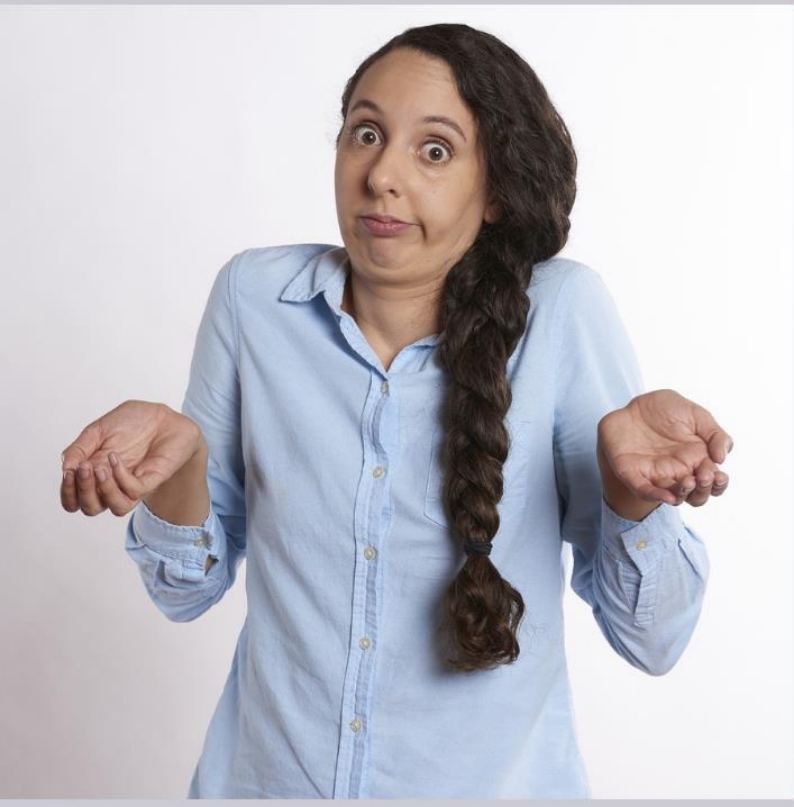
National Scientific Conferencje

"Understand the Science"

VI EDITION

ON-LINE

September 17, 2022



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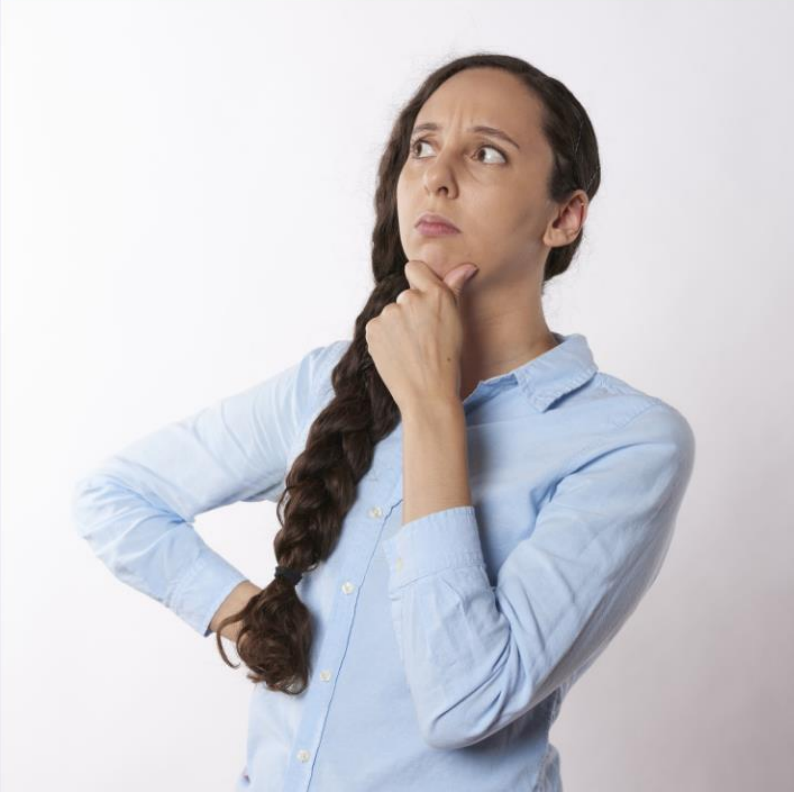
The book of abstracts



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Promovendi Foundation Publishing

Address:
17/19/28 Kamińskiego st.
90-229 Lodz, Poland

KRS: 0000628361

e-mail: fundacja@promovendi.pl
www.promovendi.pl

ISBN: 978-83-963887-5-9

Open access

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SCIENCES

THE WAY HOW FINANCIAL PYRAMIDS WORK ON EXAMPLE OF POLISH FINANCIAL SCANDALS

Szymon Krajewski

University of Łódź, Economics and Sociology Department, Łódź, Poland

szymonkrajewski34@gmail.com

A few words about the author(s):

I am a third year student of economics at University of Łódź. I am particularly interested in financial scandals, politics and history.

Abstract:

Financial pyramids created according to the Ponzi scheme are one of the biggest financial scandals in Polish history. The beginning of every financial pyramid is to create extremely attractive offer for potential investors. Creators of the fraud always promise their clients very high profits in short time. Most often, financial pyramids propose innovative or unconventional methods of investing to justify to clients their high profits. However, most of the gathered money by that "investment funds" are not invested to get profits for investors. Most of the funds are embezzled in different ways by founders. Financial pyramid at the begging works fine, first investors even get their profits. However, profits for clients are paid out from financial contributions of new clients. For this reason number of participants in the scam must continue to grow. That is why every pyramid is doomed to collapse because at some point it is not possible to pay out funds for all clients. Moreover, if pyramid gets bigger it gets more attention from investigation groups and media. Most often, victims of the fraud are not able to get their funds back. Court proceedings usually last for years due to the complexity of cases and the amount of the victims.

Keywords:

financial pyramids, fraud, financial scandals

DIGITAL MARKETING – BUILDING EFFECTIVE RELATIONSHIPS THROUGH EMAILS AND NEWSLETTERS

Karolina Laskowska

Jagiellonian University in Krakow

karolina.laskovvska@gmail.com

A few words about the author(s):

I study Management in Media and Advertising. My research interests are marketing, contemporary culture and new technologies. I have been professionally involved in marketing for a few years. I specialize in digital marketing in beauty industry.

Abstract:

COVID-19 pandemic tormented the world and shaken the status quo of many industries. In order to keep their businesses afloat, brands were forced to either go online for the first time or strengthen already existing digital presence. Digital marketing, also called online marketing, is the promotion of brands to connect with recipient using the internet and other forms of digital communication. This includes marketing channels such as social media, web-based advertising and email marketing. Digital marketing has become increasingly important because of how accessible digital channels are. As only for April 2022, there were 5 billion internet users globally. Brand's digital marketing strategy may focus all of its efforts on one platform or use multiple channels to reach the target. Email marketing has grown in importance in recent years, and nowadays it is critical to business success. Designing effective email campaigns that convert is challenging, yet it undeniably brings ecommerce profits. It is also useful in building long-term relationships with B2C and B2B clients. Understanding factors affecting email performance and delivery is essential as well designed emails mean better results in digital marketing.

Keywords:

digital marketing, newsletter, email marketing, ecommerce

THE FUTURE OF MARKETING – VIRTUAL OPPORTUNITIES OF METAVERSE

Karolina Laskowska

Jagiellonian University in Krakow

karolina.laskovvska@gmail.com

A few words about the author(s):

I study Management in Media and Advertising. My research interests are marketing, contemporary culture and new technologies. I have been professionally involved in marketing for a few years. I specialize in digital marketing in beauty industry.

Abstract:

Since Facebook CEO Mark Zuckerberg declared the company's rebranding to Meta, the term „metaverse" has been gaining an unflagging popularity. Metaverse allows its users to fully immerse in its digital worlds using virtual or augmented reality. Although the main components of metaverse technology were developed within online video games, proposed applications are much broader, including interactive learning environments, improving work productivity or beauty and fashion iterations. This network is supposed to revolutionize nearly every industry and shall be regarded not only as the 3D version of current internet but as a whole new ecosystem. The possibilities offered by virtual worlds are particularly visible from the perspective of e-commerce and digital marketing. More and more brands are turning towards virtual universe to stay relevant to Millennial and Generation Z audience. Possibilities for creativity and experimentation in virtual space are extensive and the only question is how to capitalise on its potential.

Keywords:

metaverse, virtual reality, digital marketing, e-commerce

SOCIAL HOUSING INITIATIVES AS AN INSTRUMENT OF THE STATE IN MEETING THE HOUSING NEEDS OF CITIZENS WITH A SPECIAL FOCUS ON THE KUYAVIAN-POMERANIAN REGION

Olena Makohon*, Przemysław Kuczkowski

Kazimierz Wielki University, Chodkiewicza 30, 85-064 Bydgoszcz, Poland

**elenamakogon736@gmail.com*

A few words about the author(s):

Olena Makohon, the student of the Administration Faculty at Kazimierz Wielki University in Bydgoszcz. Przemysław Kuczkowski, MA, legal counsel, the teacher of Kazimierz Wielki University in Bydgoszcz. Author of publications in the field of administrative law.

Abstract:

A new instrument of the public authorities in meeting the housing needs of citizens implemented by the Law of December 10, 2020 on amending certain laws supporting the development of housing (Journal of Laws of 2021, item 11.) are the title social housing initiatives.

In view of the fact that the basic human need is to provide housing, the speakers decided to examine a new instrument, which is intended to create an opportunity to obtain housing for less affluent citizens who would have difficulty obtaining a loan to purchase real estate on the commercial market.

The purpose of the presentation will be to review and discuss the issue of implementation by public authorities of a new instrument in the form of social housing initiatives, particularly on the example of the Kujawsko-Pomorskie voivodeship.

Keywords:

satisfaction of housing needs of citizens by public authorities, program standard, right to housing, respect for human dignity

PLANTOID – STRUCTURE, FUNCTIONING AND USAGE OF SYNTHETIC PLANT

Jakub Rys

Pedagogical University of Cracow

jakjakubrys@gmail.com

A few words about the author(s):

I have graduated in cognitive science from Pedagogical University of Cracow. I have interest in the field of cognitive science, video games and art. I would like to continue my journey with science and gain more knowledge in mentioned areas.

Abstract:

Constantly expanding scientific knowledge allows people to introduce new solutions in order to improve many aspects of our lives. One of them is project of synthetic plant which should work just as an actual organism. Robots mimicking properties of biological structures make constant monitoring and analysis of soil and surrounding, in which they have been placed, possible. Due to their construction plantoid can work continuously. This aspect enables predicting how living organisms will behave in conditions different than those on the earth. Moreover, basic data gathering about agricultural land's state is possible. The aim of this presentation is to explain robot's structure, it is functioning and potential areas in which plantoid can be used.

Keywords:

plantoid, plant, robot

THE IMPACT OF NEUROFEEDBACK THERAPY ON EARLY SCHOOL CHILDREN WITH ADHD

Monika Sarnat

Pedagogical University of Cracow

mon.sarnat@gmail.com

A few words about the author(s):

I graduated in cognitive science from the Pedagogical University of Cracow. The topic of cognitive development in children fascinates me and I wish to continue my education in this field. In the future I want to work with disabled children.

Abstract:

Attention deficit hyperactivity disorder is considered as one of the most popular disorders among children. ADHD symptoms significantly hinder the child's functioning in a school and home environment, especially when the child is going to the primary school. This disorder is most commonly diagnosed during that period of child's development. There are numerous therapy options. One of relatively new methods is neurofeedback which transforms the bioelectric activity of the brain into the parameters of the game. Because of that the observation of patient's brain activity is easier and its modification becomes possible. The aim of this presentation is to identify the problem of ADHD in early school children and to present the positive impact that neurofeedback has on young children diagnosed with attention deficit hyperactivity disorder.

Keywords:

EEG-biofeedback, neurofeedback, early school children, ADHD

METHODS OF RESEARCHING THE SOCIAL DIMENSION OF HUMOR, ON THE EXAMPLE OF THE PUBLISHING HOUSE: "ZAMEK"

Szymon Stankiewicz

Jagiellonian University in Cracow, Faculty of Polish Studies

stanszymon.stankiewicz@gmail.com

A few words about the author(s):

Szymon Stankiewicz in 2021 achieved a bachelor degree on Jagiellonian University in Cracow. His major research topic is popculture, mostly in sociological aproach.

Abstract:

Main goal of this presentation is to show how jokes are important insocial life. Author based on jokes from polish satirical publishing house: „Zamek" from the time of transformation, will show methods of jokes research and analysis. This will be the proof that jokes are catalyst of social emotions.

Keywords:

jokes, humor, "Zamek"

THE GREEN HOUSE. ADAM ZIEMIANIN IN THE WORK OF KRZYSZTOF MYSZKOWSKI

Marek Blacha

Jagiellonian University, Institute of History

blachamarek02@gmail.com

A few words about the author(s):

Marek Blacha studies history at the Jagiellonian University. He also graduated cultural studies at the same university. The topic of his presentation is related to his BA thesis "Unintended creation. On the trail of sung poetry".

Abstract:

The songs of Krzysztof Myszkowski are commonly associated with the works of Edward Stachura. This is true, although it should be emphasized that the leader of the band Stare Dobre Małżeństwo was inspired also by another poet - Adam Ziemianin from Muszyna. The aim of my presentation will therefore be to present and analyze those works by Adam Ziemianin, which Krzysztof Myszkowski used during the creation of subsequent songs and albums, as well as how those poems have changed because they became songs.

Keywords:

sung poetry, music, biography, Krzysztof Myszkowski, Adam Ziemianin

THE JUDICAL SYSTEM IN POLAND AND THE JUDICAL SYSTEM IN ENGLAND – COMPARISON

Zuzanna Dobosz

Pedagogical University of National Education Commission in Krakow,
Podchorazych 2, 30-084 Krakow, Poland

zuzka1099@gmail.com

A few words about the author(s):

3rd year law student, interested in civil, administrative and inheritance law, for a long time also interested in the Anglo-Saxon legal system.

Abstract:

The judicial system in Poland is based on a three-tier structure. In Poland, as in many European countries, the legal system is the civil law system that affects the functioning of the entire justice system. The civil system ensures the independence of the judiciary also in the matter of adjudication. The judge adjudicating in a given case relies on the interpretation of the law, legal knowledge and his own life experience. He is not bound by judgments of other courts. Earlier judgments are not binding on subsequent judgments, but may be a valuable guide in similar cases discussed. The common law system occurs not only in countries located in the British Isles, where the official language is English, but also in countries such as the United States, Canada and Australia. The common law system is based on the principle that judgments issued by courts are also the official source of law. Courts in England are therefore obliged to give their judgments on the basis of the law and precedents. The difference between the civil law system and the common law system also affects the relevant judicial structure in the countries that rely on them. An important aspect is the differences in the units created, the adjudicating composition and the method of judging.

Keywords:

common law system, civil law system, judiciary, courts, precedents, structure of the judiciary

METAPHORS IN POLITICAL DISCOURSE BASED ON THE SPANISH PARLIAMENTARY ELECTIONS

Barbara Fijak-Ryczek

University of Bielsko-Biała

fijakryczek@gmail.com

A few words about the author(s):

She completed a bachelor's degree in Spanish Philology at University of Bielsko-Biała. Currently, she is continuing her master's studies. She is interested in the Spanish language and culture and passionate about teaching.

Abstract:

The research discusses the role of metaphors in political discourse. Its purpose is to draw attention to the meaning that metaphors have in the everyday language, especially in the one used by politicians. For the analysis there were selected metaphors from the speeches of the leaders of five parties participating in the Spanish parliamentary elections in November 2019. The aim of the study was to observe the use of metaphors not as a poetic element, but as an element used in the political discourse to discuss daily matters, as well as recognizing their persuasive role. It was based on the theory and classification of metaphors proposed by G. Lakoff and M. Johnson (1988) and the persuasive role of metaphors according to T. Dobrzyńska (1994). Thanks to the analysis carried out, it is possible to observe and specify different types of metaphors, as well as their use in political topics and everyday life to convince and win voters. In summary, they are the preferred element in expressing political visions and views due to their persuasive nature and the ease of understanding the message by the recipient.

Keywords:

metaphor, political discourse, parliamentary elections

BETWEEN COACHING AND PHILOSOPHY

Piotr Frelke

University of Silesia in Katowice

piterfrelke@interia.pl

A few words about the author(s):

Student of philosophical consulting and coaching. A Silesian from Zabrze. Passionate about philosophy, politics, psychology and mental health. Member of the student government.

Abstract:

The aim of the research is to present the connections and common dependencies between coaching and philosophy. The author shows that coaching has its roots in philosophical culture. This topic is important because there is a lack of knowledge about the true origin of coaching as a method of supporting human development. There is a stereotype that coaching comes from business or sport. However, it has its origins in the Socratic dialectic. Socrates is considered the father of coaching.

Keywords:

coaching, philosophy, Socrates, culture

5 YEARS OF R&D TAX RELIEF IN POLAND

Katarzyna Goyke

University of Szczecin, Faculty of Economics, Finance and Management

kago1201@poczta.onet.pl

A few words about the author(s):

PhD student in the field of social sciences in the discipline of economics and finance at the University of Szczecin. Main interests: taxes and tax breaks, in particular tax relief for research and development activities.

Abstract:

Tax relief for research and development activities ("R&D tax relief" for short) has been in place in Poland since January 1, 2016. It was introduced by the legislator to encourage enterprises to incur more expenditure on research and development activities. The amount of possible deductions under the R&D relief has changed from year to year. The presentation analyzes the shape of the R&D tax relief in particular years and attempts to summarize the functioning of the first 5 years of the R&D relief in Poland. The method of analyzing tax regulations and the analysis of data and reports of the Ministry of Finance was used.

Keywords:

research and development activities, tax relief

ANALYSIS OF EUROSCEPTICISM IN STATEMENTS OF POLITICAL LEADERS OF THE FRENCH RASSEMBLEMENT NATIONAL (FORMER FRONT NATIONAL) PARTY BETWEEN 2014-2019

Albert Guziak

Institute of Applied Linguistics, University of Warsaw

a.guziak@uw.edu.pl

A few words about the author(s):

Albert Guziak, PhD candidate at the Institute of Applied Linguistics at the University of Warsaw. He conducts his academical research in the field of political discourse with a particular stress on populism and Euroscepticism.

Abstract:

This presentation will analyze political statements of prominent members of the French Rassemblement National party with regards to Euroscepticism in the period from 2014 till 2019. The main focus of this elaboration is placed on examining concepts and aspects of Eurosceptic approach in the selected rhetorical output of the relevant politicians relying on existing theoretical studies on the subject of anti-European attitudes. The time frame of the analyzed material covers three significant political events in which connection the chosen Eurosceptic utterances were produced: the European Parliament elections of 2014 and 2019 and the French presidential vote of 2017. Electoral campaigns constitute the most important opportunity within a political cycle for parties and their leaders to determine and to crystalize their positions on European integration and European Union, and in view of the growing process of Europeanization and ensuing challenges – particularly those regarding Euroscepticism, the present article is designed to contribute to an ongoing academical analysis of this phenomenon.

Keywords:

Euroscepticism, European integration, European Union, France, Rassemblement National, nationalism, political statements

MARKETING TECHNIQUE OF QUEERBAITING

Kinga Handzlik

Jagiellonian University, Faculty of Management and Social Communication

kinga.handzlik@student.uj.edu.pl

A few words about the author(s):

Kinga Handzlik is a student of Jagiellonian University majoring in film studies and new media studies. Her research mostly focuses on queer representation in mass media and feminist film theory.

Abstract:

While watching TV shows or reading books viewers tend to become very attached to their favorite characters. They start to feel their emotions. The thrill of falling in love with the tension between the heroes. But when it comes to characters of the same sex there is always a question. Is it love or is it just marketing? In my presentation I would like to talk about a very common popcultural phenomenon that is often overlooked by film studies. What I am talking about is the marketing technique of queerbaiting. I would like to discuss what is the definition of queerbaitng, how is it being used by modern film industry and answer the question: does it have a negative impact on the viewers?

Keywords:

queer studies, queerbaiting, marketing, film studies

SELECTED ASPECTS OF THE QUALITY ASSESSMENT OF A WRITTEN TRANSLATION

Eliza Illukiewicz

Jagiellonian University

e.illukiewicz@gmail.com

A few words about the author(s):

Illukiewicz is a PhD candidate at the Faculty of Philology at the Jagiellonian University and a lecturer at University of Silesia in Katowice. Author of a foreign language vocabulary workbook "Verbook" and a founder of hiszpanskiodreki.pl site.

Abstract:

When it comes to translation, there is one crucial issue that has to be tackled, and it is quality. Some norms and criteria may be applied to assess translation quality. Nonetheless, specialists do not use the same rules. They vary among researchers in academia, language service providers, e.g., translation services, or even within European Union institutions. The evaluation of a written translation may vary depending on many factors. The age-old distinction between the types of translation texts and their skopos (aim) is also reflected in how they are assessed. Otherwise, the translations will be evaluated in the case of certified translation, different in the translation exercise of the press text during the studies (academic assessment), other criteria will apply to the text translated for the individual client for his use (where linguistic errors, although unacceptable, may not constitute any negative value for the client's use). The distinction between translation purposes has far-reaching consequences in terms of the method of evaluation.

Keywords:

translation studies, translation quality assessment, translation training

BIBLIOTHERAPY FOR PRESCHOOL CHILDREN

Natalia Jeżewska

University of Silesia in Katowice

nj8055@gmail.com

A few words about the author(s):

I am PhD student at the University Silesia in Katowice. I am a Teacher in Kindergarten. I am interested in intersemiotic translation of literary texts as well as artistic and theatrical activities with children.

Abstract:

Literature influences the intellectual, emotional and social development of a child and, as Herbert Read notes, allows for harmonizing emotions, developing imagination, as well as creating the child's own personality. The child and adult who are recipients of a literary text are very important and an equal place in it. The reception of a literary text should be compatible with its interpretation, namely - as Jacek Wojciechowski says - translating the content of a literary work into the language of the recipient. In contact with a literary work, a child learns to adopt moral attitudes and ethical, it catches the correct models of characters, develops its creative attitude through independent interpretation of a literary text for a drama scene or the language of art. But literature has another extraordinary power, it can help a child to cope with his problem: e.g. with fear, shame, coming to terms with the loss of a loved one, ridicule, etc. Therapeutic fairy tales allow the recipient to get used to a difficult situation, and also tell how to solve the problem.

Keywords:

therapy, literature, bibliotherapy, troubleshooting

TRANSLATION OF MOVIE/SERIES TITLES – TECHNIQUES AND EXAMPLES

Natalia Łaniecka

Adam Mickiewicz University in Poznań

2438099u@gmail.com

A few words about the author(s):

I am a graduate of Ethnolinguistics at Adam Mickiewicz University in Poznań. I am interested in translation.

Abstract:

Translating the titles of movies and series is a highly interesting issue. Firstly, as they are very short, it does not require so much effort and time to analyse them in contrast to literary works which are much more problematic to analyse and compare. Moreover, titles are translated not only with a view to correctness and conveying a message properly, but also with a view to economic aspects. Movie/series titles are supposed to sound catchy in order to attract viewers and, often, to provide an overview of a plot. Therefore, some titles might shock linguists and speakers of a foreign language because they are quite different from an original version. As it was mentioned, it usually results from a marketing purpose as a priority is given to viewership in a given country rather than a correct translation of an original title. The aim of this presentation is to present various techniques of translating the titles of movies and series and, especially, to show several noteworthy examples of such translation.

Keywords:

translation, movies, series, titles

HISTORY AND THE CONTEMPORARY FACE OF NATO

Szymon Mocek

University of Warmia and Mazury in Olsztyn

szymmoo11@gmail.com

A few words about the author(s):

Szymon Mocek completed his undergraduate studies. The field of study he studied was Internal Security. He studied at the University of Warmia and Mazury in Olsztyn.

Abstract:

The purpose of the presentation is to show the history and legal basis of the creation of NATO. Presentation of the war strategy of the North Atlantic Alliance and the values and importance that Poland brings as an ally to NATO organization.

Keywords:

NATO, strategies, peace missions, alliance

COURT COSTS IN CIVIL CASES

Szymon Mocek

University of Warmia and Mazury

szymmoo11@gmail.com

A few words about the author(s):

Szymon Mocek completed his undergraduate studies. The field of study he studied was Internal Security. He studied at the University of Warmia and Mazury in Olsztyn.

Abstract:

The purpose of the presentation is to present and discuss to the civil party the fees that will be associated with conducting or participating in a court case. In addition, it shows the types of court fees with an overview.

Keywords:

court costs, civil case, courts

THREATS TO THE CIVILIAN POPULATION

Szymon Mocek

University of Warmia and Mazury

szymmoo11@gmail.com

A few words about the author(s):

Szymon Mocek completed his undergraduate studies. The field of study he studied was Internal Security. He studied at the University of Warmia and Mazury in Olsztyn.

Abstract:

The purpose of the presentation is to show the division and the discussion of individual threats in times of peace, crisis and war. Examples of threats occurring around the world are cited, and the consequences that follow.

Keywords:

danger, civilian population, world

MANAGING ARMAMENTS PROJECTS IN THE CURRENT ECONOMIC REALITY

Paweł Owczarczyk

The War Studies University

pawel.owczarczyk@gmail.com

A few words about the author(s):

Paweł Owczarczyk has many years of manager experience in the private sector in the telecommunications industry. Since 2019 he is working delivering projects for the Polish Armed Forces and managing the production of military products.

Abstract:

The process of modernization of the Polish Armed Forces has been going on almost continuously since its inception to enable the implementation of the country's military strategy. The purpose of the material is to present issues related to the specifics of the implementation of projects for the provision of military equipment and project management methods used in the arms industry in the current economic reality. In the presentation, using the analysis and synthesis of available materials, the current economic and military situation strongly conditioned by the current actions of the Russian Federation in Ukraine is presented. The requirements for the Polish armaments industry are taken into account in this aspect. In the further part of the article, the authors will focus on presenting the specifics of the operation of armaments industry enterprises and the role they occupy in the system of ensuring the supply of equipment to the Polish Armed Forces. The specific conditions occurring in the implementation of projects in the armaments industry and the most commonly used project methodologies in the industry will also be described. The concept of project implementation efficiency is defined, and the results of research undertaken in this regard are presented. In the conclusions are included conclusions on the issues undertaken.

Keywords:

armaments, project management, military

THE ESSENCE OF REMOTE WORKING ON THE BASIS OF REMOTE WORKING ACTS

Dominik Pełczyński

Kazimierz Wielki University in Bydgoszcz

kryspaczek@gmail.com

A few words about the author(s):

I am a student at the University of UKW in Bydgoszcz. In the previous year I graduated with a Bachelor's degree in administration. I am mainly interested in labour law and criminal law.

Abstract:

The presentation provides a detailed analysis of the 3 Remote Working Acts, aiming to demonstrate the advantages and disadvantages of each solution. A brief history and essence of remote working is presented at the outset. Then the Law of 02/03/2020 is introduced with its detailed analysis and description. The next part deals with issues related to the Act of 19/06/2020 on interest subsidies for bank loans granted to entrepreneurs affected by COVID-19 and on simplified proceedings for the approval of an arrangement in connection with the occurrence of COVID-19. It concludes with the draft Act of 24/07/2020 on amendments to the Act on the posting of workers in the framework of the provision of services and some other acts, while including de lege ferenda postulates.

Keywords:

remote working acts covid 19 advantages and disadvantages

ANALYSIS AND PROBLEMS OF THE INSTITUTION OF THE STATE FISHING POLICE ON THE BASIS OF THE NIK AUDIT

Dominik Pełczyński

Kazimierz Wielki University in Bydgoszcz

kryspaczek@gmail.com

A few words about the author(s):

I am a student at the University of UKW in Bydgoszcz. In the previous year I graduated with a Bachelor's degree in administration. I am mainly interested in labour law and criminal law.

Abstract:

At the beginning of the presentation, key information was presented to provide an introduction to a public safety institution, which is undoubtedly the State Fishing Guard. A brief history of the office, the tasks entrusted to it, the powers of the officers and the number of officers in each province were presented in turn. Then the result of the audit of the Supreme Chamber of Control approved on 17/10/2016 is shown. The next part of the presentation shows the assumptions of the audit of the Supreme Chamber of Control and its justification. The next slides show the result of the audit with comments and conclusions. This is followed by the issues of the demonstrated significant findings of the audit. The paper concludes with proposed solutions that could solve numerous problems within this public security institution.

Keywords:

State Fishing Guard Tasks Powers NIK

THE SUBJECT OF WAR IN CONVERSATIONS WITH CHILDREN

Maciej Słonina

Higher School of Management and Enterprise in Wałbrzych

maciejslonina@gmail.com

A few words about the author(s):

A certified cultural and media expert, currently in the course of second-cycle studies in the field of pedagogical therapy at the University of Management and Entrepreneurship in Wałbrzych.

Abstract:

In recent months, war close behind our border is becoming the subject that dominates media coverage. It causes anxiety not only in adults, but also in children. In my paper I try to chart out how to prepare to a difficult conversation and how to show support to the child who may have problem with describing emotions in a crisis situation. I carried out an analysis of scholarly books and articles. I referenced to the assumptions of intercultural pedagogy which in this day and age has to face new challenges.

Keywords:

child, supporting, pedagogics

AUTHOR'S CREATIVE FREEDOM IN SCIENTIFIC WORK

Sebastian Stokłosa

University of Silesia in Katowice

sebastoklosast@gmail.com

A few words about the author(s):

Student at Uniwersytet Śląski w Katowicach. Member of a group translating the correspondence of Lvov-Warsaw Schools under supervision of prof. Gabriela Besler. Intrested in philosophy of science and sociology of knowledge.

Abstract:

How much of creative freedom does an theory author posses? Is there any authencity and originality in scientific theory? Aim of the speach is to analyse, in the scope of Ludwik Fleck's philosophy of science, what role does community plays in creating scientific theory and if there is any element of theory that does not come from collective. The answers to questions will help to draw the conclusion about creative freedom of author in science.

Ludwik Fleck (1896 - 1961) is a polish microbiologist and philosopher from Lvov, recognized as creator of sociology of knowledge. His theory of thought collectives arouses discussion on the impact of society on one's thinking and undermine the positivists views on science and scientific knowledge. In Kuhn's theory new theories are created in mysterious way by geniuses, in the contrast, in Fleck's theory the answer is more sociological and therefore leads to diffrent view on how scientific theories arises.

In the first part we will show where is the problem in author's freedom and what was Kuhn's answer to that problem. Next the Fleck's answer will be presented and by contrast, it will lead to presenting some new problems and answers that arise.

Keywords:

creative freedom, science, fleck, kuhn

DOMAIN SELF-EFFICACY BELIEF VS. NEED FOR ACHIEVEMENT AND PERSISTENCE IN EMERGING ADULTHOOD

Monika Strzelecka

Catholic University of Lublin John Paul II

monstrzelecka@wp.pl

A few words about the author(s):

Doctoral student in psychology, psychodynamic psychotherapist, interested in self-efficacy belief, identity and adulthood.

Abstract:

It was investigated whether there is a relationship of self-efficacy belief in the domains of occupational, knowledge acquisition, intimate relationship, worldview formation, interpersonal relationships (friendships), leisure activities, taking up gender roles, and the virtual realm with the need for achievement and persistence in emerging adulthood. The study used the ACL Adjective Test and the Domain Self-Efficacy Belief Scale. The study included 425 subjects, aged 19 to 30, a period of emerging adulthood. The results indicate strong correlations between self-efficacy beliefs in the occupational domain and the need for achievement, and moderately strong correlations between self-efficacy beliefs in the domains of knowledge, interpersonal relationships, intimate relationship, gender roles and leisure time and the need for achievement. In contrast, the need for perseverance correlates at a moderately strong level with self-efficacy beliefs in the domains of work, knowledge and interpersonal relationships. Thus, it turns out that performance needs are related to self-efficacy beliefs especially in the professional domain, knowledge acquisition and interpersonal relations.

Keywords:

self-efficacy belief, need for achievement, need for perseverance, emerging adulthood

AUDIOVISUAL TRANSLATION OF VISUAL AND VERBAL CULTUREMES BY THE EXAMPLE OF THE MOVIE "COCO"

Justyna Szymczyk

University of Bielsko-Biała

justynamariaszymczyk@gmail.com

A few words about the author(s):

A graduate student of Spanish Philology at the University of Bielsko-Biala. Her research interests include the translating of multilingual texts. Professionally involved in audiovisual translation in subtitling and voice-over.

Abstract:

The purpose of the research is to explore the difficulties that translators face when translating cultural elements. The visual and verbal culturemes that appeared in the animated movie "Coco" were analyzed in detail. Attention has been paid to an additional aspect that hinders the translation of culturally-oriented content, namely the limitations arising from the specific nature of dubbing as a method of translating audiovisual works. The theoretical and methodological framework proposed by H. Albir (2001), L. Molina Marquez (2001) and T. Tomaszkiewicz (2006) was applied in this study. Culturemes were identified and classified, and then, by means of a comparative analysis of the original and meta texts, the techniques used to translate them were determined. As a conclusion, it is emphasized that the translator has faithfully adhered to the preconceived strategy of exoticization, while examples are also pointed out where he or she has leaned towards domestication through the use of techniques such as generalization.

Keywords:

audiovisual translation, dubbing, visual and non-verbal culturemes, translation techniques

DEMAND FOR LUXURY GOODS

Ewa Waliczek

Małopolska State University, Institute of Management and Production Engineering

ewa.waliczek@wp.pl

A few words about the author(s):

Ewa Waliczek – lecturer at the Małopolska State University. Interest in the area of research – marketing communication.

Abstract:

This article presents the luxury goods paradox. It presents the difference between luxury goods and premium products. Expenditure on goods is growing rapidly and the demand for them is only dependent on the wealth of the buyer. The choice of luxury products is also determined by three symbolic functions. Among the consumer's features that determine the choice of luxury products, there are (apart from symbolic values) the needs, aspirations and emotions accompanying the shopping. After satisfying the purchase of basic products to function, customers need to live on a higher level.

Keywords:

luxury product, premium product

THE CONCEPT OF INTELLIGENCE, ITS TYPES AND IMPACT ON EVERYDAY LIFE

Waleria Zachwatowicz

University of Warmia and Mazury in Olsztyn

waleriazachwatowicz@gmail.com

A few words about the author(s):

Management and economic studies graduated, currently studying Psychology with passion.

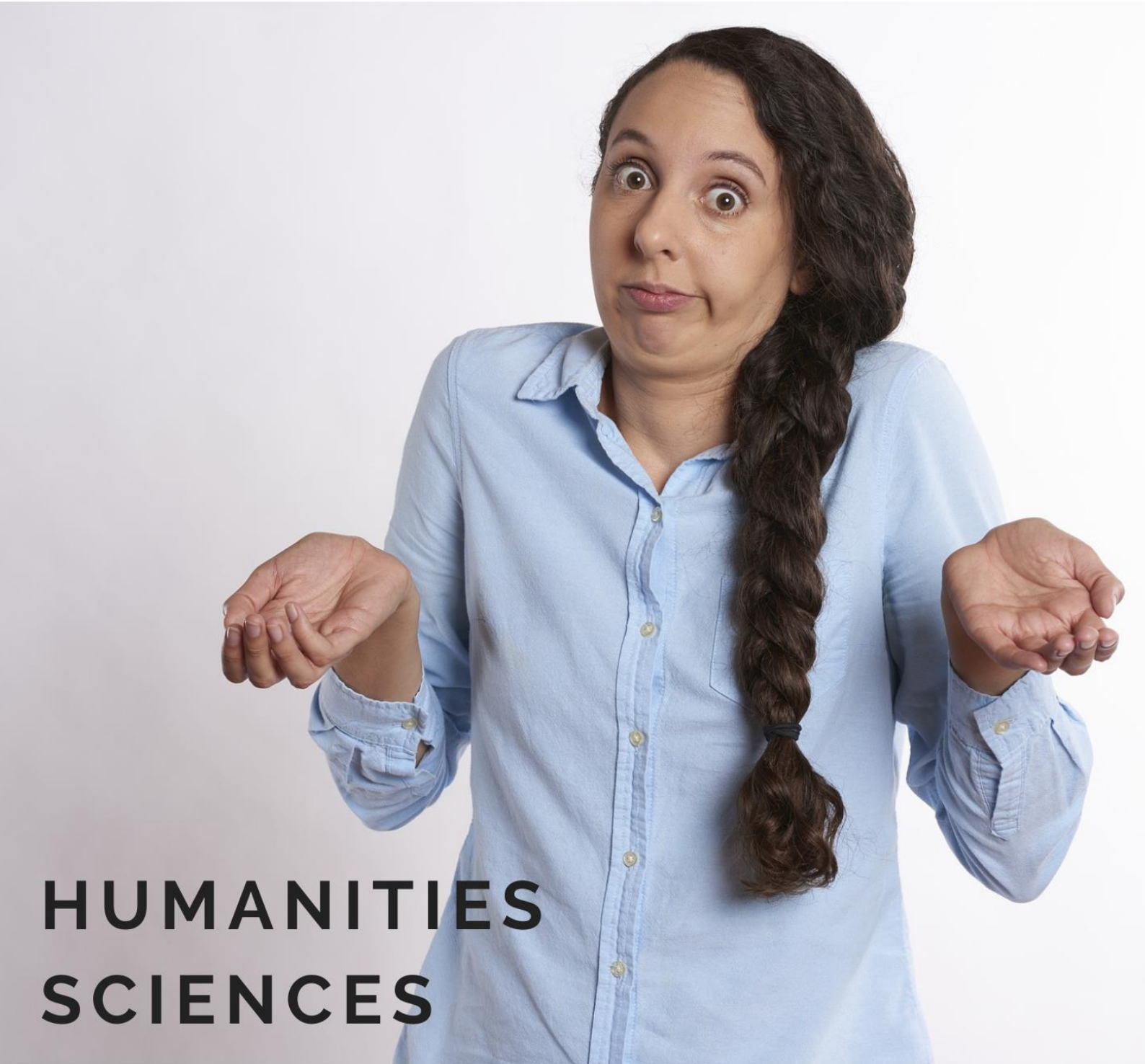
Abstract:

There are many different definitions of intelligence. Due to the fact that this concept is broad, it is actually difficult to measure its level with tests that however are popular in society. Moreover, there are many types of intelligence that have a measurable impact on the daily functioning of people. The most popular theory, developed by Gardner, is the distinction of 8 types of intellect: linguistic, logical-mathematical, visual-spatial, motor, musical, interpersonal, intrapersonal and natural.

Keywords:

intelligence, Gardner, society, test IQ

ABSTRACTS OF
POSTERS



HUMANITIES
SCIENCES

RESEARCH ON THE ELEMENTS INFLUENCING THE ATTRACTIVENESS OF THE WAREHOUSE SECTOR JOBS OFFER IN THE CONTEXT OF HUMAN RESOURCES MANAGEMENT OF THE ORGANIZATION

Łukasz Jankowski

The University of Lodz

jankowski.lukasz.pl@gmail.com

A few words about the author(s):

Privately, a second-year student in the field of logistics in economy at the University of Lodz, professionally a manager with over six years of experience, including over three years experience in warehouse logistics.

Abstract:

In the days of high need for employment in TSL market in Poland in the third decade of the twentieth century, companies want to find a way to an effective recruitment process connected with high influx of CVs. Unfortunately, national HR science does not treat much about a job offer building theory. This article is about such phenomena described above in the domain of human resource management in the field of warehousing. In order to thoroughly explore this subject thoroughly, an analysis of job offers available on the market was carried out and a survey on the basis of which conclusions were drawn regarding the construction of a job offer directed to a potential candidate for a job in the TSL industry along with a synthetic description of scientific reflections on the topic of employment sphere from a perspective of the organisation that has a vacancy.

Keywords:

HRM, job, offer, TSL, management

ART TECHNIQUES IN WORKING WITH CHILDREN

Natalia Jeżewska

University of Silesia in Katowice

nj8055@gmail.com

A few words about the author(s):

I am PhD student at the University Silesia in Katowice. I am a Teacher in Kindergarten. I am interested in intersemiotic translation of literary texts as well as artistic and theatrical activities with children.

Abstract:

Art education is one of the forms of aesthetic education. Develops the child's sensitivity to the aesthetics around him, the use of a variety of colors, mixing pigments. Drawing and painting develops a child's creative attitude, imagination, and a sense of aesthetics.

In kindergarten, children use a variety of art techniques, and art activity is their favorite activity, even during free games. They create both flat and spatial works. In kindergarten, art techniques are used, such as: drawing with pencils; drawing with wax crayons; drawing with wax crayons; painting with acrylic paints; painting with poster paints; painting on glass; painting in sand; brush painting; 10-finger painting; handprint; string bags; sticking from salt mass; molding of porcelain mass; coloring; tear off; stamping; origami; tracing.

Keywords:

art, plasticity, paints, creativity

ADULTS WITH AUTISM

Aleksandra Sawicka

The Maria Grzegorzewska University

ola.sawicka26@gmail.com

A few words about the author(s):

I am a fourth-year student of special education. I am intrested in the topic of dyslexia and autism. I am also currently doing a research about impacts that dyslexia and autism has on students

Abstract:

Autism is often mistakenly associated with disorders that affect exclusively children. It is not true, however, as autism is not something you can grow out of. A lot of people do not know what the symptoms of autism in adults are as they can differ from the symptoms occuring in children, e.g. frustration, trouble understanding the emotions of others or preference for working individually. Some of the symptoms are the same both in adults and in children e.g. dislike of change, tendency to avoid eye contact.

Keywords:

autism

ABSTRACTS OF

PRESENTATIONS

MEDICAL SCIENCES

THE HUMAN MICROBIOME – CHARACTERISTICS AND THE ROLE

Aleksandra Gwóźdź

Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz

gwozdzaleksandrax@gmail.com

A few words about the author(s):

I am a 3rd year student of medicine. My particular interest is dermatology. In my spare time, I like to play various sports.

Abstract:

The human body is inhabited by millions of microorganisms - bacteria, viruses, mites and fungi, both pathogenic and commensal, which live in symbiosis with humans. The microbiome is located in various places, including the digestive system, the mouth, the respiratory system, the genitourinary system and the skin. Microorganisms included in the microbiome perform many important functions and are necessary for the proper functioning of the human body. The aim of the presentation is to characterize the human microbiome and present its most important functions.

Keywords:

human microbiome, microorganisms

CORRELATION BETWEEN TYPE 1 DIABETES AND EATING DISORDERS

Kornelia Kaźmierkiewicz

Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz

kazmierkiewicz99@gmail.com

A few words about the author(s):

I am a student at Ludwik Rydgier Collegium Medicum in Bydgoszcz.

Abstract:

Type 1 diabetes (T1D), also known as insulin-dependent diabetes, is a chronic autoimmune disease in which production of insulin is impaired. A diagnosis of Type 1 diabetes change patients life drastically. This condition requires control of metabolic parameters which can be done by pursuing a healthy lifestyle included putting attention to food choice and insulin dose adjustment. These burdens and activities are predisposing factors for eating disorders (ED). Lots of research has been done in recent years and it has confirmed a relationship between T1D and eating disorders. A term which is frequently used for this phenomenon is „diabulimia". „Diabulimia" is a disordered eating behavior in which individuals skip or reduce insulin dose in the purpose of loosing weight. These actions can end up with severe health effects. Unfortunately, the diagnosis is often overlooked by physicians and the consequences of it can be fatal. Most research has proven that standard models of eating disorders treatment is not effective for individuals with „diabulimia".

Keywords:

type 1 diabetes, eating disorder, diabulimia

HELICOBACTER PYLORI TREATMENT

Piotr Konarzewski

Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz

piotrekkonarzewski@wp.pl

A few words about the author(s):

My name is Piotr Konarzewski. I am the third year student of Ludwik Rydygier Collegium Medicum in Bydgoszcz. I am interested in gastroenterologic diseases, thus I decided to improve my knowledge related to Helicobacter pylori infections.

Abstract:

Bacteria Helicobacter pylori is closely connected to many digestive system diseases. The best way to treat it would be an individually adjusted therapy taking into consideration a drug sensitivity of an infected patient. However, the cost of such a treatment is very high thus for many years a bismuth-containing quadruple therapy (BQT) has been the most popular method in eradicating this bacteria. A significant amount of research has been conducted recently to keep a high eradication rate on the one hand, and limit the amount of drugs and side effects on the other hand. There are more and more different patterns of administer a medication such as high-dose dual therapy (HDDT) and a lot of drugs, for ex ample sitafloxacin or vonoprazan (VPZ). Applying of these medications is quite promising. Last but not least, factor in Helicobacter pylori treatment may be also probiotic and vitamin suplementation. The issue of Helicobacter pylori treatment is very complicated and requires a broad knowledge related to current iatrology and different factors which can indicate a possible modality.

Keywords:

Helicobacter pylori, bizmuth, quadruple therapy, dual therapy, vitamin

POSSIBLE USES OF CURCUMIN IN MEDICINE

Klaudia Smulewicz

Collegium Medicum in Bydgoszcz

klaudiasmulewicz19@gmail.com

A few words about the author(s):

I am student at Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Curcumin is a compound isolated from turmeric, a plant known for its medicinal use. Turmeric is a spice often used in Asian countries. Turmeric can be a good addition to traditional pharmaceutical treatment and an addition to a healthy diet. In recent years, scientists have been taking action to identify new, cheap and safe molecules. For this reason, curcumin has become the subject of many scientific studies. The substance has various pharmacological and biological effects, which have been described in studies in vitro and in vivo. It has antioxidant, anti-inflammatory, antimicrobial immunomodulatory, hypoglycemic and antirheumatic effects. It has been hypothesized that curcumin may be effective in treating metabolic diseases and relieving the symptoms of various neuropsychiatric disorders such as depression.

Keywords:

curcumin, depression, diabetes, metabolic syndrome

ANTERIOR CRUCIATE LIGAMENT RUPTURE AS ONE OF THE MOST COMMON ORTHOPEDIC COMPLAINTS

Maciej Sokołowski

Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz

sokolowskimaciej17@gmail.com

A few words about the author(s):

Medical student at Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Anterior cruciate ligament injuries in the knee are among the most common orthopedic complaints. Taking the age criterion, they mostly affect young and active people, while by gender they more often affect women. This paper presents diagnostic schemes including physical examination, imaging methods, as well as treatment and rehabilitation appropriate to the patient's age and physical activity. Also discussed are the risks that accompany the patient during therapy, as well as basic goals such as restoring limb function, removing the psychological barrier preventing a return to physical activity, preventing re-injury of the knee and degeneration of the joint. This makes it possible for the patient to return to sports and improve his quality of life.

Keywords:

anterior, cruciate, ligament, knee, rapture

CURRENT INSIGHTS INTO THE ASSOCIATION OF OBESITY AND UROLITHIASIS IN CHILDREN

Wojciech Sowiński (1)*, Aleksandra Sobieszczańska-Droździel (2), Karolina Kalicka-Żuk (2)

(1) Student's Scientific Group at the Department of Pediatric Nephrology, Medical University of Lublin, Poland
(2) Department of Pediatric Nephrology, Medical University of Lublin, Poland

**wojciechjansowinski@gmail.com*

A few words about the author(s):

I am a medical student at the Medical University od Lublin. I am a member of the Student's Scientific Group at the Department of Pediatric Nephrology.

Abstract:

Urolithiasis is a multifactorial recurrent disease in which crystals aggregate into calculi inside the urinary tract. Although it is commonly considered an adult problem, its incidence in children reaches as much as 10% of all cases and significantly increases worldwide. At the turn of the last decade, there has been a 5-fold increase in its occurrence and even 2% of the pediatric population may be affected. Children from western countries, with metabolic disorders, particularly hypercalciuria, anatomical abnormalities of the urinary tract, and positive family history are especially endangered. Although genetic predisposition plays an indisputable role in the pathogenesis of urolithiasis, an inappropriate lifestyle including lack of physical activity, a high-salt and -protein diet, and low-fluid intake are crucial risk factors. Symptoms in children may be non-specific and depend on the localization of the stone, but usually comprise abdominal and loin pain, vomiting, hematuria, and urinary tract infections. Some researchers look for a link between obesity and the risk of urolithiasis. However, recent studies seem to contradict direct association. But yet, there is a noticeable increase in urinary oxalate excretion in obese children, which is a significant risk factor for urolithiasis. That may suggest that high BMI predisposes to stone formation nevertheless, further research is necessary.

Keywords:

urolithiasis, obesity

THORACIC SYMPATHECTOMY AS A TREATMENT FOR UPPER LIMB HYPERHIDROSIS. REVIEW PAPER

Szymon Wojtaszek

Collegium Medicum in Bydgoszcz University Nicolaus Copernicus in Torun

wojtach21@gmail.com

A few words about the author(s):

I am 5th year medicine student.

Abstract:

Upper limb hyperhidrosis is associated with excessive sweat gland activity. It affects approximately 1% of the population. Although not life-threatening, it can be very bothersome and affect the patient's psychological well-being. The root cause remains unclear, so treatment is mainly symptomatic, which limits its effectiveness. A long-term solution to the problem is a thoracic sympathectomy. This paper aims to analyse the risks associated with the operation, the indications for performing it, its effectiveness and its safety. For this purpose, a review of the scientific literature was carried out using Pubmed and the Cleveland Clinic databases. On this basis, it can be concluded that sympathectomy is an effective treatment for hyperhidrosis, with a success rate of 90%. According to the available data, the operation is performed when the available symptomatic treatment methods have been exhausted. After sympathectomy, side effects such as compensatory hyperhidrosis of other body areas (e.g. inner thighs), gustatory sweating, horner's syndrome or pneumothorax may occur. Careful diagnosis is essential to select the most effective treatment for the patient.

Keywords:

hyperhidrosis, sympathectomy, treatment

CONGENITAL NASOLACRIMAL DUCT OBSTRUCTION. AN ARTICLE REVIEW

Aleksandra Ziółkowska

Collegium Medicum in Bydgoszcz University Nicolaus Copernicus in Torun

aleksandraziolkowska315@gmail.com

A few words about the author(s):

I am a 5th year medicine student.

Abstract:

Congenital Nasolacrimal Duct Obstruction (CNLDO) affects as many as 20% children aged <1 year worldwide.

It usually involves the lack of patency of the nasolacrimal duct's nasal outlet. During pregnancy, this opening is closed by a membrane, which ruptures when the baby begins to cry out after birth. Much less commonly, the patency disorder involves the points or tear ducts and is caused by their failure to form during fetal life.

This review is intended to focus on CNLDO, detailing the risk factors and outlining the consequences of not treating this pathology. For this purpose, the available scientific literature was reviewed.

Risk factors for CNLDO are children with Down syndrome, craniosynostosis, Goldenhar sequence, or any midline facial anomaly.

The signs of CNLDO consist of an increased tear lake, mucous or mucopurulent discharge, and epiphora.

Research reports that Unilateral CNLDO was associated with a higher prevalence of anisometropia compared with bilateral CNLDO. The affected eye in unilateral CNLDO had a higher prevalence of refractive error.

Medical management of CNLDO consists primarily of observation, lacrimal massage, and treatment with topical antibiotics. Frequently infants are referred to the ophthalmologist for surgical treatment only after a period of nonresolution.

The higher association with anisometropic amblyopia should not be underestimated, so children with CLNDO should be included in a comprehensive eye examination for at least 3 or 4 years.

Keywords:

Congenital Nasolacrimal duct obstruction

THE IMPORTANCE OF INTERLEUKIN 6 IN THE TUMOUR MICROENVIRONMENT

Marlena Budek*, Jarosław Nuszkiewicz, Karolina Szewczyk-Golec

Ludwik Rydygier Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Toruń, Department of Medical Biology and Biochemistry, Faculty of Medicine

**marlenamarkiewicz@o2.pl*

A few words about the author(s):

I am a Ph.D. student at Ludwik Rydygier Collegium Medicum in Bydgoszcz, Faculty of Medicine.

Abstract:

Inflammation both predisposes to cancer development and promotes growth, progression and metastasis. The tumour microenvironment (TME) is a collection of many neoplastic cells, stromal cells and inflammatory cells which, through continuous phenotypic and functional changes, influence the development of cancer. Pre-tumor inflammation predisposing to tumor manifestation is associated with several factors, including bacterial and viral infections, autoimmune diseases, obesity, and the use of stimulants (smoking, alcohol). In contrast, tumor-induced inflammation is mainly caused by mutations that initiate the tumour.

Interleukin 6 is the best known and characteristic cytokine involved in the immune response, the production of acute phase proteins in the liver, hematopoiesis, and bone metabolism. It is a cytokine with a pleiotropic effect, and literature data indicate its role in neoplasia. Its overexpression has been shown in almost every type of cancer. However, more and more attention is paid to its dual role, namely both pro-and anti-cancer.

Inflammation can be pro-cancer as well as anti-cancer depending on the cytokine release profile. Appropriate modulation of inflammation may increase the immune response and represent a promising strategy in the treatment of cancer.

Keywords:

cancer, inflammation, Interleukin 6, tumour microenvironment

VISFATIN, RESISTIN – ADIPOKINES LESS KNOWN, BUT LESS IMPORTANT?

Marlena Budek*, Jarosław Nuszkiewicz, Anna Piórkowska, Karolina Szewczyk-Golec

Ludwik Rydygier Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Toruń, Department of Medical Biology and Biochemistry, Faculty of Medicine

**marlenamarkiewicz@o2.pl*

A few words about the author(s):

I am a Ph.D. student at Ludwik Rydygier Collegium Medicum in Bydgoszcz, Faculty of Medicine.

Abstract:

Adipose tissue is an endocrine organ that releases many biologically active hormones called adipokines. The imbalance between the released adipokines, mainly related to obesity, is involved in the pathogenesis of many diseases. Obesity, i.e. excessive accumulation of adipose tissue, is a threat to both health and life. It is mainly associated with the development of type 2 diabetes, cardiovascular disease, stroke, arthritis and some types of cancer. Obesity is also a condition of low-grade chronic inflammation. Among the best-known adpokines, leptin and adiponectin are distinguished, but in recent years there has been an interest in other new adipokines, i.e. resistin, visfatin, which act in an endo-, para- and autocrine manner. Both are pro-inflammatory.

Adipokines are believed to be involved in many metabolic processes, being important modulators of appetite and satiety, energy expenditure and activity, fat distribution, glucose and lipid metabolism, insulin sensitivity, chronic inflammation, and other processes. It is important to understand how they work in order to find therapeutic targets against the obesity epidemic and comorbidities.

Keywords:

adipokines, cancer, obesity, resistin, visfatin

OPTIMIZATION OF CATALYTIC SYSTEMS IN THE OBTAINING OF (S)-1-(ISOPROPYLAMINO)-3-PHENOXY-2-PROPANOL

Joanna Chałupka*, Adam Sikora, Michał Piotr Marszałł

Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Faculty of Pharmacy, Medicinal Chemistry Department

**joanna.chalupka@cm.umk.pl*

A few words about the author(s):

I am PhD student at Faculty of Pharmacy of Collegium Medicum in Bydgoszcz. As a part of my studies I am involved in kinetic resolution of various pharmaceutical compounds with the use of lipases as biocatalysts and ionic liquids as reaction media.

Abstract:

Due to the fact that β-blockers have an asymmetric carbon atom in their chemical structure, they exist in the form of two enantiomers. The (S)-enantiomers of β-blockers are usually responsible for the therapeutic effect, since the (R)-enantiomers have a much lower affinity for β-adrenergic receptors and may cause additional side effects. Despite this, β-blockers are mainly administered as racemates, rather than pure eutomers.

The aim of the study was to optimize the method of kinetic separation of the building block of β-blockers: 1-(isopropylamino)-3-phenoxy-2-propanol with the use of lipases from Candida rugosa as enantioselective biocatalysts. The research analyzed various factors influencing the kinetic resolution, such as: incubation time, reaction medium or the use of ionic liquids. The analyzes were performed using ultra-performance liquid chromatography coupled with high-resolution mass spectrometry (LCMS-IT-TOF).

Performed studied showed that the most optimal system for the kinetic resolution of the β-blocker derivative is the system containing: isopropenyl acetate as the acylating agent, toluene as the reaction medium and lipase from Candida rugosa MY as the biocatalyst. These conditions made it possible to achieve optimal kinetic parameters and to obtain a high enantioselectivity value of the kinetic resolution reaction and the product with a high enantiomeric excess (eep = 91.59%).

Keywords:

β-blocker, racemate, eutomer, enantiomer, building block

IMPACT OF SMALL INTESTINAL BACTERIAL OVERGROWTH ON THE COURSE AND TREATMENT OF PARKINSON'S DISEASE

Alicja Cieślińska

Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz

alacie97@gmail.com

A few words about the author(s):

I am medical student at Nicolaus Copernicus University in Toruń, Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Small intestinal bacterial overgrowth (SIBO) is manifestation of gut microbiome dysbiosis in which the small intestine is colonized by bacteria that are typically found in the colon. It may result in intestinal symptoms caused by the accumulation of microbial gases in the intestine and also develope to intestinal inflammation or malabsorption. Parkinson's disease is a fast-growing neurodegenerative condition with a range of causes and clinical presentations. This disease is explained by genetic causes linked to known Parkinson's disease genes. There are additional causal associations including having a relative with Parkinson's disease, tremor or constipation, which can double the risk of Parkinson's disease. Sporadic forms may start in the gut years before the development of clinical features. Increased gastrointestinal transit time is present in most people with PD early during the course of the disease, predisposing to gut dysbiosis. It is suggested that similar to other gut dysbiosis states, SIBO may have negative health consequences by contributing to an overall proinflammatory state, neurodegeneration and neurotoxicity. At present, no therapy can arrest the progression of Parkinson's disease. SIBO eradication or other modulation of the small intestine microbiota require further investigation as potential disease modifying interventions aiming at slowing down the progression of PD.

Keywords:

Parkinson’s disease, small intestinal bacterial overgrowth, gut dysbiosis

THE EFFECT OF SUBSTANCES PRESENT IN HERBA HYPERICI IN THE TREATMENT OF MILD AND MODERATE DEPRESSION

Kacper Denisiuk

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

kacperdenisiuk777@gmail.com

A few words about the author(s):

Kacper Denisiuk is a second-year student of medicine at Collegium Medicum, Nicolaus Copernicus University. Started working at the Students Research Club of Medical Biology this year. Interested in medicinal plants.

Abstract:

Depression is a disease that affects more and more people nowadays. An example of a plant used in the treatment of depression is St John's wort (Hypericum Perforatum L.). It is a herbaceous perennial from the Hypericaceae family. It is native to Central and Eastern Europe, Africa, Asia and both Americas. The raw material for the preparation of medicines is Herba Hyperici, which is harvested from June to mid-July during the flowering period. This plant contains many compounds such as: naphthodianthrones (hypercin), xanthones, fluoroglycine derivatives, flavonoid glycosides, phenolic acids, procyanidins. Alcoholic extracts or essential extracts of St John's wort have a calming and antidepressant effects. They are used to treat mild to moderate depressive conditions. The therapeutic mechanism is associated with the inhibition of enzymes such as monoamine oxidase and ketechol-O-methyltransverase. These enzymes are responsible for the breakdown of serotonin, catecholamines (dopamine, adrenaline) and other compounds. The different substances contained in Herba Hyperici are also re-inhibitors of serotonin, catecholamines, gamma aminobutyric acid and L-glutamates that bind to the GABA-A/GABA-B receptor complex. Substances contained in the perennial with antidepressant effect include: quercetin (hyperosides) and fluoroglucin derivatives (hyperforin, adhyperforin), hypercin. Studies show satisfactory effects in the treatment of depression with drugs containing St John's wort.

Keywords:

depression, Herba Hyperici, herbal medicine, St John's wort

RTS, S VACCINATION AS A HOPE FOR CHILDREN IN AFRICA

Dominik Drobek*, Halina Piecewicz-Szczęsna

Chair and Department of Epidemiology and Clinical Research Methodology

**ddrobek0@icloud.com*

A few words about the author(s):

The thesis was written by a biomedical student Dominik Drobek under the supervision of Dr. Halina Piecewicz-Szczęsna.

Abstract:

Malaria is a disease caused by Plasmodium parasites that are transmitted to humans by infected mosquitoes. Of the five species that infect humans, the crescent bug (P. falciparum) shows the highest morbidity and mortality and therefore poses a serious threat to public health in endemic areas. The annual mortality rate of this disease exceeds 260,000. among children under 5 living in African areas. After years of research and clinical trials, the World Health Organization recommended the RTS, S vaccine against P. falciparum malaria for widespread use among children living in endemic areas. Discovery research using rodent malaria models by Ruth S. Nussenzweig showed in the late 1960s. age that immunization with the attenuated infectious stage of P. falciparum results in an immune response responsible for protection against parasitic infection. The studies also measured the circumsporozoite protein (CSP), a characteristic molecule for sporozoites, which is the antigen contained in the RTS, S vaccine. About 30% of the CSP protein sequences are tandem repeats. This protein is expressed on the surface of sporozoites of various Plasmodium species. Vaccination is carried out by health ministries in the 3 participating African countries, with the support of WHO and international and national partners including PATH, GSK and UNICEF.

Keywords:

malaria, vaccin, RTS,S, Plasmodium falciparum

BODY-CONTROLLED VIDEO GAMES AND THEIR POSITIVE EFFECT ON HEALTH

Dariusz Dworak (1)*, Bartosz Mazur (1), Aleksandra Wiśniewska (2)

(1) Nicolaus Copernicus University, Ludwik Rydygier Collegium Medicum in Bydgoszcz
(2) Poznan University of Medical Sciences, Collegium Maius

**gbaf4d586@gmail.com*

A few words about the author(s):

Medical students interested in the topic of the possibility of using new technology in medical practice.

Abstract:

Playing video games has become one of the most common forms of spending free time, especially among children for whom they are a form of competition and gaining new friends. Many people, however, associate games with posture defects, vision defects, obesity and social isolation. But can players gain some positive health aspect from them? And if so, what games to recommend? In the presentation, I will discuss the influence of physically-active video games on general cognitive functions and other health aspects. Body-controlled video games have recently gained popularity for recreational and entertainment purposes. Using these games to combine physical activity with cognitive-demanding tasks could potentially train both skills simultaneously and become a new strategy for improving cognitive and physical functioning.

Keywords:

video games, cognitive impairment, physical activity

GASTRIC CANCER – ANALYSIS OF PTEN GENE EXPRESSION AND ITS REGULATORY MIRNA-21

Magdalena Dzikowiec (1)*, Ewa Brzeziańska-Lasota (1), Dorota Pastuszak-Lewandoska (2)

(1) Department of Biomedicine and Genetics, Chair of Biology and Medical Microbiology Medical University of Lodz, Poland
(2) Department of Microbiology and Laboratory Medical Immunology, Chair of Biology and Medical Microbiology Medical University of Lodz, Poland

**magdalena.dzikowiec@umed.lodz.pl*

A few words about the author(s):

M. Dzikowiec: assistant at the Department of Biomedicine and Genetics. The aim of doctorate research is to look for diagnostic and prognostic non-invasive biomarkers in patients with gastric cancer, focusing on altered expression of genes and miRNAs.

Abstract:

PTEN (phosphatase and tensin homolog) acts as a tumor suppressor gene (TSG) involved in the regulation of the cell cycle, preventing cells from growing and dividing too quickly, controlling also apoptosis, adhesion and cell mobility. Its decreased expression is observed in different types of tumors, including gastric cancer.
MiRNAs are non-coding RNAs of about 20-24 nucleotides in length that regulate gene expression. There is growing evidence that miRNAs play a key role in tumor development, differentiation and progression, acting as oncogenes or tumor suppressors.
The aim of the study was to assess the expression levels of PTEN (in gastric tissue) and miRNA-21 (in blood serum) using qRT-PCR method.
The expression analysis of PTEN was performed in tissue samples obtained during gastrectomy from patients (n=32) with diagnosed gastric cancer. The results showed statistically significant decreased expression of PTEN (RQ=0.25) in tumor tissue as compared to the samples from the operating margin (RQ=0.67).
PTEN is a target gene for miR-21. MicroRNA was isolated from blood serum exosomes in patients and controls. The expression level of miR-21 was significantly higher in patients (RQ=8.05) than in the control group (RQ=2.04). We also found negative correlation between PTEN and miR-21 expression in gastric cancer patients.
Our results confirm the role of PTEN as TSG in gastric carcinogenesis, its epigenetic regulation via miR-21 and the oncogenic role of miR-21 in gastric cancer.

Keywords:

PTEN, miR-21, gastric cancer

FORMS OF PHYSICAL ACTIVITY PLANNED FOR PEOPLE OVER 60 AND THEIR HEALTH BENEFITS

Aleksandra Gałuszka

Medical University of Lublin

renatagaluszka@poczta.fm

A few words about the author(s):

A student of medicine by passion and vocation. Professional interests include the influence of physical activity, nutrition and the environment on human health, while non-medical interests include playing the piano and tennis. Dog lover.

Abstract:

According to Eurostat data for 2011-2020, Poland is in second place in the European Union in terms of the pace of population aging. The increase in the elderly is 4.6 percentage points.

Physical activity is an essential element of human functioning, regardless of age.

Although the aging process is inevitable and progressive, exercise maintains sufficient mobility, muscle strength and other functions so that old age does not have to be associated with disability.

It is important to choose the right activities so that they can be performed in connection with the existing diseases and that they bring pleasure to the exercising person.

Keywords:

exercise, activity, aging, exercise benefits

THE EFFECT OF PIPERLONGUMINE ON T24 CELL LINE

Marta Hałas-Wiśniewska*, Łukasz Rajkowski, Magdalena Izdebska, Wioletta Zielińska, Alina Grzanka

Department of Histology and Embryology, Nicolas Copernicus University in Toruń, Faculty of Medicine, Collegium Medicum in Bydgoszcz, Karłowicza 24, 85-092 Bydgoszcz, Poland

**mhalas@cm.umk.pl*

A few words about the author(s):

I work at the Department of Histology and Embryology CM UMK in Bydgoszcz.

Abstract:

One of the most frequently used methods of treating cancer diseases are chemotherapeutics targeting the cell skeleton, the structure responsible for migration, divisions or metastasis. Due to their high toxicity to normal cells, alternative substances with a similar effect are sought. One of such compounds is piperlongumina, characterized by a wide spectrum of activity.

The project assessed the influence of piperlongumine on basal cellular processes and the organization of the cytoskeleton of T24 transitional epithelial bladder cancer cells. The following methods were used to carry out the research: MTT test, analysis of cell death and cell cycle based on flow cytometry techniques, staining of cell nuclei with Mayer hematoxylin, and immunofluorescence labeling of F-actin, β-tubulin and vimentin.

The obtained results indicated the effect of the alkaloid on the reduction of the viability of the T24 cells and their morphology. The alkaloid caused cytoplasm contraction and chromatin condensation; induction of cell death by apoptosis, and reorganization of F-actin fibers. Additionally, at selected concentrations, it inhibited vimentin expression. The tested compound, however, had no significant effect on cell cycle arrest or microtubule organization.

To sum up, piperlongumina has antitumor activity by inducing the death of bladder cancer cells, disturbing their morphology and destabilizing actin microfilaments.

Keywords:

bladder cancer, piperlongumine, cytoskeleton

SYNERGISTIC EFFECT OF A CYTOSTATIC AND A NATURAL COMPOUND ON BREAST CANCER CELLS

Magdalena Izdebska*, Małgorzata Wojtczak, Marta Hałas-Wiśniewska, Wioletta Zielińska, Alina Grzanka

Department of Histology and Embryology, Faculty of Medicine, Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz, Karłowicza 24, 85-092 Bydgoszcz, Poland

**mizdebska@cm.umk.pl*

A few words about the author(s):

I am a biology graduate at the Nicolaus Copernicus University, and I work at the Department of Histology and Embryology at CM UMK.

Abstract:

Cancer is the most common cause of death in highly developed countries, hence the search for new treatments. One of the most effective cytostatics used in the treatment of, among others, breast cancer is 5-fluorouracil (5-FU), but the compound itself is also toxic to healthy cells, so the use of quercetin in combination therapy is justified. The aim of the study was to evaluate the effect of 5-FU and quercetin on the migration potential of MCF-7 breast cancer cells. The work was carried out by examining the cytotoxicity of compounds (MTT test), assessing the phases of the cell cycle, and the morphology, and organization of F-actin and E-cadherin. Analysis of the migration potential was performed with the wound healing test. The results of the study indicate that the use of 5-FU in combination with quercetin increases the ability to induce cell death compared to the use of monotherapy. The compounds used in the study also induce changes in the organization of the cytoskeleton and the level of E-cadherin expression. It was also shown that the combination of the compounds used significantly inhibited the migration of MCF-7 cells. Taken together, the obtained results show that the combination of cytostatics with a compound of natural origin is more effective than their use in monotherapy.

Keywords:

breast cancer, 5-FU, quercetin, MCF-7 cell line, migration potential

MODULATION OF MULTIDRUG RESISTANCE GENES EXPRESSION IN CANCER CELLS BY PHARMACOTHERAPY

Natalia Janicka (1)*, Katarzyna Karłowicz-Bodalska (2)

(1) Student Scientific Circle at the Department of Industrial Pharmacy, Faculty of Pharmacy, Wroclaw Medical University, 50-556 Wroclaw, Poland
(2) Department of Drugs Form Technology, Faculty of Pharmacy, Wroclaw Medical University, 50-556 Wroclaw, Poland

**n.janicka@student.umw.edu.pl*

A few words about the author(s):

I am a pharmacy student at the Medical University of Wroclaw and belong to Student Scientific Circles: at the Department of Industrial Pharmacy and Cancer Cell Biology. I am interested in the impact of pharmacotherapy on cancer from molecular level.

Abstract:

The effectiveness of cancer treatment is largely limited by multidrug resistance (MDR). The members of the superfamily of ABC transporters pump drugs out of the cell. The best-described efflux proteins include the P-glycoprotein (P-gp) encoded by the MDR1/ABCB1 gene and multidrug resistance proteins (MRPs). These integral membrane proteins are overexpressed on the surface of tumor cells. The described type of cancer cell defense against the effects of certain drug groups leads to increased mortality among patients. The aim of this review is to determine the impact of chemotherapeutics on the expression of multidrug resistance genes in cancer cells. The use of P-gp inhibitors and selective COX inhibitors reduce MDR1/ABCB1 gene expression. The result is increased sensitivity to the drug, which potentiates the therapeutic effect. In contrast, paclitaxel, docetaxel and cisplatin lead to P-gp overexpression. Doxorubicin, methotrexate, mitoxantrone and vincristine intensify the expression of specific MRP gene family. The outcome of enhanced expression of the mentioned drug efflux pumps is a therapeutic failure. Down- or up-regulation of MDR-related proteins expression by pharmacotherapy positively or negatively affects the efficacy of cancer therapy. These modulations may have implications in oncology in selecting the appropriate treatment.

Keywords:

multidrug resistance, P-glycoprotein, pharmacotherapy, cancer

IMPACT OF CHEMOTHERAPY ON MODULATION OF CANCER CELL MEMBRANE ANTIGENS

Natalia Janicka

Student Scientific Circle at the Department of Industrial Pharmacy, Faculty of Pharmacy, Wroclaw Medical University, 50-556 Wroclaw, Poland

n.janicka@student.umw.edu.pl

A few words about the author(s):

I am a pharmacy student at the Medical University of Wroclaw and belong to Student Scientific Circles: at the Department of Industrial Pharmacy and Cancer Cell Biology. I am interested in the impact of pharmacotherapy on cancer from molecular level.

Abstract:

Chemotherapy can modulate cancer cell elements in several ways, resulting in different outcomes. Membrane antigens include molecules found on the cell surface, receptors or other trans-membrane proteins. The aim of this review is to analyze the effects of anticancer drugs on the expression of antigens associated with tumor cell membrane. Long-term therapy with both selective estrogen receptor modulators and aromatase inhibitors in hormone-dependent cancers leads to the development of drug resistance. In response, neoplastic cells increase the expression of several receptors. Prinaberel and liquiritigenin reduce CXCR4 expression, which is associated with diminished tumor growth and invasion in triple-negative breast cancer. Diarylpropionitrile can up- or down-regulate the expression of adhesion proteins in prostate cancer. Enhanced adhesion and reduced migration of tumor cells are then observed. Doxorubicin decreases B7-H1 expression in breast cancer, initiating apoptosis. 5–fluorouracil intensifies expression of surface molecules in colon cancer, which is connected with sensitization of the immune system. Docetaxel increases surface expression of CEA, CRT, MUC-1, PSCA and PSMA. This potentiates the sensitivity to antigen-specific cytotoxic T-cell killing. Modulation of membrane antigens with hormone therapy as well as standard chemotherapy is an interesting target in the treatment of tumor. The result is mainly improved therapeutic outcomes, which can be used in oncology.

Keywords:

chemotherapy, modulation, membrane antigens, cancer

IMPACT OF AIR POLLUTION ON SKIN AGING

Oliwia Kotowska

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Poland

olikot10@wp.pl

A few words about the author(s):

Oliwia Kotowska is a second-year student of medicine at Ludwik Rydgier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, a member of the Student Research Club of Medical Biology.

Abstract:

Skin aging can be divided into two types – intrinsic and extrinsic. The first is primarily determined by genetics factors, and the second is related to environmental factors, such as sun exposure, smoking, alcohol abuse, poor nutrition or air pollution, which has had a huge impact on human skin over the years. Various air pollutants, such as, volatile organic compounds, ultraviolet radiation, particulate matter, oxides, polycyclic aromatic hydrocarbons, ozone and cigarette smoke damage the skin, causing oxidative stress due to an increase concentration of reactive oxygen and nitrogen species. These compounds may be associated with premature skin aging, increased risk of skin cancer, increased incidence of psoriasis, acne formation, pigmentation and allergic skin diseases such as atopic dermatitis. Skin damage caused by environmental exposure is associated with the production of reactive oxygen species, which cause oxidative damage to cellular components such as proteins, lipids and nucleic acids. The finest dust is particularly dangerous, as it can trigger tissue infiltration and breakdown, as well as the degradation of hyaluronic acid, which is responsible for keeping the epidermis optimally moist and youthful. It can also cause inflammation, which weakens the hydrolipid barrier, and as a result, the skin becomes flabby and with fine wrinkles due to low hydration levels. This paper describe the effects of air pollution on skin aging, its process and prevention.

Keywords:

air pollution, atmospheric skin aging, oxidative stress

IBUPROFEN AFFECT INTERACTIONS BETWEEN MESENCHYMAL STROMAL CELLS AND MACROPHAGES

Agnieszka Kulesza (1)*, Leszek Pączek (1, 2), Anna Burdzińska (1)

(1) Department of Immunology, Transplantology and Internal Medicine, Medical University of Warsaw, 02-006 Warsaw, Poland
(2) Department of Bioinformatics, Institute of Biochemistry and Biophysics, Polish Academy of Sciences, 02-106 Warsaw, Poland

**aolszewska@onet.pl*

A few words about the author(s):

Project manager "The influence of ibuprofen on immunomodulatory and regenerative potential of human bone marrow- derived mesenchymal stromal cells" financed by National Science Center (UMO-2018/29/N/NZ6/02771).

Abstract:

Mesenchymal Stromal Cells (MSCs) have the ability to polarize macrophages towards M2 anti-inflammatory phenotype. A significant role in regulation of this process has been suggested for prostaglandin E2 (PGE2). However, the synthesis of this molecule can be disturbed by non-steroidal anti-inflammatory drugs such as ibuprofen, which mechanism of action is based on the inhibition of cyclooxygenase-2 - an enzyme mediating the PGE2 production. The aim of the study was to test whether ibuprofen affects the interactions between MSCs and macrophages. Macrophages obtained by differentiating primary human monocytes were co-cultured with human primary bone marrow MSCs in the presence of ibuprofen or treated with the supernatants collected from the ibuprofen-treated MSC cultures. Immunocytochemical staining was performed for the presence of the CD206 surface marker characteristic for M2 macrophages. The expression level of the nitric oxide synthase gene and an arginase activity were also determined. The results confirmed MSCs ability to polarize macrophages towards M2. Treatment with ibuprofen decreased the percentage of CD206 + cells in co-cultures. Macrophages treated with the supernatants from MSCs cultured in the presence of ibuprofen showed an increase in CD206 expression, lower expression level of nitric oxide synthase and significantly higher arginase activity compared to untreated MSCs. Research financed by the National Science Center (UMO-2018/29/N/NZ6/02771).

Keywords:

MSCs, macrophages, ibuprofen, prostaglandin E2

EFFECTS OF WITHANIA SOMNIFERA (ASHWAGANDHA) ON STRESS

Bartosz Kulpa

Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz

bartosz.kulpaa@gmail.com

A few words about the author(s):

I am a medical student at Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Withania somnifera, also known as Ashwagandha, is an herb that has been widely used in Indian traditional medicine systems for centuries. In recent years, the extract of this herb has also become a frequently used dietary supplement. This popularity has sparked increased scientific research into its biological effects, making it one of the most studied medicinal herbs. Research has proven many health benefits for the body from using Ashwagandha extract. Remarkable anti-stress and anti-anxiety effects have also been proven in numerous animal models and clinical trials. It has been proved, among others lowering plasma cortisol levels as well as other biological and behavioral stress-related abnormalities.

Keywords:

Withania somnifera, Ashwagandha, anti-stress effect

DANDELION – USE IN COSMETICS

Julia Kutek

University of Life Sciences in Lublin, ul. Akademicka 13, 20-950 Lublin, Poland

juliak09@tlen.pl

A few words about the author(s):

Julia Kutek is a third-year student of biocosmetology at University of Life Sciences in Lublin.

Abstract:

Dandelion has been used in traditional medicine for centuries. Almost all parts of the plant are used for cosmetic and medicinal purposes – from the roots to the stems, leaves and flowers. It has proven anti-inflammatory properties, therefore it is ideal for supporting acne treatment. Dandelion is also used in anti-aging preparations, as the therapeutic effect of dandelion is mainly due to its antioxidant properties – the fight against free radicals. The antioxidant dandelion is used in cosmetics to smooth and soften the skin, which has a positive effect on the visible aging process. The nutrients and chemical compounds contained in the dandelion are primarily responsible for its unique properties.

Keywords:

dandelion, plant, cosmetics

THE INFLUENCE OF VITAMINS C AND B IN ALZHEIMER'S DISEASE

Paulina Lewińska

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Poland

paulalew25.pl@gmail.com

A few words about the author(s):

Medical student of Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Alzheimer's disease (AD) is the most common form of neurodegenerative dementia. Deficits in the ability to encode and store new memories characterizes the initial stages of AD. Changes in amyloid precursor protein cleavage and production of beta-amyloid (Aβ) along with hyperphosphorylated tau protein aggregation coalesce to neurodegeneration. Familial forms of AD associated with the accumulation of a toxic form of Aβ peptides are linked to mitochondrial impairment. The coenzyme nicotinamide adenine dinucleotide (NAD+) is essential for both mitochondrial bioenergetics and nuclear DNA repair. Pharmacological supplementation using a form of vitamin B that acts as a precursor for NAD+ reduces mitochondrial defects and protects neurons against degeneration. Vitamin C also shows an important role in premature aging in AD. Ascorbic acid (AA) was found to positively modulate inflamm-ageing and immunosenescence. Moreover, AA has been shown to epigenetically regulate genome integrity and stability. The latest research provides epidemiological evidence linking diet, one of the most important modifiable lifestyle factors, and the risk of AD. Thus, dietary interventions, as a way to epigenetically modulate the human genome, may play a role in the prevention of AD.

Keywords:

aging process, Alzheimer’s disease, ascorbic acid, vitamin B

USAGE OF PERSONALIZED MEDICINE IN RHEUMATOLOGY

Jakub Martyński

Poznań University of Medical Sciences

kuba.martynski99@gmail.com

A few words about the author(s):

Jakub Martyński is a fourth-year student of medical biotechnology at Poznań University of Medical Sciences.

Abstract:

Rheumatic diseases are a numerous group of chronic diseases that attack mainly the locomotor system. They have a progresive character and report swelling, pain and limiting the mobility of the joints. Despite the presence of research on rheumatic diseases, we are still not able to fully cure them. An example is rheumatoid arthritis (RA) - a common disease, although poorly characterized. It is a disease that is heterogeneous in terms of its course and clinical symptoms, as well as clinical response to treatment. As a result, about one third of patients do not respond to the applied therapy. Proper selection of an appropriate and safe therapy can be an effective tool not only to alleviate the symptoms of the disease, but also to prevent joint damage and improve the length and quality of life of patients. It is estimated that autoimmune diseases affect almost 5% of the US population and in the vast majority of cases they are characterized by the presence of autoantibodies in the serum. They are potentially helpful markers for early disease detection before the onset of clinical symptoms, recognizing variants of the same syndrome, allowing patients to be categorized to predict the course of the disease and possible response to treatment. Specific antibody profiles can lead to the identification of disease subphenotypes.

Keywords:

personalized medicine, treatment optimization, rheumatology, autoantibodies

EFFECT OF HYPERURICAEMIA ON THE NEUROLOGICAL STATUS OF PATIENTS

Bartosz Mazur (1)*, Dariusz Dworak (1), Aleksandra Wiśniewska (2)

(1) Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz
(2) Poznan University of Medical Sciences, Collegium Maius

**mazurb1998@gmail.com*

A few words about the author(s):

We are medical students, our interests are internal medicine and orthopaedics. In our free time, we play sports and pursue our passions in computer science and video games.

Abstract:

Hyperuricemia affects many aspects of human life. Uric acid has antioxidant properties, but high levels cause gout (blood levels above 6.8 mg/dL). Elevated uric acid levels are a complex problem. It affects diseases such as hypertension, chronic kidney disease, urolithiasis, diabetes mellitus and obesity. Hyperuricaemia has been recognised as an independent cardiovascular risk factor and can therefore affect neurological and cognitive disorders that result from vascular bed dysfunction. This occurs, for example, in the course of vascular dementia, as a result of single and multiple infarctions in the cortex or subcortical structures. The situation is reversed when we have in mind neurological disorders of inflammatory etiology, where uric acid may show some neuroprotective effects due to its antioxidant activity. Current research supports the hypothesis of a neuroprotective effect of the hyperuricemia in depressive disorders, anxiety, Alzheimer's disease, Parkinson's dementia, multiple sclerosis and Huntington's disease.

Keywords:

hyperuricemia, urid acid, neurology

THE IMPACT OF PHYSICAL ACTIVITY ON MUSCULOSKELETAL DISEASE IN OLDER PEOPLE

Bartosz Mazur (1)*, Piotr Załęcki (1), Aleksandra Wiśniewska (2)

(1) Nicolaus Copernicus University Ludwik Rydygier Collegium Medicum in Bydgoszcz
(2) Poznan University of Medical Sciences, Collegium Maius

**mazurb1998@gmail.com*

A few words about the author(s):

We are medical students, our interests are internal medicine and orthopaedics. In our free time, we play sports and pursue our passions in computer science and video games.

Abstract:

Diseases of the musculoskeletal system are some of the most common complaints occurring in older people. As the body ages, bones become more fragile and cartilage loses its elasticity. Osteoarthritis can affect up to 80% of people aged around 80 years. Physical activity in older people with knee or hip osteoarthritis has very good results even if they have not played any sport for most of their lives. Importantly, physical activity helps to reduce pain, causes weight loss and increases the effectiveness of rehabilitation. Pain relief is important in motivating the patient to recover, and weight loss prevents the development of vascular and cardiovascular diseases and cancer. Sports recommended for patients can include classical walking, Nordic-walking, but also yoga or aquatic rehabilitation. In the case of musculoskeletal diseases, cooperation between the doctor, physiotherapist, patient and family is particularly important.

Keywords:

physical activity, eldery patient, osteoarthritis

DEEP BRAIN STIMULATION IN PARKINSON'S DISEASE CAUSED BY MONOGENIC MUTATION

Jan Milanowski

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Poland

janek.milanowski@wp.pl

A few words about the author(s):

Jan Skarbimir Milanowski is a student of medicine at Collegium Medicum, Nicolaus Copernicus University, working at the Students Research Club of Medical Biology for last three years. Interested in neurodegenerative diseases.

Abstract:

Deep brain stimulation (DBS) has been used since the 1980s for movement disorders. It is used in the treatment of Parkinsons disease (PD), dystonia and tremors. It involves implanting electrodes that stimulate proper parts of central nervous system. Most often it is the hypothalamic nucleus and the globus pallidus interna. Properly programmed pulse generator action reduces motor symptoms (MS). PD mainly affects the elderly and is the second most common neurodegenerative disease in the human population. It is characterized by instability, tremors, slowness and non-motor symptoms (NMS) such as pain, depression and anosmia. PD is caused by a decline in dopaminergic neurons and the accumulation of α-synuclein. Sometimes PD is caused by monogenic mutations. Mutation in the GBA gene encoding glucocerebrosidase is the main risk factor for monogenic PD. It closely correlates with a significant deterioration of NMS. Mutation of the LRRK2 gene, encoding a leucine repeat-rich kinase, contributes to familial and sporadic PD by increasing the activity of this kinase. It accounts for 2% of sporadic PD in the European population. PRKN gene mutation predisposes to early-onset PD with acute symptoms. 77% of PD cases before the age of 30 and up to 20% of all early-onset PD are due to this mutation. Understanding the regularity between the monogenic mutation causing PD and patients responses to DBS will allow for a more accurate selection of therapy.

Keywords:

deep brain stimulation, genetics, Parkinson’s disease

DEEP BRAIN STIMULATION IN DYSTONIA CAUSED BY A MONOGENIC MUTATION

Jan Milanowski

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń, Poland

janek.milanowski@wp.pl

A few words about the author(s):

Jan Skarbimir Milanowski is a student of medicine at Collegium Medicum, Nicolaus Copernicus University, working at the Students Research Club of Medical Biology for last three years. Interested in neurodegenerative diseases.

Abstract:

Deep brain stimulation (DBS) is an established treatment for movement disorders. DBS involves implanting electrodes that stimulate central nervous system (CNS) nuclei. Dystonia is the involuntary movement of different, often opposing, muscle groups. Secondary associated with damage to the CNS, demyelinating diseases or pharmacotherapy. The focal dystonia can progress to general overtime. Primary dystonia is associated with a genetic mutation. Primary generalized dystonia is associated with a heterozygous mutation in the torsin 1A (TOR1A) gene. Pediatric patients generally respond well to DBS within the globus pallidus (GPi). Very rare Twinkle mitochondrial DNA helicase (TWNK) mutation presents as generalized dystonia with rigidity and bradykinesia. The response of patients with this mutation suggests that GPi-DBS is an appropriate treatment for rare movement disorders. Mutations in the lysine-specific histone methyltransferase 2B gene (KMT2B) is a cause of childhood-onset dystonia. Progressive dystonia with orofacial involvement appears to be key features of the mutation. Anticholinergic drugs and GPi-DBS appear to be effective treatment options. A good choice of dystonia therapy allows to achieve a faster improvement in the quality of life of patients, also through the appropriate use of DBS.

Keywords:

deep brain stimulation, dystonia, genetics

IRRITABLE BOWEL SYNDROME AS A MULTIFACTORIAL DISEASE

Joanna Miotk

Academy of Applied Medical and Social Sciences

joanlas@interia.pl

A few words about the author(s):

I am nurse in hospital University Clinical Centre at the Department of Cardiac Surgery and Vascular Surgery (postoperative department) in Gdańsk. I finished studies at Collegium Medicum in Bydgoszcz.

Abstract:

The theme of the presentation is irritable bowel syndrome, which is a recurrent and frequent disease in society. Despite the good prognosis, it remains a disease that affects the comfort of life regardless of age. Presentation shows characterization of the disease unit by describing the etiopathogenesis, epidemiology and clinical picture. The main aim of the presentation is to show that irritable bowel syndrome is a multifactorial disease, due to its causes and treatment. This requires a holistic and holistic approach to the patient, as the diagnostic and treatment process may be different for each patient. Irritable bowel syndrome is a broad and unexplored issue, so based on the latest articles, some treatment measures are presented to reduce the symptoms.

Keywords:

IBS, gastrology, disease

CLASCOTERONE – A TOPICAL ANDROGEN RECEPTOR INHIBITOR AS AN EFFECTIVE TREATMENT FOR ACNE VULGARIS

Sebastian Niebrzydowski

Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz

s.niebrzydowski97@gmail.com

A few words about the author(s):

Sebastian Niebrzydowski – student of medicine at Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Acne vulgaris is one of the most common dermatoses in the world, affecting mostly teenagers and young adults. The most common consequences of acne are scarring, hyperpigmentation and low self-esteem. Typical acne lesions include sebaceous-hair units, increased sebum production, Cutibacterium acnes bacterial invasion and inflammation. Androgens largely lead to excessive sebum production and inflammation. Clascoterone is an anti-androgen, the action of which is based on competition against dihydrotestosterone, so that the drug inhibits the transcription of genes responsible for the production of sebum and pro-inflammatory cytokines. It shows minimal systemic absorption when applied to the skin. The topical androgen receptor blocker was approved by the U.S. Food and Drug Administration (FDA) in August 2020 for use in patients 12 years of age and older with acne vulgaris. The drug was launched in November 2021 in the United States. The purpose of this paper is to present the mechanism of action, the purpose of the drug, a summary of clinical studies on the efficacy and safety of Clascoterone.

Keywords:

clascoterone, acne vulgaris, antiandrogens

GILBERT SYNDROME – ROLE OF BILIRUBIN IN THE PREVENTION OF CARDIOVASCULAR DISEASE

Sebastian Niebrzydowski

Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz

s.niebrzydowski97@gmail.com

A few words about the author(s):

Sebastian Niebrzydowski – student of medicine at Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Gilbert syndrome is a benign genetic disorder characterized by intermittent, often mild, elevated levels of bilirubin in the blood. The degradation of heme by the enzyme heme oxygenase produces bilirubin, which is reduced to the yellow-orange pigment bilirubin. For a long time, bilirubin was mainly considered a non-functional breakdown product of heme, but more often a sign of liver disease and even a potentially neurotoxic substance. There is growing evidence that this molecule is an important modulator of various biological functions in the human body. Recent studies have shown that a reduction in the incidence of civilized diseases (cardiovascular disease, high blood pressure, diabetes, obesity, metabolic syndrome, some cancers, autoimmune diseases, neurodegenerative diseases) can be observed in people with chronic mild unbound hyperbilirubinemia (a typical symptom of Gilbert syndrome). Higher levels of unbound bilirubin in serum may act as an important protective factor against these diseases, while low levels of bilirubin are associated with the opposite effect. The purpose of this paper is to review recent scientific reports on the protective role of bilirubin in cardiovascular disease.

Keywords:

Gilbert syndrome, bilirubin, cardiovascular disease

VONOPRAZAN INSTEAD OF PPI – A NEW DRUG INHIBITING ACID SECRETION

Kacper Niewęgłowski (1)*, Michał Rycharski (2), Julita Niewęgłowska (1)

(1) Medical University of Lublin
(2) Warsaw Medical University named Tadeusz Kozluk

**kniew99@gmail.com*

A few words about the author(s):

Healthcare students. We love broadening our knowledge and gaining new experiences, especially in good company. And that is why we are here!

Abstract:

Vonoprazan is a drug inhibiting the secretion of hydrochloric acid. The drug belongs to the potassium-competitive acid blockers. The mechanism of action is different than PPIs; vonoprazan reversibly inhibits gastric H+, K+-ATPase, while PPIs irreversibly. This makes it a possible alternative to PPIs. Vonoprazan has been available in Japan since December 2014, and in the US since May 2022. The aim of this study was to review articles and report on the new drug. Vonoprazan is primarily used to treat acid-related diseases. Trials suggest that it is no inferior than PPIs, and in some disorders it is seen to have a significant superiority in treatment efficacy. PPI-refractory GERD is one of these disorders. It is used orally only, with a standard dose of 20 mg. Compared to PPI it works faster, more potent and long-lasting, therefore it can be used as an alternative drug.

Keywords:

vonoprazan; potassium-competitive acid blocker; Proton Pump Inhibitors; acid-related diseases

EFFECT OF WHEY PROTEIN SUPPLEMENTATION ON WEIGHT LOSS

Kacper Niewęgłowski (1)*, Michał Rycharski (2), Julita Niewęgłowska (1)

(1) Medical University of Lublin
(2) Warsaw Medical University named Tadeusz Kozluk

**kniew99@gmail.com*

A few words about the author(s):

Healthcare students. We love broadening our knowledge and gaining new experiences, especially in good company. And that is why we are here!

Abstract:

Whey protein is a widely used dietary supplement, especially in physically active people and during weight loss diets. The Recommended Dietary Allowance (RDA) for protein is 0.9 grams of protein per kilogram of body weight. In physically active people and on a weight loss diet, this value is higher. The aim of the study was to review articles related to the effects of whey protein supplementation on weight loss. Studies report that in non-exercisers, whey protein supplementation does not increase weight loss. One of its effects may be to reduce appetite. Overuse of protein can have adverse effects on the organism, such as on the kidneys or increased aggression. The most important factor in weight reduction is a calorie deficit. Physical activity and a well-balanced diet are necessary to achieve it. Whey protein supplementation does not cause weight loss, but can support it if the above requirements are realized.

Keywords:

whey protein, weight loss

APPLICATION OF ARTIFICIAL INTELLIGENCE (AI) IN POLYP DETECTION IN COLONOSCOPY

Kacper Niewęgłowski (1)*, Michał Rycharski (2), Julita Niewęgłowska (1)

(1) Medical University of Lublin
(2) Warsaw Medical University named Tadeusz Kozluk

**kniew99@gmail.com*

A few words about the author(s):

Healthcare students. We love broadening our knowledge and gaining new experiences, especially in good company. And that is why we are here!

Abstract:

Applications of artificial intelligence in medicine is a topic frequently mentioned in scientific articles and frequently discussed at scientific conferences. Shortages of healthcare workers contribute to the search for solutions that will make their work easier. Colonoscopy is a procedure during which one can remove polyps from the colon. In order to find them, the endoscopist must carefully view the bowel wall displayed on a monitor, and can sometimes overlook a small lesion or one in a difficult location. Artificial intelligence algorithms can find lesions on the image during colonoscopy. The use of the algorithms in the study increased the polyp detection rate, especially in male endoscopists. The increase was especially significant for easily missed polyps. One more important result is a significant increase in the detection of colorectal neoplasia - an independent effect from main adenoma characteristics. Although it is not clear if this technology can be applied to commonly used colonoscopy equipment, it may find application in colonoscopy in the future.

Keywords:

colon polyps, colonoscopy, artificial intelligence

NEUROBIOLOGICAL BACKGROUND OF PSYCHOPATHY

Blanka Nycz

Department of Rehabilitation Psychiatry, Medical University of Silesia

blankanycz@gmail.com

A few words about the author(s):

A graduate of emergency medical services and neurobiology, currently a PhD student at the Medical University of Silesia in Katowice. Her research interests include the anatomy of the brain and the functioning of the brain in pathological states.

Abstract:

Psychopathy is characterized by egocentrism, lack of empathy, the ability to manipulate others. It is a type of dissocial personality in which there are deficits in understanding, experiencing and expressing emotions, and at the same time strongly marked by impulsiveness of behavior. In the brain of a psychopath, certain structures work differently than in the brain of people without disorders. It is the prefrontal cortex, the insula cortex, the amygdala, the cingulate gyrus and the suture nuclei. Disturbed functioning of the prefrontal cortex disturbs the ability to predict the effects of one's actions, causes a feeling of lack of alternative versions of one's behavior, lack of understanding of the essence of the situation, lack of control over emotions, and a tendency to aggression. The insula cortex dysfunction blocks empathy and the feeling of harming another human being. The amygdala of psychopaths is less able to recognize emotions, weakens the power of empathy, and also weakens the power of anxiety and fear, which increases the tendency to risky behavior. The inhibited action of the cingulate gyrus, which is a natural conflict detector, stimulates psychopaths to perform dangerous acts, as it blocks the conflict between the need to murder and the action of the moral instinct. The dysfunction of the suture nuclei. causes a deficiency of secreted serotonin, and this causes irritability, ease of aggressive behavior and a weakened control of the emotional system.

Keywords:

psychopathy, neurobiology, brain

DEPRESSION - DISEASE OF CIVILIZATION OF THE 21ST CENTURY

Magda Orzołek-Sawicka

University of Economy in Bydgoszcz

orz.magda@gmail.com

A few words about the author(s):

I am nursing student. I am interested in diseases of civilization and treatment of bedsores.

Abstract:

The presentation concerns the subject of a disease entity which, due to its incidence, is unofficially classified as disease of civilization of the 21st century, because statistically, depression affects several percent of the population at least once in a lifetime. It is the most commonly diagnosed affective disorder and the main reason for the inability to live and work normally, due to mood disorders, anxiety, a sense of helplessness and even suicidal thoughts. The causes of depression can be divided into biological, psychological and social. Factors influencing the frequent undiagnosis of the disease will be discussed, including low knowledge about the disease, fears of being assessed by society and the reaction of relatives. Introducing new methods of therapy, combining pharmacology and psychotherapy, will justify the effectiveness of stabilizing the patient's condition and the possibility of complete recovery.

Keywords:

depression, disease of civilization, affective disorder

APPLICATION OF CFDNA ANALYSIS IN MOLECULAR ONCOLOGY

Edyta Owsiana

Clinical Medicine Center Dimedical in Lodz

e-owsiana@wp.pl

A few words about the author(s):

Employee of Clinical Medicine Center Dimedical in Lodz.

Abstract:

The number of people getting cancer is increasing every year around the world. It is necessary to develop quick, easily accessible, minimally invasive and minimal risk prognostic and diagnostic methods. New non-invasive approaches such as analysis of circulating cell free DNA in body fluid of patients have potential to improve cancer diagnostics. Molecular analysis of cfDNA allows for the assessment of tumor advancement, assessment of prognosis, determination of location or initial assessment of the effectivness of therapy.

Keywords:

cfDNA, molecular diagnostics, liquid biopsy

ORGANOGELS AS NOVEL VEHICLES OF ACTIVE SUBSTANCES BASED ON LECITHIN

Richard Sarpong, Michał Szurgociński, Wiktoria Klepacz, Jolanta Dziedzicka, Michał Durnaś, Adam Matlak, Marlena Musik, Edyta Kucharska*

Department of Chemical Organic Technology and Polymeric Materials, Faculty of Chemical Technology and Engineering, West Pomeranian University of Technology in Szczecin, 10 Pulaski Str. 70-322 Szczecin, Poland

**edyta.kucharska@zut.edu.pl*

A few words about the author(s):

Members of the Student Scientific Circle of the League for Nature Conservation, who actively participate in the research, under the Associate of Scientific Dr. Marlena Musik and Dr. Edyta Kucharska.

Abstract:

Soy lecithin (widely used as an organo-gelator) is the general term used to describe the group of phospholipids most abundant in biological systems. Lecithin does not have an allergenic effect and promotes the disorganization of skin lipids, increasing the penetration of active substances, but it itself has a low activity profile. Lecithin's ability to increase the permeation of substances through the skin makes it possible to use it in topical preparations.

The aim of this study was to synthesize soy lecithin-based organogels containing silymarin as an active substance. The obtained preparations were shown to exhibit antioxidant activity. Therefore, in the future, it is planned to carry out a skin permeation evaluation to indicate whether they have long-term protection against reactive oxygen species (ROS) in the deeper layers of the skin.

Keywords:

organogels, active substances, novel vehicles, lecithin

THE ROLE OF HUMAN PAPILLOMAVIRUS IN CERVICAL CANCER

Renata Seroka

Mieszko I School of Applied Sciences in Poznan

seroka.renata@gmail.com

A few words about the author(s):

I currently work as a nurse on neurological unit. I am doing a master's degree in nursing. My interests are neurology, oncology and research.

Abstract:

Human papillomavirus (HPV) is one of the most common infections sexually transmitted. Approximately 400 HPV types have been discovered of which some 218 have been identified as pathogenic in humans. According to the International Agency for Research on Cancer twelve types of HPV have been classified as carcinogenic to humans while others are responsible for anal and genital skin lesions.

In 2018 more than 570,000 women were diagnosed with cervical cancer, with a mortality rate of 311,000 worldwide. The average age of women diagnosed with cervical cancer is 53, while the death rate is 59.

Current epidemiological data show that cervical cancer is the third most common malignancy in women. 99% of cervical cancer is due to the human papillomavirus. It is estimated that every sexually active woman or man will come into contact with HPV at least once during their lifetime.

Every year the number of cervical cancer cases increases, therefore awareness of the role of HPV is essential to understand the importance of taking preventive measures to minimalize the spread of infection.

The aim of this presentation is to introduce the role of the human papillomavirus in cervical cancer along with the clinical picture of the disease and prevention of infection.

Keywords:

human papillomavirus, cervical cancer

THE IMPACT OF CHESS PLAYING ON THE COGNITIVE ABILITIES AND BRAIN FUNCTIONING

Kamila Sobczak

Collegium Medicum of Nicolaus Copernicus University Toruń

kamilas77533@gmail.com

A few words about the author(s):

Second year student of medicine, fascinated by brain and human development, and a beginner chess player.

Abstract:

The game of chess is a strategic board game involving two players, known to humanity for centuries. It requires high pattern finding and problem solving skills. The chess players gains his expertise by learning multiple setups, and move sequences. Both problem solving during the actual game, and memorizing theory has impact on cognitive skills of the player. Chess players develop memory chunks linked to specified patterns on the chessboard. Chess grandmasters and masters have various alterations in their brain structure and functioning. The chess players have reduced volumes of gray matter in occipito-temporal junction, and caudate nucleus, while having elevated diffusivity in superior longitudinal fasciulus. Their EEG show reduced autonomic regulation, compared to their low performance peers. Their dynamic functional connectivity is enhanced, which can make chess a good form of treatment for people with neurological problems. Chess has also positive impact on learning abilities. Kids who were taught chess, improved their school performance, especially reading and calculating skills. Being simultaneously easy and complex, it is a very effective way to enhance a person's performance on various fields, while being an enjoyable experience.

Keywords:

neuroscience, brain, chess, cognitive abilities

BRACHIORADIAL ITCH

Marta Szepietowska

Student Research Group of Experimental Dermatology, Department of Dermatology, Venereology and Allergology, Wroclaw Medical University, wroclaw, Poland

marta.szepietowska0703@gmail.com

A few words about the author(s):

Marta Szepietowska is a medical student of Wroclaw Medical University in Poland. She is an author and co-author of more than 20 scientific publications with a total Impact Factor of more than 40.

Abstract:

Brachioradial itch is an rare condition representing neurologic itch. It was first described by Waisman in 1968 and was termed solar itch as that time it was linked to intense sun exposure with frequent exacerbations occurring during the summer. The prevalence of condition is not clear, but it seems to be rather rare. Therefore, many physicians are not aware of brachioradial itch. Here, the patient suffering from this rare condition is presented. A 63-year old female was referred to our center due to long-lasting bothersome itch located on both upper extremities. On admission she presented with terrible itch on both upper extremities. The itch intensity according to 11-point numeral rating scale (NRS, range: 0-10 points) was assessed as 10 points, indicating very severe itch. Physical examination revealed dry skin, most probably related to the age of the patient. Additionally, some signs of lichenificantion with hyper and hypopigmantation were found on arms and forearms. Moreover, small single papules were noted within lichenified plaques, as well as one small, 2-3 mm in diameter, erosion located on the arm. The punch biopsy was obtained from the lichenified plaque with papule. Subsequent histology was typical for pityriasis lichenoides chronica. Magnetic resonance imaging of cervical spine revealed multilevel changes of cervical spine with neural foraminal narrowing. The brachioradial itch was finally diagnosed and the disease was controlled with gabapentin.

Keywords:

itch, pruritus, brachioradial region

TREATMENT OF ATOPIC DERMATITIS, NEW PERSPECTIVES

Maciej Szota

Scientific Circle of Geriatrics

77maciek77@gmail.com

A few words about the author(s):

Medical student of Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Atopic dermatitis is the most common allergic skin disease. It has a genetic background that makes the immune system react inappropriately to allergens. It most often develops before the age of 5. The main symptom of AD is persistent itching. Treatment is aimed at improving patients' quality of life, but the disease cannot be cured. Current medications have many side effects and are not always effective. Therefore, new solutions are sought. Now under the development are inhibitors of Janus-activated kinases. They are particularly promising in local treatment as they are very effective with virtually no side effects.

Keywords:

atopic dermatitis, JAK

CHEMSEX WITH AN EMPHASIS ON POPPERS

Maciej Szota

Scientific Circle of Geriatrics

77maciek77@gmail.com

A few words about the author(s):

Medical student of Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Chemsex is not only about sexual drug use. The cultural context is very important. It mainly affects homosexual men. Drugs specific to chemsex are methamphetamine, mephedrone and GHB. This work will also focus on poppers, these are alkyl nitrites. They cause relaxing of muscles (which facilitates penetration of the anus), increase excitement, prolong orgasm and cause euphoria.

Keywords:

chemsex, chems, popper

B-TYPE NATRIURETIC PEPTIDE (BNP) REFERENCE VALUES - PRELIMINARY ASSESSMENT IN HEALTHY SUBJECTS

Ewelina Wędrowska (1)*, Dominik Lazarowski (2), Piotr Poturalski (2)

(1) Department of Lung Diseases, Neoplasms and Tuberculosis, Faculty of Medicine, Nicolaus Copernicus University in Toruń, 85-094 Bydgoszcz, Poland
(2) Vitalabo Laboratoria Medyczne Sp. z o.o. Grupa Diagnostyka, Gen. J. Hallera 2E Str., 85-795 Bydgoszcz, Poland

**ewelina.wedrowska@gmail.com*

A few words about the author(s):

PhD students of Collegium Medicum UMK and laboratory diagnosticians, conduct research on the use of modern techniques in the diagnosis and treatment of many diseases.

Abstract:

Heart failure is a condition where, because of cardiac dysfunction, there is a reduction in cardiac output relative to the metabolic needs of body tissues. Brain natriuretic peptide (BNP) is a 32-amino acid polypeptide produced in the largest amount by ventricular cardiomyocytes. BNP is responsible for maintaining homeostasis in the volume and pressure of circulating blood. It also inhibits the activity of the renin–angiotensin–aldosterone system and sympathetic nervous system.

The aim of study was to determine the reference values for BNP in plasma of a healthy subjects and to assess correlations of this biomarker with other measured parameters. The study group consisted of healthy subjects: 60 men and 60 women. The concentration of individual biochemical parameters, such as total cholesterol, high-density and low-density lipoprotein cholesterol, triglycerides, glycated hemoglobin, C-reactive protein, creatinine and immunochemical: BNP, high-sensitivity cardiac troponin I, galectin 3, and the glomerular filtration rate (eGFR) was calculated. Only individuals whose body mass index values were <25 [kg/m2] were included in the study. The upper reference limit for BNP in plasma was higher in women compared to men. A positive relationship was shown in women for BNP concentration, and age and non-HDL-C. A negative correlation was shown for BNP and eGFR. The results also indicate that choice of an appropriate reference population is fundamental for determining reference intervals.

Keywords:

BNP, natriuretic peptide, reference values, heart failure

PERSPECTIVES OF ANTIVIRAL THERAPY PERSONALIZATION IN HCV – INFECTED PATIENTS BASED ON SNPS GENOTYPING

Ewelina Wędrowska*, Maciej Chmielarski

Department of Lung Diseases, Neoplasms and Tuberculosis, Faculty of Medicine, Nicolaus Copernicus University in Toruń, 85-094 Bydgoszcz, Poland

**ewelina.wedrowska@gmail.com*

A few words about the author(s):

PhD students of Collegium Medicum UMK, conduct research on the use of modern techniques in the diagnosis and treatment of many diseases.

Abstract:

About 3% of the world's population is infected with HCV, which causes many serious diseases such as liver cirrhosis, hepatitis, and hepatocellular carcinoma. Pegylated α-interferon combined with ribavirin is widely used for treatment. Unfortunately, in the case of chronic forms of infection, the drugs used are sometimes ineffective. Studies have shown the influence of the presence of SNP polymorphisms of specific genes on the effectiveness of therapy for patients with HCV. In my work, I presented polymorphisms of genes: IL - 28B, IFNL4, BCLA - 4 and BCL2L1. According to the study, the presence of a specific SNP in the genes in question significantly affects the effectiveness of therapy. Knowledge of polymorphisms in patients' genes helps in the selection of drugs, determines the likely duration of a sustained virological response, which is equivalent to a cure, and even gives the possibility of spontaneous elimination of the infection. In the future, further search for more polymorphisms should be carried out, and efforts should be made to put SNP genotyping into practice in the treatment of HCV-infected patients.

Keywords:

HCV, SNP genotyping, hepatitis C virus

HEMOLYTIC DISEASE OF THE NEWBORN – BLOOD TREATMENT

Aneta Zając

Synevo Kraków

aneta.zajac87@gmail.com

A few words about the author(s):

Aneta Zając – laboratory diagnostician.

Abstract:

Hemolytic disease of the newborn (HDN) is a blood problem in newborn babies. It occurs when baby's red blood cells break down at a fast rate. It is also called erythroblastosis fetalis. HDN happens most often when an Rh native mother has a baby Rh positive. This can be an issue if the baby's red blood cells cross to the Rh negative mother. When baby's red blood cells break down, bilirubin is formed. It is hard for babies to get rid of bilirubin. It can build up in their blood, tissues, and fluids. This is called hyperbilirubinemia. Bilirubin makes a baby's skin, eyes, and other tissues to turn yellow. This is called jaundice. Exchange transfusion removes circulating bilirubin and antibody-coated RBCs, replacing them with RBCs compatible with maternal serum and providing albumin with new bilirubin binding sites. The process is time consuming and labor intensive but remains the ultimate treatment to prevent kernicterus.

Keywords:

newborn, hemolytic disease, serological conflict

SYNERGISTIC EFFECT OF 5-FLUOROURACIL AND OXYMATRINE ON MIGRATION AND SURVIVAL OF NON-SMALL CELL LUNG CANCER CELLS

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

Department of Histology and Embryology, Faculty of Medicine,
L. Rydygier Collegium Medicum in Bydgoszcz Nicolaus Copernicus University in Toruń

**w.zielinska@cm.umk.pl*

A few words about the author(s):

I am a graduate of medical biotechnology and a PhD student in the field of medical sciences.

Abstract:

Lung cancer (LC) remains one of the most common malignancies. At the same time, it is one of the neoplasms with the wors prognosis. Clinically, LC is divided into non-small cell (NSCLC) and small cell (SCLC). The NSCLC is more common. Due to the resistance of NSCLC to chemotherapy, the usual approach is surgical resection and/or radiotherapy. For this reason, treatment of the disease in the presence of metastases is much more difficult. Therefore, alternative methods are sought to support conventional therapies. One option are the compounds of natural origin that enhance the effects of traditional cytostatics. This approach may also protect quickly dividing normal cells from the negative effects of chemotherapy. One such compound is oxymatrine derived from the seeds of Sophora alopecuroides or the roots of Sophora flavescens. The compound belongs to the group of alkaloids and its anti-cancer, anti-inflammatory, antifungal and antibacterial properties have been demonstrated. Hence, the aim of our study was to check whether oxymatrine in combination with the conventionally used cytostatic 5-fluorouracil impacts the survival and metastatic capacity of A549 NSCLC cells. The applied methods showed that both compounds in the selected combination act synergistically. Additionally, the mixture increased apoptosis. The combination was also the most effective in the context of limiting the migration capacity of A549 cells, which reflects reduction in metastatic capacity.

Keywords:

oxymatrine, 5-fluorouracil, NSCLC, A549 cell line

VITAMIN D IN HASHIMOTO'S THYROIDITIS

Julia Zielińska

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

julia3102000@gmail.com

A few words about the author(s):

Julia Zielińska is a second-year student of medicine at Collegium Medicum, Nicolaus Copernicus University. Started working at the Students Research Club of Medical Biology this year. Interested in thyroid disorders.

Abstract:

Hashimoto's thyroiditis (HT) is an autoimmune thyroid disease, in which the immune system creates antibodies that treat with thyroid cells. Vitamin D is responsible for calcium/phosphate homeostasis and is also a regulator of immune-mediated processes. Studies indicate a link between vitamin D deficiency and the presence of anti-thyroid antibodies, which point to thyroid autoimmunity. A lower level of vitamin D may cause limited T-cell suppression which can stimulate the release of inflammatory cytokines, such as interleukin-1 (IL-1), IL-12, IL-18, tumor necrosis factor alpha (TNF-α), interferon gamma (IFNγ), and granulocyte-macrophage colony stimulating factor (GM-CSF). Mentioned cytokines are the cause of thyroid tissue destruction, which is the main pathogenic cause of hypothyroidism in HT. Deficiency of vitamin D may not only be the cause of Hashimoto's thyroiditis but some studies say that the deficiency may also be the effect of HT.

Keywords:

autoimmunity, Hashimoto's thyroiditis, hypothyroidism, vitamin D

HEPCIDIN IN ANEMIA ASSOCIATED WITH CHRONIC RENAL FAILURE

Julia Zielińska*, Kacper Denisiuk

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

**julia3102000@gmail.com*

A few words about the author(s):

Julia Zielińska and Kacper Denisiuk are a second-year students of medicine at Collegium Medicum, Nicolaus Copernicus University. They started working at the Students Research Club of Medical Biology this year.

Abstract:

Hepcidin is a small peptide produced by hepatocytes and modulated in response to hypoxia, anemia, or inflammation. Hepcidin regulates iron metabolism by inhibiting transport of this microelement. By binding to the iron transporter, ferroportin, hepcidin causes the final breakdown of the iron. As a result, iron is not absorbed in the presence of hepcidin and the concentration of this microelement in the blood decreases.

A chronic inflammatory state is characteristic of chronic renal failure patients. The causes of this state are multiple and inter-connected. The break of the equilibrium between pro-inflammatory agents (IL-1, IL-6, TNF alfa) and anti-inflammatory molecules (IL-4, IL-10, IL-13) in hemodialysis patients leads to anemia of chronic inflammation. The inflammation induces another cytokine activity that synergistically stimulates the BMP/6/SMAD pathway of IL-6 and STAT3, thereby expressing hepcidin. At the same time, there is reduced synthesis of erythropoietin and an iron deficiency, inhibition of the bone marrow by uremic toxins, leading to anemia.

Studies shows that inhibition of hepcidin could be a crucial strategy in anemia treatment, because it may limit the risk of iron overload, which occurs in iron supplementation or erythropoietic stimulating agents. Also in case of iron deficiency, a low level of hepcidin promotes iron export via ferroportin into the cardiovascular system.

Keywords:

anemia, chronic renal failure, hepcidin, inflammation

VITAMIN C,E AND MELATONIN IN THE TREATMENT OF ENDOMETRIOSIS

Barbara Zyśk

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

barbarazysk99@gmail.com

A few words about the author(s):

Medical student of Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Endometriosis (EMS) is a chronic and estrogen-dependent pelvic inflammatory disease, which is defined as the presence of endometrial-type mucosa outside the uterine cavity. Although it appears to be one of the most common diseases affecting 5-10% of women of reproductive age globally, there is no cure for it and treatments only target symptoms and not the underlying mechanism of disease. While the exact pathophysiology of EMS is unclear, oxidative stress (OS), defined as an imbalance between reactive oxygen spices (ROS) and biological antioxidants, is mentioned as one of the causes.

Vitamin C is a water-soluble vitamin and an antioxidant capable of neutralizing ROS, which protects cells against diseases caused by oxidative stress like EMS. Vitamin E, an effective lipid-soluble, chain-breaking antioxidant, can also delay or prevent OS-induced diseases. These vitamins may be useful in neutralizing ROS generated by endometriotic cells.

Melatonin is a main secretory product of the pineal gland, which antioxidant effects are well-established. Its mechanism of action can be implied on endometriosis as well. Animal studies have shown that treatment with melatonin decreased the volume and weight of endometriotic lesions as well as decreased markers of oxidative stress.

All of these agents have been found to have a positive effect in the treatment of endometriosis, including reduction in OS markers, reduction in lesion size and enhancing apoptosis.

Keywords:

antioxidants, endometriosis, oxidative stress, vitamin C, vitamin E

ROLE OF OXIDATIVE STRESS IN FEMALE REPRODUCTION

Barbara Zyśk

Students Research Club of Medical Biology, Department of Medical Biology and Biochemistry, Faculty of Medicine, Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń

barbarazysk99@gmail.com

A few words about the author(s):

Medical student of Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

Oxidative stress is a state characterized by an imbalance between pro-oxidant molecules and antioxidant defense. There are two major types of free radical species, which are unstable and highly reactive: reactive oxygen species (ROS) and reactive nitrogen species (RNS). They become stable by acquiring electrons from nucleic acids, lipids, proteins, carbohydrates, or any nearby molecule, causing a cascade of chain reactions resulting in cellular damage and disease.

ROS have physiological and pathological role in the female reproductive tract. They are involved in the modulation of physiological reproductive functions such as ovarian steroidogenesis, corpus luteal function, oocyte maturation, and luteolysis.

Excessive production of RNS can affect protein, carbohydrates, nucleotides, and lipids structure and function, resulting in cell and tissue damage, low-grade, sterile inflammation, and adhesions. Thus, it can negatively affect the placenta, cause preeclampsia, preterm labour or septic shock.

Oxidative stress influences the entire reproductive span of women's life including menopause. Moreover, it plays a role during pregnancy and normal parturition and in the initiation of preterm labor. It may be a major link between infertility and reproductive organ diseases such as endometriosis. Longitudinal studies further investigating oxidative stress in female reproduction could help in improving female reproductive health.

Keywords:

oxidative stress, pregnancy, reactive nitrogen species, reactive oxygen species, reproduction

ABSTRACTS OF

POSTERS

MEDICAL SCIENCES

ABC FAMILY PROTEINS IN MULTIDRUG RESISTANCE OF CANCERS

Katarzyna Gdula

Maria Curie-Sklodowska University, Akademicka 19, 20-033 Lublin, Poland

katarzynagdula28@gmail.com

A few words about the author(s):

Biotechnology student at the UMCS in Lublin.

Abstract:

ABC transport proteins (ATP-Binding Cassette) are molecules involved in the transport of substances across phospholipid membranes. Currently, the ABC transporters family includes 49 proteins, divided into 7 subfamilies (ABCA-ABCG). They are composed of two TMD (Trans Membrane Domain) transmembrane domains and two NBD (Nucleotide Binding Domain) domains that carry out the hydrolysis of ATP to ADP and Pi. ABC proteins are the most abundant group of proteins associated with multidrug resistance in cancers. They are responsible for the export of drugs from cancer cells to the environment, which reduces the effectiveness of chemotherapy. The proteins BCRP, MRP1 and P-glycoprotein play a key role in developing multidrug resistance of cancer cells.

Keywords:

ABC protein, cancer, multidrug resistance

NUTRITIONAL PREVENTION OF ALZHEIMER'S DISEASE

Aleksandra Golonka

Jagiellonian University

ferrytynka@gmail.com

A few words about the author(s):

Dietitian student of second degree at the Jagiellonian University in Cracow. Interested in nutritional prevention of diseases. At this moment working on the topic of cognitive functions and especially Alzheimer's Disease.

Abstract:

Alzheimer's Disease is a serious problem all around the world. WHO statistics show that there are 55 mln people with dementia and the number of cases will rise every year (1). Dementia is in 7th place of most common deaths, and it makes older people disabled. One of the most popular causes of dementia is Alzheimer's disease and a major symptom is memory impairment. Studies have shown that prevention is key, because due to the breaking of nerve connections an effective drug may never arise. In addition, statistics have shown that delaying the development of the disease by 5 years can reduce the number of cases by 41% (2).

The development of technology in recent years has allowed scientists to discover new findings about microorganisms. In brain health, an important role plays microbiota-gut-brain axis, which connects microorganisms living in the intestines with the brain through many complex mechanisms, like the vagus nerve, endocrine system, and immune system. Lifestyle and eating habits may modify the composition of the microbiota. For special attention deserve a daily amount of fiber, moderate physical activity, reduse of stress, overuse of antibiotics, and consumption of polyphenols.

(1) https://www.who.int/news-room/fact-sheets/detail/dementia [access: 20.08.2022],

(2) Viña J, Sanz-Ros J. Alzheimer's disease: Only prevention makes sense. Eur J Clin Invest., 2018, 48(10), e13005.

Keywords:

Alzheimer's Disease, gut microbiota, nutrition, microbiota-gut-brain axis

NATIONAL SCIENTIFIC CONFERENCE
"UNDERSTAND THE SCIENCE"
VI EDITION
SEPTEMBER 17, 2022

THE CREDIBILITY OF MOUSE MODELS IN HUMAN DISEASE RESEARCH

Zuzanna Kała

Wroclaw Medical University

zuza.kala1@gmail.com

A few words about the author(s):

Pharmacy student.

Abstract:

The house mouse is an essential animal in biomedical research. It is commonly used due to its genetic and physiological similarity to humans, ease of breeding it in the laboratory with relatively low cost and availability of various inbred strains. Today, many transgenic mouse models can be used to mimic human diseases and to better recognise physiological and pathophysiological mechanisms. Despite this, we must remember that data even from humanized murine models can not be directly translated into clinical practice. The influence of genetic factors, such as body size, metabolic rate, life expectancy, and acquired factors, like adaptation to environment and diet, but also health condition, causes responses to experimental interventions in mice to be different than in humans. As a consequence, limitations in the extrapolation of the research results to clinical practice occur. Given this information, we have to establish the validity and reliability of a specific model basing on previous data and current knowledge to evaluate its usefulness.

Keywords:

mouse models, reliability, validity, transgenic mouse

THE ROLE OF DIET AND GUT MICROBIOTA IN PARKINSON'S DISEASE

Zuzanna Kała

Wroclaw Medical University

zuza.kala1@gmail.com

A few words about the author(s):

Pharmacy student.

Abstract:

Parkinson’s disease (PD) is a progressive neurological disorder manifesting inter alia in motor disorders. Patients with PD often suffer from gastrointestinal dysbiosis, which could soon become one of the targets of PD therapy. It is proven, that diet and composition of gut microbiota influence the course of the disease. Nutrition affects PD patients in three ways: it modifies the composition of the intestinal microbiota, impacts the intensity of inflammation, and - if the diet is adapted to the function of skeletal and smooth muscles (the ability to bite, chew, swallow and the gastrointestinal peristalsis) of a person with PD - it may have a positive effect on the patient's comfort and nutritional status. The influence of microbiota on the course of the disease occurs through the microbiota-gut-brain axis. It is two-way communication between a human brain and intestinal bacteria, fungi, viruses and protozoa, which includes the immune system, microbial metabolites, vagus nerve and hormone signalling. This poster summarizes some of the newest data on this topic that could lead to a better understanding of the role of diet and gut microbiota in PD and to the development of new, more efficient elements of PD therapy.

Keywords:

Parkinson's disease, intestinal microbiota, microbiota-gut-brain axis

THE USE OF THROMBOELASTOMETRY IN THE ANALYSIS OF UMBILICAL CORD BLOOD IN FULL-TERM

Ewelina Kolańska-Dams*, Ewa Żekanowska

Nicolaus Copernicus University in Toruń Ludwik Rydygier Collegium Medicum in Bydgoszcz
Department of Pathophysiology

**ekolanskadams@cm.umk.pl*

A few words about the author(s):

I graduated from Collegium Medicum. I am a doctor of emergency medicine and a PhD student at the Department of Pathophysiology.

Abstract:

Introduction: Thromboelastometry is called the "new" method of comprehensive haemostasis testing, which allows for the analysis of both blood coagulation and fibrinolysis. The limitation of using the above method is the lack of reference values for various population groups, including newborns whose possibilities of collecting peripheral blood are severely limited. The aim of our study was to analyze the values of basic thromboelastometric tests in umbilical cord blood of full-term. Methods: The study was performed in 30 full-term newborns (16 boys and 14 girls) with normal birth weight (2500-4500 g). The 1st minute APGAR in these newborns was assessed between 8-10 points. The pregnancy was terminated by physiological delivery in 12 newborns, by caesarean section in 18 newborns. The ROTEM Delta4000 thromboelastometer was used in the study, INTEM, EXTEM and FIBEM were determined in the following parameters: Coagulation Time (CT), Clot Formation Time (CFT), α-Angle (α), Amplitude firmness at time X, A10, A20, Maximum Clot Firmness (MCF). Data are expressed as a median (Me) and lower (Q1) and upper (Q3) quartiles. The study was approved by the Ethics Committee (no KB 350/2020). Conclusions: The obtained results indicate that the parameters measured in umbilical cord blood are similar to the reference values developed for peripheral blood of adults. However, further studies are required to develop reference values for thromboelastometry in the pediatric population.

Keywords:

thromboelastometry, umbilical cord blood, newborns

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SEPTEMBER 17, 2022

THE PROCESS OF MACROPHAGE EFFEROCYTOSIS IN ATHEROSCLEROSIS

Joanna Kubica (1)*, Łukasz Baraniecki (2)

(1) Faculty of Medicine, Pomeranian Medical University in Szczecin
(2) Institute of Biology, University of Szczecin

**jkubica99@gmail.com*

A few words about the author(s):

Joanna Kubica – fifth-year student of the Faculty of Medicine at the Pomeranian Medical University. Łukasz Baraniecki – master's student of microbiology at the Institute of Biology of the University of Szczecin.

Abstract:

Damaged and dead cells, formed by physiological or pathological processes in the macroorganism, must be removed in a continuous and safe process. If these reactions are impaired or do not occur at all, the cells accumulate and their contents leak out, which affect the macroorganism, causing inflammation and leading to disease states.

The process of macrophage efferocytosis, which involves the elimination of dead cellular elements called apoptotic bodies, is showed. The stages of the process of efferocytosis, the specific signals - "find me", "eat me" and "don't eat me" and the mechanisms of its impairment in the pathogenesis of atherosclerotic plaque are presented. Efferocytosis is an important and key process in maintaining homeostasis in the vessels. Any dysfunction of this process creates a major threat to intravascular safety, as it leads to the accumulation of apoptotic bodies and lipids, activation of the vascular endothelium and increased differentiation of blood monocytes into pro-inflammatory macrophages - M1, which secrete pro-inflammatory cytokines.

Keywords:

efferocytosis, atherosclerosis, macrophage

EFFECT OF TREATMENT ON IMMUNE RESPONSE OF PATIENTS WITH COVID-19

Diana Martonik*, Anna Parfieniuk-Kowerda, Robert Flisiak

Department of the Infectious Diseases and Hepatology, Medical University of Bialystok, Zurawia 14, 15-540 Bialystok, Poland

**di.martonik@gmail.com*

A few words about the author(s):

Diana Martonik is a student at the doctoral school of the Medical University of Bialystok, currently conducting research at the Department of Infectious Diseases and Hepatology. Her work focuses on COVID-19, viral hepatitis, and other liver diseases.

Abstract:

INTRODUCTION: COVID-19 is an acute respiratory infectious disease caused by infection with SARS-CoV-2 virus, a member of the coronavirus group. A rapid and well-coordinated immune system response is the first line of defense in an infection. However, an over-activated immune response can be counterproductive, causing damage to the body.

METHODS: The study included 44 patients hospitalized in the Department of Infectious Diseases and Hepatology of the Medical University of Bialystok with COVID-19, who were treated with tocilizumab, corticosteroids and/or remdesivir. Various parameters were determined, including saturation, blood count, acute phase markers and immunological markers.

RESULTS: The majority of the study group was male (72.7%) with an average age of 60 years. Men had statistically significantly lower saturation level on admission (86% vs. 92%) and higher inflammatory parameters (C-reactive protein – 119 vs. 71 mg/L; ferritin – 1482.2 vs. 707.4 ng/mL). During the treatment the level of IL-17F, IFN-alpha and IFN-gamma significantly decreased, whereas level of IL-22 and GM-CSF significantly increased.

CONCLUSION: The standard treatment for COVID-19 leads to the quenching of excessive stimulation of the immune system, resulting in a decrease in concentration of pro-inflammatory and regulatory cytokines.

Keywords:

COVID-19, treatment, cytokines, immune response

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SEPTEMBER 17, 2022

AZA-BODIPY WITH BULKY PROXIMAL SUBSTITUENTS – SYNTHESIS AND PHOTOCHEMICAL PROPERTIES

Aleksandra Pawska*, Michał Kryjewski

Chair and Department of Inorganic and Analytical Chemistry,
Rokietnicka 3, 60-806 Poznan, Poznan University of Medical Science, Poland.

**aleksandrapawska@gmail.com*

A few words about the author(s):

The author is a third year pharmacy student and recent forensic-science graduate. The research was undertaken because of a passion for pharmacotherapy and a desire to prevent illness.

Abstract:

BODIPY (boron dipyrromethene) and their analogues – aza-BODIPY are compounds that are under intense investigation for their fluorescent properties. Moreover, they represent a new class of photosensitizers used in photodynamic therapy (PDT). PDT is an effective treatment for many diseases, including cancer. In this method, a photosensitizer (PS) generates reactive oxygen species when exposed to the appropriate wavelength.

Several steps in the synthesis yielded azadipyrromethene, which contains hydroxyl groups at the ortho positions of the proximal substituents. Subsequent complexation reaction using boron trifluoride gave compound, which belongs to the aza-BODIPY group. This compound is characterized by absorption of light in the near-infrared range ($\lambda max > 750$ nm), which is desirable for PDT.

Keywords:

BODIPY, aza-BODIPY, UV-VIS spectroscopy, fluorescent probe, photodynamic therapy

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SEPTEMBER 17, 2022

DEVELOPMENT OF A METHOD FOR THE DISSOCIATION RATE DETERMINATION OF A PHOSPHODIESTERASE 8A-INHIBITOR COMPLEX

Krzysztof Pociecha*, Karolina Szymczyk, Elżbieta Wyska

Jagiellonian University Medical College,
Department of Pharmacokinetics and Physical Pharmacy, Cracow

**krzysztof.pociecha.zfiff@gmail.com*

A few words about the author(s):

The author works in the Department of Pharmacokinetics and Physical Pharmacy, at the Jagiellonian University. His research interest is the application of novel phosphodiesterase inhibitors in sepsis models, as well as pharmacokinetic studies.

Abstract:

The half maximal inhibitory concentration (IC50) and the inhibition constant (Ki) are parameters commonly used in pharmacological research to estimate binding affinity of drug candidates to their targets and to prioritize molecules for clinical studies. However IC50 and Ki estimation tests are performed at a fixed concentration of reactants, thus do not reflect in vivo conditions. It has been postulated, that overall drug-target complex lifetime is more relevant for pharmacodynamics than binding affinity alone. Residence time (tau) is a reciprocal of the dissociation constant (koff) of a drug-target complex and is believed to be an important parameter for estimating a drug potency in physiological conditions. The aim of this study was to develop a method for calculating koff of phosphodiesterase 8A-inhibitor complex and to estimate the koff values for new 5-substituted nipecotic amides. Reaction conditions were adjusted experimentally. PDE8A and inhibitor solutions were incubated for 60 min in order to form a drug-enzyme complex, then reactants were jump diluted 100 fold. A volume of substrate solution was added, then an increase in a product concentration was measured in time using a luminescence method. The progress curves were fitted to an integrated rate equation by a nonlinear regression, then koff and tau values were calculated. Obtained data suggested that there is a discrepancy between IC50 and tau values of the tested compounds.

Keywords:

residence time, phosphodiesterase 8A, luminescence, nipecotic amides

RAPID TEST TO DIFFERENTIATE INFECTION WITH INFLUENZA A AND B VIRUSES AND SARS-COV-2 VIRUS USING THE ISOTHERMAL AMPLIFICATION REACTION

Grzegorz Zieliński (1, 2)*, Marta Skwarecka (1, 2), Kasjan Szemiako (1), Paweł Wojtkiewicz (2), Dawid Nidzworski (1, 2), Sabina Żołędowska (1, 2), Emilia Szumiło-Pilarska (1)

(1) Institute of Biotechnology and Molecular Medicine; ul. Kampinoska 25, 80-180 Gdańsk, Poland
(2) Geneme Sp. z o.o.; ul. Kampinoska 25, 80-180 Gdańsk, Poland

**g.zieliński@geneme.eu*

A few words about the author(s):

Grzegorz Zieliński graduated from 1st and 2nd degree studies at the Faculty of Biotechnology. Since 2019, he has held the position of Biotechnologist-Genetics at the IBMM and Geneme Company.

Abstract:

Nowaday, the coronavirus pandemic remains a significant problem. Successive waves of infections appear regularly, which requires a massive number of genetic tests. Currently, qualification for a genetic test for Covid-19 is held by doctor at the time of the onset of 4 basic symptoms: elevated body temperature, loss of smell, and taste, and cough. Appropriate qualification for the test is hampered by the fact that every year in the fall and winter season we observe an incidence of flu. Moreover the symptoms of both diseases are very similar. Introduction of screening tests into the routine diagnostic practice, thanks to which it will be possible to select patients with Covid-19, refer them to isolation, and thus slow down the virus spreading among the population seems obligatory. Considering the need for a large number of tests, they must be cheap, fast and reliable. Therefore, the aim of the project is to introduce a fast, sensitive and specific panel test to detect and distinguish the presence of SARS-CoV-2 from common flue from swab samples. The proposed diagnostic method will use isothermal nucleic acid amplification reaction and allows to distinguish positive from negative results with the naked eye by observing turbidimetry of the sample before and after the reaction without theuse of expensive laboratory equipment.

Funding by The National Centre for Research and Development POIR.01.01.01-00-2366/20-00

Keywords:

corona virus, SARS-CoV-2, Influenza A and B virus, diagnostic test

DEVELOPEMENT OF A FAST GENETIC PROFILING SYSTEM FOR CRIMINALISTICS - FORENSNP

Grzegorz Zieliński (1, 2)*, Marta Skwarecka (1, 2), Kasjan Szemiako (1), Tomasz Domaradzki (2), Dawid Nidzworski (1, 2), Sabina Żołędowska (1, 2), Emilia Szumiło-Pilarska (1)

(1) Institute of Biotechnology and Molecular Medicine; ul. Kampinoska 25, 80-180 Gdańsk, Poland
(2) Geneme Sp. z o.o.; ul. Kampinoska 25, 80-180 Gdańsk, Poland

**g.zielinski@ibmm.pl*

A few words about the author(s):

Grzegorz Zieliński graduated from 1st and 2nd degree studies at the Faculty of Biotechnology. Since 2019, he has held the position of Biotechnologist-Genetics at the IBMM and Geneme Company.

Abstract:

The aim of the project is to create a genetic test enabling quick and cheap genetic profiling useful for the needs of forensics. Fast and cheap genotyping with the help of the proposed system based on RT-LAMP reaction with modified primers would also allow for making procedural decisions in cases of less importance. Thanks to the properties of SNPs our system expand the possibilities of determining genetic profiles in degraded material and enable genetic profiling directly at the crime scene in order to quickly identify the origin of particular biological traces and determine the profiles of people who were present at the crime scene and / or left their marks on it. In addition, the system would make it possible to determine the biological sex of the person from whom the trace is derived, based on the analysis of X and Y specific mutations. Using the GeneMe technology such as GeneMe ND3Bst Polymerase, it is possible to simultaneously genotype 14 SNP systems, which, with the appropriate selection of DNA fragments tested, allow to obtain over 99.999% chance to distinguish genetic material from different people.

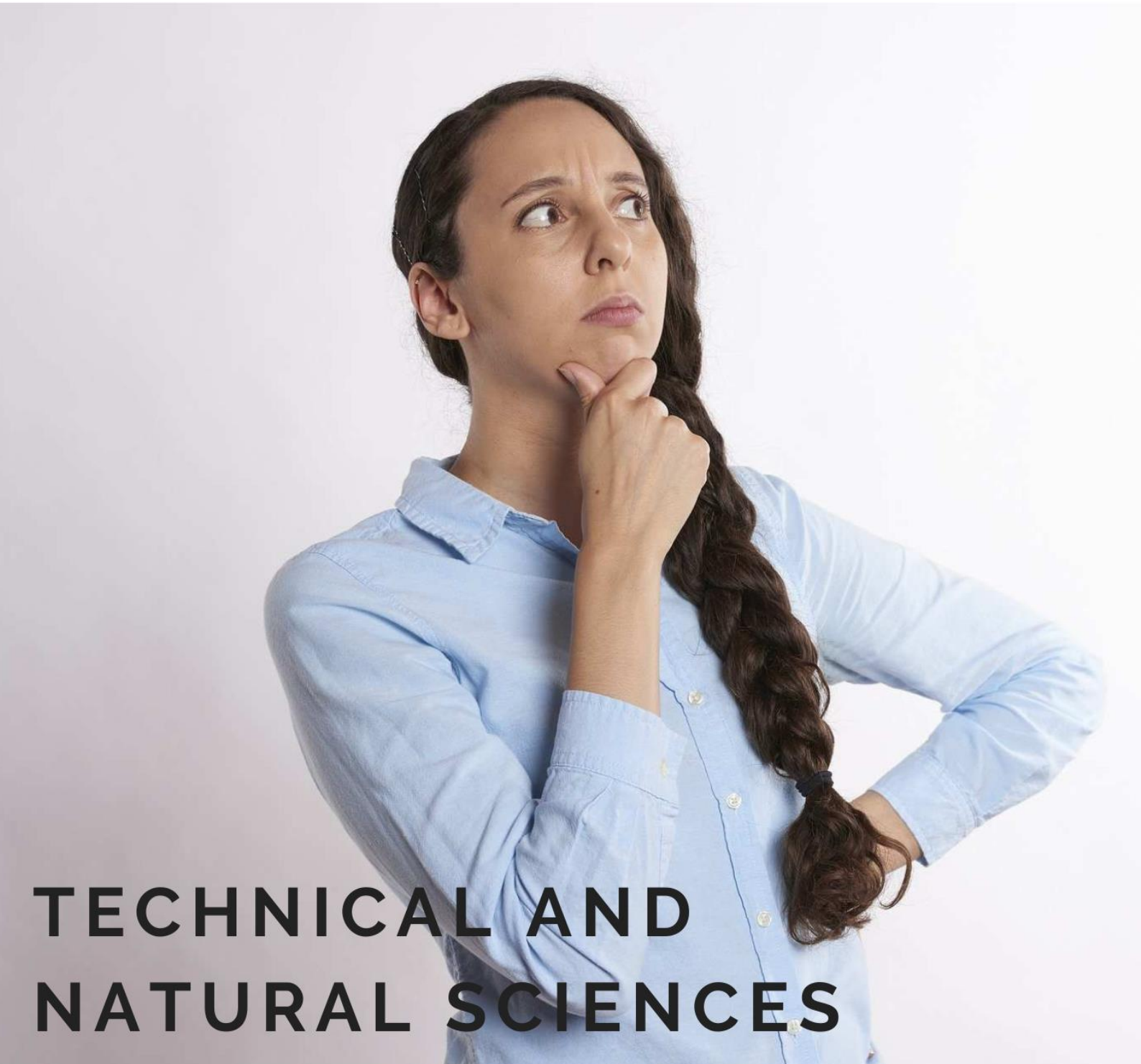
Funding by The National Centre for Research and Development POIR.04.01.04-00-0043/20-00

Keywords:

biosensor, rapid diagnostic test, biological trace, forensic testing

ABSTRACTS OF

PRESENTATIONS



TECHNICAL AND NATURAL SCIENCES

PRODUCTION OF MODERN ANODES FOR LI-ION CELLS BASED ON GRAPHENE MATERIALS DOPED WITH FLUORINE ATOMS

Magdalena Balik

Lodz University of Technology

balikmagdalena92@gmail.com

A few words about the author(s):

I am a final year student of doctoral studies in the field of Materials Science and Engineering. I conduct research in the field of functionalization of graphene materials to achieve Li-ion anodes with higher performance.

Abstract:

Due to the ever-increasing energy consumption and the depleting resources of fossil fuels, scientists focused on the rapid development of s renewable energy sources and storage devices.

Accordingly, research efforts are underway to develop electrode materials that will provide higher energy density, high efficiency and longer life cycle than the graphite anodes commonly used in LiB.

Graphene is of greatest interest to the scientific community because of its unique properties. In fact, due to high production costs, the most commonly used graphene material is reduced graphene oxide, which can be further modified and used in a wide range of applications.

Increasing the specific surface area of graphene materials by doping them with heteroatoms is an effective way to improve the energy storage capacity of LiB.

In my work, I attempted to prepare anodes for LiB batteries based on GRM doped with F atoms, which I obtained by a hydrothermal process using THF-BF3 reagent.

I used nanographite and reduced graphene oxide as base materials to show what effect the quality of the graphene material has on the electrochemical parameters obtained.

Unfortunately, the quality of currently produced graphene is not optimal for most applications, and most companies produce graphite nanoplatelets, which I also showed in my work.

Keywords:

lithium-ion battery, graphene, reduced graphene oxide, heteroatom doping

TESTS OF A SI ENGINE POWERED BY A MIXTURE OF LPG + DME GASEOUS FUELS OF VARIOUS PROPORTIONS, UNDER VARIABLE LOAD

Paweł Marzec

Silesian University of Technology, Faculty of Transport and Aviation Engineering

pawel.marzec@polsl.pl

A few words about the author(s):

PhD student at the Faculty of Transport and Aviation Engineering at the Silesian University of Technology. My research interests are alternative fuels and the combustion process in the engine.

Abstract:

The article presents the test stand and the test results of a vehicle with an SI engine, fueled by a mixture of LPG and DME gaseous fuels. During the tests, a chassis dynamometer was used, which reproducibly reflected road conditions. The tests were carried out for various shares of DME in the mixture, thus determining the maximum possible share of this fuel. The measuring points have been extended with different engine loads and different rotational speeds. The analysis of the pressure inside the combustion chamber made it possible to compare the operation of the engine powered by mixtures of different proportions to the reference fuel – LPG.

Keywords:

LPG + DME blend, combustion process, alternative fuels

ENDEMIC FOREST ECOSYSTEM FOUND IN POLAND – BIAŁOWIEŻA FOREST

Katarzyna Mazurek

University of Life Sciences in Lublin

kasia.mazurek815@gmail.com

A few words about the author(s):

A student of Food Technology and Human Nutrition, she is actively involved in scientific circles. Interests: influence of diet on the body,food production, psychology, ecology. Hobbies: long walks, origami, writing short stories.

Abstract:

During the talk, I will review the literature on the Białowieża Forest, the area where we find the endemic ecosystem. Endemic, i.e. typical of a small area, not found elsewhere in the world. The forest is famous for its natural forests, which have the characteristics of primary forests. This is due, among other things, to the specific geographic location, the favorable natural conditions of the area and limited human interference. Unfortunately, despite favorable conditions, the Forest's biodiversity is gradually deteriorating. Why is this happening? There are many reasons for this, examples include: uncontrolled succession changes occurring in the Forest; the disappearance of many species, and with them accompanying plants (e.g., the disappearance of spruce leads to the disappearance of many species of fungi); climate change, which affects the weakened health of spruce stands; too many ungulates; and the disappearance of open areas. Strict protection is not enough, so changes need to be made to the Forest's biodiversity conservation methods. Despite the difficulties, the search for solutions to save the Forest from the extinction of its characteristic plant and animal species continues. During the talk, I will discuss the causes of the deterioration of the Forest's biodiversity examples of plant species threatened with extinction and examples of alien species found in the Forest. I will also talk about potential solutions to the worsening problem.

Keywords:

Białowieża Forest, ecology, endemic forest, biodiversity

TREE GENETIC ENGINEERING AND APPLICATIONS TO FORESTRY. TREE GENETIC ENGINEERING IN POLAND

Kacper Plantowski

Bydgoszcz University of Science and Technology

k.plantowski@gmail.com

A few words about the author(s):

Student of biotechnology at the Bydgoszcz University of Science and Technology. Interested in oenology, winemaking and foreign cuisines (especially Italian and Japanese).

Abstract:

Biotechnology is one of the most dynamically developing fields of science. Biotechnology, especially genetic engineering, aimed at transforming plant cells, has found application in forestry. Modern biotechnology used in forestry is a continuation of biological progress in the production of plants that are a source of food, as well as species of industrial plants and fruit trees. Thanks to the use of modern methods of genetic engineering, it is possible to breed forest trees that are resistant to pathogens and plant protection products.

The possibilities offered by genetic engineering are huge and can bring many benefits to forestry. Genetic engineering can improve the health and quality of trees and forests, increasing their productivity, increasing the ability to accumulate carbon dioxide, improving the properties of wood or even adapting individual tree species to climate changes. Genetically modified trees may become the future of forestry. However, are they safe for the environment and people? The presented issues will be discussed in details in the presentation, which is based on theoretical knowledge in the field of biotechnology and forestry.

Keywords:

biotechnology, genetic engineering, forestry, genetically modified trees

NATURAL INSPIRATIONS IN AVIATION ENGINEERING

Anna Ziaja*, Paweł Szczygłowski**

Ignacy Łukasiewicz Rzeszów University of Technology

**aniaziaja99@gmail.com*
***pawel_szczyglowski@o2.pl*

A few words about the author(s):

The authors of the presentation are students of Aviation and Aeronautics at Rzeszów University of Technology. They are at the end of engineering course, which is dedicated to aviation and engineering aspect of airplane construction.

Abstract:

The authors have been fascinated by the aviation since their childhood, despite of growing in non-aviation families. Besides of technically driven passion, they are also interested in different topics such as music and theatre. They often seek for the inspiration both in arts and science, which led them to the topic of their presentation, as the urge of finding the solutions to the most important questions often leads to nature. Characteristic wingtips or the shape of the airplane's fuselage? How have the engineers come to those solutions? That's the question the presentation aims to answer. It covers the topic of natural inspirations in aviation engineering.

Keywords:

aviation, engineering, nature, inspiration

PHAGOCYTOSIS

Aleksandra Bojda

University of Warmia and Mazury in Olsztyn

bojdaaleksandramail@gmail.com

A few words about the author(s):

Aleksandra Bojda and Agata Burska are second year veterinary students and are just starting their journey with scientific conferences. Hope You will enjoy work of these two ambitious young women.

Abstract:

The name "phagocytosis" comes from the Greek word "phagein" – "to eat, to devour". Phagocytosis is a biological process by which a cell absorbs tiny, insoluble particles (such as pathogens or dead cell fragments). Phagocytosis is one of the most basic and effective mechanisms of the macroorganism's defense against pathogens.

Cells capable of phagocytosis are called phagocytes. They can reach the site of inflammation by chemotaxis, which is a motor response of cells to directional chemical stimuli. In this case, the stimulus is pro-inflammatory cytokines produced by stimulated cells of the immune system within the gate of infection. Cytokines can also be opsonins - substances that support phagocytosis. The phagocyte recognizes the microorganism by means of the receptors present on its surface. When these receptors are stimulated, the phagocyte is tightly bound to the target of the attack and the phagocyte cell membrane begins to surround the pathogen, forming a vesicle called „a phagosome". To neutralize the absorbed microorganism, the cell connects the phagosome with the lysosome - a vesicle full of digestive enzymes. The combination of the two is called the phagolysosome. Now the elimination of the threat can occur with the participation of digestive enzymes of the lysosome - „oxygen-independent elimination", or reactive oxygen forms - „oxygen-dependent elimination; so-called the "oxygen burst". Such a prepared microorganism is no longer a threat to the macroorganism.

Keywords:

phagocytosis, chemotaxis, opsonins, pathogen, phagolysosome

STRATOSPHERIC PROBES – SOURCES OF IMPORTANT INFORMATION

Kamil Dziedzic

Cracow University of Technology, COSMO PK science club

kamdz01@gmail.com

A few words about the author(s):

Kamil Dziedzic is a student of Computer Science at Cracow University of Technology. Interested in embedded programming.

Abstract:

Stratospheric probes are one of the simplest and cheapest ways to gain important information about what is happening in the stratosphere. They transmit information about temperature, wind strength and direction, and many other characteristics that can be extremely useful, for example, in determining weather forecasts.

Keywords:

stratosphere, data, transmit

THE PROBLEM OF STORING LIQUID FUELS

Tomasz Filipiuk

Faculty of Mechanical Engineering, Military University of Technology, Warsaw, Poland

tomasz.filipiuk@wat.edu.pl

A few words about the author(s):

The author is a young scientist from the Military University of Technology in Warsaw. Additionally, he is pursuing doctoral studies in the discipline of mechanical engineering. The main area of interest is liquid fuels and their distribution.

Abstract:

Liquid fuels are currently the basic energy carrier necessary to power motor vehicle engines. It is very important to keep liquid fuels in the best possible qualitative and quantitative condition. Any loss of liquid fuels is associated with costs and may result in a loss of quality. The storage of liquid fuels is one of the key links in the supply chain. Proper storage of fuels allows to reduce the emission of hydrocarbons to the atmosphere. As a result, the losses of petroleum products are limited and the emission of toxic substances to the atmosphere is reduced. Currently, the most effective methods of reducing evaporative losses of petroleum products during storage are the use of a floating roof and a combination of containment techniques with vapor recovery.

Keywords:

liquid fuels, storage, fuel losses

LIGHT POLLUTION

Grzegorz Góra

Cracow University of Technology, Faculty of Mechanical Engineering

grzegorz.gora@student.pk.edu.pl

A few words about the author(s):

Student of Automatic Control and Robotics at the Cracow University of Technology with a passion for observing the night sky.

Abstract:

Light pollution (LP)is characteristic of large urban agglomerations and big metropolises. Apart from influencing the quality of astronomical observations, it also influences fauna and flora. In this presentation I show the correlation between air pollution (smog) and the level of light pollution of the night sky. I present the measurement results and draw attention to possibility of reducing (LP) by consciously choosing the right type of lighting by each of us.

Keywords:

light pollution astronomy environment

MELITTIN, THE BIOACTIVE COMPONENT OF HONEYBEE VENOM: ANTICANCER, ANTI-INFLAMMATORY, ANTIMICROBIAL PROPERTIES. THERAPEUTIC APPLICATION

Sandra Graba

Student Scientific Club of Biochemists, Faculty of Biology and Biotechnology, Maria Curie-Skłodowska University in Lublin, Department of Biochemistry and Biotechnology, Akademicka 19, 20-033 Lublin

grabasandra@gmail.com

A few words about the author(s):

I am a fourth year biotechnology student at the Maria-Curie Skłodowska University in Lublin. I am a member of the Student Scientific Club of Biochemists where I build up my passion for science.

Abstract:

The aim of the work is to familiarize with the main bioactive component of honeybee venom - melittin and to discuss the therapeutic application of it based on its anticancer, anti-inflammatory and antimicrobial properties. The work will also discuss the safety of using the bee venom in practice.

Honeybee venom is produced by two glands associated with the sting apparatus of worker bees. Bee venom is a complex mixture of proteins, peptides and low molecular components. The main component of the bee venom is a protein called melittin, composed of 26 amino acid residues. The studies show that bee venom and its components have shown anti-inflammatory, anti-rheumatic, antimicrobial, analgesic and antitumor activities. For this reason, bee venom is commonly used in anticancer therapy, especially in the treatment of breast cancer. The bee venom active component melittin is also used in the treatment of Parkinson's disease, Alzheimer's disease, amyotrophic lateral sclerosis or rheumatoid arthritis.

Keywords:

honeybee, bee venom, melittin, antitumor activity, therapeutic potential

ECO-DEVELOPMENT – A CHANCE FOR THE FUTURE

Alicja Grabarz

University of Rzeszow

alicja.sroka99@gmail.com

A few words about the author(s):

I am a fifth-year student of environmental protection at the University of Rzeszow.

Abstract:

The phenomenon of eco-development was analyzed as a prospect of a chance for life on earth in the future. The concept of eco-development is presented as broadly understood respect for the natural environment through the rational use of its resources and as development taking into account the social, economic and ecological levels. In the times of an extremely rapidly developing world of technology, attention should be paid to the needs of people and nature, and thus to the existing environment-human relationship and its interactions. The discussed genesis of the term sustainable development points to the turn of the 1960s and 1970s, when the U Thant report for the United Nations revolutionized the approach to the world and it is protection. The assumptions of the discussed concept boil down to universal access to education and generally understood intra- and intergenerational justice, as well as balance. The essence of public awareness, environmental education, social inequalities and the lack of information was emphasized. Attention was also paid to the problem of environmental monitoring and wrong distribution of EU funds. Considering the whole, they constitute barriers limiting or preventing eco-development, posing a threat to the world of living organisms. The implementation of the concept of sustainable development certainly increases the chances of an optimistic vision of the future of civilization.

Keywords:

environment, development, sustainable development, human, civilization

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SEPTEMBER 17, 2022

THE USE OF THE UNIAXIAL TENSILE TEST IN THE TESTS OF STRESSES AND DEFORMATIONS OF JOINTS MADE ON ALUMINUM ALLOYS AND MAGNESIUM ALLOY – ANALYSIS OF USE IN THE AVIATION INDUSTRY

Łucja Ignac

Student of the Rzeszów University of Technology Ignacy Łukasiewicz

lucja.ignac.prz@gmail.com

A few words about the author(s):

A student of aviation and cosmonautics at the Faculty of Mechanical Engineering and Aviation at the Rzeszów University of Technology.

Abstract:

The presentation will present research on the static tensile test of joints most commonly used in aviation technology. They were prepared by means of forming - riveting, gluing, TIG welding, FSW method and clinching. Samples of metals frequently used in aviation engineering - aluminum 2014, aluminum alloy 2024, magnesium alloy AZ-31, aluminum alloy 7475, brass rivet and aluminum rivet were tested, and a two-component epoxy adhesive was prepared. The FSW joint and clinching was a butt joint, and the glued joint was made in an overlapping manner. The made joints were tested successively on the machine in a uniaxial tensile test. The test was carried out on a testing machine - a Zwick-Roell Z100 ripper with a nominal force of 100 kN and with the use of an extensometer installed in the machine, with which the elongation of each joint was tested. The diagrams of the contractual stress σ from the relative deformation ε and the dependence of the standard force F as a function of the standard path ΔL were analyzed successively - presented for the clinch joints of alloy 2014 and alloy 7475; riveted joints with brass, aluminum and torn rivets. Of all the tested samples, as expected, the highest contractual stress was obtained for welded joints.

Keywords:

static tensile test, aluminum alloys

THE IMPORTANCE OF WARM-UP AND COOL DOWN IN TRAINING SPORTS DOGS

Dominika Karasiewicz

Department of Animal Physiology and Zoophysiotherapy, Faculty of Animal Breeding and Biology, Bydgoszcz University of Science and Technology,
Prof. Sylwestra Kaliskiego 7, 85-796 Bydgoszcz, Poland

karasiewicz96@wp.pl

A few words about the author(s):

PhD student, scientific interests: Functional anatomy of dogs, biomechanics of dogs, rehabilitation of sport dog, motor preparation of sports dogs.

Abstract:

The sport of cynology is becoming increasingly popular. The development of training methods requires dogs to become faster, more agile, jump higher and endure the intensive exercises longer. However, this results in an increased risk of injury. Therefore, it is necessary to prepare sports dogs accordingly for the effort. The aim of the lecture was to illustrate the importance of warming up and cool down as key elements in the motor preparation of dogs. The presentation explains what warm-up and cool down are. The physiological changes that occur in the body of dogs during their use are also presented. The risks arising from inadequate preparation have been identified. There are also examples of exercises that can be used when warming up and cool down sports dogs.

Keywords:

warm-up, cool down, sports dogs, dog fitness

A POSSIBLE CONNECTION BETWEEN INCIDENCE OF THE SERPINE1 RS1799889 (-675; 4G/5G) POLYMORPHISM AND THE RISK OF ESOPHAGEAL CANCERS IN THE POLISH POPULATION

Anna Agnieszka Klimczak-Bitner (1)*, Jan Bitner (2), Komei Hiruta (3), Janusz Szemraj (2)

(1) Department of Biomedical Chemistry, Faculty of Health Sciences, Medical University of Lodz, Lodz 92 215, Poland
(2) Department of Medicinal Biochemistry, Faculty of Health Sciences, Medical University of Lodz, 92-215 Lodz, Poland,
(3) Graduate School of Science and Technology, Keio University, Japan

**anna.klimczak@umed.lodz.pl*

A few words about the author(s):

The study's author is a researcher at the Department of Biomedical Chemistry, Faculty of Health Sciences at the Medical University of Lodz, specializing in the field of cancer, primarily the molecular biology of esophageal cancer (EC).

Abstract:

The aim of this study is to analyze the SERPINE1 rs1799889 (-675; 4G/5G) and MMP9 T-1702A polymorphisms in esophageal cancers (EC) among polish patients (the Caucasian population). Over 80% of patients die within one year after EC diagnosis and less than 10% of patients will survive longer than 5 years. EC tissue samples were acquired from 35 patients during resection and then examined. Pieces of non-cancerous tissue were likewise extracted from the same patients at least 3 cm away from the neoplastic growth.
In order to analyze the genotype distribution of MMP9 T1702A and SERPINE1-675 polymorphisms, the RFLP method (the Restriction Fragment Length Polymorphism) was used. More details are available in the article: doi.org/10.1016/j.bbrep.2021.101147. A positive correlation between the expression of rs1799889 of SERPINE1 and alcohol abuse has been found (p=0.026). A correlation between rs1799889 and the subtype of EC developed by the patient has been shown (p = 0.001). A positive correlation between the T1702A polymorphism of MMP9 and alcohol consumption has been shown (p=0.022). The results of this study suggest that there exists a possible association between the occurrence of the SERPINE1 rs1799889 polymorphism and the increased chance of EC in the Polish population.
This research was funded by the Medical University of Lodz, Poland, Faculty of Health Sciences, grant numbers: 502–03/6-099-01/502-64-089, 503/6-086-01/503-61-001 and 503/6-099-01/503-61-001-19-00.

Keywords:

biomarker; polymorphism; esophageal cancer, rs1799889, SERPINE1 -675 4G/5G

THE ROLE OF GREEN SPACES IN THE URBAN TISSUE AND THEIR IMPACT ON THE QUALITY OF LIFE OF RESIDENTS

Adrianna Musiał

Cracow University of Technology, Faculty of Architecture

adriannamusial1234@gmail.com

A few words about the author(s):

I am a student of architecture at the Cracow University of Technology. I have currently completed the first year of my studies, second degree. I am interested in creating urban planning and interior concepts.

Abstract:

The quality of life consists not only of housing conditions or the availability of basic services, but also human aspirations and expectations regarding the surrounding space, among other things, the opportunity to commune with the natural environment. This is particularly noticeable in the context of increasing environmental awareness and population resulting from the practical application of the principles of sustainable development in various areas of life. Greenery in the space of a modern city plays an important role in shaping the image of the city, its residential and even investment attractiveness. Green areas are becoming an important element of public and private spaces - they are a kind of tool, and at the same time a challenge for architects and urban planners. Skilful integration of greenery into residential, industrial and transportation spaces not only improves the aesthetic qualities of the place, but also contributes to improving the living standards of city residents, who on a daily basis have difficult contact with the natural environment. Thus, it can be concluded that greenery, in addition to its ecological, isolating, recreational and leisure functions, is an important factor affecting the quality of life in the city.

Keywords:

green areas, recreation, quality of life, city

TESTING RESULTS OF VARIOUS MATERIALS ON A SCREEN WITH A GEARLESS EXCITER

Paweł Pater

PPiR GOSTER

pawel@goster.pl

A few words about the author(s):

Paweł Pater MSc. Mechanical Engineering – Bydgoszcz University of Technology, specializing in machine and device design. Since 2012, the president of the design and production company GOSTER Sp. z o.o. Inventor, owner of several patents.

Abstract:

The presentation is to shows the results of the research under the NCBR Smart Growth Operational Program project carried out to develop a screen model using a new concept of vibrator construction. The research focused on increasing service life of bearings by improving lubrication and optimizing heat dissipation. The concept of the screen driven by the new vibrator was developed and the optimal working parameters based on experiments were selected, on which the optimization of the screening method for various types of waste was carried out, taking into account difficult-to-screen waste, focusing on the measurements of effectiveness, efficiency, acceleration and blocking of the screening media. Based on the research, an innovative screen was developed, with a machine settings table for specific screened materials. Four patent applications were submitted (two patents granted, two applications pending).

Keywords:

screen, gearless exciter, recykling screen, vibrator screen

THE DIVERSITY OF ENTOMOPATHOGENIC FUNGI AND THEIR ROLE IN FOREST PROTECTION

Tomasz Pawłowicz

Białystok University of Technology, Institute of Forest Sciences, ul. Wiejska 45A, Białystok

tom.paw99@o2.pl

A few words about the author(s):

A forester by education, mycology and mineralogy enthusiast.

Abstract:

Entomopathogenic fungi are a group of approx. 3,000 known parasitic fungi living on arthropods. In their development, they show pathogenic properties towards given groups and species of insects, leading to the disturbance of their normal physiological processes. The development of these fungi on arthropods may be non-lethal or nonlethal in nature, disturbing their physiological functions, or causing lethal symptoms, often lethal. Research shows that mycoses caused by them are the cause of approx. 60% of mass diseases of insects. The use of entomopathogenic fungi to control pests of forest and agricultural crops has a very long history. The first known use of the fungal entomophage, and at the same time the first plant protection product, was in 1872 in Russia. These fungi can be an excellent substitute for chemical plant protection preparations, however, although the detailed mechanisms of the functioning of many entomopathogenic fungi are now known, their number in practice is still small. The reason for this phenomenon is their strong dependence on environmental factors, such as temperature, humidity, land use or access to farmers. The aim of the work below is to characterize entomopathogenic fungi as potential biological means of protection against pests of forest crops and to present examples of the use of specific species of fungi in the control of given pests of forest crops.

Keywords:

entomopathogenic fungi, forest protection, insects

CYBER-ATTACKS WITH CRYPTOJACKING

Łukasz Pietraszek

Warsaw University of Technology

lukasz.pietraszek@protonmail.com

A few words about the author(s):

My name is Łukasz Pietraszek and I am an engineer of a computer science, currently continuing my education at the Warsaw University of Technology. The main area of my interests is the Blockchain technology and cybersecurity.

Abstract:

Modern technological realities make systems security an increasingly crucial aspect of every area of life. Widespread digitization shifts a large part of public life to the web. Naturally, this causes the intensification of hacker attacks and increased activity of systems responsible for network security.

Cryptojacking is an attack method that uses devices on the network to secretly mine digital currencies at the victim's expense without the consent and knowledge of their owners. The classic cryptocurrency excavator is a computationally advanced computer hardware equipped with a large number of graphics processors, which are characterized by high computing power. Cryptojacking most often uses basic home equipment, but due to the dispersion and scalability of the attack, it turns out that by adding up all stolen resources, hackers are able to achieve similar or even better results than using cryptocurrency miners, and at the same time they do not bear high maintenance costs.

This type of attack is a relatively new phenomenon, yet it has already become one of the most popular types of cybercrime. Protection against cryptojacking is difficult because it is difficult to detect malware activity after it infects the user's device. Processes can hide their presence, often pretending to be seemingly safe and suspicious activity in the system.

Keywords:

cryptojacking, cybersecurity, cyber-attacks

POISONOUS HOUSEPLANTS FOR DOGS AND CATS

Weronika Słota*, Patrycja Walczak

Students Scientific Club "Practical Animal Toxicology", Chair of Toxicology Faculty of Pharmacy Jagiellonian University Collegium ,The University Centre of Veterinary Medicine JU-AU Jagiellonian University and Agriculture University, Cracow

**weronika.slota@student.urk.edu.pl*

A few words about the author(s):

We are 4th year students of veterinary medicine on The University Centre of Veterinary Medicine JU-AU Jagiellonian University and Agriculture University in Cracow.

Abstract:

Poisonous plants commonly grow in our nearest environment and are responsible for many poisonous events in cats and dogs. Having knowledge about morphology, the toxic profile of most often kept houseplants and symptoms of poison, could make diagnoses and treating patients much easier. In addition, spreading knowledge and increasing awareness among animal owners could prevent poisonous cases in small animals.

Keywords:

poisonous houseplants, dogs, cats

OXYTREE – THE TREE OF THE FUTURE

Anna Ślęk

University of Rzeszów

anka.slek99@gmail.com

A few words about the author(s):

I am a student of second degree of environmental protection at the University of Rzeszów. The speciality that I have chosen is the protection and management of nature resources.

Abstract:

The aim of the presentation is an ecological and economic analysis of a hybrid considered to be the tree of the future, which is still considered as controversial in Poland. Oxytree (Paulownia Clon in Vitro 112) resulting from the crossing of two Paulownia species (Paulownia fortunei x Paulownia elongata) in laboratory conditions was analyzed. The presence of this hybrid in short rotation forestry plantations was presented as a positive factor allowing to obtain satisfactory raw materials and positive environmental effects. The presentation describes the morphological features of the plant, soil requirements and the course of the in vitro process, resulting in the formation of seedlings of plants that do not reproduce generatively. The attention was paid to the natural range of many species of Paulownia and the countries to which it is introduced as a plant of foreign origin. In Poland, oxytree was not positively received by the commission of the State Council for Nature Conservation. The reason for the negative opinion was the lack of sufficient scientific research on this species and the concern about the possible invasiveness of this hybrid resulting mainly from the ability of vegetative growth, combined with the lack of natural enemies in the form of diseases and insects. The above information indicates that oxytree is a research object that requires an interdisciplinary approach covering many fields of science in order to determine the future of its presence in Poland.

Keywords:

paulownia, oxytree, short rotation forestry

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VI EDITION
SEPTEMBER 17, 2022

THE USE OF ARTIFICIAL INTELLIGENCE IN IMAGE ANALYSIS

Marcin Zagrodzki

Cracow University of Technology Tadeusza Kościuszki, Warszawska 24, 31-155 Cracow, Poland

marcin200.999@gmail.com

A few words about the author(s):

5th-year student of automation and robotics. Interested in programming and artificial intelligence.

Abstract:

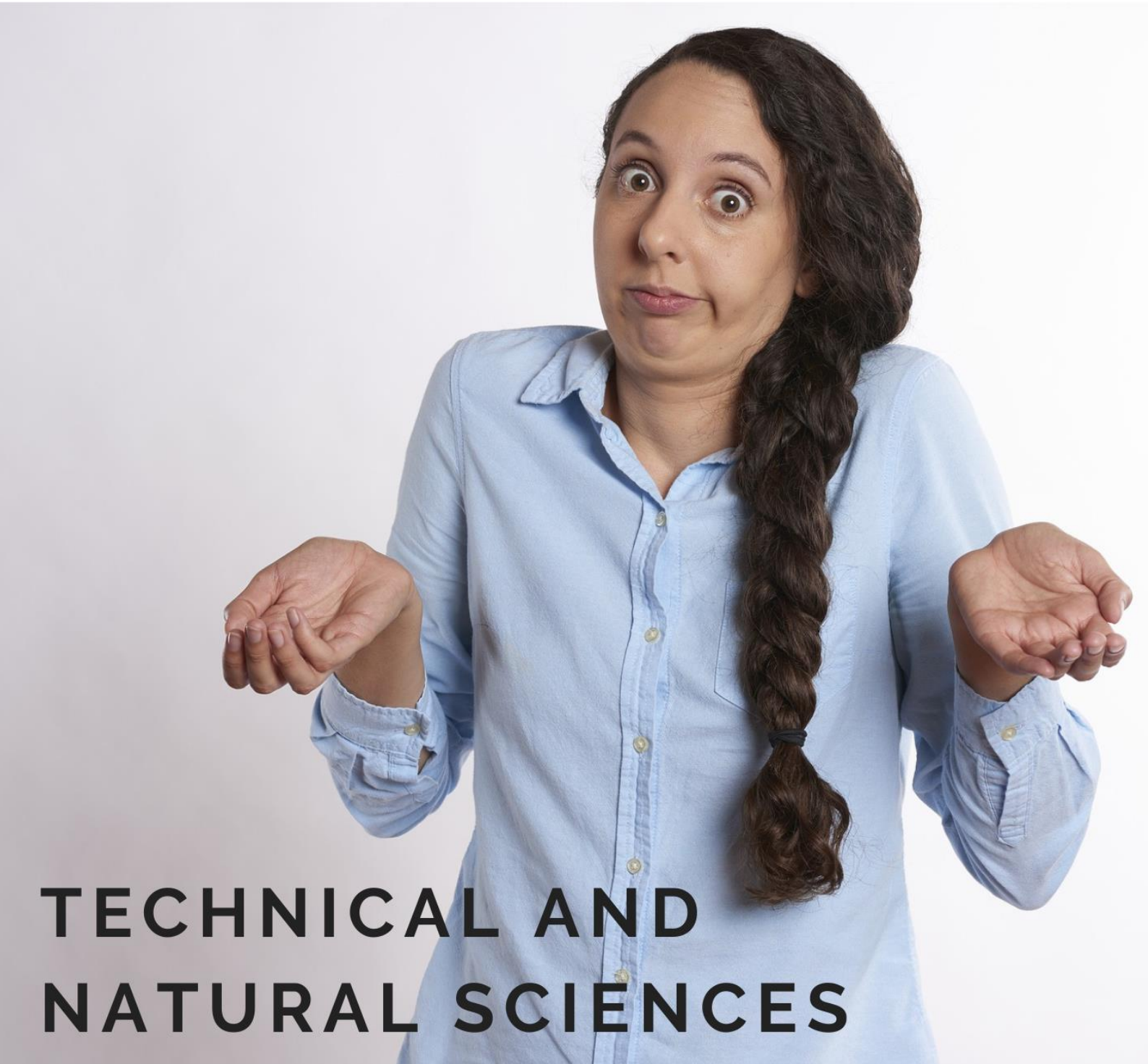
For many years, we have seen an increase in the amount of data that requires analysis. One of the popular information carriers are photos, which with the current parameters of photographic cameras are characterized by high resolution, thanks to which it is possible to see many details. At the same time, large photos such as: 4096 x 2160, significantly affect the execution time of the algorithms that operate on them and the amount of memory needed to store them. The presented algorithm of convolutional neural networks allows you to reduce the size of the image, while maintaining its details, allowing for the object recognition process.

Keywords:

neural networks, artificial intelligence, convolutional networks, machine learning

ABSTRACTS OF

POSTERS



TECHNICAL AND NATURAL SCIENCES

INNOVATIVE, FAST AND CHEAP DIAGNOSTICS TEST BACTERIAL VAGINAL INFECTION

Daniel Bigus*, Wioleta Białobrzeska, Sabina Żołędowska, Dawid Nidzworski

Institute of Biotechnology and Molecular Medicine

**d.bigus@ibmm.pl*

A few words about the author(s):

Employees of the institute of biotechnology and molecular medicine, gathering specialists in the creation and processing of devices for rapid medical diagnostics.

Abstract:

The research concerns the application and the development of the PoC (Point of Care) test for the rapid identification of Streptococcus agalactiae .The main advantage of the developed technology will be quick and specific species identification of bacteria from a vaginal smear. Due to the fact that the diagnostic panel of the test identifies Streptococcus agalactiae infections, the test will be able to be used as a routine screening test for pregnant women for GBS, which is performed after 35 weeks of pregnancy. Thanks to this, the initial treatment will be focused on the right pathogen. The result will be available after a few or several minutes during the medical visit, without the need to send the samples for laboratory tests and expectations of the results of cultures. The innovation ofthe developed test is primarily concern obtaining unique biomolecules specifically interacting with selected surface markers of diagnosed pathogens. The microsensor will be built of modified gold microelectrodes coated with specific biomolecules and/or antibodies to identify selected pathogens, thanks to using the technology of Electrochemical Impedance Spectroscopy (EIS), measuring the difference in resistance before and after the application of the test material. Thanks to the application of EIS, GynoCheck will detect already attogram amounts of antigens in a vaginal smear sample up to approx. 15 minutes.

Keywords:

nanodiamonds, glassy carbon electrode, streptococcus agalactiae, electrochemical impedance spectroscopy

BLADDERDX INNOVATIVE MULTISENSORIC DEVICE FOR DETECTION OF BLADDER CANCER

Bartłomiej Dec

UROSCAN Sp. z o. o.

bartlomiej.dec@etongroup.eu

A few words about the author(s):

Bartłomiej Dec is expert in the fields of modern electronic and optoelectronic materials design. Finished Optoelectronic specialization at Gdańsk University of technology, and continues PhD on the same department. Head of engineering team at UROSCAN.

Abstract:

BladderDX device is unique diagnostic device designed to detect cancer in urine sample. The device is compact sized with low energy consumption and can be powered by any device with USB port. Nevertheless it can detect ultra-low concentrations of proteasome in analyzed sample, thanks to integrated Single-photon avalanche detector and multichannel photodiode array. Such construction enables not only detection of low concentrations of proteasome but also analysis of specific changes in light spectrum of urine.

Keywords:

urine cancer, BladderDX, UROSCAN, photodiode, proteasome

MAGNETORHEOLOGICAL MATERIALS, PRODUCTION, PROPERTIES AND THEIR PRACTICAL APPLICATION

Anna Fenyk (1)*, Marek Zieliński (1), Ewa Miękoś (1), Dariusz Sroczyński (1), Wojciech Horak (2), Barbara Stępień (2), Ewa Chrześcijańska (3), Magdalena Lipińska (4), Anna Masek (4)

(1) University of Lodz, Department of Inorganic and Analytical Chemistry
(2) AGH University of Science and Technology in Kraków, Department of Machine Design and Technology
(3) Lodz University of Technology, Institute of General and Ecological Chemistry
(4) Lodz University of Technology, Institute of Polymer and Dye Technology

**anna.fenyk@chemia.uni.lodz.pl*

A few words about the author(s):

Anna Fenyk is PhD student at the Department of Inorganic and Analytical Chemistry of the University of Lodz. Scientific interests: inorganic chemistry, magnetochemistry, electrochemistry, environmental analytics, ecology.

Abstract:

In recent years, a lot of attention has been paid to advanced, intelligent functional materials. Smart materials are those whose properties can be controlled in external environments such as electric and magnetic fields, mechanical stress, light and heat. Among them there are magnetorheological materials whose rheological and viscoelastic properties, such as yield stress, shear stress, dynamic modules and damping properties, can be quickly and reversibly controlled by an external magnetic field [1]. These materials include fluids, gels, foams and also magnetorheological elastomers. Due to its enormous industrial potential and wide application, among others in mechanical engineering, construction, defense industry, medicine, they are very popular among many scientists in the world who are constantly researching their rheological and physicochemical properties [2].

[1] S.S. Kang, et al., Materials 13: 4597, 1-24, 2020.

[2] X. Ye, et al., Materials Research Express 8: 015701, 1-11, 2021.

Keywords:

rheological properties, magnetorological materials, application

PREFERENCES OF THE USERS OF UNDERGROUND METRO STATIONS BASED ON HIERARCHICAL CLUSTER ANALYSIS: CASE STUDY OF WARSAW, POLAND

Katarzyna Jasińska

Warsaw University of Technology, Faculty of Architecture, 55 Koszykowa St., 00-659 Warsaw

katarzyna.jasinska.dokt@pw.edu.pl

A few words about the author(s):

Katarzyna Jasińska is a Doctoral Candidate at the Faculty of Architecture, Warsaw University of Technology, Poland.

Abstract:

Underground facilities are isolated environments with a limited connection and stimulation from the outside world. Staying in their interiors, which are so different from the everyday human environment, is associated with several psychological and social problems that have significant impact on the users. The aim of the study is to recognize the perceived comfort and safety of the users of underground non-transfer metro stations located in Warsaw, Poland and to classify the stations according to the preferences of the passengers. The data for the analysis was obtained with the use of a survey carried out in front of the entrances to 28 metro stations. For each station, 50 questionnaires (n = 50) were completed, resulting in a total research sample of 1,400 respondents (n = 1,400). The cluster analysis was performed using hierarchical cluster analysis with Ward's method and the Euclidean distance approach. 3 clusters were identified. The 1st cluster (n = 23) includes stations with the average users' ratings. The 2nd cluster (n = 3) consists of stations with the highest safety ratings. The 3rd cluster includes stations with the lowest ratings both for comfort and for safety (n = 2). The results reveal that the stations vary according perceived comfort and safety, further analyses seem, however, necessary to identify specific factors that may change the levels of the users' experience.

Keywords:

comfort, safety, underground metro, Warsaw, cluster analysis

SHAPING ARCHITECTURE AND ITS SURROUNDINGS FOR THE NEEDS OF PEOPLE WITH INTELLECTUAL DISABILITIES

Kornel Kluba

"Young Urban Planning" Science Club, Faculty of Architecture, Cracow University of Technology

korklu99@gmail.com

A few words about the author(s):

2nd degree student of architecture at the Cracow University of Technology. Member of the "Young Urban Planning" Science Club.

Abstract:

Disability is an increasingly often discussed topic in space design Most often, physical disability is considered, and the greatest emphasis is placed on the elimination of spatial barriers and maximizing the accessibility of buildings and their surroundings. Mental disability is a much more subtle topic, because the designer must show extraordinary sensitivity, abstract thinking and pay attention to details that facilitate the everyday use of the object. However, the human-building relationship cannot be forgotten. All elements inside and outside buildings can not only affect the well-being of people with intellectual disabilities, but are even able to stimulate their development through, among others: the intensity of lights, textures of materials, their colors, as well as sounds or smells. The science that includes the influence of space on humans in the context of their mental health is called neuroarchitecture. This science, by combining the efforts of specialists, is able to determine how spatial conditions affect the subconscious of users, for example, facilitating concentration or evoking a specific mood.

Keywords:

architecture, intellectual disability, neuroarchitecture, psychology of architecture, mental disability

NESTING OF THE ROOK CORVUS FRUGILEGUS IN THE MUNICIPALITIES OF PLESZEW AND DOBRZYCA (GREATER POLAND) IN 2019

Jakub Kornaga

Nicolaus Copernicus University Torun

kuba-kornaga@wp.pl

A few words about the author(s):

3rd year student of medicine at the Ludwik Rydygier Collegium Medicum in Bydgoszcz of the Nicolaus Copernicus University in Toruń.

Abstract:

The rook is one of the most famous and characteristic companion birds. It belongs to the species widespread in Europe, with the most abundant populations in Russia and Great Britain. It is a medium-sized, locally numerous or very numerous breeding bird in the Polish lowlands, but there is no complete data on its number and distribution. In Greater Poland, the rook is a numerous breeding species, but its distribution in the region is uneven. The national population of this species was estimated at 250-310 thousand pairs. The decrease in the number of rooks is on average 4% per year, which qualifies the species as close to the threat of extinction in the country according to the IUCN category. Hence, it is extremely important to collect information on the number of the rook.

The number of the rook in the Pleszew poviat has been stable since 2005, in the range of 300 - 400 pairs. These birds nest on tall deciduous trees, primarily on maples Acer sp., hornbeams Carpinus sp. and black locusts Robinia sp.. In 2019, as a result of human activities, a medium-sized colony disappeared in the cemetery at Kaliska Street in Pleszew, while the creation of a new colony in the city park in Pleszew was observed.

Keywords:

rook, Corvus

ELECTROCATALYTIC DETECTION OF HYDROGEN PEROXIDE

Amanda Leda (1)*, Tomasz Rębiś (1), Michał Falkowski (2), Grzegorz Milczarek (1)

(1) Poznań University of Technology, Faculty of Chemical Technology, Institute of Chemistry and Technical Electrochemistry, Department of General and Analytical Chemistry, Berdychowo 4, 60-965 Poznań, Poland
(2) Nicolaus Copernicus University in Toruń, Collegium Medicum in Bydgoszcz, Faculty of Pharmacy, Department of Medicinal Chemistry, Dr. A. Jurasza 2, 85-089 Bydgoszcz, Poland

**amanda.leda@doctorate.put.poznan.pl*

A few words about the author(s):

Amanda Leda, Tomasz Rębiś and Grzegorz Milczarek are scientifically associated with the Poznań University of Technology. Michał Falkowski is scientifically associated with the Nicolaus Copernicus University in Toruń.

Abstract:

Increased hydrogen peroxide levels have the potential to lead to major illnesses such as cancer or heart disease. Therefore, creating effective and sensitive H_2O_2 sensors is necessary for monitoring both human health and industrial processes. The simplicity, low equipment cost, and possibility for miniaturization of the final sensing devices make an electrochemical approach the ideal instrument for monitoring H_2O_2.

High overpotentials are necessary to detect H_2O_2 on ordinary electrodes, yet doing so might result in interference from nearby chemicals. In order to overcome this disadvantage, selective catalysts such as e.g. nanoparticles or metal porphyrinoids (porphyrin or porphyrazine) are deposited. Porphyrinoids are one of these electrocatalysts that have received a lot of interest lately. The central metal ion (such as Co, Fe, or Ni) and the substituents linked to the macrocyclic rings both affect the desired electrocatalytic capabilities.

As part of the conducted research, a sulfanyl porphyrazine derivative with peripheral phthalimide moieties was metallated with iron(II) metal ions. To obtain hybrid electroactive materials, novel porphyrazines were combined with multi-walled carbon nanotubes. The electrocatalytic effect derived from iron(II) cations were evaluated. The prepared sensor enables a linear response to H_2O_2 concentrations of 1–90 μM. These results indicate that the obtained sensor could potentially be applied in biomedical and environmental fields.

Keywords:

porphyrazines, multi-walled carbon nanotubes, electrocatalytic detection, hydrogen peroxide

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SEPTEMBER 17, 2022

DETERMINATION OF THE PH VALUE BY MEASUREMENT OF THE CAPACITANCE

Przemysław Łukasiewicz

SensDx S.A. ul. Postępu 14B, 02-676 Warszawa

Przemyslaw.lukasiewicz@sensdx.eu

A few words about the author(s):

M.Sc. in Mechatronic. Embedded developer and mechanical engineer. Assistant Manager of the Product Development Department.

Abstract:

There is no diagnostic test on the market for the bacterial infection of the upper respiratory tract. In such cases, antibiotics are used, and only in the absence of positive treatment results an antibiogram is requested and results are available after a few days. During this time, untreated infection leads to significant deterioration of a patient's health and increases the risk of complications. The main advantage of the developed test will be the species identification of bacteria from the throat swab with simultaneous analysis of the antibiotic resistance profile. As a result, the initial treatment will be lead with antibiotics to which the strains will not be resistant. The test will be quick and simple to carry out.

The aim of the project is the development and implementation of the market of PoC (Point of Care) devices for the rapid identification of Streptococcus pyogenes and Streptococus pneumoniae with simultaneous identification of antibiotic resistance genes.

The test result is determined by the color change and the change in pH value. This pH change is detected as a change in capacitance, represented by the formula: $C = (\varepsilon 0\ \varepsilon r\ A)/d$. Vacuum permittivity ($\varepsilon 0$), the area of the capacitor (A) and the distance between the electrodes/plates (d) are constant in our measuring device. The tested sample changes the pH value, which changes the relative permeability and thus the capacity. Funding by The National Centre for Research and Development POIR.04.01.02-00-0018/18-00

Keywords:

measurement of pH, measurement of capacitance, Capacitive pH Sensors

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SEPTEMBER 17, 2022

APPLICATION OF THE SURFACE WAVE TECHNIQUE TO THE STUDY IN LAYERED SOFT MATERIALS

Michał Rosiak*, Mariusz Kaczmarek

Faculty of Mechatronics, Kazimierz Wielki University, Kopernika 1, 85-074 Bydgoszcz, Poland

**mrosiak1@ukw.edu.pl*

A few words about the author(s):

Graduate of mechatronics and currently a PhD student at the Kazimierz Wielki University in Bydgoszcz. Responsible for designing and developing equipment.

Abstract:

Surface waves in layered materials are characterized by the dependence of the dispersion curve on the shear stiffness and layer thickness. It is a well-confirmed fact and used for the identification of parameters in the layered tests of materials with significant stiffness, such as rocks, concrete or metals. The question is whether surface wave methods can be a similar tool for soft materials. In order to check this, a simple test setup was built, gel samples were prepared, and preliminary surface wave propagation studies were performed. The results of these research present the example of the dispersion curves obtained for gels with two layers.

Keywords:

surface waves, layered materials, dispersion, shear stresses

DEFORMABILITY ANALYSIS OF HIGH STRENGTH CUMG ALLOYS CHARACTERIZED WITH HIGHER THAN COMMERCIALLY USED WT. % OF MG

Paweł Strzępek

AGH University of Science and Technology, Faculty of Non-Ferrous Metals, Mickiewicza Av. 30, 30059 Kraków, Poland,

strzepek@agh.edu.pl

A few words about the author(s):

The author is a PhD candidate at the AGH University of Science and Technology, Faculty of Non-Ferrous Metals. His scientific field includes obtaining the new alloys, defining their properties and research on metal working processes.

Abstract:

An increasing demand for electricity conducting materials caused by growing demand for electrical energy made it necessary to improve existing materials and develop a new type of alloys such as CuMg alloys with high wt. % of magnesium. The obtaining of such alloys using metallurgical synthesis have been proved to be possible in several scientific publications, however, processing of the obtained ingots or cast rods is still to be questioned. The proposed paper is dedicated to the susceptibility to deformability during cold working of CuMg alloys with Mg content ranging between 2 and 4 wt. %. The conducted uniaxial compression tests determined at what Mg content and with what amount of deformations fractures occurred. The materials were analyzed in four various states, i.e. as-cast state, after homogenization and supersaturation, after drawing process in a single draw with λ=1.2 and after drawing and recrystallization. The obtained results made it possible to analyze basic properties such as hardness and electrical conductivity and their evolution as the material changed due to the tests it was subjected to. The analysis of the results made it possible to determine the possibility of fracture occurrence during the deformation process and the prospective final properties of the designed material.

The authors are grateful for the financial support provided by The National Centre for Research and Development – Research Project No. LIDER/33/0121/L-11/19/NCBR/2020.

Keywords:

copper alloys, CuMg, deformability, metal working

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SEPTEMBER 17, 2022

DISCHARGE STEP INFLUENCE DURING FORMATION OF LEAD-ACID BATTERY ON ELECTRICAL PERFORMANCE

Sławomir Walkowiak (1, 2)*, Marcin Wachsmann (2), Jakub Wolańczyk (2), Grzegorz Lota (1)

(1) Poznan University of Technology, Institute of Chemistry and Technological Electrochemistry, Poznan, Poland
(2) Exide Technologies, Poznan, Poland

**slawomir.walkowiak@exidegroup.com*

A few words about the author(s):

Senior Process Engineer on Europe in Exide Technologies. In lead-acid battery industry since 2017. Student of Doctoral School of Poznan University of Technology since 2021.

Abstract:

Nowadays lead-acid battery manufacturers research for more efficient and less energy consumption production methods. One of the most energy consumption process step in lead acid battery production is formation process. Every lead-acid battery before usage needs to be charged with significant amount of energy. This work focuses on discharge step during formation influence on basic electrical parameters like OCV, IR, C20, and CCA for EFB battery type. Initial study shows, that usage of discharge step during water bath formation of EFB lead acid battery improves electrical performance in terms of capacity, cold cranking and open circuit voltage drop in time. Chemical analysis of positive plates after formation shows higher amount of PbO_2 and lower amount of $PbSO_4$ which suggests more efficient process with usage of this same amount of energy.

Keywords:

lead-acid battery, formation, discharge

THE USE OF HYDROXYAPATITE TO REMOVE TOXIC IONS FROM WATER AND SEWAGE

Piotr Warchał

Maria Curie-Skłodowska University in Lublin

piotrwar98@gmail.com

A few words about the author(s):

A graduate of undergraduate studies at the Faculty of Chemistry at the Maria Curie-Skłodowska University in Lublin.

Abstract:

The use of hydroxyapatite as an adsorbent for the removal of heavy metal ions from water and wastewater generated in the processes of pollution by the activities of production industries.

Keywords:

hydroxyapatite, water purification, heavy metals

WOOD: CLT TECHNOLOGY IN HIGH-RISE CONSTRUCTION

Patryk Włodarczyk

Young Urban Planning Science Club, Cracow Univeristy of Technology

wlodarczyk00@gmail.com

A few words about the author(s):

Student of the Faculty of Architecture at the Cracow University of Technology.

Abstract:

Due to the limited resources of building materials, wood is considered the material of the future. Modern technologies such as CLT-cross laminated timber use the tradition of wooden construction. Wood as a renewable material is part of sustainable development. High-rise construction is increasingly using wood as a construction material. CLT overcomes the natural limitations of untreated wood, such as warping and the dimensional limitations of solid material.

Keywords:

wood, CLT

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"UNDERSTAND THE SCIENCE"
VI EDITION
SEPTEMBER 17, 2022

METAL WORKING PROCESSES OF HIGH STRENGTH CUMG ALLOYS ANALYZED USING FINITE ELEMENT METHOD ANALYSIS

Małgorzata Zasadzińska*, Paweł Strzępek

AGH University of Science and Technology, Faculty of Non-Ferrous Metals, Mickiewicza Av. 30, 30059 Kraków

**malgozas@agh.edu.pl*

A few words about the author(s):

The author is an assistant professor at the AGH University of Science and Technology, Faculty of Non-Ferrous Metals. Her scientific field includes defining the properties of alloys, research on metal working processes and deformability of materials.

Abstract:

Modern industry is focused among others but not limited to the efficiency of the manufacturing process. Which is why, when a new material is being designed it is necessary to assess its susceptibility to prospective metal working processes to the form of a final product. Conductive materials with copper matrix usually find their origin in various casting lines and the obtained cast rods or ingots are used as batch material for further drawing, rolling or cold/hot die forging processes. The study presents results concerning numerical analysis of the cold working processes of CuMg alloys with various Mg content (2 – 4 wt. %). Using Finite Element Method (FEM) simulations possibility of fracture occurrence was determined during plastic working. The conducted analysis allowed to determine the prospective forces occurring during the process. The analysis of the obtained results made it possible to verify the best geometry of the tools, i.e. the drawing half angle and the bearing length of the drawing die. All the analysis were based on the experimental data regarding the Ultimate Tensile Strength of the alloys in order to estimate whether or not the fractures would occur and thus the possibility of subjecting the designed materials to metal working processes.

The authors are grateful for the financial support provided by The National Centre for Research and Development – Research Project No. LIDER/33/0121/L-11/19/NCBR/2020.

Keywords:

copper alloys, CuMg, Finite Element Method, metal working processes

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Oferujemy wydruki książek abstraktów, książek artykułów oraz monografii naukowych z nadanym numerem ISBN

ISBN: 978-83-963887-5-9

ISBN 978-83-963887-5-9
9 788396 388759