National Scientific Conference
Knowledge - Key to Success
8th edition

THE BOOK OF ABSTRACTS

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TECHNICAL AND NATURAL SCIENCES POSTERS

ABSTRACTS OF

PRESENTATIONS

HUMANITIES
SCIENCES

MONEY IN THE WORKPLACE: ANALYSIS OF MOTIVATIONAL DYNAMICS

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A few words about the author(s):

The author is a Master student of final year of International Management at Gdansk Tech with a Bachelor degree in Management obtained at the same university. The other scientific interests include Chinese philosophy and Asian cultures.

Abstract:

This article explores the evolving role of money as a motivator in the contemporary workplace, focusing on salary and monetary rewards. While a high salary is traditionally seen as a job motivator, it is contextualized by John Stacey Adams' Equity theory and Herzberg's Hygiene-Motivator theory. Salary's impact on job satisfaction is portrayed as a hygiene factor, addressing dissatisfaction without standalone motivational power.
Considering Maslow's Hierarchy of Needs, the article questions the role of money in fulfilling higher-level needs. As individuals progress, research suggests diminishing importance of money, aligning with Equity theory and Herzberg's perspective. However, money as a monetary reward proves effective, supported by theories like Victor Vroom's Expectancy theory or Theory M. The article concludes that while monetary rewards enhance motivation, money as a salary acts as a hygiene factor, mitigating dissatisfaction without autonomous motivating force beyond basic needs. The discussion emphasises the need to distinguish between salary and monetary rewards when assessing money's motivational impact.

Keywords:

motivation, money, motivational theory

ELECTRONIC SURVEILLANCE SYSTEM. STATE OF KNOWLEDGE AND DIRECTIONS OF DEVELOPMENT

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A few words about the author(s):

He is interested in topics related to the Electronic Surveillance System in Poland and around the world, the polish justice system and modern methods of social rehabilitation.

Abstract:

The Electronic Surveillance System is a system that works and works well. It is very effective (94% of convicts do not return to prison). This system is constantly evolving. Electronic Surveillance System is an excellent alternative to prison. Thanks to the implementation of this system, the convict can lead a normal family and professional life. Moreover, thanks to the work carried out by the State Treasury, it does not have to bear any costs. The system does a good job of controlling the criminal without causing the social and economic consequences of deprivation of liberty. The penitentiary court may grant permission to serve a sentence of imprisonment not exceeding one year under electronic supervision to a person sentenced to such a penalty, who has a specific place of permanent residence and the consent of adults living with him, if this is sufficient to achieve the purposes of the penalty and if the circumstances do not justify the need to place him in prison. Electronic Surveillance System is undoubtedly the future of serving sentences. The Ministry of Justice does not rule out the introduction of the so-called Mixed penalties. The convict will serve part of the sentence in a penitentiary facility and the remaining part of the sentence in prison, of course under constant supervision and strict conditions. This will have a very positive impact on his social readaptation.

Keywords:

Electronic Surveillance System, polish justice system, contemporary methods of social rehabilitation

EXPLORATION OF EXOPLANETS AS ALTERNATIVE HABITATS FOR HUMAN BEINGS IN FILMS (ON THE EXAMPLE OF "INTERSTELLAR" AND "LOST IN SPACE")

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Student of Spanish philology within the framework of Individual Interdisciplinary Studies at the University of Silesia. She is interested in translation studies, in particular in literary translation in which she defended her Bachelor's thesis.

Abstract:

The aim of my presentation is to provide an analysis of the risks of human settlement of new planets, referring to the film “Interstellar” (2014) and “Lost in Space” (2018). In the context of contemporary challenges such as natural disasters or climate change, space exploration seems to be an alternative, remaining an extremely difficult endeavour due to the enormous costs, distances, travel time and hostile environment.
An analysis of the film “Interstellar” reveals that space exploration carries unique risks, such as changing time conditions, hostile atmospheric conditions and complex human relationships. In the context of the “Lost in Space” series, the analysis focuses on the relationship between humans and artificial intelligence, highlighting concerns about possible conflicts between automation systems and human control. The analysis of the films suggests that space colonisation is not only a technical challenge, but also a psychological and social one, requiring the consideration of a variety of factors in the planning and execution of future space missions.

Keywords:

exploration, risks, exoplantes, films

STATUS OF THE DECEASED SUBJECTED TO THE CRYOPRESERVATION PROCEDURĘ IN POLISH CIVIL LAW

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The author is a PhD student at the Doctoral School of Social Sciences at the University of Bialystok.

Abstract:

The development of technology and medicine combined with the strenuous pursuit of immortality may become a source of new problems in the future regarding human legal subjectivity. Within the funeral culture of America and Western Europe, significant changes have been observed regarding the forms of burial of human remains. One of the controversial alternatives to traditional burial is subjecting the deceased to a cryopreservation procedure. The above-mentioned form of burial is distinguished from others by its reversibility. It is assumed that in the future, thanks to the development of medicine, the frozen human body will be restored to full vital functions. This constitutes an impulse to attempt to answer status of a frozen deceased in civil law, i.e. whether, due to the assumed temporary nature of burial, the deceased retains legal capacity or whether he acquires it again only upon being brought back to life.

Keywords:

deceased, cryonics, civil law

ABSTRACTS OF

POSTERS

HUMANITIES
SCIENCES

FITCH'S PARADOX AND THE EXISTENCE OF UNKNOWABLE TRUTHS

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A few words about the author(s):

I am a student of the graduating class of the Academic High School of Wroclaw University of Science and Technology. I am interested in philosophy, mathematics and logic. In my free time I am involved in music production.

Abstract:

In epistemology, there is a dispute over the existence of non-knowable truths. The classical definition of knowledge (knowledge as Justified True Belief) requires the judgments that are its components to be true. The literature on the analysis of knowledge also accepts the Knowability Principle. According to it, any truth can be known. It turns out that accepting both of these principles as true leads to an epistemic paradox, known in the literature as Fitch's paradox. Using the tautology of the classical calculus of sentences, the rules of proof for the S5 system of modal logic and the above two principles, a logical proof of this paradox was carried out. Its conclusion is contrary to common intuition, that all truths are known. The author's analysis shows that this paradox is a strong argument for rejecting the Knowability Principle and thus recognizing the existence of non-cognizable truths.

Keywords:

epistemic logic, Fitch Paradox, knowability logic, knowability principle

ADULTHOOD THROUGH THE LENS OF GENERATIONS: AN ANALYSIS OF COMMON CHALLENGES AND DIFFERENCES SPECIFIC TO GENERATIONS BB, X, Y AND Z

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PhD student at the Faculty of Pedagogical and Historical Sciences at the University of Wrocław. She specializes in andragogy, adult education.

Abstract:

This topic will provide an in-depth analysis of adulthood in the context of differences and definitions between generations BB, X, Y and Z.
The analysis covers a wide range of scope, such as values, life aspirations, social and executive changes, the influence of popular culture, and the dynamics of intergenerational relationships. The aim is to understand how shared experience and changing social contacts shape adult identity across generations.
The conclusions from the conducted analysis may concern new warnings for fields such as social psychology, sociology and cultural studies. This topic will aspire to broaden the research perspective on the phenomenon of adulthood, the use of experience and socio-cultural contexts characteristic of the range of generations.

Keywords:

generations, adult education, andragogy, adult life experience

ABSTRACTS OF

PRESENTATIONS

MEDICAL SCIENCES

BREATH – KING

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Ewa Banasiak-Macherska – master's degree in pedagogy, clinical neurologist, doctoral student at the university of zielona gora, international instructor of the butejka method, certified multifunction system(mfs) therapist.

Abstract:

Proper breathing is an extremely important function in human development. The ability to breathe through the nose affects not only the proportions of the face and skull, but also the development of the teeth, palate and the way the tongue works. Proper breathing also contributes to the proper work of the nervous system, which in turn affects the quality of concentration, attention and behavior, and influences proper, quality sleep. Nasal breathing contributes to proper microbiota in the respiratory tract, and thus better immunity of the body. Thanks to normative breathing in children, it is possible to carry out primitive functions, including the resting position of the tongue and swallowing.

Keywords:

respiration, microbiota, hyperactivity, development, nose, immunity

FUSARIUM KERATITIS – DOES IT POSE A REAL THREAT?

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The Author of this work is student attending 5th year of medical faculty. I conduct a great deal of science work in Medical Microbiology Students Research Group and collaborate with Department of Diagnostic and Microsurgery of Glaucoma.

Abstract:

Fungi Fusarium spp. are widely spread in the environment for eg. in soil and plants. They have as well pathogenic potential, especially by producing mycotoxins. What is more it was found to be an agent which can cause fungal keratitis, leading to permanent vision loss. This disease most commonly occurs in tropical and subtropical countries. However, recently, there have been more cases emerging in Europe as well considering traveling. One of the risk factors identified is the use of popular contact lenses, on which these fungi can form biofilm structure. This biofilm is considered a key point in their pathogenicity and resistance to antifungal drugs used in therapy. Additionally, the clinical presentation of Fusarium-induced keratitis can misleadingly resemble bacterial keratitis, potentially delaying the correct diagnosis. That is why it is crucial to promptly establish the etiology of the inflammation and initiate appropriate antifungal treatment using available diagnostic methods to halt the development of irreversible changes in the eye. The aim of our study was to present the characteristics, clinical symptoms, diagnostics, treatment, and interesting facts regarding keratitis caused by Fusarium fungi.

Keywords:

Fusarium, fungal keratitis, fungus, inflammation

TREATMENT METHODS FOR LYMPHEDEMA IN THE COURSE OF CANCER

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Physiotherapist from Krakow working at the Rydygiera Hospital in Krakow. For a year during specialization in physiotherapy. Enthusiasts of a healthy lifestyle and physical activity.

Abstract:

Treatment methods for lymphedema in the course of cancer – the approach focuses on few pillars: Education and prevention, comprehensive lymphedema therapy, pharmacotherapy, and surgery. Physiotherapy is carried out comprehensively, including kinesiotaping, compression therapy, tailored exercises, manual lymphatic drainage, pneumatic lymphatic drainage, and skin care. Monitoring therapy progress through regular limb measurements and paying attention to contraindications is a crucial element.

Keywords:

cancer, physiotherapy, lymphedema

NUTRITIONAL SUPPLEMENTS AS PART OF SUPPORT IN TREATMENT APPROACH PATIENTS WITH PROFOUND IMMUNOSUPPRESSION

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Authors of this work are students attending 3rd year of medical faculty. We conduct a great deal of science work in Medical Microbiology Students Research Group supervised by Małgorzata Kozioł.

Abstract:

Oral nutritional supplements (ONS) are widely used as a part of the supportive care for patients undergoing treatment for hematological malignancies. Haemato-oncology patients, during convalescence after chemotherapy or stem cell transplantation may experience various side effects such as mucositis, which impedes proper nutrition and food absorption. It is caused by grade 3 neutropenia, associated with underlying diseases and treatment. Because of that, sometimes healthcare specialists recommend ONS for patients who are currently going through their recovery phase. Recipients undergoing strong chemotherapy can experience innapetence or difficulty with introduction of solid foods. That is why nutritional drinks in liquid form are great solution for supplementing lacks of calories and vitamins in patients diet. What is more, it is easier to control the amount of micro- and macroelements given to a patient, which leads to a better control over their nourishment. Based on recent research findings, it has been observed that there is a direct correlation between the quality of a patient's diet during hospitalization and the efficiency of their ambulatory treatment. In addition it leads to decreasing the costs of treatment in haemato-oncology patients.
The work aimed to present the supportive influence of available nutritional supplements in the treatment process and infection prevention approach of heamato-oncology patients who are profoundly immunocompromised.

Keywords:

ONS, infection prevention, cancer

GENTAMICIN/COLLAGEN SPONGE – STANDARD OR SINGULARITY OF USE IN PREVENTING SURGICAL SITE INFECTIONS

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A few words about the author(s):

Authors of paper are 3rd year medical students. Much of the scientific work is collaborative with the student microbiology club supervised by Małgorzata Kozioł – PhD in microbiology and Kamil Baczewski PhD, MD, a specialist in cardiac surgery.

Abstract:

Surgical site infections (SSIs) are a type of nosocomial disease in which S.aureus emerges as the most common and significant pathogen. SSIs significantly prolong the patient's hospital stay, increase the risk of systemic inflammation and perioperative mortality. One of the most important elements in preventing infectious complications is perioperative antibiotic prophylaxis (PAP), but sometimes it is not sufficient. In the medical equipment market for several years has been present gentamicin/collagen sponge (GCS) which can be applied at the end of surgical procedures and to wounds, especially those at risk of infection. A carrier for active substances is a collagen sponge which resorbs after the drug is released. The local antibiotic application reduce systemic side effects of this aminoglycoside. Over the years, there has been ongoing research in GCS. Particularly it is applicable in orthopedic surgery and cardiac surgery, when the access to the heart is from median sternotomy. One factor of its effectiveness in cardiac patients seems to be the placement technique. GCS is recommended to minimize the risk of complications and reduce the cost of treatment which significantly outweighs the cost of highly effective prophylaxis. So, should it therefore be stadard for every operation? The aim of the work was to present the advantages and analyze frequency of GCS use as an SSIs prevention at the end of surgical procedure, esspecialy cardiac one.

Keywords:

GCS, SSIs, cardiac surgery

A SYSTEMATIC REVIEW ON THE APPLICATION OF VIRTUAL REALITY FOR MUSCULAR DYSTROPHY REHABILITATION: MOTOR LEARNING BENEFITS

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A few words about the author(s):

Aleksandra Kiper is PhD student at the Doctoral School of the University of Rzeszów.

Abstract:

Investigating the use of virtual reality (VR) for Muscular Dystrophy (MD) rehabilitation holds significant promise as it offers a novel approach to therapy. By exploring the potential of VR, we can potentially enhance motor learning, functional outcomes, and overall quality of life for individuals with MD. Therefore, this systematic review aimed primarily to provide a comprehensive summary of the current understanding regarding the application of VR in supporting MD rehabilitation. A systematic search was performed in PubMed, Scopus, Cochrane Library, and Web of Science to identify relevant articles. The inclusion criteria encompassed studies involving individuals diagnosed with MD who underwent VR interventions, with a primary focus on assessing functional improvement. Consequently, seven studies, involving 440 individuals with Duchenne Muscular Dystrophy (DMD), were included in the review. Among these studies, six primarily explored motor learning potential of VR, while one study investigated the impact of gravity-compensated VR training on functional abilities. The qualitative synthesis supports VR-based interventions; potential positive effects on motor learning, performance improvement, and functional outcomes in individuals with DMD. However, current usage mainly focuses on assessing potential mechanisms; benefits, suggesting the importance of expanding clinical adoption to harness their therapeutic potential for MD patients.

Keywords:

new technology, myotonic dystrophy, physical therapy, Duchenne muscular dystrophy, virtual reality

THE MOST DANGEROUS EPIDEMICS AND PANDEMICS IN THE HISTORY OF HUMANITY

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A few words about the author(s):

Anna Glinkowska is PhD Student in Doctoral School in discipline of Medical Sciences. Her research based on experimental medicine and polymers. Privately, she is interested in microbiology, toxicology and history of medicine.

Abstract:

Epidemics and pandemics have affected humanity since the dawn of time. When the terms "bacteria" and "virus" were not yet known, society blamed sinners for diseases and considered them to be divine punishment. However, it is important to note the differences between an epidemic and a pandemic. An epidemic is the occurrence of an infectious disease in a specific area and at a specific time in a greater number than expected. A pandemic is the spread of a disease at the same time on at least two continents or many countries on the same continent. The first epidemic best known to the world was the Athenian Epidemic – most likely the plague epidemic - which took place in the 5th century BC. It broke out during the Peloponnesian War, when the population took refuge behind the walls of Athens. The plague wreaked havoc many times over the years well into the 18th century. However, it was not only the plague that was responsible for the death of millions of people. In the 19th century, Europe was attacked by a Gram-negative bacterium – cholera. In the 20th century, Europe was hit by the Spanish flu pandemic, caused by the H1N1 subtype of the influenza A virus. Even in the 21st century, when our knowledge about pathogens is at a high level, we had to fight the COVID-19 coronavirus causing a disease entity known as SARS-COV-2. For many centuries, humanity has concluded that prevention in the form of vaccinations, proper personal hygiene and eating habits is very important.

Keywords:

epidemic, pandemic, disease, bacteria, viruses

FUNCTIONAL FOODS AND THEIR IMPORTANCE IN HUMAN NUTRITION

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Abstract:

Functional foods are a category of foods that, in addition to their primary nutritional effect, have a documented positive impact on the body by improving health and well-being and reducing the risk of lifestyle diseases. The group of functional products that consumers most often buy includes yogurts, juices, nectars and fruit and multivitamin drinks. Further down the list are breakfast cereals, muesli, fruit teas and margarines. Research on increasing the health-promoting value of meat has been ongoing for many years. The most important factor for achieving this is animal nutrition, although genetic factors also play a role. Modification of the nutritional value of meat and meat products can also be done by changing the amount and composition of fats, using probiotics and other substances that have a beneficial effect on the functioning of the human body as additives.

Keywords:

functional foods, nutrition

PHYSICAL ACTIVITY AND SLEEP QUALITY OF STUDENTS FROM SELECTED MAJORS AT THE UNIVERSITY OF RZESZOW

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Student of Tourism and Recreation at the University of Rzeszów, members of the Student Scientific Circle of Travellers.

Abstract:

The importance of both physical activity and sleep for human physical and mental health is undeniable. In order to investigate these links, a study was conducted among students at the University of Rzeszow to see if there is a relationship between physical activity levels and sleep quality. The primary intention of this work was to analyze the relationship between physical activity and sleep quality in students at the University of Rzeszow. It was shown that there was a difference in the level of physical activity between the institutes studied. Students at the Institute of Physical Sciences show a higher average level of physical activity compared to students at the Institute of Legal Sciences. It was shown that there are no statistically significant associations between the level of physical activity and sleep quality. Both men and women showed similar average levels of sleep quality. The results suggest that people who spend more time on physical activity may have different sleep disorders. However, a study conducted in Singapore showed the opposite results, where more physically active students had better sleep quality.

Keywords:

physical activity, sleep quality, students

FUNGAL BIOFILMS – THE CRUCIAL FACTOR OF PATHOGENESIS

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A few words about the author(s):

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Abstract:

Biofilms of microorganisms are 3-dimensional surface structures made of cells and extracellular matrix. Many key fungi species produce biofilms, and among those significant from medical point of view: Candida, Aspergillus, and Cryptococcus. Ability to form biofilms is one of the most crucial factors contributing to chronic infection caused by microorganisms. Dense structure of biofilm's extracellular matrix limits drug susceptibility of pathogens and increases anti-immune-response resistance.

Keywords:

biofilms, fungi, pathogenesis

HELICOBACTER PYLORI – A BIG PROBLEM FOR THE STOMACH

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Medical University of Lublin

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We are members of the clinical oncology research club. Particularly interested in the epidemiology of cancer and the latest therapeutic approaches.

Abstract:

Helicobacter pylori inhabits the gastric mucosa and, more specifically, resides in the pylorus passing into the next section of the gastrointestinal tract, where the duodenum is located. The bacterium has the ability to survive in the acidic environment of the stomach thanks to the production of the specific enzyme urease, which breaks down urea to carbon dioxide and ammonia with the formation of alkaline ammonium ions, neutralising the strongly acidic pH of gastric juice. H. pylori infection most commonly occurs through personal contact, particularly between family members. Most people become infected with this bacterium in childhood, probably through contact with other family members. Helicobacter pylori causes chronic inflammation of the gastric mucosa and consequently peptic ulcer disease.

Keywords:

heliocobacter pylori, gastric cancer, mucositis, eradication

TRIPLE-NEGATIVE BREAST CANCER TNBC

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We are members of the clinical oncology research club. Particularly interested in the epidemiology of breast cancer and the latest therapeutic approaches.

Abstract:

This term is used to describe a subtype of breast cancer that exhibits the absence of the steroid receptors oestrogen and progesterone and the overexpression of the human epidermal factor receptor type 2, HER-2. It occurs in about 10-15% of all breast cancer patients, slightly more often in young patients. Treatment outcomes are slightly worse compared to other breast cancer subtypes, so intensive perioperative treatment is used when triple-negative breast cancer is diagnosed; even in small tumours, chemotherapy is recommended. Among patients carrying BRCA1 gene mutations, about 57% have TNBC. Several studies have also shown an association of the incidence of this breast cancer subtype with BRCA2 mutations.

Keywords:

triple-negative breast cancer, TNBC, mutation, breast cancer

KNOWLEDGE ABOUT PHYSIOTERAPY AND PHYSIOTERAPIST IN CONNECTION WITH HOME PHYSIOTERAPY AND PATIENT REHABILITATION AT HOME

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A few words about the author(s):

Physioterapist, I work from Warsaw, in home physioterapy.

Abstract:

Patient – a person applying for health services or using health services provided by an entity providing health services or by persons practicing a medical profession. A physiotherapist is a person conducting treatment who, using appropriate gymnastics and physioterapeutic devices, relieves pain and improves the body's mobility. Respect for someone means recognizing their right to have a different opinion, their own views in various areas of life and acceptance of their own decisions. Hygiene, the applicable personal hygiene rules for every person include:

- washing hands before meals and after going to the toilet,
- daily bath or shower,
- brushing your teeth at least twice a day,
- change underwear every day to clean ones,
- washing clothes,
- trimming and keeping nails clean cause discomfort, skin ailments and infections and lower self- esteem.

Taking care of personal hygiene and the environment is invaluable not only for our physical health, but also for our mental health. Hygiene, both personal and environmental, is an integral part of a healthy lifestyle. However this is an area that requires balancing skills- care and attention, but also common sense and moderation. Movement improves the body's efficiency, strength and flexibility. The efficiency also improves. In this way, the body can continue to function at an increased speed.

Keywords:

patient, physiotherapist, physiotherapy, hygiene, movement

STUDY OF KNOWLEDGE LEVEL OF ELEMENTARY AND HIGH SCHOOL STUDENTS ON SUNBURN PREVENTION

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Abstract:

INTRODUCTION: Despite growing public awareness of the dangers of overexposure to UVA and UVB radiation, as well as the need for effective photoprotection, sunburn is still a serious health problem, especially in the population of children and adolescents.
THE AIM OF THE STUDY: The purpose of the study was to examine the level of knowledge of elementary and high school students about sunburn prevention.
MATERIALS AND METHODS: The study included 224 participants. A original questionnaire was used, consisting of sociodemographic questions and questions related to sunburn. The survey was voluntary and anonymous. Statistica was used to check the statistical significance of the results obtained and a significance level of $p < 0.05$ was assumed.
RESULTS: 54, 46% (n=122) of respondents travel to warm countries during the vacations, and 75, 45% spend the holiday season at the seaside. Mmost students spend 2 to 4 hours a day in the sun (46.43%, n=104). The majority of respondents (58.48%, n=131) have suffered sunburns in their lives. Only 47.32% (n=106) of respondents always use protective UV sunscreen. The vast majority of respondents do not wear sunglasses with UV filters (75.45%, n 169).
CONCLUSIONS: Our survey showed that respondents do not follow all sun prevention recommendations. There is a need to educate the public about the negative consequences of overexposure to sunlight in the absence of proper prevention.

Keywords:

sunburn, photoprotection, education

CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION – PHARMACOLOGICAL AND INVASIVE TREATMENT – A CLINICAL CASE

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Physician during specialty training in cardiology. Doctoral student at the doctoral school of the Pomeranian Medical University in Szczecin.

Abstract:

Chronic thromboembolic pulmonary hypertension (CTEPH) is a disease where chronic organized pulmonary thrombi and vascular remodeling of the pulmonary arterial tree increase pulmonary vascular resistance and cause pulmonary hypertension which is confirmed by right heart catheterization procedure.
Balloon pulmonary angioplasty (BPA) has gained a renewed interest for the treatment of patients with CTEPH who are not undergoing surgery with pulmonary endarterectomy (PEA) or who had PEA performed but with subsequent recurrence of pulmonary hypertension. The procedure has shown promising results in several observational studies conducted to date. We describe the case of a 38-year-old man with inoperable CTEPH. On admission, the patient was in moderate-to-severe general condition, with NYHA class IV heart failure, oxygen-dependent - SpO_2 without oxygen supply = 73%. The patient got significant clinical state improvement after implemented drug treatment with riociguat and balloon pulmonary angioplasty procedure.

Keywords:

chronic thromboembolic pulmonary hypertension, balloon pulmonary angioplasty, cteph, treatment

ABSTRACTS OF

POSTERS

MEDICAL SCIENCES

THE SIGNIFICANCE OF GUT AND RESPIRATORY MICROBIOTA IN ASTHMA: DECONSTRUCTING INTERACTIONS AND THERAPEUTIC IMPLICATIONS

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A few words about the author(s):

I am a medical student at the University of Rzeszów. I am actively involved in the Student Science Circle 'NEURON'.

Abstract:

INTRODUCTION: Asthma is a complex disease characterized by bronchial hyperreactivity and inflammation. Recent research indicates the significant role of the microbiome in the context of immune response and changes observed in asthma patients. The aim of this study was to attempt to identify specific microbiota components that may play a significant role in regulating inflammation and bronchial reactivity in asthma patients.
MATERIALS AND METHODS: A literature review (clinical studies and reviews) published in PubMed/MEDLINE and Embase databases from 2021 to 2023 was conducted. The inclusion criteria were the publication year and its relevance to the topic of the study.
RESULTS: Analysis of the research revealed significant changes in the abundance and diversity of microorganisms in asthma patients. Specific bacteria were identified, and their presence correlated with the severity of asthmatic symptoms.
CONCLUSIONS: It has been demonstrated that the gut and respiratory microbiota are actively involved in shaping the immune response. These findings have potential therapeutic implications, suggesting that manipulating the flora could represent an innovative approach to asthma treatment, aiming for a more individualized therapy for this disease.

Keywords:

asthma, dysbiosis, microbiota, psychoneuroimmunology

EFFECTS OF HYPERGLYCEMIA ON THE NERVOUS SYSTEM – THE RELATIONSHIP BETWEEN TYPE 2 DIABETES AND DEPRESSION

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I am a medical student.

Abstract:

Type 2 diabetes (T2D) and depression are two common conditions whose comorbidities are receiving increasing attention. According to WHO data, approximately 422 million people worldwide suffer from diabetes, with type 2 diabetes accounting for 90% of all cases. T2D is characterized by a chronic hyperglycemic state that can lead to neuronal damage and dysfunction, which opens up prospects for understanding the relationship between type 2 diabetes and depression.
A literature review was conducted that included randomized controlled trials and systematic reviews from PubMed/MEDLINE published between 2018-2023. The following keywords were used in the search: *depression *type 2 diabetes *hyperglycemia.
Recent studies have shown that there are common pathogenetic mechanisms, such as inflammation, oxidative stress and changes in the neurohormonal system, that may underlie the development of depression in type 2 diabetes. In addition, elevated blood glucose levels can negatively affect neuronal structures, leading to abnormalities in synaptic conduction and metabolic processes within the nervous system.
Type 2 diabetes has been identified as a risk factor for the development of depression. Both complications and duration of diabetes are strongly correlated with the occurrence of depression, suggesting the need for more effective care for patients with T2D, which should include not only glucose control, but also prevention and treatment of psychiatric disorders such as depression.

Keywords:

depression, type 2 diabetes, hyperglycemia

HOLISTIC WOMAN CARE IN THE COVID-19 PANDEMIC – THE IMPORTANCE OF COOPERATION OF A GYNECOLOGIST AND FAMILY DOCTOR

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Abstract:

During the COVID-19 pandemic, in the context of holistic care for women, the cooperation of a gynecologist with a family doctor is particularly important. Deterioration of health, including sexual health, is observed, which may have a potentially long-term negative multidimensional impact on the functioning of women, secondary cycle disorders, and dermatological or dermatological problems. In addition, many women face additional burdens during a pandemic, such as supervising their children while studying at home and working remotely simultaneously.
During a pandemic, the practice of a family doctor and gynecologist is observed in female sexual dysfunction, depressive symptoms and fear. Prolonged blockage greatly increases women's sense of loneliness.
Physicians need to pay special attention to such problems as family physicians, gynecologists, sexologists and mental health counsellors, as well as violent and abusive partnerships. Any action aimed at developing preventive and intervention measures to mitigate any negative effects of a pandemic is important.

Keywords:

women, COVID-19 pandemic, health

SELECTED ISSUES RELATED TO POSSIBLE CO-OCCURRING CAUSES OF HEADACHES IN WOMEN WITH PMS

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Abstract:

Headache, an almost universal human experience, is one of the most common ailments encountered in medicine. Headaches occur as much as three times more often in women than in men, much of which is related to premenstrual syndrome. The most common causes of headaches include; fatigue, strong emotional stress, problems with cerebral circulation, hormonal fluctuations, disturbed metabolism and vascular abnormalities. Uncharacteristic headaches may appear as a consequence of a particular lifestyle (e.g. smoking, alcohol abuse) or genetic factors. Recurrent headaches are most often associated with migraine. However, in the practice of a family doctor and gynaecologist, it is worth remembering that these troublesome ailments can also be caused by dental or laryngological problems. Each recurring headache requires extended diagnostics, including neuroimaging, magnetic resonance (MR) and computed tomography (CT), but diagnostics and consultations: dental or laryngological are also important.

Keywords:

headache, premenstrual syndrome, medicine

SELENIUM AND CANCER

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I am a student of the doctoral school of the Medical University of Białystok. On a daily basis, I am involved in biobanking of biological material at the Biobank of the Medical University of Białystok.

Abstract:

Selenium (Se) was recognized as a non-toxic element in the second half of the 20th century. Since then, the positive impact of selenium on the functioning of the human body has been noticed. It has been shown that low levels of selenium in the body are significantly associated with a higher risk of developing cancer. Selenium acts as an antioxidant and inhibits the proliferation of cancer cells. It has been shown that selenium supplementation may contribute to reducing the risk of DNA mutations and carcinogenesis. Se as an element necessary for the proper functioning of the body, it protects against oxidative stress. Scientific research has shown that Se may be effective in supporting the treatment of malignant tumors, which continue to pose a challenge to medicine.

Keywords:

selenium, cancer, glutathione peroxidases, oxidative stress, carcinogenesis

CLINICAL APPLICATIONS OF AMNIOTIC MEMBRANE

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Master's degree in medical biotechnology, working in a protein laboratory and on the topic of tissue banking.

Abstract:

The placenta is assumed to be a biological waste, despite being a rich source of biologically active agents. In addition, it exhibits anti-fibrotic, anti-inflammatory, anti-angiogenic and antimicrobial effects. A specialised tissue bank allows it to be used as a source for allogeneic transplantation. The procedure of collecting tissue during caesarean section and qualifying the donor is demanding and responsible, as is the manufacture of the therapeutic preparation. This takes place under strictly defined conditions on the basis of the Anti-Fibrotic, Anti-Inflammatory, Anti-Angiogenic and Anti-Microbial Transplantation Act of 1 July 2005. The most common use is of amniotic membrane. This membrane is a thin, semi-permeable tissue of the inner layer of the fetal bladder composed of three layers. The tissue preparation has a wide range of applications, especially in ophthalmic surgery, corneal damage and other procedures in dermatology, plastic surgery, otolaryngology and genitourinary medicine. Furthermore, epithelial and mesenchymal cells of the amniotic membrane represent a promising application in regenerative and oncological medicine.

Keywords:

amniotic membrane, transplantation, regenerative medicine, ophthalmology

DIVERSITY OF ACCESS TO HEALTH SERVICES IN RURAL AREAS OF POLAND

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A few words about the author(s):

I am a student at Rzeszow University of Technology, Faculty of Physics and Applied Mathematics. I am in my fourth year of medical engineering, and I am interested in medical-related sciences.

Abstract:

The paper shows how diverse access to health care is in rural Poland. It includes an introduction and the purpose of the study. The purpose of the study is to assess the geographic dispersion, financial accessibility and acceptability of health care services in rural areas of Poland, and to analyze the impact of these differences on the health status of the population. The paper includes a description of the research method, and the results. Using various econometric and statistical tools, such as Perkal's method, Local Quotient and Florence method, the regional variation in health care availability was examined. The results confirm all the formulated research hypotheses: the variation of health care services in rural areas, the lack of improvement in health care accessibility during the analyzed period, and the impact of health care accessibility on population health. The poster includes 3 figures to make it easier for the viewer to visualize the results. There is a summary at the end, which includes the most important conclusions.

Keywords:

health, medicine, rural areas, access to health care

THE USE OF MODERN MOBILE TECHNOLOGY IN HEALTHCARE POSES A SIGNIFICANT CHALLENGE FOR THIS CENTURY

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Abstract:

The paper presents the possibilities of using mobile technologies in healthcare. It includes an introduction and the purpose of the research. Mobile health, known as "m-health," is an area of medicine that uses mobile devices to improve health care. Although it is a new and rapidly developing field, it offers a number of benefits, such as medical data collection and support for maintaining a healthy lifestyle. Despite this, m-health apps are not a substitute for doctors and can come with potential risks, especially when it comes to information security and users' self-interpretation of results. The aim of the study was to show the opportunities that the technology presents in terms of health care, and to highlight the potential risks flowing from the use of the technology. Results were also presented, focusing on showing the use of mobile applications in specific cases. Also included is a figure, which is a pie chart showing mobile applications in various categories. Finally, a summary is included, with specific conclusions.

Keywords:

mobile technology, m-health, healthcare, mobile apps

BREAST CANCER PREVENTION AS A KEY TO HEALTH

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I am a student of Diagnostic Systems in Medicine at the University of Rzeszów, passionate about modern technologies in medicine and brain science.

Abstract:

BACKGROUND: The aim of this study is to present the role of prevention in the context of breast cancer as a key element in maintaining women's health. Breast cancer is a malignant tumour that develops in the cells of the mammary glands. It is one of the most common forms of cancer among women worldwide, but can also affect men, although much less frequently. For women, the risk of developing breast cancer usually increases with age, especially after menopause. Breast cancer prevention is a key part of a healthy lifestyle and effective management of the risk of developing the disease. It encompasses a variety of preventive measures to reduce the risk of breast cancer and early detection of possible changes for prompt treatment.
MATERIALS AND METHODS: Articles were reviewed using the publicly available search engines PubMed, GoogleScholar, and Science Direct. The topic of the searched articles was EEG changes after Covid-19. The systematic literature review included 15 English-language articles.
CONCLUSIONS: Campaigns, community events on breast cancer can contribute to a significant increase in public awareness of the importance of prevention, early detection and treatment of breast cancer and may contribute to reducing delays in diagnosis.

Keywords:

breast cancer, prevention, public awareness campaigns

THE IMPACT OF PHYSICAL ACTIVITY ON MENTAL HEALTH

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Abstract:

PURPOSE: The aim of this study is to demonstrate the beneficial effect of physical activity on improving proper brain function. Regular physical activity is an indispensable component of a healthy lifestyle, crucial for maintaining an individual's physical fitness, which undoubtedly affects quality of life and general well-being. Systematic physical exercise plays an essential role in the prevention of diseases related to mental disorders.
MATERIALS AND METHODS: Articles were reviewed using the publicly available search engines PubMed, GoogleScholar, and Science Direct. The topic of the searched articles was changes in EEG examination after Covid-19. The systematic literature review included 10 English-language articles.
CONCLUSIONS: A review of the available literature confirms unequivocally that physical activity is associated with improved general mental well-being. Regular physical exercise has a beneficial effect on mood, stress reduction and increased self-esteem.

Keywords:

physical activity, mental health, stress reduction

THE INFLUENCE OF FERRITIN ON THE PROCESS OF CARCINOGENESIS

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Abstract:

Iron is an essential nutrient for many body functions. Through phagocytosis of erythrocytes by macrophages, it is recycled, and the remaining part is absorbed by erythrocytes in the small intestine, where gastric juice is necessary in this process. In enterocytes it is stored in ferritin and transported to the plasma by transferrin. Ferritin, which is present in the cell nucleus, captures free iron and protects the DNA. When abnormal heme group synthesis overcomes the storage capacity of ferritin, iron accumulates in the mitochondria, increasing the production of free oxygen radicals via the Fenton reaction and activating signaling pathways associated with cancer growth and proliferation. Although the mechanism remains unclear, studies have shown that ferritin plays a role in malignancies and may be a potential biomarker for cancer detection.

Keywords:

ferritin, biomarker, carcinogenesis

EVALUATION OF BIOAVAILABILITY OF PROPRANOLOL USING IN SILICO CALCULATION METHODS

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A few words about the author(s):

Research interests focus on pharmaceutical sciences in the field of molecular modeling. They include predictive modeling of detailed mechanisms of action and pharmacological efficacy of biologically active compounds in safety pharmacology.

Abstract:

In recent years, pharmaceutical companies and scientists have been focusing on researching the bioavailability of drugs and developing methods to make pharmacodynamic measurements faster and more efficient. APIs with low bioavailability after oral administration often fail to reach the minimum effective concentration required to achieve a specific therapeutic effect. Therefore, assessing and optimizing bioavailability is essential in designing and developing new drugs. Propranolol is a non-selective β-blocker drug that blocks β1 and β2 receptors. It is a β-blocker that is used to treat or prevent various conditions such as hypertension, angina pectoris, acute myocardial infarction, hyperthyroidism, arrhythmia, migraine, pheochromocytoma, menopause, and anxiety. In this study, the pharmacokinetic parameters of propranolol were analyzed using molecular modeling methods, and its bioavailability was evaluated. Statistical data were collected and processed using specialized software.

Keywords:

bioavailability, in vitro and in vivo evaluation methods, propranolol, Egan egg

ABSTRACTS OF

PRESENTATIONS

TECHNICAL AND NATURAL SCIENCES

AN APPLICATION OF THE GRAPH THEORY TO THE ANALYSIS OF METRO NETWORKS IN SELECTED EUROPEAN CITIES

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The authors, both graduates of the field of computer science from the Higher School of Entrepreneurship and Administration in Lublin, are currently pursuing their doctoral studies at the Higher School of Informatics and Management in Rzeszow.

Abstract:

The efficient functioning of urban transportation systems is critical for the economic and social well-being of modern cities. Metro networks, as a vital component of urban transit, serve as complex systems with intricate connectivity patterns. This study applies graph theory to analyze and model the metro networks of selected European cities, seeking to gain insights into their structural properties and operational efficiency. The research focuses on graph theory, a mathematical framework that represents networks of interconnected nodes and edges. In the context of metro networks, nodes represent stations, and edges represent the rail connections between them. By applying graph theory metrics, such as degree centrality, betweenness centrality, and clustering coefficients, this study aims to quantify the topological features of metro networks and evaluate their impact on accessibility, connectivity, and resilience. The selected European cities for analysis include major metropolises with well-established metro systems, allowing for comparative studies. The research employs real-world data, including network maps, station locations, and travel time information, to construct accurate and representative graph models. In conclusion, this research contributes to the understanding of metro networks in selected European cities through the lens of graph theory.

Keywords:

metro networks, graph theory, urban transportation, network topology, connectivity

A REVIEW OF BREEDING PHYSIOLOGY IN VARIOUS BIRD SPECIES

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A few words about the author(s):

I am a 5th-year student of veterinary medicine in Olsztyn. I have been active in the scientific club for a long time – thanks to participation in projects and conferences, I broaden my horizons and gain additional knowledge.

Abstract:

The term hatching is used to describe the entire process leading to the emergence of birds from eggs. Under the form of this period, which lasts differently depending on the species, there are many physiological processes that make the hatching chicks look the way they do. It would seem that something as primitive as the formation of eggs and the hatching of chicks could not be complicated - yet the opposite is true. In the development of the embryo, we can distinguish a number of successive stages in which further features develop to give it the ability to live. This process can occur under natural conditions - the hen lays an egg, or under artificial conditions - in so-called incubators. During incubation, a number of microclimatic conditions must be met to ensure the highest possible percentage of hatched chicks. Even the smallest change can result in cessation of development and embryonic death - which is why it is so important to learn the basics of hatching physiology to reduce these numbers. In my presentation, I will introduce you to the process of the hen from egg cell to embryo to chic.

Keywords:

hatching, chicks, embryo, physiological process

PROGRESS OF EIMERIA SP. INVASION IN BLACK GROUSE (T. TETRIX) IN AVIARY BREEDING USING THE "BORN TO BE FREE" METHOD

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A 4th-year Veterinary student at the Faculty of Veterinary Medicine. Main interests related to the field of study include parasitology and parasitic invasions among wild and farm animals.

Abstract:

The research aimed to demonstrate the level of Eimeria sp. invasion in fecal samples of T. tetrix mothers and their offspring using the protective "born to be free" method. The study covered four semi-natural aviaries, each containing an isolated section with a female and an open-access section with offsprings. Fresh fecal samples were collected from each aviary four times. The Fűlleborn flotation method was used to detect coccidia oocysts and their species, and the McMaster method determined the Oocysts Per Gram (OPG). Identified coccidia species were E. lyruri, E. nadsoni, and E. tetricis. The research revealed a reduction of OPG by over 10% upon transfer of females, maintaining a similar level throughout the study. For nestlings, a substantial reduction (90%) was observed, decreasing further to trace amounts of oocysts. This indicates that environmental dispersal for nestlings, followed by a complete change in terms of food intake, significantly reduces the number of oocysts.

Keywords:

black grouse, endoparasites, coccidiae, breeding, aviary

MINERAL-VITAMIN DISORDERS AS A PROBLEM OF INTENSIVE POULTRY PRODUCTION

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A few words about the author(s):

Adrianna Michniewicz, a fifth-year veterinary medicine student at UWM Olsztyn. Beyond my academic commitments, I immerse myself in the realms of veterinary physiology and pathomorphology during my leisure hours.

Abstract:

Vitamins are biologically active substances that birds cannot produce on their own. We divide them into water-soluble vitamins and fat-soluble vitamins. The state of vitamin deficiency is called hypovitaminosis, and the lack of vitamins is avitaminosis. Minerals are as important as proteins, fats or carbohydrates, playing a building function for the body of birds. Since they are exogenous substances, they must be supplied from the outside. Minerals regulate various functions of the body of birds and we divide them into macroelements and microelements. Mineral-vitamin management is of great importance for maintaining the balance in the organisms of birds. Its disorders can lead to the occurrence of various diseases. In my presentation, I will focus on three common diseases in birds, such as tibia dyschondroplasia, rickets and fibrous bone dystrophy. These diseases are caused by deficiencies of vitamins and minerals. In my speech, I will provide information on the prevalence of these individuals and the health and economic consequences associated with their appearance in poultry production.

Keywords:

vitamins, minerals, poultry production, dyschondroplasia

ELECTROLYZER DESIGN AND THE EFFECT OF ELECTROLYTE SELECTION ON THE AMOUNT OF HHO RELEASED

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A few words about the author(s):

The authors of the paper are members and the supervisor of the Materials Science Student Research Group named after Doc. R. Haimann, operating at the Wroclaw University of Science and Technology.

Abstract:

The subject of the project is the construction of an electrolyzer made from commercially available market components. The future goal of the discussed alkaline electrolyzer is to serve as a fuel source in an RC car type vehicle, after the conversion of the power unit to hydrogen fuel. The constructed research setup underwent preliminary pilot tests to determine the production of generated HHO based on the applied electrolyte. The investigated liquids participating in the experiment were chosen to be potassium hydroxide (KOH) and sodium hydroxide (NaOH). In the conducted experiment, trials were carried out for concentrations of 20% (wt.), 30% (wt.), and 50% (wt.) for both solutions.

Keywords:

hydrogen, alkaline electrolyzer, HHO gas, potassium hydroxide, sodium hydroxide

ANALYSIS OF THE EFFECTIVENESS OF MODERN SECURITY SYSTEMS IN AREAS AT RISK OF PIRATE ATTACKS

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A few words about the author(s):

Sonia Rozbiewska graduated 5 engineering fields with maritime specializations. She started her professional career as a ship operator for a Polish shipowner, but currently deals with ship systems for a company in Hamburg.

Abstract:

The aim of the work is to present the effectiveness of using selected ship protection measures in areas recognized as areas with an increased risk of pirate and terrorist attacks. This work will compare the use of various combinations of ship protection measures based on the analysis of 452 pirate attacks at sea that were registered by the International Maritime Bureau in the period from January 1, 2010 to December 31, 2011. The first chapter describes the problem of maritime piracy, the basic distinction between types of maritime attacks, as well as the latest trends observed among attackers. Additionally, the impact of maritime piracy on the operation of the global supply chain was presented graphically, as well as maps presenting the main points and areas of pirate activity. The second chapter describes in detail the most frequently used ship protection measures, their characteristics and form of use. The third chapter covers crime prevention through the use of specific ship security measures used in HRA areas. The distribution as well as the frequency of combinations of pre-boarding prevention measures used during pirate attacks are presented. The study details the differences in results for specific combinations of preventive measures against attackers boarding and highlights clearly noticeable interaction effects. The summary presents conclusions regarding the analysis of the effectiveness of modern security systems in at-risk areas.

Keywords:

maritime piracy, maritime security, anti-piracy measures, analysis

CRITICAL TEMPERATURE OF THE NONADIABATIC SUPERCONDUCTING STATE IN MONO- AND BILAYER SYSTEMS

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A few words about the author(s):

Marta Adamczyk is a PhD student at UJD in Częstochowa, and my supervisor is Radosław Szczęśniak. Our research focuses on the study of superconductivity.

Abstract:

The electron-phonon interaction can induce the superconducting state in the low-dimensional mono- and bilayer systems. However, the calculated value of the temperature of the transition from the metallic to the superconducting state is greatly affected by the accuracy of the applied model. If taken into account, the vertex corrections to the electron-phonon interaction are usually of significant value due to the low Fermi level of such materials and were found to contribute to the reduction of the calculated value of the critical temperature of the transition. This fact weakens the prospects for the possibility of induction of the nonadiabatic superconducting state at the relatively high critical temperature since an increase either in the electron-phonon coupling constant or in the Debye frequency leads to the simultaneous increase in the corrected Migdal ratio, while influencing the critical temperature to a greater degree.

Keywords:

critical temperature, nonadiabatic superconducting, monolayer, bilayer

CURRENT DIETARY TRENDS AND EXPECTATIONS TOWARDS SNACKS MADE OF DRIED VEGETABLES AND FRUITS

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Małgorzata Chobot MSc – PhD student at Warsaw University of Life Sciences in the Institute of Food Sciences with scientific interests in innovative food processing technologies and nutrition.

Abstract:

Trend analysis provides valuable insights into human behavior and choices. Many consumers adopt specific eating patterns to address health issues and enhance overall well-being, driven by a heightened awareness of environmental concerns and sustainable development. The globalization of information contributes to the rapid dissemination of new trends. This global shift is reflected in a preference for healthier snacks, including plant-based options. Snack technology has advanced to meet this demand, aiming for reduced fat content, lower production temperatures, and enrichment with health-beneficial ingredients such as antioxidants, vitamins, and minerals, particularly in dried snacks made from vegetables and fruits. Drying, as a method of food preservation involving moisture removal, prevents bacteria growth and extends storage ability, facilitating easier packing and transportation. Traditional drying is often time and energy-consuming. More contemporary approaches include supportive treatments such as osmotic dehydration, ultrasound, microwave, infrared, and reduced pressure, as well as selected drying methods such as explosion puffing drying or freeze-drying. These dried snack production techniques benefit consumers and producers by providing consumers with convenient fresh-like properties while generating a profit and extended shelf life for producers. The progress in dehydration and drying methods ensures snacks with high-quality nutrition and sensory attributes.

Keywords:

dietary trends, pro-healthy snacks, dried vegetables, dried fruits, drying methods

PLANT EXTRACTS WITH THERAPEUTIC PROPERTIES

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The authors' scope of interest covers modern methods of transportation and dosage of active substances and compounds of natural origin with medicinal, therapeutic and caring character.

Abstract:

The growing trend of naturalness affects various industries, including the medical and cosmetic ones. Manufacturers are constantly looking for original and effective substances and compounds from nature. Another important aspect is the sustainable sourcing, as well as the processing of desired raw materials in such a way that these processes affect the environment as little as possible. In this regard, compounds contained in extracts from plants commonly known and cultivated locally in Poland may prove valuable. Of particular interest seem to be the extracts from: zucchini, beetroot, eggplant or horseradish, which contain substances with potential medicinal and care properties. The subject of the presentation will be the answer the following questions: what compounds of a therapeutic nature are found in these popular plants? How can they be obtained and processed without significantly affecting the environment? Further scientific plans will be based on the synthesis of modern carriers (micro-needles, ectosomes) for the active substances contained in extracts from the aforementioned plants.

Keywords:

plant extracts, active substances, naturalness

MODIFYING SELECTED PROPERTIES OF DRIED CARROT SNACKS WITH NFC JUICE ENRICHMENT

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A few words about the author(s):

I am a third-year doctoral student at the Institute of Food Sciences at the Warsaw University of Life Sciences. I am currently focusing on research for my PhD thesis. I am interested in various drying techniques.

Abstract:

The study assessed the impact of osmotic enrichment in three NFC (not from concentrate) juices; sea buckthorn, pomegranate and chokeberry to produce dried carrot snacks. Fresh and pre-enriched carrots were freeze-dried in a water bath (40 ºC/60 min). The obtained dried carrots were analyzed in terms of selected physicochemical properties.
Pre-treatment before drying did not significantly affect the weight loss of dried carrots. The use of preliminary enrichment resulted in a slight increase in the water activity of carrot freeze-dried products, which was in the range of 0.070-0.127. The dry matter content was in the range of 95.2-96.6%. Greater differences were found in the case of color. The highest lightness of L* color compared to the color of raw carrots was found in freeze-dried carrots without pre-treatment (71.2), and the lowest in dried carrots pre-enriched with chokeberry juice (25.8). Dried carrots enriched with pomegranate juice had the lowest difference in color ΔE concerning the color of the raw material (10.9). From the technological point of view, obtaining dried vegetable snacks using both proposed treatments is possible by selecting the conditions under which they are carried out. Because of current nutritional trends, combining enriching carrots in juices and freeze-drying allows for modifying the properties of dried carrots and obtaining vegetable chips with the properties most desired by a potential consumer.

Keywords:

carrot snacks, pre-treatment, osmotic enrichment, drying, freeze-drying

GASOTRANSMITTERS – A NEW PLAYERS IN SEEDS DORMANCY REMOVAL

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A few words about the author(s):

PhD Student at Doctoral School of Warsaw University of Life Sciences. In my research work, I explores the secrets of the gasotransmitters in dormancy removal of orthodox seeds.

Abstract:

The strength of seed dormancy of various plant species is an adaptive strategy to natural environmental conditions [1]. Avoiding unfavorable weather factors occurring in a given area for a long time contributed to the development of deep embryonic dormancy For humans, seed dormancy carries both benefits (it facilitates longer storage and transport) and disadvantages (it generates costs of storing seeds). Physiologically, seed dormancy must be precisely regulated by a number of internal factors (proteins, hormones and other metabolites). Seeds lose dormancy after "receiving" an environmental stimulus, which is converted into an internal signal aimed at modifying metabolism [1, 4]. The first signalling compounds that easily diffuse in the cells of the embryo are gaseous molecules, e.g. nitric oxide (NO) or hydrogen cyanide (HCN) [2, 5]. Short-term treatment of apple embryos with NO (3 h) or HCN (6 h) stimulates their germination and eliminates developmental anomalies in seedlings [3]. The aim of this work is to describe the role and potential implementation of gasotransmitters in priming of seeds.

Literature:
[1] El-Maarouf-Bouteau H (2022). Biology 11: 168.
[2] Gniazdowska A, Krasuska U, Bogatek R (2010a). Planta 232: 1397-1407.
[3] Gniazdowska A, Krasuska U, Czajkowska K, Bogatek R (2010b). Plant Growth Regul 61: 75- 84.
[4] Lewak S (2011). Acta Physiol Plant 33:1-24.
[5] Siegeń I, Bogatek R (2006). Acta Physiol Plant 28: 483-497.

Keywords:

hydrogen cyanide, nitric oxide, seed dormancy, seed germination, priming

INVESTIGATION OF THE OXIDATION PROCESS, CORROSION RESISTANCE AND MECHANICAL PROPERTIES OF MATERIALS SINTERED ON A ZIRCONIUM MATRIX

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A few words about the author(s):

Radosław Wnuk is a doctoral student at the Faculty of Metal Engineering and Industrial Computer Science at AGH in Cracow in the field of material engineering.

Abstract:

Zirconium is a material with great potential used primarily in the nuclear, chemical and medical industries, including: in the production of bone implants. It is a heat-resistant metal characterized by a high melting point (1860 °C) and good resistance to corrosion caused by many acids, bases and sea water. High purity zirconium metal is expensive because of the need to separate the hafnium. Elements used in the nuclear industry (e.g. pipes, rods) are obtained by melting, plastic and heat treatment techniques. Machining is used to produce more complex shapes, but material losses are very high. An alternative may be powder metallurgy and the use of pressing and sintering techniques to produce products from zirconium and its alloys. Then material losses may be small, and the production process does not require much energy, and the density of the material obtained from powders is very close to the theoretical density of the material obtained by melting methods. The results of testing the density, hardness and corrosion resistance of zirconium sinters with the addition of Cu, Nb, Mn and pure zirconium will be presented. Consolidation of the powders was performed by spark plasma sintering SPS. Sintered materials are characterized by residual porosity, which makes their corrosion resistance lower compared to materials obtained by melting. Sinters containing 2.5% and 16% niobium have the best corrosion resistance and mechanical properties.

Keywords:

powder metallurgy, SPS sintering, hardness, density, corrosion resistance

ABSTRACTS OF

POSTERS

TECHNICAL AND NATURAL SCIENCES

PODOSOME DISSOLUTION IN MOUSE BONE MARROW-DERIVED DENDRITIC CELLS (BMDCS) CULTURE DOES NOT ALWAYS CORRELATE WITH CELL MATURATION DURING ORTHOPOXVIRUS INFECTION

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A few words about the author(s):

Zuzanna Biernacka – as of 2019, PhD student in the Doctoral School of the University of Life Sciences in the field of science in veterinary disciplines. Research, mainly focused on the cytoskeleton and adhesion structures of dendritic cells.

Abstract:

Vaccinia virus (VACV) and ectromelia virus (ECTV) belong to the Poxviridae family, which also includes the variola virus that causes smallpox in humans. ECTV is the causative agent of mousepox, while VACV served as a vaccine against smallpox. Both viruses provide a suitable model for studying the immunobiology of orthopoxviruses. Dendritic cells (DCs) are antigen-presenting cells that, by controlling the environment, capture antigen and present it to T lymphocytes. Migration of immature DCs is possible due to cytoskeleton rearrangement and the presence of specialized adhesion structures, such as podosomes. Because podosomes are a hallmark of immature DCs, and podosome assembly and disassembly are strongly linked to the immunoregulatory and migratory functions of DCs, we assessed how VACV and ECTV infection affect podosome turnover and maturation of mouse bone marrow-derived DCs (BMDCs). The primary culture of BMDCs was obtained using rmGM-CSF. To characterize podosomes in BMDCs, podosome-building proteins (F-actin, vinculin) were fluorescently stained. To determine the maturity of DCs, the level of MHC class II molecules and co-stimulatory molecules CD80, CD86 was analyzed in control cells and infected cells. Our results show that both VACV and ECTV induce podosome dissolution in the early stages of infection. Moreover, in the case of VACV-infected BMDCs, podosome dissolution was associated with cell maturation, while ECTV infection of cells did not promote their maturation.

Keywords:

dendritic cells, podosomes, orthopoxvirus, maturation

DETERMINATION OF PROGESTERONE, ESTRADIOL AND ETHINYLESTRADIOL IN LIQUID ENVIRONMENTAL SAMPLES

Emilia Ficek (1)*, Aleksandra Jarzmik (1), Sebastian Żabczyński (2), Anna Lalik (3), Mirosława Grymel (1, 4), Sylwia Bajkacz (1, 4)

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A few words about the author(s):

Students from Silesian University of Technology worked together at an 'project base learning'. Undertaken activities during this project led to our knowledge expansion and interesting results. The project was coordinated by Professor Sylwia Bajkacz.

Abstract:

Occurrence of endocrine disrupting compounds (EDCs) in environmental waters happens to be a huge struggle. Steroid hormones such as progesterone (P4), β-estradiol (E2) and ethinylestradiol (EE2) happen to be a part of EDCs. The main reason why residues of those hormones are found in the environment are birth control pills [1]. As part of this project, a methodology was developed for the determination of selected hormones (including progesterone, estradiol and ethinylestradiol). The developed SPE-LC-MS/MS procedure was successfully applied to determination of selected micropollutants in liquid environmental samples. In addition extensive research was conducted to learn more about the degradation pathways of each hormone.

This study was funded by the Silesian University of Technology under the project 31/010/SDU20/0006-10 (in the10th edition of grants supporting the Project-Based Learning projects).

Literature:
[1] M. J. López de Alda and D. Barceló, J. Chromatogr. A, vol. 892, no. 1, 391–406, 2000.

Keywords:

hormones, EDCs, environment, LC-MS/MS, SPE

DEDICATED SOFTWARE FOR CALCULATING CRITICAL MICELLE CONCENTRATION

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A few words about the author(s):

As students, we're collaborating on a project under guidance of two scientists. Our aim was to develop a physiochemical software that integrates programming and chemistry, primarily focusing on determining CMC.

Abstract:

We aimed to improve a physiochemical software that calculates the critical micelle concertation (CMC) value based on the measurements of fluorescence emission spectra of the solutions of the analyzed substance with pyrene. It is well-known that amphiphilic polymers and surfactants possess CMC in specific solvents at which micelles begin to form. The CMC calculation is a tedious and error-prone process; therefore, the development of dedicated software is important.
A new version of the software has been developed for the MATLAB environment. The CMC value is established based on the three-line approximation of the plot obtained from the measurements of the fluorescence signal of different solvents of the analyzed substances.
The model substances for which CMC was estimated via the spectrofluorimetric method, were poly(2-(methacryloyloxy)ethyl trimethylammonium chloride) (PMETA), poly(ethylene oxide) methyl ether methacrylate (POEOMA), Cermonium Bromide, and Pluronic L35.
Fluorescence emission spectra were measured within the 360–420 nm range using a Camlin fluoroSENS Pro 11 spectrofluorometer with an excitation wavelength of 337 nm. The CMC values of the tested compounds obtained using the software were compared with those described in the literature with very good consistency of results.
Future work will be concentrated on developing new algorithms for CMC calculation.

Keywords:

CMC, polymer, a physiochemical software

CHARACTERIZATION OF THE PROCESS OF SYNTHESIS OF FRACTALS MADE FROM CONDUCTIVE POLYMERS

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A few words about the author(s):

A group of biotechnology students, project under supervision of of Dr. P. Chulkin and Dr. A. Wawrzkiewicz-Jałowiecka from the Department of Physical Chemistry and Technology of Polymers, Silesian University of Technology, Gliwice, Poland.

Abstract:

In the course of the conducted research, a series of experiments was carried out to determine experimental parameter selection and assess their influence on the shape of the emerging structure. Factors affecting the course of the research include the concentration of the monomer dissolved in an organic solvent, the electrolyte concentration, and the electrode potential. Additionally, three different methods of controlling the electrochemical process were examined: maintaining a constant potential of the working electrode, maintaining a constant current intensity, and cyclically changing the potential. Pyrrole was chosen as the main substance, which, through electrochemical oxidation in an acetonitrile solution, undergoes polymerization, forming a conductive high molecular material - polypyrrole. The quantitative characterization of the obtained polymer was conducted based on the analysis of time, current and voltage correlation. Simultaneously, the dynamics of the growing star-shaped figure during electropolymerization were analyzed. Furthermore, an attempt was made to determine the fractal dimension of the obtained structures.

Keywords:

fractal, electropolymerization, polypyrrole, DLA

SELECTION OF EXTRACTION PARAMETERS AND VALIDATION OF THE PROCEDURE FOR ANALYSIS OF HORMONES IN LIQUID ENVIRONMENTAL SAMPLES

Aleksandra Jarzmik (1)*, Emilia Ficek (1), Sebastian Żabczyński (2), Anna Lalik (3), Mirosława Grymel (1,4), Sylwia Bajkacz (1,4)

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A few words about the author(s):

A couple of chemistry students who worked together during an interdisciplinary 'project base learning'. The experiment that was carried out led to some interesting results. The entire project was coordinated by Professor Sylwia Bajkacz.

Abstract:

Residues of endocrine disrupting compounds (EDCs) in the environment have become a huge concern over the years. EDCs can easily affect organisms living in the environment in which they are present. The main reason why EDCs are easily found in the environment is the large disposal of pharmaceuticals containing these hormones, commonly used in treatments for menopausal symptoms or in birth control pills [1]. In order to determine their concentrations in environmental waters it is essential to use the solid-phase extraction (SPE). The crucial step while performing SPE is to determine the appropriate conditions. This study focuses on selecting optimal SPE conditions for isolation of analytes from samples. Part of the experiment also included validation of the performed procedure.

This study was funded by the Silesian University of Technology under the project 31/010/SDU20/0006-10 (in the10th edition of grants supporting the Project-Based Learning projects).

Literature:
[1] M. J. López de Alda and D. Barceló, J. Chromatogr. A, vol. 892, no. 1, 391–406, 2000.

Keywords:

hormones, EDCs, environment, SPE

SELECTED METHODS FOR OPTIMIZING PERMANENT CONNECTIONS BETWEEN STANDARD AND SPECIAL FIBER OPTICS, GENERATED ON A FIBER OPTIC FILAMENT SPLICER

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A few words about the author(s):

Mateusz Józwicki is a Ph.D. student at the Ph.D. School of Quantitative and Natural Sciences. Professor Paweł Mergo is an experienced scientist in the field of fiber optics and a long-time head of the Laboratory of Optical Fibre Technology.

Abstract:

Currently available and designed special fibre optics have an increasingly complex structure, i.e. they have more complicated arrangements of air holes or stress elements in their construction. In addition, they have a different external shape, i.e. hexagonal or D-shaped instead of round. This has led to the development of new methods of interconnecting them and connecting them to standard optical fibres, through which they are connected to the transmitting and receiving apparatus. This paper presents selected methods for optimising the connection of special optical fibres, i.e. D-shape, hexagonal to standard optical fibres.

Keywords:

splicing optical fiber, special fibre optics, optical fibers

DEVELOPMENT OF A LC-MS/MS PROCEDURE FOR THE DETERMINATION OF SELECTED HORMONES

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A few words about the author(s):

A student who conducted research as part of an interdisciplinary 'project base learning'. The activities of the future chemists and biotechnologists produced interesting results. The entire project was coordinated by Professor Sylwia Bajkacz.

Abstract:

In recent years, research has addressed the issue of endocrine-disrupting compounds (ECDs) in the environment, which disturb the natural hormonal balance in organisms, leading to diseases and mutations. ECDs encompass steroid hormones like progesterone (P4) and estrogens (β-estradiol (E2), ethinylestradiol (EE2)). Their presence in water is linked to medications like menopausal treatments or birth control pills [1]. Detecting these hormones in environmental waters at ng/l concentrations presents significant analytical challenges [2]. As part of this project, a methodology was developed to determine selected hormones (including progesterone and estradiol). This study focused on liquid chromatography and tandem mass spectrometer (LC-MS/MS) conditions for determining E2, EE2, and P4.

This study was funded by the Silesian University of Technology under the project 31/010/SDU20/0006-10 (in the10th edition of grants supporting the Project-Based Learning projects).

Literature:
[1] M. J. López de Alda and D. Barceló, J. Chromatogr. A, vol. 892, no. 1, 391–406, 2000.
[2] Y. L. Chen et al, Appl. Environ. Microbiol., vol. 84, no. 10, e00001-18, 2018.

Keywords:

hormones, environment, LC-MS/MS

SPECTROSCOPIC CHARACTERISTICS OF THE SELECTED BETULIN CONJUGATES

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A few words about the author(s):

A student who interested in organic chemistry especially chemistry of natural compounds including research on betulin and its structural modifications. Additionally, a member of the University Scientific Club of Chemists.

Abstract:

For decades, natural compounds have been researched in terms of searching for potential medicaments. One of these substances is betulin (BN), belonging to pentacyclic lupane-type triterpenoids. BN is a cheap, easily accessible natural active compound that can be extracted from the bark of many birch species (e.g. Betula alba), using organic solvents (e.g. methanol, acetone). Unfortunately, despite the multidirectional activity (e.g. anticancer, antiviral, hepatoprotective) and high safety profile of BN, its use as a potential drug is limited due to its low bioavailability and high hydrophobicity. Due to the presence of simply transformable functional groups in its skeleton (including C3-OH, C28-OH) BN has synthetic potential. One of promising strategies is the conjugation of a native skeleton BN with polar fragments biocompatible with human organism (e.g. saccharides, amino acids).
In the presented study, the spectroscopic properties of the selected BN conjugates and the influence of individual functional groups on the ranges of chemical shifts of protons at positions C3 and C28 we described the structures of analogues BN confirm using NMR spectroscopy. Nuclear magnetic resonance spectroscopy is a technique based on re-orientation of atomic nuclei with non-zero nuclear spins in an external magnetic field. The resonance frequency of each NMR-active nucleus depends on chemical environment, as a result spectra are characteristic to individual compounds and functional groups.

Keywords:

betulin (BN), analogues, NMR, chemical shifts

DETERMINING THE VIABILITY OF HCT116 CELLS TREATED WITH ENVIRONMENTAL WATER SAMPLES OR SOLUTIONS OF PURE HORMONES (P4, E2, AND EE2)

Beata Nowrot (1)*, Martyna Sołtysik (1), Sebastian Żabczyński (2), Anna Lalik (1), Mirosława Grymel (3, 4), Sylwia Bajkacz (3, 4)

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A few words about the author(s):

A student who conducted research as part of an interdisciplinary 'project base learning'. The activities of the future chemists and biotechnologists produced interesting results. The entire project was coordinated by Professor Sylwia Bajkacz.

Abstract:

In recent years, research has concentrated on addressing the issue of endocrine-disrupting compounds (EDCs) in the environment. Specifically, these compounds interfere with the natural hormonal balance in living organisms, leading to a range of diseases and mutations. EDCs encompass steroid hormones like progesterone (P4) or estrogens (β-estradiol (E2), ethinylestradiol (EE2)). Their prevalence in the environment, particularly in water sources, is attributed to the use of medications containing these hormones, such as those prescribed for menopausal disorders or birth control. Hormones are found in environmental waters at concentrations on the order of ng/l, making the development of a method with sensitivity and selectivity for their simultaneous determination a significant analytical challenge. This part of the project studied the effect of hormones on cell viability in the CCK8 assay. The HCT116 cell line was used for the test. Prior to the test, concentrations of selected hormones in environmental waters were obtained using the SPE-LC-MS/MS procedure. Solutions of progesterone, estradiol and ethinylestradiol were used for the test at concentrations corresponding to those in environmental samples and environmental waters. The selected hormones were shown to affect cell viability but not to the same extent as environmental waters.

This study was funded by the Silesian University of Technology under the project 31/010/SDU20/0006-10.

Keywords:

hormones, environment, CCK8, HCT116

IMPACT OF SAMPLE STORAGE CONDITIONS ON STABILITY OF ESTROGENS AND PROGESTERONE IN ENVIRONMENTAL WATERS

Mateusz Pielok (1)*, Mariusz Kalus (1), Alicja Czub (1), Dawid Liberek (1), Alicja Bargieła (2), Sylwia Bajkacz (1), Anna Lalik (2), Sebastian Żabczyński (3), Mirosława Grymel (1)

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A few words about the author(s):

A group of knowledge-hungry students who joined forces during an interdisciplinary 'project base learning'. The activities of the future chemical technologists, chemists and biotechnologists proved to produce interesting results.

Abstract:

The development of the pharmaceutical industry, and the resulting increase in consumption of such products, has a number of consequences for the ecosystem. One of such side effects is an increasing environment pollution with sex hormones and their metabolites. Although human endogenous sex hormones such as 17β-estradiol, 17α-estradiol and synthetic 17α-ethinylestradiol or progesterone occur as micropollutants, they have a significant impact on living organisms. They cause changes in the expression of hormone-regulated genes, changes in the proportions of individuals of different genders, disruptions in the functioning of the endocrine system and metabolic changes. Therefore it is necessary to monitor concentration of these hormones in environmental waters. Due to low hormone concentrations in the sample (ng/L), the concentration of analytes is a necessary step before performing an analysis. This introduces a certain risk of degradation and loss of the marked substance, which could lead to result distortion. The selection of sample storage conditions is also crucial to ensure analyte stability.
In the presented study, the impact of storage conditions of environmental samples on hormone stability (e.g. temperature, pH, matrix) was analyzed and optimal parameter values for sample preparation for analysis was determined.

Keywords:

environment, hormone stability, SPE, LC-MS/MS, NMR

EXPLORING THE BIODIVERSITY OF CORDYCEPS FUNGI AND THEIR ECOLOGICAL SIGNIFICANCE

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A few words about the author(s):

We are veterinary medicine students.

Abstract:

Cordyceps, a genus of parasitic fungi, has captured the attention of researchers and enthusiasts alike due to its intricate life cycle and diverse species. This paper delves into the biodiversity of Cordyceps, examining the various species and their specific interactions with host insects. Through a comprehensive exploration of their host specificity and adaptation strategies, we uncover the fascinating ways in which Cordyceps fungi have evolved to exploit a wide range of insect hosts.

The study investigates the ecological significance of Cordyceps within natural ecosystems, emphasizing their role in regulating insect populations and contributing to the overall biodiversity of fungi. Special attention is given to the unique mechanisms employed by Cordyceps to manipulate the behavior of their hosts, leading to a better understanding of the intricate ecological relationships between fungi and insects.

Additionally, the paper discusses the potential implications of Cordyceps biodiversity for conservation efforts and the broader ecological balance. As these fungi exhibit a high degree of host specificity, changes in insect populations may have cascading effects on the entire ecosystem. Therefore, an in-depth examination of Cordyceps biodiversity becomes crucial for comprehending the complex interplay between fungi, insects, and the environment.

Keywords:

Cordyceps, ecological significance

SYNTHESIS OF GREENER HERBICIDAL ALTERNATIVES

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A few words about the author(s):

Maria Simpson is a third year student studying Chemical Technology. She comes from a farming family in South Africa. Hence, she is keenly investigating greener, more eco-friendly chemicals for use in the agricultural sector.

Abstract:

A great amount of debate has evolved on the topic of herbicides. Albeit their advantageous uses in weed and pest control, herbicides have been also deemed harmful and toxic for living organisms in the environment, be it aqueous or soil. Furthermore, they have also found their way into food sources and ground water due to herbicide leaching. Therefore, more sustainable alternatives are being investigated, such as ionic liquids (ILs) displaying herbicidal properties. These substances are often a combination of a well-known herbicidal anion, such as 2,4-D or glyphosate, as well as selected cation displaying surface-active properties. Hence, by the ability to modify the ionic properties, these substances can both enhance plant growth as well as capture pollutants, such as microplastics, preventing their potential entrance into food or groundwater systems. This study aimed to effectively synthesise two herbicidal ILs in order to assess their ability to sorb onto microplastic. Two ionic liquids were synthesised, namely: [C12TMA][2,4-D] and [C12TMA][Glyph]. From the results, evidently both ILs were sorbed onto the selected, virgin microplastic (ABS). The analysed EC50 [mg/L] values, classified the ILs as less toxic than pure herbicides. Notably, these observations and research is very important for future studies regarding greener agricultural weed-control agents.

This study was funded by the National Science Centre in Poland, OPUS 21, grant number: DEC- 2021/41/B/NZ9/03981

Keywords:

ionic liquids, sorption, toxicity, herbicides

EXPLORING THE LIFE CYCLE OF CORDYCEPS FUNGI

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A few words about the author(s):

We are a veterinary students.

Abstract:

Cordyceps fungi, diverse in species, possess a captivating life cycle intricately linked with hosts and ecosystems. This study thoroughly investigates their journey, starting with spore dispersion driven by environmental cues. Upon finding a suitable host, spores germinate, initiating invasion through hyphal penetration, manipulating the host's physiology.
Inside hosts, Cordyceps fungi exhibit fascinating abilities, altering behavior, compelling hosts to ascend, culminating in fruiting body emergence—the pinnacle of their reproductive cycle.
Beyond their cycle, Cordyceps fungi regulate host populations, impacting ecosystems and aiding nutrient cycling. Bioactive compounds in their life cycle hold promise for biomedical applications. This study integrates field observations, experiments, and analyses, providing a comprehensive understanding. Unraveling Cordyceps' mysteries enriches fungal biology, shedding light on ecological significance and diverse applications from medicine to conservation.

Keywords:

Cordyceps, life cycle, fungi

DETERMINATION OF BASIC PHYSICOCHEMICAL PARAMETES OF LIQUID ENVIRONMENTAL SAMPLES

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A few words about the author(s):

A student who conducted research as part of an interdisciplinary 'project base learning'. The activities of the future chemists and biotechnologists produced interesting results. The entire project was coordinated by professor Sylwia Bajkacz.

Abstract:

In recent years, scientific research has increasingly focused on the issue of endocrine disrupting compounds (EDCs) in the environment. These compounds, including steroid hormones like progesterone (P4) and estrogens (β-estradiol (E2), ethinylestradiol (EE2)), are known to interfere with the natural hormonal balance of living organisms, potentially leading to various diseases and mutations. The prevalence of EDCs in the environment, particularly in water bodies, is largely attributed to the disposal of pharmaceuticals containing these hormones, commonly used in treatments for menopausal symptoms or in birth control pills [1]. These hormones can be found in environmental waters at concentrations in the nanogram per liter range. Consequently, developing an analytical method that is both sensitive and selective for their simultaneous detection represents a significant challenge [2]. This part of the project focused on monitoring environmental waters. Basic tests of physical parameters such as COD, total nitrogen, and pH were performed. Ion chromatography was also used to detect ions in environmental samples. The results of the measurements were used to assess water quality in the Silesian voivodeship. The objective of this project segment was to eliminate any impact of the examined factors on the cellular response during the CCK8 test.

Keywords:

hormones, environment, COD, total nitrogen

EXPLORING THE MEDICINAL PROPERTIES OF CORDYCEPS

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A few words about the author(s):

We are a veterinary students.

Abstract:

Cordyceps fungi, known for their medicinal potential, are the focus of this poster. They have been a part of traditional medicine, revered for immunomodulation, antioxidative effects, and reputed support for respiratory health. Studies suggest benefits for asthma and bronchitis through anti-inflammatory actions.
Cordyceps also show promise in enhancing energy metabolism and endurance, attracting interest from athletes. Bioactive compounds like cordycepin and polysaccharides contribute to these medicinal qualities. Research aims to harness these compounds for pharmaceutical and nutraceutical uses.
This poster amalgamates findings from pharmacology, biochemistry, and traditional medicine, aiming to elucidate Cordyceps' therapeutic mechanisms. It seeks to contribute to discussions on natural remedies and their integration into modern medicine, offering insights into potential health and wellness applications.

Keywords:

fungi, medicinal properties, Cordyceps

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