-intensive and time-consuming) and easier communication of results to decision-makers or customers. It also allows for a significant reduction in the likelihood of abusing statistics as a tool to prove biased and false thesis, as is unfortunately often the case.

Keywords:

Grounded Theory, analysis of clustering, qualitative research, quantitative research

**OPERATIONAL PUBLIC AID FOR RENEWABLE ENERGY SOURCES:
A COMPARISON ANALYSIS OF TWO SCHEMES
AVAILABLE IN POLAND**

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

We live in the times of energy transformation. Renewable energy sources have an increasing share in the energy balance of EU countries, but they still need public aid in order to be profitable. Public aid can be divided into investment aid (affecting investment costs) and operational aid (affecting current revenue). Operating aid for renewable energy sources in Poland takes two different schemes: the Tradable Green Certificates System and the Auction System. The Auction System is to replace the Tradable Green Certificates System because it is considered by the authorities to be more cost-effective. This system, however, is not free from drawbacks. We compare the two systems in terms of economic efficiency, investor risk and the division of operational risk between the investor and the state. We also perform SWOT analysis, indicating the relationship between the advantages and disadvantages of each system and the changing economic environment.

Keywords:

energy markets, renewable energy, operational public aid

CHALLENGES IN ENTERPRISE RISK MANAGEMENT (ERM) IMPLEMENTATION

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

Enterprise Risk Management (ERM) is the idea of incorporating different tasks within enterprise concerning risk assessment into a common framework. It includes financial risk, strategic planning, internal control, data protection, cyber security, hazard analysis and compliance. These different tasks are often considered separately, by different departments. This poses difficulties in communication within organisation resulting from different understanding of definition of risk, different language and glossary or different methods of risk assessment. The idea of Enterprise Risk Management aims to overcome these difficulties by incorporating all of these issues into a common framework, such as ISO 31000. We discuss the framework itself and many challenges that organisations aiming to implement it may face.

Keywords:

enterprise risk management, risk assessment, ISO 31000

**HISTORICAL SIMULATION IN ASSESSMENT
OF INVESTMENT PROFITABILITY.
CASE STUDY OF THE PHOTOVOLTAIC POWER PLANT**

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

Historical simulation is a transformation procedure that employs the Monte Carlo method with historical realizations. It simulates possible outcomes (such as revenue or profitability) within constraints imposed by historical data. In contrast to regular Monte Carlo method, this method has fewer assumptions related to the distribution of variables (since it uses empirical data). We apply historical simulation in order to calculate distribution of revenue that can be generated by photovoltaic power plant. We use historical data about prices on power exchange market and historical data about production volumes. Product of such calculations is then used to forecast future revenue as part of investment profitability analysis.

Keywords:

revenue forecast, historical simulation, renewable energy, energy markets

HAVE ELECTRICITY PRICES IN POLAND REALLY INCREASED?

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

In recent months, there has been discussion in the Polish media (and on the political scene) about increases in electricity prices. We explore whether electricity prices have really increased in real terms. We discuss factors affecting electricity prices, energy market in Poland and prospects for its development. We offer possible answers to questions such as: Are increases in energy prices only a negative phenomenon or rather an inherent element of economic development? Why is there rather something than nothing? Are energy prices on other European markets increasing? Does the development of renewable energy cause energy prices to increase? Will energy in the future be cheaper?

Keywords:

electricity prices, energy market

INTERPRETATION OF THE PHYSICAL MEANING OF GREITZER MODEL PARAMETERS

Andrzej Jaeschke

Institute of Turbomachinery, Lodz University of Technology

andrzej.jaeschke@p.lodz.pl

A few words about the author:

PhD student at Institute of Turbomachinery of Lodz University of Technology. His research interests are: numerical analysis, unstable phenomena in radial compressors and computational fluid dynamics.

Abstract:

Radial compressor play a crucial role in many branches of industry. Their failure can generate a severe financial losses. Unstable phenomena are one of most common causes of compressor failures. Therefore it is indispensable to control and prevent their occurrence. It can be done by means of mathematical surge modelling. The most widely used mathematical surge model is the Greitzer model. Although it is a well established standard to use this model there is still a lot of discussion about the meaning of its parameters. It is mainly due to their nondimensional form as well as due to vague geometrical meaning of characteristic dimensions. This paper proposes an interpretation of their physical meaning.

Keywords:

Surge, Greitzer model, Radial compressors

METHODS FOR EFFECTIVE DETERMINATION OF GREITZER MODEL PARAMETERS

Andrzej Jaeschke

Institute of Turbomachinery, Lodz University of Technology

andrzej.jaeschke@p.lodz.pl

A few words about the author:

PhD student at Institute of Turbomachinery of Lodz University of Technology. His research interests are: numerical analysis, unstable phenomena in radial compressors and computational fluid dynamics.

Abstract:

Radial compressor are crucial parts of many industrial systems. Occurrence of surge phenomenon can destroy entire compressor causing severe financial losses. Therefore effective and accurate modelling of this phenomenon is indispensable. The most widely used mathematical surge model is the Greitzer model. Due to vague meaning of its parameters it is very hard to accurately simulate dangerous surge phenomenon. Determination of model parameters without reaching a surge margin is a main bottleneck of this method because many industrial machines are not able to operate in that region even for seconds without a severe failure. This paper presents an overview of available methods for evaluation of model parameters based on data acquired only in stable operation.

Keywords:

Surge, Greitzer model, Radial compressors

MICROBIAL MULTICOPPER OXIDASES – VERSATILE ENZYMES WITH A BROAD APPLICATION IN BIOTECHNOLOGY

Aleksandra Góralczyk-Bińkowska*, Anna Jasińska, Jerzy Długoński

*Department of Industrial Microbiology and Biotechnology, Faculty of Biology and Environmental
Protection, University of Lodz, Banacha Street 12/16, 90-237 Lodz, Poland*

*aleksandra.goralczyk@biol.uni.lodz.pl

A few words about the author:

Aleksandra Góralczyk-Bińkowska – PhD candidate in Department of Industrial Microbiology and Biotechnology, University of Łódź.

Abstract:

The multicopper oxidases (MCOs) are a large family of blue copper proteins which contain from one to six copper atoms per molecule, produced by Prokaryota as well as Eukaryota. Their catalytic center consists of three domains which involve type I Cu, type II Cu and pair of type III Cu's. According to the classification proposed by Hoegger et al. (2016), MCOs include fungal laccases (Basidiomycota and Ascomycota), insects laccases, ferroxidases, ascorbate oxidases, bilirubin oxidases, copper efflux proteins (CueO), copper resistance proteins (CopA) and fungal pigment MCOs. However, some researchers indicate an additional group - laccase-like multicopper oxidases (LMCOs) which have slightly different biochemical properties.

MCOs catalyze one-electron oxidation of an array of aromatic substrates with concomitant four-electron reduction of molecular oxygen to water. Diversity of the reactions they catalyze and low substrate specificity make MCOs highly popular among researchers worldwide and cause that they are used as a valuable tool in various industries (e.g. food, textile, pharmaceutical), medicine or environment protection.

Keywords:

microorganisms, multicopper oxidases, laccases

THE STUDY OF THE INFECTIOUS PROPERTIES OF ENTOMOPATHOGENIC FUNGI USING MOLECULAR METHODS

Anna Litwin*, Sylwia Różalska

*Faculty of Biology and Environmental Protection,
University of Lodz, Banacha 12/16, 90-237 Lodz, Poland*

*annalitwin92@gmail.com

A few words about the author:

My name is Anna Litwin. I am a PhD student at the Department of Industrial Microbiology and Biotechnology of the University of Lodz. My main research topic are entomopathogenic fungi and their relationships with synthetic insecticides.

Abstract:

Entomopathogenic fungi are organisms with the capacity to cause diseases and kill arthropods. They are used as biopesticides (FBCAs - Fungal Biological Control Agents).

Entomopathogenic fungi affect the process of arthropod infections through direct penetration of the cuticle. Infection factors play a very important role in the infectious process - lytic enzymes, secondary metabolites and adhesins. Arthropods are killed by mechanical damage to organs and the action of toxic substances produced by the fungus.

Genetic engineering provides opportunities to improve the infectious properties of entomopathogenic fungi. The methods are based on the use of genes derived from entomopathogenic fungi (overexpression and silencing of genes, transfer of genes from other species), insects, insect pathogens and synthetic genes. The research focuses mainly on increasing the virulence of entomopathogenic fungi by increasing the production of lytic enzymes, reducing the sensitivity of this microorganisms to environmental conditions and improving the survival of the entomopathogenic fungus in the body of the insect.

Keywords:

Entomopathogenic fungi, the infection process, genetic engineering

**STUDY OF THE WHEAT LIPID PROFILE INTERACTING
WITH TRICHODERMA HARZIANUM,
IN THE PRESENCE OF THE PHENOXYACETIC HERBICIDE**

Julia Mironenka*, Przemysław Bernat

*Department of Industrial Microbiology and Biotechnology,
Faculty of Biology and Environmental Protection, University of Lodz*

*yuliya.datskova@unilodz.eu

A few words about the author:

I'm a PhD student in Department of Industrial Microbiology and Biotechnology, at University of Lodz.

Abstract:

Pesticides are the best protection for crops against pests and weeds. Phenoxyacetic herbicides, mimicking the action of plant hormones - auxins, penetrate to plants, through the root system, causing uncontrolled cell division, leading to the epinasty and abnormal growth of leaves.

Responses to application of *Trichoderma* spp. are characterized by increased germination percentage, plant height and dry weight and a shorter germination time in vegetables and earlier flowering and an increased number of blooms in Periwinkles and Petunia. *Trichoderma harzianum*, that have the ability to improve germination of plants have been selected for the study.

The effect of the fungi on the lipid profile of wheat shoots and roots was investigated.

The filamentous fungi studied in the work contributed to the improvement of wheat growth in both the added 2,4-D yield and control growth systems. In the way of lipid profile analyzing, the interaction of 2,4-D and fungi with plants was investigated. In the presence of the added herbicide, an increase in the content of 13-HODE and 9-HODE wheat was observed, while in the presence of fungi was an increase in the content of 9(10)-EpOME and 8,13-diHODE in plant tissues.

The present study revealed that the application of *T. harzianum* strain improved wheat growth and alleviated of toxic effect of 2,4-D. This herbicide caused lipid peroxidation in plant seedlings, associated with increased oxylipins concentrations and decreased plant growth.

Keywords:

2,4-D, *Trichoderma harzianum*, lipid profile, oxylipins

CONTINUOUS FLOW LEFT VENTRICULAR ASSIST DEVICES (CF-LVAD) AND THEIR INFLUENCE ON FUNCTION OF THE ORGANS ON THE EXAMPLE OF KIDNEYS – REVIEW

Jerzy Pacholewicz (1) , Maciej Sojka (2), Szymon Leonik (2)*

Transplantology, Vascular and Endovascular Surgery:

(1) Clinical Department of Cardiac Surgery

(2) Student Scientific Club at the Clinical Department of Cardiac Surgery

*leonikszymon@gmail.com

A few words about the authors:

We are students of the 4th year of the Silesian Medical University. Thanks to the cooperation with Dr. Jerzy Pacholewicz, we were interested in the left ventricular assist devices. This work is part of the knowledge we have learned.

Abstract:

Introduction: Due to the growing demand for mechanical support of the heart chambers as a bridge to transplantation (BTT) and destination therapy (DT), this paper describes the characteristics of the most frequently used pumps. The changes in biochemical parameters within the kidneys, which can be observed in patients with continuous-flow left-ventricular support, have been selected for the background.

Pumps: The description of three LVAD types pump models is presented. The most popular devices were taken into consideration, i.e. HeartMateII, HeartMateIII and HeartWare. The specification includes structure, hemodynamic parameters, FDA recommendations and the most important functions.

Renal function: The analysis of three biochemical indicators was investigated, i.e.: creatinine level, eGFR and urea nitrogen. In the first months after implantation an improvement in results was observed. Long-term studies indicate deteriorating rates of creatinine and eGFR.

Keywords:

Mechanical support, CF-LVAD, kidneys, eGFR, creatinine

TREATMENT OF SEVERE HEART FAILURE, COMPLICATED OBSTRUCTIVE PULMONARY ARTERY WITH A CONTINUOUS FLOW PUMP

Maciej Sojka*, Szymon Leonik

*SKN przy Katedrze i Oddziale Klinicznym Kardiologii, Transplantologii,
Chirurgii Naczyniowej i Endowaskularnej ŚUM*

*maciej.sojka92@gmail.com

A few words about the authors:

Students of the 4th year of the medical faculty at the Medical University of Silesia, members of the Science Club at the Department and Clinical Department of Cardiac surgery, Transplantology and Vascular and Endovascular Surgery.

Abstract:

Introduction: In the following work, we present an example of a young patient, who is not at risk of developing pulmonary embolism, which the occurrence with acute heart failure against the background of dilated cardiomyopathy, does not fall within the typical scope of described procedures.

Case report: An 18-year-old patient was admitted to the ward because of acute heart failure against the background of dilated cardiomyopathy of unknown cause with the presence of blood clots in both ventricles and pulmonary embolism. Due to the rapidly deteriorating condition, implantation of CF-LVAD together with the removal of blood clots from the left ventricular and pulmonary embolectomy were performed. Due to significant complications associated with a coagulation within the device, the pump was replaced with a new one after 3 days. On account of anemia an autoimmune disease was suspected. During the diagnosis SLE was the most likely, but further investigation of the patient is required.

Conclusion: Existing treatment schemes for patients requiring LVAD implantation combined with pulmonary embolism, are useful in typical cases, but may be inadequate in patients who are not at risk group. It is worth considering the context of distant therapy the genetic load or exclude the coexistence of other factors that may predispose to next thromboembolic complications.

Keywords:

Acute hearth failure, pulmonary embolism, CF- LVAD, SLE, HeartWare

**DYNAMICS OF THE GENUS AND LEVEL OF INVASION OF COCCIDIA
FROM THE GENUS EIMERIA BASED ON COPROSCOPIC
EXAMINATIONS OF THE EUROPEAN BISON (BISON BONASUS)
IN THE BIAŁOWIEŻA FOREST IN 2011-2018**

**Barbara Kołodko (1)*, Wanda Olech (1), Ewa Pacholik (2),
Arkadiusz Matuszewski (3), Paweł Solarczyk (4)**

Warsaw University of Life Sciences, Faculty of Animal Sciences:

(1) Department of Genetics and Animal Breeding

(2) Division of Animal Hygiene and Welfare, Department of Animal Environment Biology

(3) Poultry Breeding Division, Department of Animal Breeding and Production

(4) Cattle Breeding Division, Department of Animal Breeding and Production

*barbara_kolodko@sggw.pl

A few words about the author:

Barbara Kołodko – carries out research in the field of parasitological monitoring in European bison at the Faculty of Animal Sciences at the Warsaw University of Life Sciences (WULS – SGGW). A dog lover, a member of The Polish Kennel Club.

Abstract:

Free living European bison are exposed to various pathogenic agents, including the occurrence of internal parasites, hence there is a continuous need for parasitological monitoring.

The purpose of monitoring is to carry out continuous tests in order to identify species and determine the number of eggs, larvae and coccidia of parasites in European bison stool specimens. Coproscopic samples were collected regularly in spring and autumn in the Białowieża Forest. The collection was carried out in 2011-2018 (without 2014) as part of ongoing projects.

Coproscopic examinations of European bison faecal specimens were carried out at the Witold Stefański Parasitology Institute the part of the Polish Academy of Sciences in Warsaw. They were made using flotation, decantation and Baermann test. The number of coccidia oocysts was determined in 3 grams of faeces. In total, over 500 samples were analyzed. A large number of coccidia from the genus *Eimeria* was observed with a varied species composition.

Keywords:

Bison bonasus, *Eimeria*, parasitology, Białowieża Forest

FREQUENCY OF COMMUNICATION SIGNALS PRESENTED BY THE DOGS IN AAI (ANIMAL ASSISTED INTERVENTIONS)

**Barbara Kołodko (1)*, Agnieszka Boruta (2), Ewa Pacholik (3),
Arkadiusz Matuszewski (4), Paweł Solarczyk (5)**

Warsaw University of Life Sciences, Faculty of Animal Sciences:

(1) Department of Genetics and Animal Breeding

(2) Fur and Small Animals Breeding Division, Department of Animal Breeding and Production

(3) Division of Animal Hygiene and Welfare, Department of Animal Environment Biology

(4) Poultry Breeding Division, Department of Animal Breeding and Production

(5) Cattle Breeding Division, Department of Animal Breeding and Production

*barbara_kolodko@sggw.pl

A few words about the author:

Barbara Kołodko – carries out research in the field of parasitological monitoring in European bison at the Faculty of Animal Sciences at the Warsaw University of Life Sciences (WULS – SGGW). A dog lover, a member of The Polish Kennel Club.

Abstract:

AAI (Animal Assisted Interventions) are all therapeutic and educational activities that involve an animals as a motivational factor. Carefully chosen animal – therapist not only requires adequate care (in order to secure it's good health and wellbeing) but also needs professional training and understanding from a handler.

In order to communicate within their own species as well as to interact with members of different species, animals related to wolfs developed communication system which consists of verbal and nonverbal signals. Dog handler's main role during therapeutic sessions is to create comfortable conditions for a working dog. Research shows that effective understanding of dogs' language depends on dog handler's work experience as well his or her job seniority.

Keywords:

AAI, dog, communication signals

THE IMPORTANCE OF SELENIUM IN ANIMAL HEALTH

**Ewa Pacholik (1)*, Ewa Skibniewska (1), Krzysztof Głowacz (1), Barbara Kołodko (2),
Arkadiusz Matuszewski (3), Paweł Solarczyk (4)**

Warsaw University of Life Sciences, Faculty of Animal Sciences:

(1) Division of Animal Hygiene and Welfare, Department of Animal Environment Biology

(2) Department of Genetics and Animal Breeding

(3) Poultry Breeding Division, Department of Animal Breeding and Production

(4) Cattle Breeding Division, Department of Animal Breeding and Production

*ewa_pacholik@sggw.pl

A few words about the author:

Ewa Pacholik – PhD student at the Faculty of Animal Sciences, natural scientist, nature educator. Professionally involved in the research of native fauna.

Abstract:

Selenium was discovered by the Swedish chemist Berzelius in 1917 and was considered toxic until 1957. It is an extremely important micronutrient necessary for the proper functioning of the animal organism. Both deficiency and excess of this element supplied with food can lead to disturbance of homeostasis of the organism. Selenium in nature occurs in organic and non-organic form. The presence of selenium in the environment results from natural processes and human activity. It is a trace element, in animal organisms it is a component of two amino acids: selenocysteine and selenomethionine, it is a component of enzymatic proteins: thioredoxin reductase, glutathione peroxidase, iodothyronine deionidase and selenoproteins. Thioredoxin reducers and glutathione peroxidases have antioxidant properties and have protective effects in terms of oxidative stress. Iodothyronine deionidases take part in the conversion of thyroid hormones. Selenoproteins have many functions in animal organisms, among others they are involved in the development of muscle tissue at an early stage of development of the body, are responsible for the control of redox potential in cells, protect lipoproteins against oxidation. Excess selenium in the body can induce oxidative stress in the cells, lead to selenosis and indirectly lead to the development of diabetes.

Keywords:

selenium, animal, oxidative stress

ESTIMATE OF MERCURY CONTENT IN THE GONADS OF WILD BOAR

**Ewa Pacholik (1)*, Ewa Skibniewska (1), Krzysztof Głowacz (1), Barbara Kołodko (2),
Arkadiusz Matuszewski (3), Paweł Solarczyk (4)**

Warsaw University of Life Sciences, Faculty of Animal Sciences:

(1) Division of Animal Hygiene and Welfare, Department of Animal Environment Biology

(2) Department of Genetics and Animal Breeding

(3) Poultry Breeding Division, Department of Animal Breeding and Production

(4) Cattle Breeding Division, Department of Animal Breeding and Production

*ewa_pacholik@sggw.pl

A few words about the author:

Ewa Pacholik – PhD student at the Faculty of Animal Sciences, natural scientist, nature educator. Professionally involved in the research of native fauna.

Abstract:

As a result of human activity, the environment has been changing. Contamination of water, atmospheric air, soil and food products from plants and animals is increasing. Emissions of heavy metals are particularly dangerous. Mercury is neurotoxic, nephrotoxic, allergenic and mutagenic. It is extremely active, both biologically and chemically, it can move rapidly between ecosystems. It is found in all animal tissues, and its circulation in nature is cyclic. Monitoring studies on wild boar tissue show that the content of heavy metals varies. The aim of the study was to analyze the content of mercury in the gonads of wild boar. Trials from 10 animals have been analysed. Samples from animals were collected in autumn. The results were obtained using atomic absorption spectrometer for determination of total mercury AMA 254.

Keywords:

mercury, wild boar, gonads

THE MEAT QUALITY OF SELECTED GAME BIRDS

**Arkadiusz Matuszewski (1)*, Magdalena Nowak (2), Monika Łukasiewicz (1),
Paweł Solarczyk (1), Ewa Pacholik (3), Barbara Kołodko (4)**

Warsaw University of Life Sciences:

(1), Department of Animal Breeding and Production

(2) Scientific Student Circle AVES

(3) Department of Animal Environment Biology

(4) Department of Genetics and Animal Breeding

*arkadiusz_matuszewski@sggw.pl

A few words about the author:

PhD Student at Warsaw University of Life Sciences in Poultry Breeding Division. His personal interests focus on breeding different species of birds, animal production and product quality, effect of nanoparticles in animal research, ornithology.

Abstract:

In the era of many civilization diseases and striving for a healthy lifestyle, the consumer increasingly reaches for various dietary alternatives. Such a product may be venison. The aim of the study was to compare wildfowl meat for example of pheasant and partridge with a popular broiler chicken. According to the results of the study it turned out that the higher carcass mass was represented by the pheasant. Whereas the highest percentage of breast muscles was obtained by a partridge. The percentage of the protein was higher and content of fat was lower in the partridge. The darkest breast and leg muscles were characteristic of the pheasant. It may be concluded that the game birds meat have a better attributes in some cases and could be recommended for people demanding special diet.

Keywords:

game birds, pheasant, partridge, meat quality

IN OVO TECHNOLOGY IN POULTRY INDUSTRY

**Arkadiusz Matuszewski (1)*, Monika Łukasiewicz (1), Paweł Solarczyk (1),
Barbara Kołodko (2), Ewa Pacholik (3)**

Warsaw University of Life Sciences:

(1) Department of Animal Breeding and Production

(2) Department of Genetics and Animal Breeding

(3) Department of Animal Environmental Biology

*arkadiusz_matuszewski@sggw.pl

A few words about the author:

PhD Student at Warsaw University of Life Sciences, in Poultry Breeding Division. His personal research interests focus on breeding of different bird species, animal production and product quality, the effect of nanoparticles in poultry science.

Abstract:

In ovo in Latin means in the egg. The first in ovo application was in the 1980s when injected vaccine against Marek's disease to the embryos. That success has been conducted with the injections of various biologics such as probiotics, synbiotics, aminoacids and nanoparticles. The in ovo method, which allows the delivery of various biologics and supplements to chicken embryos, may represent a means to both compensate for the starvation period that newly hatched chicks endure and facilitate early establishment of a healthy birds and may influence chicken performance. The aim of the study was to present the previous research in poultry in ovo technology, especially in reference to fast growing, modern lines of broiler chickens.

Keywords:

in ovo technology, chicken embryo, broilers

MILK FATTY ACIDS AS BIOMARKERS TO EARLY DIAGNOSE CONCENTRATIONS OF BLOOD NEFA AND BHBA IN THE INITIAL STAGES OF LACTATION IN HIGH YIELDING PHF COWS

**Paweł Solarczyk (1)*, Kamila Puppel (1), Arkadiusz Matuszewski (1),
Ewa Pacholik (2), Barbara Kołodko (3)**

Warsaw University of Life Sciences:

(1) Department of Animal Breeding and Production

(2) Department of Environment Biology

(3) Department of Genetics and Animal Breeding

*pawel_solarczyk@sggw.pl

A few words about the author:

PhD student at the Faculty of Animal Sciences, scientific interests: cattle breeding.

Abstract:

Improving the productivity of cows leads to health problems in early postpartum period. The amount of energy intake from feed is insufficient to meet energy required for body maintenance, production and gestation. Therefore the animals eliminate these deficiencies by the release of reserves of fat, creating a negative energy balance (NEB), which is the cause of metabolic diseases. The aim of study was to improve the welfare of dairy cows by marking the level of OA in milk, as biomarkers to early diagnose concentrations of blood NEFA and BHBA in the initial stages of lactation. Statistically significant correlations between OA and NEFA (0.539; $p \leq 0.01$), and BHBA (0.184; $p \leq 0.05$) have been demonstrated. The high levels of NEFA and BHBA (1.573 and 1.116 mmol/L respectively) were associated with the highest concentration of OA in milk fat, $> 24 \text{ g} / 100\text{g}$ of fat. OA can be used as a markers to early diagnose concentrations of blood NEFA and BHBA in the initial stages of lactation.

Keywords:

fatty acids, milk, BHBA, NEFA, blood, OA

DAIRY CATTLE CROSSBREEDING AND MILK PRODUCTION AND REPRODUCTION

**Paweł Solarczyk (1)*, Kamila Puppel (1), Arkadiusz Matuszewski (1),
Ewa Pacholik (2), Barbara Kołodko (3)**

Warsaw University of Life Sciences:

(1) Department of Animal Breeding and Production

(2) Department of Environmental Biology

(3) Department of Genetics and Animal Breeding

*pawel_solarczyk@sggw.pl

A few words about the author:

PhD student at the Faculty of Animal Sciences, scientific interests: cattle breeding

Abstract:

HF breed is the best known breed in the world. This is due to high milk yield, which was gained by genetic improvement and improving environmental conditions. Unfortunately, the increase in milk production traits inherit deteriorating value. One method for improving these features is crossbreeding. The aim of this study was to compare the results of milk recording and the breeding of purebred (PHF) cows and interracial hybrids F1 (PHF x SR). Data for the analysis came from the result reports and heifers - cows cards. The results indicate a positive impact of the race SR on milk composition, somatic cell count, age of the first insemination, periods: postpartum interval, service period, open days, calving interval as well as index of fertilisation of F1 hybrids. The heterosis effect influenced the examined traits. The length of the pregnancy, age at first calving between PHF and F1 generation were similar, and production traits reduced. Based on the results, it was found that interracial crossing improves inherit features.

Keywords:

crossbreeding, milk production, fertility, heterosis effect



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