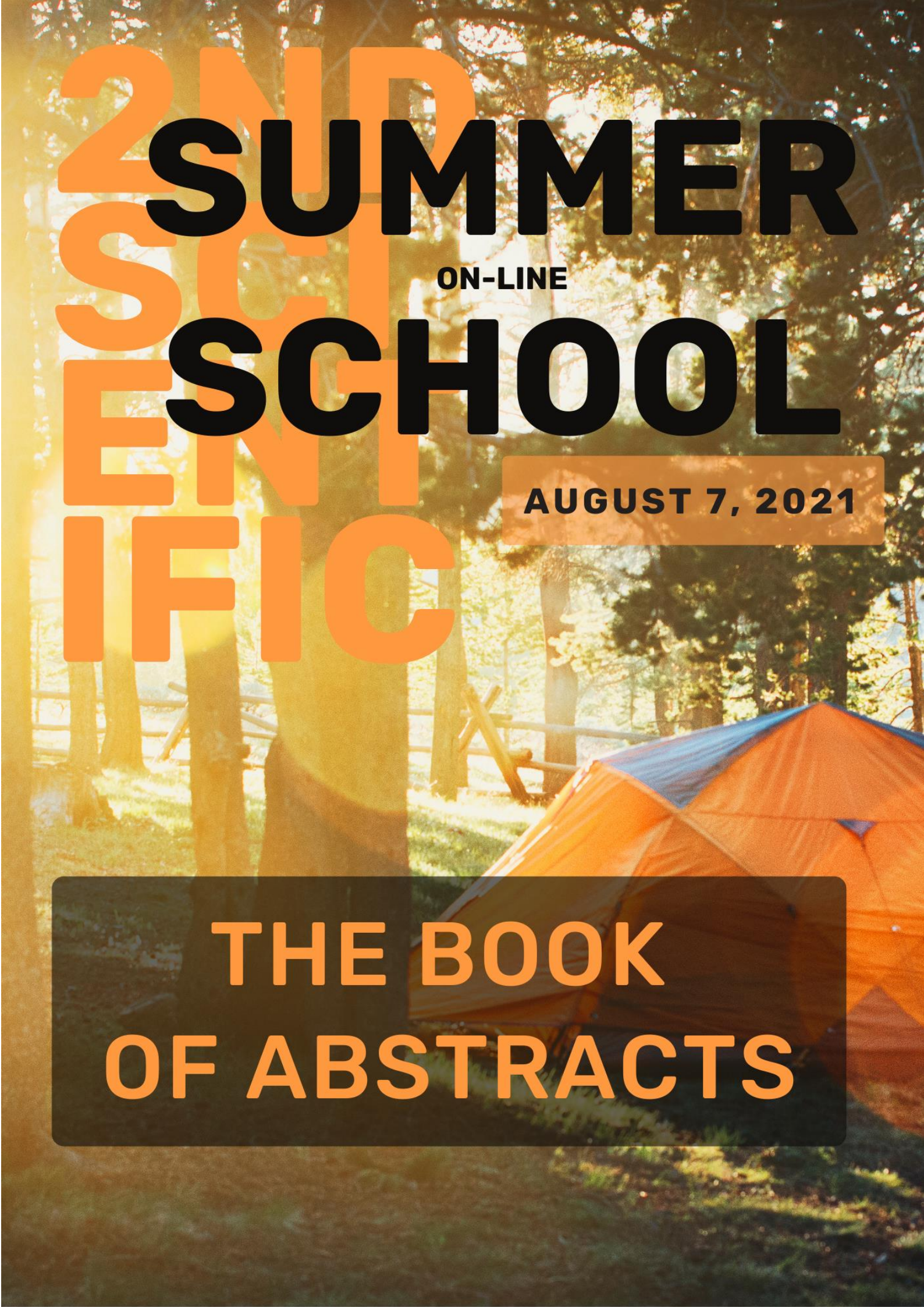
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TABLE OF CONTENTS

HUMANITIES SCIENCES PRESENTATIONS

HUMANITIES SCIENCES POSTERS

MEDICAL SCIENCES PRESENTATIONS

MEDICAL SCIENCES POSTERS

NATURAL AND TECHNICAL SCIENCES PRESENTATIONS

NATURAL AND TECHNICAL SCIENCES POSTERS

ABSTRACTS OF

PRESENTATIONS

HUMANITIES

SCIENCES

MACHINE TRANSLATION POST-EDITING (MTPE) FROM THE PERSPECTIVE OF TRANSLATION TRAINEES: IMPLICATIONS FOR TRANSLATION PEDAGOGY

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A few words about the author(s):

University of Białystok, Faculty of Philology, Master's degree student. Area of interest: post-editing of machine translations, translation pedagogy, technology and translation studies.

Abstract:

A common feature of past research is the effort to adapt to the ever-changing conditions of translation technologies. In contrast, this paper attempts to apply the current research findings to post-editing machine translation activities. The purpose of the study is to analyse the performance of three MTPE tasks by the students of English Philology with Translation Studies at the Faculty of Philology of the University of Białystok and post-task interviews to determine the need to promote post-editing machine translation skills in the education of translation students. The study's findings are intended to serve as an addition to the state of knowledge on MTPE training from the participants' perspective and the implications for translation pedagogy. Based on the current state of knowledge, the author hypothesised that there is a need to promote post-editing machine translation skills, which should be improved in training translation students.

Keywords:

MTPE training, translation pedagogy, translation technology, post-editing, machine translation

DESIGN THINKING IN THE SCHOOL AS A WAY TO CREATE A CREATIVE SCHOOL

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Aneta Duda is a PhD student at the SWPS University of Social Sciences and Humanities (SWPS University) in Warsaw. She is the Innovation Manager at the Copernicus Science Center. She works in particular with the Copernican Revolution Workshop.

Abstract:

How to facilitate training to enable the model to be learned? Firstly, make employees more sensitive to changes in subjects such as: science and culture. The main question here is: can Design Thinking apply the method in the creation of modern education? The teacher is the driver of change in education. A brave teacher for whom change means school development and the right of the future. We need such heroes! We need them a lot. How to start then? Carrying out the preparation through the design process from the design method. Design thinking is a creative courage to train in school.

Keywords:

design thinking, creativity, innovations, education, active methods

RELATIONAL INFORMATION IN EVALUATIVE CONDITIONING. MEDIATOR OR MODERATOR?

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A few words about the author(s):

Psychology student at the University of Warsaw. Interested in philosophy.

Abstract:

Evaluative conditioning (EC) is defined as the change in the evaluation of a conditioned stimulus (CS) due to its pairing with a valenced unconditioned stimulus (US). Balas, Gawronski and Hu conducted a series of experiments concernig role of relational information on EC effects. They found that explicit evaluations reflect relational information, whereas implicit attitudes are compatibile with co-occurence of stimuli. Authors suppose that discrepancy between evaluations may be due to problems with integration of relational information. To test this hypothesis, I designed an experiment investigating whether inteligence level has an impact on EC results. To measure general inteligence (G factor) proposed by Spearman, I use Raven's Matrices. If the hypothesis is right, people with higher inteligence level will manage to integrate relational information. Thus, they will develop consistent attitudes on both implicit and explicit level. Contrary, attitudes of respondents with lower capabilities would reflect relational information on explicit level but co-occurrence of stimuli on implicit level.

Keywords:

evaluative conditioning, propositional account, dual-process account, relational infromation

ESTONIAN CIT - "(DIS) FAVORABLE SOLUTION" AND PROPOSED CHANGES IN "NEW DEAL"

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Law student at Nicolaus Copernicus University in Toruń. Interested in tax and bussines. General Manager at Polish Foundation of the Space Industry (PFPK). One of the winners of the ninth edition "Tax Leaders" organised by Ministry of Finance.

Abstract:

The subject of Estonian CIT is a matter of pride in the economic activities of the government. However, there are many specific and diverse opinions on the aforementioned topic. It is an attractive subject of legal considerations and research.

This study will examine the current legal order of a narrow part of income taxes, Corporate Income Tax (CIT). The corporate income tax regulation in Estonia is one of the best examples of simple and modern tax solutions. At the same time, it is a flagship show of Estonian's welcome for international investors. The aim of the study is to compare both tax implementations, the Estonian and the Polish one.. We will focus on finding differences and similarities with formal and dogmatic methodology, supplemented with comparative legal studies. Additionally, we will consider the validity of the regulations adopted by both systems and their economic axiology.. The lecture has been divided into appropriate sections, in which the essence and meaning of Estonian CIT will be analysed. Furthermore, we will also look closely at what are the hypothetical and real consequences of the Estonian CIT. The analysis will be conducted using specific case studies, to realistically illustrate the effects. This issue of Estonian CIT has a real impact on the functioning of businesses from the point of view of the tax system. In addition, the proposed changes to the Estonian CIT listed in the "New Deal" will be analysed.

Keywords:

Corporate Income Tax, Estonian CIT, comparative studies

DIFFERENT PERCEPTIONS OF THE THREAT OF RADIOACTIVITY IN THE CONTEXT OF THE DEBATE ABOUT USING NUCLEAR POWER PLANTS TO MITIGATE CLIMATE CHANGE

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A few words about the author(s):

I am a social anthropologist interested in relations between humans and the environment. In my research, I use ethnographic competencies gained during my studies and developed in numerous field studies in which I have participated.

Abstract:

I present various perceptions of the threat of radioactivity as a source of conflict around the use of nuclear power to reduce greenhouse gas emissions and mitigate the effects of climate change by reducing the use of fossil fuels for energy production. I take at beginning the debate around nuclear power in contemporary media, then use discourse analysis to examine culturally embedded discourses of fear of the threats of radioactivity, and propose a shift in the conceptual categories used to describe human relations with the environment using a new conceptual apparatus proposed by multispecies ethnography. Finally, I answer the question of why we should include the achievements of the humanities and social sciences in the study of the environment, which would help to shed new light on the problems of these relations and, in the context of the subject of this article, help to solve the dilemmas related to the use of nuclear power plants for energy production as an alternative to conventional sources.

Keywords:

nuclear power generation, discourse analysis, renewables, natureculture

ANIMAL ASSISTED INTERVENTION AS AN INNOVATIVE METHOD TO COMPLEMENT THE THERAPY OF AUTISM SPECTRUM DISORDERS

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A few words about the author(s):

I am a speech therapy student whose goals are focused on furthering my knowledge of speech therapy and learning about alternative methods of working with patients with various disorders. I consider this speech as the beginning of my academic career.

Abstract:

Autism spectrum disorder (ASD) is a neurobiological disorder characterized by abnormal development noted before the age of three. Typical symptoms of ASD include pathological social functioning, as well as restricted and stereotyped motor activities. ASD is holistic and occurs in a variety of conditions independent of the environment. Therapy of autism spectrum disorders is a rapidly developing field that is being improved and enriched every year with new methods that can be incorporated into the therapeutic process. Animal Assisted Intervention is an innovative complementary method in the treatment of autism spectrum disorders with goal-oriented and structured interventions that intentionally incorporate animals into health, education, and human services to achieve therapeutic benefits and improve health and well-being. The purpose of this study is to demonstrate the impact of Animal Assisted Intervention on the mental, physical, and emotional domains of patients with autism spectrum disorders. On the basis of collected data it can be concluded that Animal Assisted Intervention is an effective method supporting therapy, having positive influence on physical, cognitive, behavioural and social-emotional functioning of patients with ASD.

Keywords:

autism, animal assisted intervention, therapy

THE OLENDERS SETTLEMENT IN POLAND. PRIVILEGES GRANTED TO THE INHABITANTS OF THE VILLAGE OF OTOROWO

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I am a second-year student of MA studies at the Nicolaus Copernicus University in Toruń, majoring in History. I graduated from the 1st degree studies at the University of Warmia and Mazury in Olsztyn, majoring in tourism and recreation.

Abstract:

The 16th century is a period of increased settlement in the Polish lands. The Olenders were people mainly from the Netherlands and Friesland. The reason for their migration was sectarian persecution during the Reformation. The first settlers were the Mennonites, a quiet and hardworking society who willingly settled in difficult areas, often flooded and marshy. The Olenders specialized in draining the land, using the melioration technique. In order to encourage Mennonites to live, they were granted special privileges, guaranteeing freedom of religion and determining the conditions of settlement. The aim of presented work is the analysis of the document of the renewal of privileges for settlers from the village of Otorowo from 1685.

Keywords:

Olenders, Mennonites, privileges, Otorowo, settlement in Polish lands

VIRTUAL FRIENDSHIPS – OPPORTUNITY AND THREATS

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A few words about the author(s):

I graduated from BA studies in applied rhetoric and MA studies in Theology at the John Paul II Catholic University of Lublin. In 2016, I started the PhD studies in the field of Media Education, also at the same university.

Abstract:

The emergence and popularization of the internet has revolutionized social life. Many people started renewing old friendships and making new ones. However, can we trust of what people write about themselves on the pages of social networks? Experience shows that we are more willing to share positive experiences, we rarely mention failures. As a result - for the purposes of media image, we create an alter ego. The subject of the presentation will be to share reflections on, the dangers of making friends on the internet, and to provide conclusions that can help us protect ourselves against threats.

Keywords:

internet, relationship, media literacy, social media

HIGH TECHNOLOGIES AND THEIR IMPACT ON CHILDREN'S DEVELOPMENT

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A few words about the author(s):

I am a third year student of speech therapy at the University of Warmia and Mazury in Olsztyn. I am interested in speech disorders associated with neurological problems.

Abstract:

In our times smartphones and tablets are one of the most popular gadgets among children. Since an early age children has communed with high technologies. They have a great impact on kids' development. The aim of this presentation is to show effects connected with using high technologies in raising the youngest children. This presentation has an overview character. Author based on the latest research and publications related to the high technologies and their impact on the children's development, especially speech and cognitive functions development. Research has shown that children who are exposed to high technologies, especially during infancy exhibit many specific behaviors like delays in motor and speech development, slower intellectual and social development.

Keywords:

technology, children, development, speech

SUPREME AUDIT OFFICE – SPECIFICS OF A CONSTITUTIONAL BODY

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A few words about the author(s):

Graduate of Spatial Management at the Faculty of Oceanography and Geography. Main interests are reading, pondering over the genesis of phenomena, searching for answers and possibilities of development of countries and nations.

Abstract:

Financial control bodies are key to ensuring legal action by individuals in any institution where public finances are handled. In Poland such a body is the Supreme Audit Office headed by an apolitical President who directs the rest of the constituent bodies of the Office. The purpose of this article is to present the specificity of the operation and organization of the Supreme Audit Office by indicating the guidelines set out by the legislator in the Constitution of the Republic of Poland of 2 April 1997, in the Act on the Supreme Audit Office of 23 December 1997 and in the Ordinance of the President of the Supreme Audit Office on the detailed internal organization and jurisdiction of organizational units of the Supreme Audit Office of 29 August 2011 and in selected thematic sources. The article uses the method of research of documents by collecting, selecting and describing the interpreted reality.

Keywords:

Supreme Audit, office, structure, finance

INTERPERSONAL DIFFICULTIES IN PEOPLE WITH CLUSTER C PERSONALITY DISORDERS

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A few words about the author(s):

Psychology student, Jan Kochanowski University in Kielce.

Abstract:

People affected by personality disorders have difficulty in building the correctly functioning and satisfying interpersonal relationships. Individuals meeting the criteria of avoidant personality disorder, dependent personality disorder and obsessive-compulsive personality disorder exhibit a high level of anxiety and worry, which has a considerable impact on the quality of interpersonal contact. The paper discusses the difficulties in interpersonal relationships faced by people with cluster C anxious-fearful personality disorders.

Keywords:

personality disorders, interpersonal relationships

THE QUESTION OF RELIGION IN THE THOUGHT OF C.G. JUNG

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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 article is to analyze the religious views of Carl Gustav Jung, Swiss psychiatry, scientist and philosopher. The basis of my article are the publications of C.G. Jung: "Memories, Dreams, Thoughts", "Psychology and Alchemy", "Archetypes and Symbols". In the article, I explain the concepts that are important for understanding Jungian thought: the image of God, the self, the symbol. They are inextricably linked with his religious views. He was interested in religious symbolism. When speaking of religion, he meant religious experience, which was seeing God in oneself. I conclude that Jung understood God differently from the rest of society. For him, God is truth, transcending himself. It is achievable by every human being because every human being experiences transcendence.

Keywords:

religious, transcendence, Jung

SUBLIME THE VIOLENCE – HEROES OF MARVEL

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A few words about the author(s):

Master of cultural studies.

Abstract:

Who is the hero. Why the violence in our time has become so sublime. The hero is always portrayed as amazing person. But we never think about the violence, when we think about heroes. And now it needs to be changed.

Keywords:

violence, sublimity

POLITICAL CRISIS IN VENEZUELA

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A few words about the author(s):

PhD student at Faculty of Social Science, University of Wroclaw. I am interested in international crises and conflicts.

Abstract:

Different types of crises are phenomena commonly occurring and they can affect any country in the world. Venezuela is an example of a country suffering from a socio-economic and political crisis. The economic crisis in Venezuela was caused by many years of neglect of industries other than the oil sector. This led in conjunction with a decrease in the price per barrel of crude oil to reduce revenues to the state budget. The value of the gross domestic product is falling, inflation is at a very high level and public debt is rising. This led to the dissatisfaction of Venezuelans of the conditions in which they must live. They went out on the streets of Venezuela's major cities to protest against poor conditions in the country. The political crisis in Venezuela began in 2019. Currently, there are two parliaments and two presidents. The international community is divided, the majority recognize Guaidó as interim president (the United States, most EU member states), and several countries (Russia, China) support the presidency of Maduro. The situation in Venezuela is getting worse every year. More and more people live in extreme poverty or emigrate to neighboring countries in search of better living conditions. The situation that is currently taking place in Venezuela is very difficult to solve. The aim of presentation is to present the possibility of ending the political crisis in Venezuela in the near future.

Keywords:

Venezuela, political crisis

VALUATION OF THE NEO-GOTHIC CHURCH OF THE GOOD SHEPHERD IN THE KARB DISTRICT OF BYTOM, BASED ON AN ANALYSIS VALUING WALTER FRODEL

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A few words about the author(s):

Graduate of the MA studies in theology (2009), MA studies in the protection of culture (2020), PhD student in theology. Interests: sacred architecture, monument protection, the concept of beauty.

Abstract:

The historical value analysis (ZAW for short) aims to indicate the main values of a given architectural monument. Among them, historical, artistic and functional values should be mentioned. In historic sacred architecture, these values are often combined with symbolic and memorative content. ZAW is the basis for making decisions related to conservation work, greater care and protection of a given monument. The aim of the article is to indicate the values that are represented in the neo-Gothic church of Good Shepherd in the Bytom district of Karb. Since the mid-twentieth century, this facility has been systematically damaged as a result of mining damage. The valuation of the temple in Karb using the ZAW research method is the first attempt of this type, and the values recognized and described in the article confirm the need for further conservation work on this church and its preservation for future generations.

Keywords:

monument, valuation, values, sacred architecture

ARCHITECTURAL STYLE TRENDS IN THE 19TH AND THE BEGINNING OF THE 20 CENTURY WITH PARTICULAR ATTENTION TO THE SACRED CATHOLIC ARCHITECTURE OF UPPER SILESIA

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A few words about the author(s):

Graduate of the MA studies in theology (2009), MA studies in the protection of culture (2020), PhD student in theology. Interests: sacred architecture, monument protection, the concept of beauty.

Abstract:

The nineteenth century and the beginning of the twentieth century was a period in which religious architecture flourished. This tendency was particularly evident in the dynamically developing, industrial areas of Upper Silesia, where several dozen neostyle churches were built. The aim of the article is to present the stylistic trends of Roman Catholic parish churches built in the indicated time period. First, the foundations of the applied style diversity will be presented, with particular emphasis on historicism and the development of the neo-Gothic within it. Then, examples of neo-style realizations will be given, mainly from the achievements of two architects – Paul Jackisch and Ludwig Schneider. This will be done on the basis of the analysis and synthesis of information contained in the literature on the subject, as well as the author's own research and observations.

Keywords:

sacred architecture, historicism, neo-Gothic, Upper Silesia, style trends

LANGUAGE AWARENESS IN VIEW OF YEARS OF EXPERIENCE IN THE TRANSLATOR PROFESSION

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A few words about the author(s):

Eliza Illukiewicz is a Ph.D. candidate at the Faculty of Philology at the Jagiellonian University in Cracow and a lecturer at the WSB University in Dąbrowa Górnicza. Author of foreign language vocabulary workbooks Verbook.

Abstract:

The paper aims to research the language awareness of professional translators. In the research quantitative method was used. More than 150 professional translators answered the questionnaire. The paper discusses questions such as: Is there any correlation between the number of years of experience and the level of language consciousness? Is higher the confidence of the language among more experienced translators? How often do professional translators check queries connected to their mother tongue? Which group of translators most often checks the doubts related to the mother tongue?

Keywords:

linguistic awareness, translator, translator experience

EDUCATION OF POLISH FREELANCE TRANSLATORS. THE RESULTS OF THE QUESTIONNAIRE

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Eliza Illukiewicz is a Ph.D. candidate at the Faculty of Philology at the Jagiellonian University in Cracow and a lecturer at the WSB University in Dąbrowa Górnicza. Author of foreign language vocabulary workbooks Verbook.

Abstract:

The aim of the presentation is to present the educational background of Polish freelance translators with special interests in higher education. To identify the most common educational background the quantitative research was conducted. Participants were asked several questions connected to their competencies and training such as level of education, years of experience as a translator, the type of contract, or working conditions, among others. More than 150 professional translators answered the questionnaire. The results seem to indicate that 97% of Polish translators possess higher education qualifications. Out of which 66% had a specialization in translation. It is clear that Polish translators are well-educated and specialized in their profession.

Keywords:

translator education, freelance translator, translator competences

GENERATION Z: YOUTUBE AS A GLOBAL CLASROOM FOR EFL LEARNERS

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A few words about the author(s):

Arthur S. Laskowski – studied, lived and taught in the USA and South Korea. He has more than 20 years of classroom experience, as a ESL and EFL, special education teacher. He holds and MBA degree, and works as an independent business consultant.

Abstract:

Due to the global spread of coronavirus (COVID-19) there will be increasing reliance on online learning for Generation Z age, English as a Foreign Language (EFL), learners. There are some key considerations important to take into account when relying on online instruction aimed at the Generation Z cohort. From my perspective, as a, veteran classroom-practitioner and a linguist, I propose 4 key considerations for educators to take into account when creating, implementing and supporting students' learning through YouTube approach.

Keywords:

Generation Z, EFL teaching, learning through YouTube

MAPPA MUNDI IN THE JAKUB OF KOWALEWICE'S CODEX IN THE COLLECTIONS OF THE UNIVERSITY LIBRARY IN POZNAŃ

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A few words about the author(s):

A graduate of the Adam Mickiewicz University in Poznań, passionate about medieval history. Researcher of the relatives of Jakub from Kowalewice.

Abstract:

In the presentation, briefly presents the code containing the discussed mappa mundi and a brief information about the author of the manuscript. Then the scheme and history of T-O maps, the purpose of maps in the Middle Ages and the biblical references inscribed in the map were discussed. The following slides presents the list of lands included in the map in the codex of Jakub of Kowalewice, its origin, discussion and comparison of analogous texts from copies included in the copies of Historia Brittonum. Interesting, not obvious and unclear lands included in the list were also indicated.

Keywords:

Jakub of Kowalewice, manuscript, map, T-O, historia Brittonum

COMMEMORATION OF THE HOLODOMOR IN UKRAINE IN 1991-2014

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A few words about the author(s):

Przemysław Mirosław Pazder – a graduate of the Pomeranian University in Słupsk. Area of interest: the subject of the Holodomor and Poles in the USSR in the interwar period.

Abstract:

In retrospect, it can be seen that as a consequence of a number of political actions (and the failure to take any other actions), the Ukrainian culture of memory in the first years of Ukraine regaining independence was of a dual nature, with both parts usually functioning in parallel, without communicating with each other. Since the mid-1990s, the culture of remembrance in Ukraine was one of the main arenas in which two great political camps – the post-communist and the national-liberal – clashed.

Keywords:

Holodomor, Ukraine, USSR

MEMORIALS OF THE GREAT FAMINE AROUND THE WORLD

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A few words about the author(s):

Przemysław Mirosław Pazder – graduate of the Pomeranian University in Słupsk. Area of interest: Holodomor in Ukraine and Poles in the USSR in the interwar period.

Abstract:

The presentation presents an iconographic analysis of seven selected Holodomor monuments: in Lubnie (1993), two in Kiev (1993, 2002), in Edmonton (1983), in Winnipeg (1984), in Krakow (2008) and Washington (2015). Each is an example of a characteristic example of the historical period in which it was created. It was in 1982 that for the first time in the world a competition for the construction of the Holodomor monument was announced, as a result of which two monuments were erected in Canada based on the winning designs. All previous initiatives were local, intra-community initiatives.

Keywords:

Edmonton, Ukraine, victoms, Holodomor

MOTIVATION AND ITS ROLE IN THE LEARNING PROCESS

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A few words about the author(s):

The author is a lecturer at the State Higher Vocational School in Nowy Sącz, a long-term teacher, also an interpersonal communication trainer, as well as a career advisor.

Abstract:

Motivation means all the mechanisms that are responsible for triggering, sustaining, and stopping behaviors. Numerous psychological studies of students' mental barriers have become the basis for identifying factors that may significantly affect the course of the teaching process. The most important ones include: shame related to participating in a situation that the learner assesses as artificial, shame experienced in connection with being assessed and observed, fear of failure, wrong attitude and misunderstanding of the learning process, ignorance about the practical application of acquired skills, strong conformism of the individual, schematics of perception and rigidity of thinking, the level of self-esteem and self-control. These conditions should be identified earlier in employees, pupils or students. A task can be viewed in two ways: as the result that a person wants to achieve or as an image of a goal that someone is setting on the way to achieving a certain result.

Keywords:

motivation, learning, determination, result, barriers

STYLING AND AESTHETICIZATION OF BODY WITHIN THE PROCESS OF MANIFESTING IDENTITY IN THE POSTMODERN EPOCH

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A few words about the author(s):

A PhD student at Sociology department of the Catholic University of Lublin. Her research focuses on the function of bodily aestheticization in creation of façade in consumer society.

Abstract:

Body and corporeality are elements being closely connected with identity and affecting the cultivation of the "Self". According to A. Giddens not only constitutes the body a physical object confined to its biological "framework", but also a function system as well as a source of social practices. In the postmodern epoch what "released" the body from social stigma, orders and prohibitions was individualism with its promotion of freedom in general expressing the way of treating and defining the body.

From sociological perspective A. Giddens distinguished the following elements of corporeality that have remarkable meaning for "Self" and identity: outward appearance (all elements applied for body styling), way of being, bodily sensations (feelings of pain and pleasure) and regimes (e.g. trainings aimed at appearance and body shape enhancement).

The above elements come within the sphere of common practices of body styling and aestheticization to suit individual tastes and preferences. As a result, the body becomes not the means for expressing individual interpretation of beauty standards, looks and fashion, but rather for one's own "Self" constructing.

By the use of stylized display of the body individuals have the possibility to make self-creation as well as to manifest their identity, lifestyle, and held values. The topic presented here is reflecting around the usage of outward appearance for one's own "Self" expression in individualized postmodern society.

Keywords:

identity, Self, aestheticization, body appearance

EVIDENCE PROCEEDINGS UNDER THE AMENDMENT TO THE CODE OF CIVIL PROCEDURE

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A few words about the author(s):

I am PhD student at the Adam Mickiewicz University Poznań, Faculty of Law and Administration.

Abstract:

Referring to the topics discussed during the conference, in my study I pay special attention to the issues of changes implemented to the KPC in the field of provisions on evidence and evidence proceedings. Concerning, inter alia, implementation of a new procedural category, i.e. facts about which information is commonly known, comprehensive regulation of the grounds for omitting evidence, the content of the evidence order and the appearance of a person designated by the party. Moreover, I analyse changes in the scope of individual means of evidence, in particular with regard to documentary evidence, evidence from witnesses and evidence from expert opinions. It is worth emphasizing that the changes implemented to KPC by the 2019 amendment have been commented differently in the legal community, which is why the analysis of changes in the evidentiary proceedings still seem to be interesting and worth attention.

Keywords:

evidence, evidence proceeding, civil procedure

LETTERS BY ZYGMUNT KRASIŃSKI AS AN EXAMPLE OF ROMANTIC EPISTOLOGRAPFY

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PhD student in the field of literary science at Jan Długosz University in Częstochowa. Her scientific interests are focused on the literature of the nineteenth, especially the letters of Zygmunt Krasiński and his vision of those times.

Abstract:

The 19th century was a time of flourishing epistolography. It was then the letter underwent numerous transformations, both in terms of form and content. It was elevated to a literary genre while remaining a record of personal impressions and experiences. Letters are also, or perhaps even first of all, a valuable source of information about Romanticism, and Zygmunt Krasiński's correspondence is a perfect material for literary studies in this scope. He was not only a talented writer, but also a keen observer and a real child of his time, living according to Romantic ideas. The corpus of his lettters is very large, rich and varied in content, partly due to the high number of addressees. Most of his correspondence is devoted to travels, love, philosophy of history and literature.

Keywords:

letters, Romanticism, love, travels, philosophy of history

ABSTRACTS OF

POSTERS

HUMANITIES
SCIENCES

AUDITOR STEREOTYPE – PERCEPTION OF THE WORK OF AN INTERNAL AUDITOR OF MANAGEMENT SYSTEMS BY EMPLOYEES AT VARIOUS LEVELS IN THE ORGANIZATION

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A few words about the author(s):

We are students at Poznań University Of Economics And Business. We are interested in areas related to quality. Studying have shown us that quality is important in every area of life.

Abstract:

The purpose of the research is to verify perception of the work of the internal auditor of management systems by employees at various levels in the organization. The research method was a survey questionnaire in which 105 people participated. For the purposes of this research, the sample was not representative. We checked the overall image of the internal auditor according to the respondents, and their experience with the internal auditor. Our expected result was that lower ranks employees have more negative opinion about the work of the internal auditor opposite to upper-level employees. The results of research confirmed those assumptions. We identified that employees' are unaware of the role of the QMS internal auditor's work. Informing employees of the importance of the internal auditor's work shall contribute to the increase of awareness and consequently the effectiveness of QMS in the organization.

Keywords:

QMS, internal auditor of quality management systems, internal auditor stereotype, the perception of the internal auditor

AUTISM AND ASPERGER SYNDROME – BASIC INFORMATION

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A few words about the author(s):

My name is Magdalena Buż. I am studying psychology at the University of Opole. My specific interests are psychology of children and adolescents and psychology of sport.

Abstract:

Autism and Asperger's syndrome are difficult to distinguish for lay. The poster contains basic information on why these disorders can occur, how to treat them and what differentiates these two disorders.

Keywords:

Autism, Asperger syndrome

EATING DISORDERS

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Abstract:

Eating disorders are one of the categories of mental disorders described in the ICD-11 and DSM-5 classification. One of the eating diseases is anorexia. From the poster you will learn the minimum basic information about anorexia, bulimia, pica syndrome, compulsive eating syndrome, chewing disorders or avoiding food / food consumption restrictions.

Keywords:

eating disorders, anorexia, pica syndrome

PRE-SCHOOL EDUCATION – PROS AND CONS

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A few words about the author(s):

My name is Katarzyna Chojnacka, I finished studies education at the APS in Warsaw. Now I am studying special education at APS, specialization: education and rehabilitation of people with intellectual disabilities. I am a teacher in the preschool group.

Abstract:

Pre-school education is the first stage of education for children aged 3-6. Pre-school education is the moment when children begin their journey with educational institutions. What exactly is a kindergarten and what does it do? Is it needed? What does it give to children? How does it affect them? What if the children do not go to kindergarten? I would like to present to everyone the advantages and disadvantages of such institutions and consider how they affect the further education of children.

Keywords:

pre-school education, kids, children, kindergarten

FOREST KINDERGARTEN – ALTERNATIVE FORM OF EARLY CHILDHOOD EDUCATION

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Katarzyna Krupa – graduate of first cycle studies at The Maria Grzegorzewska University on specialty early school and correctional pedagogy; student of second cycle studies at the same university on specialty: pre-school and early school pedagogy.

Abstract:

Forest kindergartens can be recognized as alternative form of early childhood education. They have existed for ages, because in the past especially in rural areas were formed groups of children, which one of the women looked after. Not without a reason the first forest kindergartens created in Scandinavia, because its inhabitants attach of particular importance to cultivating a bond with nature. Forest kindergarten is the place where it is offered caring for preschool children. Their main assumption is direct contact with nature. This form of early childhood education has many advantages which positively influence for the development of children. In Poland it works several dozen forest kindergartens or kindergartens which bring elements of forest education to your program.

Keywords:

forest kindergartens, early childhood education

EARLY SUPPORT FOR THE DEVELOPMENT OF A CHILD WITH INTELLECTUAL DISABILITY

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Abstract:

Early support for the development of a child with intellectual disability is a set of multidirectional interactions directed at a child with diagnosed or suspected developmental abnormalities. The scope of influence also includes the child's family. Early development support consists in stimulating the psychomotor and social development of a child from the moment the disability is detected to the time of starting school. The scope of this impact may be very different, depending on the developmental deficits diagnosed by specialists. It may include: the sphere of communication, speech and language, the functioning of the child's senses, etc. The purpose of early support for the intellectual development of a disabled person is to make him or her as independent as possible in everyday functioning.

Keywords:

early development support, child, intellectual disability, diagnosis, therapy

THE ROLE OF PLAY IN A CHILD'S LIFE

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Weronika Wojcieszek – a graduate of the 1st degree studies at the Maria Grzegorzewska Uniwersity specialisation in early childhood and correctional pedagogy; second-cycle student at APS, specialization: preschool and early school education.

Abstract:

Play is the primary and main activity of children. She prepares children for adulthood, teaches attitudes and behaviors, and prepares them for school. Play allows children to play different social roles, get to know the world and themselves. Play gives children new skills. The aim of the poster is to present information about the essence of play, its understanding and functions in a child's life.

Keywords:

fun, education, child, preschool age, early school age

ABSTRACTS OF

PRESENTATIONS

MEDICAL SCIENCES

COMPARISON OF THE OF 5-METHYLCYTOSINE DERIVATES CHANGES IN THE DNA OF CHRONIC MYELOID LEUKEMIA CELL LINE AFTER EXPOSURE TO VARIOUS FORMS OF VITAMIN C

Patrycja Bagińska (1)*, Maciej Gawroński (1), Marta Starczak (1), Justyna Szpotan (1, 2), Aleksandra Wasilów (1), Paweł Mijewski (1), Daniel Gackowski (1)

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A few words about the author(s):

The Department of Clinical Biochemistry conducts research on factors and processes that have or may be significant in the development and pathogenesis of civilization diseases, primarily cancer and cardiovascular diseases.

Abstract:

Many conditions can lead to changes in gene expression. Epigenetic regulatory mechanisms include f. e. nucleotide modifications. One way to silence gene expression is methylation of cytosine (5-mCyt) catalyzed by DNA methyltransferases. Oxidation reactions of 5-mCyt occur with the participation of TET proteins and lead to the formation of many products: 5-hydroxymethylcytosine, 5-formylcytosin, 5-carboxycytosine. Their presence in the genome can activate silenced genes and affect the ability of certain proteins to bind DNA. Changes in the methylation profile and impairment of active DNA demethylation are often observed in tumors. Vitamin C has a significant impact on the levels of modified nucleotides. It is not only an antioxidant, but also one of the cofactors of TET proteins. Vitamin C can affect the activation of transcription of certain genes. In our research, we compare changes in epigenetic derived levels in HAP1 exposed to 100 μM concentration of various forms of vitamin C. Nucleotide content was measured using 2D-UPLC-MS method. Vitamin C supplementation increased the levels of 5-mCyt derivatives, while no significant changes between the different forms of vitamin C were observed.

Keywords:

epigenetics, DNA methylation, TET protein, cancer, vitamin C

EFFECTIVENESS OF HIIT TRAINING IN PHYSICAL ACTIVITY PROGRAMMING IN OBESE PATIENTS

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A few words about the author(s):

Student of the fourth year of physiotherapy at Ludwik Rydygier's Medical College in Bydgoszcz. Personal trainer, supporter of widely understood kinesitherapy.

Abstract:

Obesity is one of the biggest problems of the 21st century society. Technological advances in transportation, nutrition, or electronics themselves even cause a snowball effect of this condition. It is well known that the biggest counter to obesity is physical activity. Previous studies of high intensity training show positive effects that may be important in training or rehabilitation programming for obese individuals.

The aim of this study was to update and systematize knowledge about the effects of HIIT training method on obese patients.

A systematic review of available publications from the last 10 years was performed. It has been shown that the HIIT (High Intensity Interval Training) method of training can have many beneficial results when working with obese patients. Studies show better recomposition of the body and improved performance. Additionally, HIIT training has positive effects on cardiovascular parameters, muscle strength and insulin resistance. One of the biggest advantages of using HIIT in the training or rehabilitation process is that it shortens the training unit while maintaining all of its values, which can be crucial for physical activity programming for an obese person. The limited amount of knowledge available on this topic, compared to its value, encourages the expansion of efforts towards an in-depth understanding of this intervention.

Keywords:

HIIT, training, obesity, overweight

CURRENT TREATMENT OPTIONS OF BURN WOUNDS

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Patrycja Długosz and Bartosz Borowski – Medical students, Agnieszka Markiewicz-Gospodarek – Department of Human Anatomy, Małgorzata M. Kozioł – Department of Medical Microbiology.

Abstract:

Burn wounds are a common type of injury that can be met in practice of medicine. Depending on kind and intensity of wounding factor, it can have various extent and depth. Ensuing injury can lead to many complications, from local necrosis of tissues, superficial or deep infection, to derivative systemic changes that can be a threat to life. It is then crucial to act quickly and take the right treatment up, that will be individualy chosen to patient and his clinical situation. There are various methods of treating patients with burn injuries. Next to pharmacological treatment, modern medicine base on right dressing of damaged skin layers and mitigating the symptoms. There are many dressings available on the market, which, providing moist environment, catalyses the healing process, for example active hydrogel dressing, dressings that include honey, chitin or silver, so that they also provide antibacterial activity. Among other burn wounds dressing methods, clinicians use NPWT (Negative Pressure Wound Therapy) that is well-known in surgery, and also hyperbaric chamber. Moreover, interesting therapies include Lucilia sericata maggots, or fish scales (of tilapia) and using techniques of strongly-developing regeneration medicine. Especialy skin grafting, artificial skin and therapies that use endogenic stem cells arouse great expectations in that matter. A target of present study was to analyse the actual methods of treating burn wounds of the skin and possible future courses.

Keywords:

dressing of skin, regeneration medicine, burns, artificial skin

NEW INSIGHTS INTO THE MANAGEMENT OF OPERATIVE AND NONOPERATIVE METHODS AMONG PATIENTS WITH LATERAL EPICONDYLITIS OF THE HUMERUS

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A few words about the author(s):

I am a physiotherapy student who wants to broaden my knowledge of musculoskeletal disorders.

Abstract:

The rapid development of civilization in recent times, has caused people to reorganize their work structure. Those whose occupation requires repetitive movements are at risk for many musculoskeletal disorders. One such condition is lateral epicondylitis, also known as tennis elbow. It can cause significant pain and functional impairment, and despite its relatively high incidence, there are still a myriad of treatments due to the lack of a single gold standard. The aim of the study is to find the best possible method of treatment. Based on the data collected, open, arthroscopic, and percutaneous surgical methods are highly effective in the treatment of tennis elbow. However, before undergoing surgery, it is wise to take advantage of alternative methods that may prove effective.

Keywords:

tennis elbow , lateral epicondylitis, elbow joint

E4ORF1 AS A PROSPECT FOR NEW ANTI-DIABETIC DRUGS

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A student in the Faculty of Medcine at Ludwik Rydygier Collegium Medicum in Bydgoszcz.

Abstract:

E4orf1 (early 4 open reading frame 1) is an adenoviral peptide, which upregulates cellular glucose disposal independent of insulin receptor signalling in adipose tissue, skeletal muscles and liver via enhancing distal branch of the insulin signaling transduction pathway.

Impaired proximal insulin signalling is linked with diabetes, and therefore E4orf1 creates possibilities for development of a new anti- diabetic drug.

This review summarizes the history of E4orf1 discovery and the mechanisms of its insulin-sparing action. Moreover, possible challenges and opportunities related to E4orf1 clinical usage have been evaluated.

Keywords:

E4orf1, diabetes

IMPACT OF ANTYEPILEPTIC MEDICINES TO SEXUAL FUNCTIONS OF THE PEOPLE WITH EPILEPSY

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A few words about the author(s):

My name is Anna Górka. I am student of 4th year Medicine at Collegium Medicum in Bydgoszcz.

Abstract:

Epilepsy is a well-known disease, however, although it is statistically frequent (1 in 100 people), it is a taboo topic. The disease limits driving vehicles, participate in certain social events or perform certain professions. In addition, epileptics experience side effects of, most often chronic, pharmacotherapy. One of them is sexual dysfunctions. It may seem that this is a small problem compared to the disease itself, but the fulfillment of sexual needs is one of the basic physiological needs of a human being. Therefore, in my presentation, I would like to tell you about the scale of the problem and whether there are solutions to this problem.

Keywords:

epilepsy, AEM, sexual disfunction

THE ROLE OF THE BITTER TASTE RECEPTOR T2R38 IN RESPIRATORY INFECTIONS

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

Abstract:

The T2R38 protein is a bitter taste receptor, which in humans is encoded by the TAS3R38 gene, the polymorphisms of this gene may affect individual differences in the ability to sense the bitter taste of some substances. It also turns out that T2R38 receptors are also found outside the oral cavity and perform various functions there. There are, among others in the respiratory tract, where, as a result of their activation by pathogens, the innate mechanisms of the immune response are activated, including the production of NO, which directly inactivates the pathogen and stimulates mucociliary clearance. The common TAS2R38 genotypes are associated with significant differences in susceptibility to upper respiratory tract infections. It also turns out that the genetics of the bitter taste receptor may also be associated with susceptibility to SARS-CoV-2 virus by enhancing the innate immune response in people with a functional T2R38 receptor.

Keywords:

receptor T2R38, TAS3R38, respiratory infection

THE IMPACT OF NEOBAVAISOFLAVONE ON DOXORUBICIN ACTIVITY – AN IN VITRO STUDY USING HUMAN GLIOBLASTOMA CELLS

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A few words about the author(s):

Mateusz Maszczyk – MSc in Medical Biotechnology, PhD student of the Doctoral School of the Medical University of Silesia in Katowice.

Abstract:

Glioblastoma (GB) is one of the most deadliest tumors. Major pharmaceutical used in GB treatment is temozolomide, however due to the common drug resistance, chemotherapy only slightly prolongs the survival of patients. Thus, there is a strong need to develop novel therapeutic strategy for GB. In this regard, chemotherapeutics that are already used to treat other cancers are in the spotlight. One of them is doxorubicin, but due to the impeded blood-brain barrier permeability, its efficiency in GB might be limited. According to the scientific literature, there are compounds that are able to increase effectiveness of anticancer drugs, i.a. isoflavones. A compound belonging to this group, neobavaisoflavone (NBIF), is a phytoestrogen found in Psoralea corylifolia that has antioxidant, anti-inflammatory and anticancer properties.

Study was carried out on human glioblastoma U87-MG cells. Cytotoxicity was assessed with colorimetric WST-1 test. Fluorescence image cytometer was used to determine number of cells. Microscopic observations was made using inverted microscope.

NBIF alone did not cause significant changes in the total number of cells, as well as in cell morphology. In combination with doxorubicin, it caused a notable decrease in cell proliferation and a reduction in their number. The results suggest that NBIF may potentiate doxorubicin activity in GB cells.

Keywords:

anticancer therapy, doxorubicin, glioblastoma, natural compounds, neobavaisoflavone

SOLID PHASE EXTRACTION – THEORETICAL FOUNDATIONS AND APPLICATION IN MODERN RESEARCH

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A few words about the author(s):

Student of 6th year of pharmacy and president of the Students' Scientific Circle of Inorganic Chemistry at Medical University of Lublin with an interest in laboratory research. Recently I have defended my master's thesis and become a Master of Pharmacy.

Abstract:

Solid Phase Extraction (SPE) is a technique used to prepare samples for further research. SPE is a widely used method of purification, concentration of solutions and matrix removal. This type of extraction is used in the pharmaceutical industry, environmental research and forensics. Contrary to commonly used types of extraction, the target substance moves from a liquid to the solid phase. Another option is to bind impurities to a bed and let the target molecules flow through the column. SPE is based on the partition coefficient of the analyzed compounds between the liquid carrier and the solid sorbent. Depending on the physicochemical properties of the substance, it is important to select appropriate bed that will bind the target molecules more strongly. There are basically 4 stages of SPE: conditioning; sample loading; bed washing; and elution. The emergence of the micro-SPE method and the possibility of automating the process confirm that SPE technique is being continuously updated.

Keywords:

SPE, Solid Phase Extraction, chemistry

HOW TO ASSESS THERAPEUTIC POTENTIAL OF SUBSTANCES OF BIOLOGICAL ORIGIN BY THE USE OF ELECTICAL PARAMETERS (ECIS TECHNIQUE)

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A few words about the author(s):

PhD, Master of Sciences, specialist in biochemistry and human physiology. Special interest in potential of biological substances against cancer cells.

Abstract:

The aim of the presentation is to evidence that changes of electical parameters in cell coultures can be effective tool to asses therapeutic potential of substances of biological origin. Changes in electrical parameters procede the changes in biochemical level and it would be very interesting to examine the character of changes leading to desirable therapeutic effects. It is possible by monitoring of selected electrical parameters such as: impedance, resistance and capacitance after application of selected bioactive compounds to examined cel lines in real time. Understanding the interaction of cells with biological substances and corresponding changes in impedance and capacitance is hugely promising challange.

Keywords:

therapeutic potential, impedance, resistance, capacitance, ECIS

THE IMPACT OF PHYSICAL ACTIVITY ON REDUCING THE RISK OF CIVILIZATION DISEASES

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A few words about the author(s):

Damian Świątkowski is 4th year medical student of Nicolaus Copernicus University Collegium Medicum in Bydgoszcz. Lifestyle medicine enthusiast.

Abstract:

Civilization diseases are still a great challenge for modern medicine. According to the World Health Organization, diseases of the cardiovascular and respiratory systems remain the most common cause of death among adults worldwide. Just 30 minutes of moderate activity 5 times a week significantly reduces the risk of developing civilization diseases, such as obesity, hypertension, depression and atherosclerosis.

There is a close correlation between frequent physical activity and improvement of sleep quality, optimization of circadian rhythm and endocrinal balance. As evidenced by research, individuals belonging to communities in regular contact with green spaces are more likely to be physically active compared to the general population and are less likely to develop type 2 diabetes and obesity. In addition, physically active individuals are rarely affected by anxiety and depressive disorders, the severity and prevalence of which is significantly increasing in the era of the COVID-19 pandemic. Moreover, optimal methods of gradual introduction of exercise into patients' everyday life are suggested.

Keywords:

civilization diseases, physical activity, green areas, SARS-CoV-2

THE EFFECTS OF EXCESSIVE EXPOSURE TO ULTRAVIOLET RADIATION

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A few words about the author(s):

I am a first year student of master's studies of cosmetology at the Ludwik Rydygier Collegium Medicum in Bydgoszcz, Nicolaus Copernicus University in Toruń. In 2020, I obtained a bachelor's degree.

Abstract:

Ultraviolet radiation (UVR) is one of the components emitting from solar light and includes three wavelengths, i.e.: UVC, UVB and UVA. Ozone layer absorbs 100% of UVC and about 90% of UVB, but does not affect the amount of UVA radiation reaching the Earth's surface. UVB is responsible, inter alia, for the mutation of the p53 gene, the damage of which may cause the development of a population of cancer cells, while UVA radiation has a capacity to cause indirect damage to cell DNA by increasing the synthesis of free oxygen radicals. Excessive exposure to UV light may cause many side effects such as: discoloration, skin photoaging, sunburn or the development of precancerous skin lesions and neoplastic changes. To the most common skin cancers are basal cell carcinoma, squamous cell carcinoma and malignant melanoma. The most common skin cancers are basal cell carcinoma, squamous cell carcinoma and malignant melanoma.

Keywords:

ultraviolet radiation, skin cancer

RELATIONSHIP BETWEEN SEDENTARY BEHAVIOUR AND SPINAL COLUMN PAIN IN ADOLESCENTS AGED 16-19 YEARS

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A few words about the author(s):

4th year student of Physiotherapy.

Abstract:

The aim of the study was to assess the prevalence of pain in various spinal segments in relation to the screen time (ST), sedentary behaviour (SB) during the day. A group of 518 subjects aged 16-19 years were examined. A questionnaire was used to collect information on SB and pain. The chi-square, Student's t-test, Spearman's rank correlation were used to assess the link between variables. A higher level of the time spent in front of the TV screen and total SB was observed in girls ($p<0.001$). Boys spent significantly more time on the computer and the Internet. Girls more often than boys felt pain in each spine section ($p<0.001$). In girls, a significant association was observed between cervical spine pain and time spent watching TV ($p=0.035$). Studies confirmed the link between SB and pain in the cervical spine. There is a need to introduce preventive activities based on physical activity, especially in the group of girls in order to prevent future problems and minimise the negative effects of a sedentary lifestyle.

Keywords:

adolescents, pain, sedentary behaviour

PHYSIOTHERAPY AFTER MASTECTOMY - WINGED SCAPULA

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A few words about the author(s):

Agnieszka Filarecka PhD student at the oncological surgery clinic in Bydgoszcz. In the course of specialization in the field of physiotherapy, currently also a physiotherapist of the national canoeing team during the Tokyo 2020 Olympic Games (21).

Abstract:

Breast cancer is the leading cancer among women, high cancer incidence does not equate to high mortality. Women who undergo radical or partial mastectomy after surgery want to regain full fitness as soon as possible. The movement limitations associated with the procedure do not have a positive effect on the psyche of patients.

One of the complications of underarm surgery is damage to the long thoracic nerve. Impaired scapula mechanics affects non-ergonomic movement in the shoulder joint. Using physiotherapy, the correct pattern of the scapula should be restored.

The paper presents examples of kinesiotaping applications that can be used in therapy at various stages. The method of use depends on the degree of structural damage and should be modified for therapy.

A review of the available literature and own experience were used in the work.

Keywords:

cancer, nerve damage, kinesiotaping

PHYSIOTHERAPY IN SURGICAL TREATMENT OF COLORECTAL CANCER - PROPOSED MANAGEMENT METHOD PNF

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Agnieszka Filarecka PhD student at the oncological surgery clinic in Bydgoszcz. In the course of specialization in the field of physiotherapy, currently also a physiotherapist of the national canoeing team during the Tokyo 2020 Olympic Games (21)

Abstract:

Physiotherapy in the surgical treatment of colorectal cancer should be implemented before the surgery. The available scientific reports show that greater mobility before surgery has a positive effect on the surgical procedure by reducing postoperative complications. The literature review also shows that people with normal body weight have fewer complications after surgery and their recovery time is shorter, which has a positive effect on the patient's mental sphere.

Post-operative depression is less frequent in people who returned to everyday activities after surgery on day 2.

After analyzing the existing literature, it can be concluded that the level of fitness before the surgery has a significant impact on the level of reduction in the mobility of the patient after the surgery. In order to increase the level of the patient's fitness, it should be improved before the surgery. In addition, the patient should be instructed before the procedure about the necessity and manner of exercise, so that after the surgery, from the first day, you can experience physical therapy.

Keywords:

rehabilitation, depression, disability

ESSENTIAL INFORMATION ABOUT VARIOUS TYPES OF ANAESTHESIA AND ANESTHETICS

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Abstract:

Anaesthesia is the loss of all kinds of sensation (including pain, pressure, temperature etc.).

One of the most important steps in dovelopment of medicine and anesthesia itself was the use of ether for general anesthesia in the 19th century. It was used in tooth extraction, but it was not popular until demonstration for students and physicians in Massachusettes General Hospital. After this, the research for better and stronger substances began, which resulted in the disclosure of properties of chloroform.Later, it was abandoned due to high toxicity – there were frequent sudden deaths of patients during anesthesia with chloroform.

Anaesthesia can be divided into general anesthesia and local or regional anesthesia. Under general anesthesia inhalational (simple or complex) and intravenous anesthesia are distinguished.

Partial actions of general anesthesia are: analgesia, amnesia, areflexia, loss of consciousness, paralysis, inhibition of the autonomic nervous system.

There are 4 stages under general anesthesia: analgesia, excitation, tolerance, asphyxiation.

Currently, many inhalation anesthetics are known, in order to use them safely, the MAC concentration has been determined for each of them. Intravenous anesthetics are powerful and immediate. They are used in induction, maintenance of general anesthesia and in short-term intravenous anesthesia. Peripherally acting skeletal muscle relaxants have a different effect and are used, for example, in the treatment of rabies.

Keywords:

anaesthesia, general anesthesia, anesthetics

NEPHROLOGICAL COMPLICATIONS OF SARS-COV-2 INFECTION – A SHORT REVIEW

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Abstract:

The Covid-19 pandemic that has been going on for more than 1.5 years still is a significant medical issue. Thanks to intensive research conducted all over the world we learn more about this disease almost every day. An important fact is that COVID-19 is not a respiratory disease alone. Especially in its severe course, it can lead to various organ complications.

The study aimed to review and summarize the latest scientific reports on the impact of COVID-19 on kidney function. AKI is an important complication of severe COVID-19 and one of the most common, especially among ICU patients. The acute tubular injury seems to play an essential role in the pathomechanism of COVID-19-associated AKI but, some other hypotheses also exist.

Current management of AKI in COVID-19 is mostly based on clinical experience. It is largely supportive rather than specific treatment. In many cases, RRT is required. At the moment, there is no certain evidence that COVID-19 raise the long-term risk of CKD but, it seems probable.

Keywords:

COVID-19, SARS-Cov-2, nephrological complications, AKI, CKD

TREATMENT FOR DIABETES

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All authors of this work are the PhD candidates in 3rd year of full-time doctoral studies at Wrocław Medical University. Kamil Klimas, a presenting person, performs PhD thesis experiments in the field of angiology and internal medicine.

Abstract:

Diabetes mellitus is one of the most common chronic diseases. It is severe health and economic problem. The global diabetes prevalence in 2019 is estimated to be 9.3% (463 million people), rising to 10.2% (578 million) by 2030 and 10.9% (700 million) by 2045. This problem also affects our country - in 2018, there were 2.9 million adults with diabetes. Long-term diabetes leads to dangerous organ disorders. Chronic complications include neuropathy, nephropathy, retinopathy and diabetic foot syndrome. Due to the number of diabetics it is very important to correctly interpret the clinical picture and apply the appropriate treatment. Pharmacological treatment depends on the type of diabetes. Patients with type 1 diabetes require treatment with insulin. There are several types of insulin and several models of insulin therapy. Due to their kinetics insulins are divided into: rapid-acting insulins, short-acting insulins, intermediate-acting insulins, long-acting insulins and mixed insulins. In type 2 diabetes, pharmacological treatment begins with oral medications. We can distinguish several types of drugs. They are: biguanide derivatives, sylphonyloureas, alpha-glucosidase inhibitors, thiazolidinediones, glucagon-like peptide 1 receptor agonists, dipeptidyl peptidase IV (DPP IV) inhibitors and sodium-glucose cotransporter-2 (SGLT2) inhibitors. Insulin therapy should be a later stage of treatment.

Keywords:

diabetes mellitus, insulin, type 2 diabetes, type 1 diabetes, treatment

THE INFLUENCE OF CURCUMIN ADMINISTERED TO MICE ON THE ACTION OF LACOSAMIDE IN CHIMNEY TEST

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Abstract:

1% of the world's population suffers from epilepsy, 30% of patients with epilepsy being drug-resistant therefore there is a constant need of increasing the effectiveness of epilepsy treatment. Curcumin, which is a principal curcuminoid present in turmeric, has antioxidant, anti-inflammatory and neuroprotective properties. Lacosamide, an anticonvulsant drug, exerts its activity predominantly by selectively enhancing slow sodium channels inactivation. The aim of the study was to evaluate an impact of curcumin administered to Swiss male mice on the disorders of motor coordination, examined using the chimney test after administering lacosamide. In the control group the animals received lacosamide intraperitoneally. In the experimental group curcumin was administered in dose of 60 mg/kg in combination with lacosamide. In the moment of the substances maximum effect of action the chimney test was performed. The value TD50 (which stands for a dose in mg/kg that causes neurotoxic disorders in 50 per cent of researched animals) was counted separatelly for lacosamide and for the combination of curcumin with lacosamide. The value TD50 for lacosamide was 29.72 mg/kg (ranges from 25.80 – 34.23 mg/kg) and for the combination of curcumin with lacosamide the TD50 was 34,07 mg/kg (ranges from 26.32 – 44.11 mg/kg). The action of lacosamide was not modified with curcumin when applied to mice, which motor coordination was examined using the chimney test.

Keywords:

epilepsy, curcumin, chimney test, lacosamide

PATHOGENESIS, DIAGNOSTIC CRITERIA AND PREVENTION STRATEGIES FOR OSTEOMALACIA AND RICKETS

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A few words about the author(s):

All authors of this work graduated from Wrocław Medical University. Nowadays, they are the PhD candidates in 3rd year of full-time doctoral studies at Wrocław Medical University. The authors conduct research on various topics.

Abstract:

Rickets and osteomalacia are diseases characterized by impaired mineralization of bone matrix. Rickets is the clinical consequence of impaired mineralization throughout the growing skeleton, while osteomalacia is the result of this disturbance after the growth plates have fused in adults.

Of the numerous different causes, the majority can be grouped into three major categories: calciopenic, phosphopenic, and those which directly inhibit the mineralization process. Recent studies have helped to provide concept of the interaction of vitamin D and calcium intakes in the pathogenesis of rickets.

Calcipenic rickets is caused by calcium deficiency, which usually is due to insufficient intake of or metabolism of vitamin D, and in some cases, insufficient intake or absorption of calcium in the setting of normal vitamin D levels. Phosphopenic rickets is usually caused by renal phosphate wasting.

Despite accessible and effective means to eradicate rickets globally, the disease remains a public health issue in a number of developing countries as well as in some developed countries.

Keywords:

rickets, osteomalacia, impaired mineralization of bones

MODERN METHODS OF DIAGNOSIS AND TREATMENT OF CELIAC DISEASE

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Abstract:

Celiac disease (CD) is one of the most commonly diagnosed autoimmune disorders. About 1% of human population suffers from CD. CD is resulting from both genetic (HLA and non-HLA genes) and environmental (gluten) factors. The symptoms of CD are often atypical. Therefore, the average diagnosis takes about 10 years. Both gastrointestinal and extraintestinal symptoms can be observed. Although small intestinal biopsy is a standard examination in the diagnosis of CD, newer diagnostic tools, such as highly sensitive serologic tests for antibodies against tissue transglutaminase and deamidated gliadin peptide, are becoming continuously more important. Currently, the only treatment for CD is a strict gluten-free diet (GFD) throughout the lifetime. GFD reduces symptoms and the risk of cancer, but it is a challenging for the patient and his family because it is socially isolating. Moreover, gluten-free products are very expensive. What is more is that GFD is not effective in all patients; therefore, research into alternative non-dietary methods is ongoing, including hydrolysis of toxic gliadin peptide, prevention of toxic gliadin peptide absorption, blockage of selective deamidation of specific glutamine residues by tissue, restored immune tolerance towards gluten, modulation of immune response to dietary gliadin and restoration of intestinal architecture.

Keywords:

celiac disease, gluten, gluten-free diet

NEUROLOGICAL AND NEUROPSYCHIATRIC COMPLICATIONS OF COVID-19

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We are medical students and we work together in a Student Scientific Association at Department of Epidemiology and Clinical Research Methodology. We deepen our medical knowledge by participating in scientific conferences.

Abstract:

INTRODUCTION: Coronavirus disease 2019 (COVID-19), which is caused by SARS-CoV-2, has rapidly evolved into a worldwide pandemic. COVID-19 predominantly affects the respiratory tract and lung parenchyma and patients typically present with a cough, sore throat, fever, fatigue and breathing difficulties. However, there is evidence of neurological involvement in COVID.

MATERIALS AND METHODS: The aim of the study is to assess neurological and neuropsychiatric complications of COVID-19. The available publications from the Google Scholar and PubMed were analyzed.

RESULTS: SARS-CoV-2 may gain entry to the nervous system predominantly by three routes: hematogenous, neuronal transmission and by binding to ACE-2 receptors. One of the first studies conducted showed that neurological symptoms were present in 36.4% of patients. The most common neurological symptoms reported in COVID-19 patients were olfactory disturbance, dysgeusia, dizziness and headache, muscle pain and altered consciousness / mental status changes. In addition, other serious neurological complications such as ischemic stroke, encephalitis, encephalopathy and seizures have been reported.

CONCLUSION: Neurological manifestations are common in COVID-19 and are even present as the only symptoms without any other manifestation of the respiratory system involvement. Hence it is important to suspect every COVID-19 patient with neurological manifestations.

Keywords:

COVID-19, neurological manifestations, neuropsychiatric impacts

MENTAL HEALTH DURING COVID-19 PANDEMIC

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Abstract:

The outbreak of COVID-19, which started in December 2019 in Wuhan, became danger for public health concerns and posed serious challenges to health professionals, especially for those in the center of the epidemic. Not only the physical health of millions of people was in danger, but pandemic affected also the psychical health of many people. As a consequence of the infection, quarantine and economic problems, a significant increase in the incidence of affective disorders, cognitive dysfunctions and suicides has been observed. Moreover, the impact of COVID-19 may be especially serious for patients with severe mental illness and/or chronic medical diseases. Psychosocial effects can have different range in severity from reduced psychological wellbeing to less common clinical mood and anxiety disorders and, in rare cases, suicidality. Anxiety was the most frequent symptom reported in studies on the impact of the SARS-CoV-2 virus pandemic on mental health. There has also been a significant increase in the number of cases of depression. It has been proven that some patients had both depression and anxiety after hospital discharge. One third of the patients in Italy and 41.3% in Iran were affected by this problem. Posttraumatic stress disorder (PTSD), with prevalence ranging from 12.1% to 46.9%, was another common post-COVID-19 mental health problem. Moreover, sleep problems, reported in 17.7% to 30.8% of individuals post-COVID-19, were also a big problem to many people.

Keywords:

anxiety, COVID-19, depression, mental health, pandemic

NEW TREATMENT OPTIONS IN NARCOLEPSY

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Abstract:

Narcolepsy is a rare sleep disorder with significantly increased daytime sleepiness and cataplexy described as its major symptoms. These two with other, less common manifestations cause patients' quality of life to be by all odds lowered comparing to healthy individuals. That problem is additionally increased by the fact, that the disease typically appears among adolescents. All of that together with our insufficient knowledge about pathophysiology make it very important to find effective and widely available drugs or ways of therapy for this condition. Narcolepsy treatment divides into non-pharmacological and pharmacological methods. First ones mainly rely on sleep hygiene, while second ones consist of several remedies most of which were capable of controlling only one symptom at the time. In the last few years, some new promising approaches appeared. Pitolisant is a histamine H3 receptor antagonist/inverse agonist which is able to help in both cataplexy and sleepiness. Another drug, solriamfetol, is a norepinephrine-dopamine reuptake inhibitor (NDRI) effective in sleepiness. There are also interesting methods using orexins supplementation or immunotherapy which are based on narcolepsy's pathophysiology but as already mentioned, more research is still needed. Nevertheless skillful use of both old and new approaches is quite promising and make it possible for patients with narcolepsy to lead normal life with none or at least very little limitations.

Keywords:

narcolepsy, treatment, sleep

INTERACTIONS FOOD WITH THE MEDICINES

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Abstract:

INTRODUCTION: Some food ingredients can double or weaken the effect of the medicine. The meal time is also an important issue. Certain medications may interfere with the absorption of nutrients (vitamins, nutrients).

THE AIM OF STUDY: Providing information on the integration of drugs with food

MATERIAL AND METHODS: The study analyzes the latest literature.

RESULTS: Products with the strongest effect on drugs are: alcohol, calcium, fiber, fat, grapefruit juice, caffeine.

CONCLUSIONS: Effects between the drugs and food:

1. Reduction of drug absorption;
2. Enhancement of Drug Absorption;
3. Reduction of drug metabolism;
4. Increasing drug metabolism;
5. Reduction of drug excretion;
6. Enhanced Drug excretion;
7. Reduction of the drug effect (antagonism);
8. Strengthened action of the drug (synergism).

Keywords:

medicines, drugs, interaction, food

BEMPEDOIC ACID IN THE TREATMENT OF THE HYPERCHOLESTEROLEMIA

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Abstract:

Cardiovascular diseases are responsible for a large part of death cases. One of the most important factors are lipid disorders, first of all, high LDL cholesterol level in blood. In spite of many therapeutic capabilities, in a huge group of patients satisfactory treatment results have not been reached yet. In result, those people still stay in a high-risk group. The bempedoic acid is an orally administered medicine in combination with other drugs decreasing cholesterol concentration or in monotherapy. Its effectiveness was proved with researches on people with high cardiovascular risk comparing effects of the bempedoic acid with placebo in combination with a maximum tolerated dose of statin on LDL-C level. Apart from visible reduction of the LDL-C concentration, also decrease of the other parameters- total cholesterol, non-HDL-C, apoB and hsCRP was noticed, the same goes for researches, where the bempedoic acid was attached to the pharmacotherapy of patients taking maximum tolerated doses of statins in combination with ezetimibe. Huge part of patients cannot take statins because of occurring side effects. Researches towards that were also done to evaluate effectiveness and safety of the bempedoic acid in case of patients with statin-pharmacotherapy intolerance. The results were satisfying, because application of the bempedoic acid in the monotherapy compared to the placebo significantly lowers level of the LDL cholesterol.

Keywords:

hypercholesterolemia, lipids, low-density lipoprotein cholesterol, bempedoic acid

THE ROLE OF VITAMIN D IN THE PATHOGENESIS OF AUTOIMMUNE THYROID DISEASES

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Abstract:

Vitamin D, also known as the sunshine vitamin, belongs to fat-soluble organic compounds. It includes a group of steroid compounds, including vitamin D2 (ergocalciferol) and vitamin D3 (cholecalciferol). It participates in the regulation of bone metabolism, maintaining calcium-phosphate homeostasis through its influence on parathormone. In recent years, more and more evidence has become available for the extra-skeletal effects of this vitamin and, more specifically, for its role in the pathogenesis of thyroid diseases. Nowadays, autoimmune diseases are a growing problem in society. In autoimmune diseases, antibodies are produced against the body's own tissues, causing their destruction. The pathogenesis of these diseases is not fully understood. Among others, genetic predisposition, stress, stimulants or environmental factors are indicated. Autoimmune thyroid diseases (AITD) account for as much as 30% of all thyroid diseases. Hashimoto's disease and Graves' disease are the most common AITD. Hashimoto's disease is referred to simultaneous inflammation of the thyroid gland along with hypothyroidism. On the other hand, hyperthyroidism is characteristic for Graves' disease. Patients diagnosed with an autoimmune disorder have an increased risk of developing another disorder of the same cause. The findings suggest that there is a correlation between AITD and vitamin D levels in the body and confirm its beneficial role in the treatment of thyroid diseases.

Keywords:

autoimmune thyroid disease, Graves' disease, Hashimoto, vitamin D

NEW DERIVATIVES OF CIPROFLOXACIN - SYNTHESIS AND PROPERTIES

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Karolina Stachniak with a master's degree before obtaining a title of pharmacist, presenting the results of master's thesis. Research supervisor Krzysztof Marciniec with the degree of a habilitated doctor of pharmaceutical sciences.

Abstract:

One of the problems with chemotherapy is immunosuppression, which increases the risk of bacterial infections. Due to this, much attention is now being paid to the development of drugs that will have both: a broad spectrum of antimicrobial activity and high antitumor efficacy. Based on reports that the leading structure on which such dual mechanism drugs can be based is ciprofloxacin, a series of compounds in which ciprofloxacin was modified by triazole fragment, were designed by molecular docking using two protein targets: topoisomerase IIβ and Mcl-1. The results of molecular docking exhibited potential and promising activity for all planned compounds, which justified a significant incentive for the synthesis of the title derivatives. In the synthetic part of the experiment, a series of nine derivatives were obtained, including five new and previously unknown compounds. The key method used in the study was the CuAAC reaction, which produces 1,4-disubstituted triazole molecules in relatively mild conditions. In this way, it was possible to introduce to the ciprofloxacin's structure a triazole substituent, selectively into the piperazine ring and the carboxyl group and also in both mentioned positions. In the last part of this study, other directions of potential activity of compounds were assessed by program analysis. The results indicated that five derivatives may have antibacterial activity, including antituberculosis activity for four of them.

Keywords:

antibacterial activity, antiproliferative activity, ciprofloxacin, CuAAC reaction, molecular docking

CONTINUOUS GLUCOSE MONITORING (CGM) SYSTEMS IN DIABETES CONTROL

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All authors of the study are PhD students at Wroclaw Medical University. They conduct research in a wide range of subjects, but this study was prepared due to the increasing use of the continuous glucose monitoring systems.

Abstract:

Diabetes mellitus is a chronic disease that significantly increases the risk of a number of microvascular and macrovascular complications. Good treatment and disease control allow to reduce the risk. An integral part of diabetes management is ongoing monitoring as well as retrospective glycemic assessment. However, multiple self-measurements with a glucometer do not provide enough information about daily blood glucose fluctuations and incidents of hypo- or hyperglycemia. It turns out that even people who meet the target HbA1c criterion may have a higher risk of diabetes complications, due to significant daily fluctuations in glycemia. The above-described problems are eliminated by continuous glucose monitoring systems (CGM). These devices measure the concentration of glucose in the interstitial fluid at short intervals throughout the day, regardless of the patient's activity, using a sensor placed in the subcutaneous tissue. Then, the transmitter located on the sensor transmits the results to the CGM monitor receiver (telephone or separate device) or pump, which are displayed in the form of the current value, glucose trend and graph. The CGM systems are more and more often the basic tools for assessing the effectiveness of diabetes treatment as they provide numerous benefits.

Keywords:

glucose monitoring, diabetes, diabetes control

POTENTIAL ROLE OF VITAMINS IN THE TREATMENT OF ALZHEIMER'S DISEASE

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Abstract:

Alzheimer's disease (AD) is a neurodegenerative disorder representing the major cause of dementia. Research is being carried out on the role of vitamins in the pathogenesis and course of AD. Vitamins E, B1 and C are considered in this aspect. Oxidative stress was found to play an important role in AD. Research showed that vitamin E supplementation may be a good strategy to improve cognitive and memory deficits by decreasing oxidative stress. The combination of vitamin E supplementation with other antioxidant or anti-inflammatory compounds may increase its efficacy. Moreover, the levels of vitamin E in AD patients is lower than in non-demented controls. A confirmed interaction between nutrition and dementia is related to thiamine (vitamin B1). Multiple similarities exist between classical thiamine deficiency and AD, including their association with cognitive deficits and reduced glucose metabolism in the brain. Among antioxidants, vitamin C was regarded as the most important in the neural tissue. It also decreases the β-amyloid generation and acetylcholinesterase activity and prevents endothelial dysfunction by regulating nitric oxide, a newly discovered factor in the pathogenesis and progression of AD. In summary, the research shows the neuroprotective effect of vitamins B1, C and E in the course of AD. Thus, the supplementation with these vitamins could have beneficial effects against AD.The moot question is why do vitamins E, B1 and C fail to treat AD?

Keywords:

Alzheimer's disease, thiamine, vitamin C, vitamin E

ABSTRACTS OF

POSTERS

MEDICAL SCIENCES

OXIDATIVE STRESS MARKERS AMONG PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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Doctoral school student, endocrinologist in spe.

Abstract:

Obstructive sleep apnea (OSA) is a chronic respiratory disorder, which is characterized by recurrent episodes of partial or complete obstruction of upper airways with consistent movements of the respiratory muscle during sleep. As a consequence, the intermittent hypoxemia and the consequent re-oxygenation result in the production of reactive oxygen species leading to the systematic oxidative stress. Various biomarkers of oxidative stress including high sensitive C-reactive protein, pregnancy-associated plasma protein-A, superoxide dismutase, cell-free DNA, 8-hydroxy-2-deoxyguanosine, advanced oxidation protein products, lipid peroxidation products, receptor for advanced glycation end-products and Thioredoxin are discussed. Biomarkers of oxidative stress could be used to assess the severity of the disease and the individual response to adequate treatment. Continuous positive airway pressure (CPAP) is one of the most common non-invasive methods of OSA treatment, which maintain upper airways open during sleep. The treatment reduces episodes of intermittent hypoxia, reoxygenation, and arousal during the night. CPAP is reported to a decrease in the concentration of oxidative stress marker.

Keywords:

obstructive sleep apnea, oxidative stress, CPAP

APPLICATION IN SILICO METHODS IN DRUG TOXICITY STUDIES

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Abstract:

Pharmaceutical safety is a rapidly developing area of pharmacy that aims to assess the potential risks associated with improperly conducted pharmacotherapy. Safety assessment is a crucial part of bringing a new drug to market, as well as for drugs already in use that are being tested for new indications.

According to the literature, one of the most commonly used drugs off-label in everyday clinical practice is Paroxetine, belonging to the SSRI group (Selective Serotonin Retake Inhibitors). The lack of registration of this drug for a number of conditions is due to the fact that there is not sufficient information especially in papers devoted to explanation of the paroxetine mechanism of action on specific targets. For this reason, the main issue of this work is the presentation of data related to the description of paroxetine activities tested at the molecular level based on the collected crystallographic data. The way paroxetine binds to the active site of selected receptors, which affects the way the drug interacts, is graphically presented. Using available software (ProTox II and AdmetSAR), paroxetine was assessed by comparing its safety with other drugs from the same class of drugs.

The tests conducted were confirmed by literature data, proving the effectiveness of in silico methods in the first step of drug safety testing.

Keywords:

in silico methods, drug toxicity

APPLICATION OF CAR-T THERAPY IN RECURRENT MULTIFOCAL GLIOBLASTOMA

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Authors are students at University of Lodz, passionate about medical sciences with focus on genetics. Their area of interest includes cancer treatments, innovative therapies, and epigenetics.

Abstract:

CAR-T cell therapy (CAR, chimeric antigen receptor) is a personalized form of immunotherapy based on the use of T lymphocytes collected from the patient, which are supplied with CARs using viral vectors. This poster presents the results of therapeutic studies conducted by the team led by prof. Behnam Badie, using CAR-T lymphocytes targeting the tumor-associated antigen interleukin-13 receptor alpha 2 (IL13Rα2) in a patient with recurrent multifocal glioblastoma and spinal cord metastases. The modified CAR-T cells were introduced into the resection cavity by means of multiple intracavitary infusions, followed by intraventricular infusions into the patient's central nervous system. The therapy did not result in any serious adverse side effects. After the end of therapy, regression of all tumors and a periodic increase in cytokines and immune cells in the cerebrospinal fluid were observed. Clinical response was maintained over the period of 7.5 months after the start of CAR-T therapy. The results suggest that CAR-T immunotherapy targeting glioblastoma-associated IL13Rα2 antigen shows efficiency and great therapeutic potential in the treatment of cancers.

Keywords:

CAR-T therapy, glioblastoma, T lymphocytes, intracavitary, intraventricular

BIOCHEMICAL MARKERS OF BRAIN ISCHAEMIC DAMAGE AFTER CAROTID ENDARTERECTOMY

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A few words about the author(s):

PHD Student in Doctoral School od Medical University of Lublin, at the Department of Vascular Surgery and angiology.

Abstract:

Each year, more than 11 million ischaemic strokes (IS) occur worldwide. Stroke is one of the main causes of morbidity and mortality.

Carotid endarterectomy (CEA) was established as the first gold standard for the treatment of symptomatic CAS.

In the past, the invention of markers such as troponins and creatinine kinase revolutionized the way of diagnosing myocardial damage. So far, no similarly sensitive and specific indicators of brain damage have been put into clinical use. Nevertheless, there are many molecules that have been found to be potentially useful.

These include the S100B protein, NSE, YKL40, GFAP, UCH-L1, degradation products of alpha-II spectrin (SBDP 120, SBDP 145, SBDP150), MBP, NEFL, MAPt, and VLP-1.

So far, the following molecules has been investigated in the perioperative period in patients undergoing endarterectomy: S100B protein, YKL40, NEFL, FABP7, CNDP1, UCHL1, GFAP, MAPt, MBP, NSE, KYNA, and Clusterin. Among the above-mentioned molecules, the levels of S100B protein, YKL40, CNDP1, UCHL1, MAPt, MBP, NSE, KYNA, and Clusterin showed significant changes before and after surgery, so they can be potential biomarkers of brain damage after endarterectomy.

However, some of the molecules considered to be potentially useful in the diagnosis of brain damage have so far not been measured in patients after CEA. Therefore, there is a need for further studies to detect enough sensitive and specific markers for the detection of brain damage after the CEA.

Keywords:

brain damage markers, stroke, carotid endarterectomy

TENSION HEADACHE

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A few words about the author(s):

My name is Dominika Wójcik. I am a 4th year student of physiotherapy. I am interested in urogynecological physiotherapy and paediatrics.

Abstract:

Tension headaches are the most common type of headache. From the poster, you will learn how to recognize such pain, what its causes are, and what to do to avoid it in the future. You will also learn about when to see a doctor and the criteria for identifying the subtypes of tension headache.

Keywords:

headache, pain, physiotherapy

JOINT HYPERMOBILITY

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A few words about the author(s):

My name is Dominika Wójcik. I am a 4th year student of physiotherapy. I am interested in urogynecological physiotherapy and paediatrics.

Abstract:

In Poland, up to 24% of adults suffer from hypermobility. The poster will show you how to recognize hypermobility, its causes, symptoms and treatment options. I will also provide additional tips to help people with this condition.

Keywords:

joint, hypermobility, physiotherapy

ABSTRACTS OF

PRESENTATIONS

TECHNICAL & NATURAL SCIENCES

EFFECTIVENESS OF LENS TECHNOLOGY FOR INCONEL 625 BASED PARTS REPAIR PROCESS

Izabela Barwińska (1, 2)*, Tomasz Durejko (2), Mateusz Kopeć (1), Zbigniew L. Kowalewski (1)

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I. Barwińska is young researcher of IPPT PAN. T. Durejko is Head of Materials Technology Department, WAT. M. Kopeć is Head of Materials and Structural Testing Laboratory, IPPT PAN. Z.L. Kowalewski is Head of Experimental Mechanics Department, IPPT PAN.

Abstract:

In this paper, an assessment of the LENS technology effectiveness for repair of Inconel 625 parts was presented. The spherical Inconel 625 powder with a normal distribution of particles size in the range of 70÷150 μm was used as a batch material. Optimization of the technology parameters was performed at the constant laser power of 550 W. During the LENS process the following parameters were variable: feed of the laser head, powder feeding rate, Laser On/Off Wait and Laser Off/On Shutter Delay. The repair process was performed using the Teach and Learn method with and without contour (Hatch Fill and Hatch Only options). It was concluded, that properly selected process parameters (laser power of 550 W and powder feeding rate of 12 RPM) and heating substrate to 300^{o}C enable precise and defect-free repair process of the pockets machined with different shape. Moreover, the laser clad should be applied in at least three layers on the repairing place. Such procedure would ensure the high quality of the laser clad without any discontinuities and cracks in the substrate and material interface zone repaired.

Keywords:

LENS, additive manufacturing, Inconel 625, repair process

THE INFLUENCE OF NAPROXEN, INDOMETHACINE AND ASPIRIN SUPPLEMENTATION ON PACAP EXPRESSION IN NEURONS OF THE MUSCLE GANGLION IN THE PORCINE JEJUNUM

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A few words about the author(s):

I am a member of scientific circle of clinical physiologists at the University of Warmia and Mazury in Olsztyn in Department of Clinical Physiology. Thanks to belonging to this group, I have the opportunity to expand my current knowledge.

Abstract:

Naproxen belongs to NSAID group. An action very similar to naproxen is caused by indomethacin. Aspirin is a popular agent with analgesic, antipyretic and anti-inflammatory properties, and may also exhibit anticoagulant properties when taken for a long time.

The aim of the study was to investigate the influence of naproxen, indomethacin and aspirin on the expression of PACAP in neurons of the muscle ganglion in the porcine jejunum.

The experiment was carried out on 8 gilts of the duroc breed at the age of 8 weeks. The animals were divided into two groups - the control group and the experimental group. Pigs in the test group were administered orally indomethacin and naproxen at a dose of 10 mg / kg, daily for 4 weeks, about 1 hour before feeding; apirin was administered orally at a dose of 100 mg / kg, also daily, for 4g. After this time, the animals were euthanized. The collected material was fixed, and then frozen preparations were prepared, which were subjected to double immunofluorescence staining. In the staining procedure, anti-PGP 9.5 neuronal marker and GAL antibodies were used as primary antibodies. Secondary antibodies were also used in staining - Alexa Fluor 488 and 546.

After analyzing the results obtained with the use of a fluorescence microscope, statistically significant changes were observed in the population of PACAP positive neurons in the ganglion of the pig's jejunum after administration of 10 mg / kg of indomethacin and naproxen and 100 mg / kg of aspirin.

Keywords:

PACAP, NSAIDs, naproxen, indometacine, aspirin

LOVE AND MATHEMATICS

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A few words about the author(s):

I am a student of Politechnika Lubelska, I study two subjects: Mathematics (4th year) and Computer Science (1st year). I am interested in statistics, machine learning, and other ways in which mathematics can be applied to solve everyday problems.

Abstract:

This article discusses problem of mathematical modeling of love and interpersonal relationships. It shows an overview of what has already been explored by matehmaticians and psychologists. The article starts with showing an almost anegdotic use of the famous Drake Equation – can it be used to calculate one's chance of meeting love of their life? Then it proceeds to a very practical use of mathematics – in form of an algorithm on a dating side called OKCupid. Next topic is application of game theory concepts in terms of relationships – we discuss searching for a partner using Gale-Shapley algorithm and ,,game of fidelity'' – a variation of the prisoners dilemma. The next chapter presents discoveries from study done by Swedish mathematicians, concerning the web of human sexual contacts, The last chapter summarises one of the biggest mathematical studies on subject of marriage. This article discusses very interesting applications of mathematics in a form which is suitable both for mathematicians and people with other education.

Keywords:

mathematical modeling, love, marriage

VARIABILITY OF PACAP EXPRESSION IN SUBMUCOSAL GANGLION NEURONS OF THE PORCINE JEJUNUM INFLUENCED BY INDOMETHACIN AND NAPROXEN SUPPLEMENTATION

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A few words about the author(s):

2nd year veterinary students belonging to the scientific circle of clinical physiologists, actively participating in research on the gastrointestinal tract under the supervision of dr hab. Michał Bulc, prof. UWM.

Abstract:

The aim of this study was to investigate the effects of indomethacin and naproxen on PACAP expression in submucosal ganglion neurons in the porcine jejunum.Indomethacin is an organic chemical compound, a derivative of indoleacetic acid,it belongs to the group of non-steroidal anti-inflammatory drugs. Indomethacin has actions characteristic for the group of NSAIDs, anti-inflammatory, analgesic, antipyretic and platelet aggregation inhibiting effects. Naproxen is an organic chemical compound, a derivative of propionic acid with analgesic, anti-inflammatory and antipyretic effects and is included in the group of non-steroidal anti-inflammatory drugs. The experiment was conducted on 8 duroc gilts aged 8 weeks, divided into two groups - control and experimental. Pigs in the control group were orally administered indomethacin and naproxen, at a dose of 10 mg/kg, daily for 4 weeks, about 1 h before feeding. After this time, the animals were euthanised. The collected material was fixed and frozen preparations were made and subjected to double immunofluorescence staining. In the staining procedure, primary antibodies were antibodies against the neuronal marker PGP 9.5, against GAL, and secondary antibodies Alexa Fluor 488 and 546 were used. After analysis of the results,statistically significant changes were observed in the population of PACAP positive neurons in the submucosal ganglion in the jejunum of the pig after administration of 10 mg/kg indomethacin and naproxen.

Keywords:

pig, indomethacin, naproxen, PACAP, jejunum

UNDERLYING CASE OF DEPRESSION IN PARKINSON'S DISEASE

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A few words about the author(s):

Postgraduate student in neurophysiology, intrested in research on mnemonic and cognitive functions of the human brain. Involved in behavioral study conducted on rats, whereby she is trying to unravel the mysteries of memory functions.

Abstract:

Basic symptoms of Parkinson's Disease (PD) are tremor, rigid muscles and slowness of movement. Nomotor symptoms may include emotional changes such as depression, which is the most important. Depression is detect in 30-35% PD patients. It could be preclinical symptom or occur as disease progress neurodegeneration in patients brain. Pathophysiology of depression in PD is still unclear. Changes in concentration of neurotransmitters, mostly serotonin and dopamine decrease, lead to rise depressive symptoms. Neural connections that change their activity in PD with depression are: Basal Ganglia Network, Default-mode Network and Frontoparietal Network. Amygdala (AMY) and Anterior cingulate cortex (ACC) are also involved in depression. There was a significant decrease in the number of functional connectivity (FC) in corticolimbic regions and an increased FC in subcortical limbic regions (mainly AMY and thalamus). Depression symptoms are also correlated with the changing volume of many structures and cortical atrophy over time. The increase in atrophy of the cerebral cortex is positively correlated with progression of disease. Distinctly reduced structures are AMY, caudate, ACC and abdominal striatum. All these changes result from the ongoing neurodegenerative process, inducing atrophy of neurons in the substantia nigra and striatum, which are the main source of changes in PD.

Keywords:

depression, Parkinson's Disease, neurodegeneration

THE METHOD OF DISINFECTION OF VENTILATION AND AIR-CONDITIONING SYSTEMS WITH NANOCOLLOIDAL SILVER

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R&D Engineers at Technology Transfer Agency TECHTRA.

Abstract:

In modern times we observe a rising interest in using colloidal silver as a disinfecting agent. In the presentation, we discuss a novel approach to disinfecting ventilation and air conditioning systems. We present the first prototype of a mobile device capable of fulfilling such task by generating silver colloid solution in situ. The general working principles of our device, such as the fluidic and electrical systems involved, are shown. Furthermore, we present the results of the performed biological tests which confirm the antibacterial properties of the colloidal silver we produced using the method of electrolysis.

Keywords:

silver colloid, nanosilver

HYBRID PROTEIN-DNA NANOSTRUCTURES – A REVIEW OF THE LATEST RESEARCH

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Master's student associated with the Department of Cell Biochemistry at the Jagiellonian University and at the Bionano and Biochemistry Lab at the Małopolska Center of Biotechnology in Krakow. My research interests focus mainly on DNA nanostructures.

Abstract:

DNA and proteins are molecules with unique chemical and physical properties that allow us to create nanoscale structures from them. They can perform both structural and functional functions. The combination of these amazing molecules leads to the production of advanced nanostructures with an extremely wide range of applications. In this review, I try to explain the ways in which DNA-protein structures can be created and how they have been used in a few selected recent studies.

Keywords:

DNA nanostructures, hybrid nanostructures

THE HYPERCOMPLEX NUMBER IN GEOMETRY

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A few words about the author(s):

I am studying maths and I would like to spread the knowledge of unusual but amazing mathematical discoveries. I am especially interested in the hypercomplex number. These issues still inspire me for further research.

Abstract:

The hypercomplex number is an extension of real numbers which can be used to describe the geometric space. The complex numbers provide to show the geometric transformation e.g rotations and symmetries in this space. What's important, we aren't going to perform it using the set-square as we used to do it at school. We are doing it using trigonometric form of complex number. Then there will be presented the most important information and properties about quaternions. Thanks to it, we could define analogous transformations to those of the two-dimensional plane but now in three-dimensional space by embedding it on three axes of the four-dimensional space which is described by quaternions. In conclusion, we will present the use of hypercomplex number in two, three and four dimensional space.

Keywords:

hypercomplex numbers, quaternions, complex number, geometry

THE USE OF ELECTROMAGNETIC LINEAR DRIVES IN CARTESIAN SYSTEMS ON THE EXAMPLE OF A LARGE-SIZE PRINTER

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A few words about the author(s):

Authors are Ph.D. students at AGH University in Krakow. Robert Grolik – researcher in field of 3D printing, AI algorithms and robotics; CEO at 4Robot Sp. z o.o. Michał Góra – specialist in mechanical and robotics systems; CTO at ATMAT Sp. z o.o.

Abstract:

FDM 3D printing technology relies on the application of successive layers of molten thermoplastic material. It is now widely used, mainly for prototype and small-lot production, but in 2015 ATMAT decided to seek to raise the level of FDM printing technology to the area of planned production. As part of the project POIR.01.01.01-00-2064/15-00 "Development of a technology consisting of many innovative solutions, improving the quality of 3D printing and enabling large-size and multicolour printing" co-financed by the National Centre for Research and Development, printers have been designed and manufactured to enable much faster printing than was possible before the start of the project.

One of the most important activities under the project was the development of X and Y axis drive systems in the Cartesian printer system. Speed and precision of head positioning in an FDM 3D printer are of primary importance in the context of print quality and production speed. Through the detailed technology review and the analysis of the features of various solutions, it turned out that linear motors showed better operating parameters concerning solutions based on rotary engines. Although very high price meant to decide to use this system only in the largest printer model, i.e., ATMAT Jupiter.

The paper presents the principle of operation of direct linear drives and their comparison to other types of drive systems used in Cartesian motion systems, with the intention of their use in a 3D priner.

Keywords:

linear magnetic motors, FDM printer, linear actuators

THE USE OF PEA SEEDS, SUNFLOWER SEEDS TO CREATE FERMENTATION OF PLANT DRINKS THAT CAN SUBSTITUTE FOR COW'S MILK

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Ewa Kulczyk-student of microbiology, participant of the project "Eagles School ZUT"; Prof Artur Bartkowiak-director of the Center of Bioimmobilisation and Innovative Packaging Materials; mg inż. Emilia Drozłowska-member of the "ProBioVege"project team.

Abstract:

As part of the research, the possibility of obtaining a plant drink with taste values and a chemical composition possibly similar to cow's milk was verified with the use of selected plant seeds in two variants: from sunflower (S) and from a mixture of peas, beans and sunflower seeds (GFS). Appropriate selection of the ratio of seeds in the mixture and the sunflower drink made it possible to obtain a composition similar to that of cow's milk. Inoculated plant drinks with yoghurt bacterial culture (Streptococcus spp., Lactobacillus spp.) incubated at 40 ^{o}C for 4 hours. Marked dynamics fermentation by measurement pH after each hour of incubation. Colour analysis speecifies a changing the coordinates that define the color. To define sample change visxosity to determine the texture change. The analysis was complemented by sensory evaluation of fermented plant drinks. The research initially confirmed the possibility of formulation plant products similar in composition, consistency and taste to milk and its selected fermented products, which in the future may be much more easily accepted by a larger group of consumers as equivalents of dairy products already existing on the market.

Keywords:

fermentation, seeds, plant drinks

ASSESSMENT OF THE ABILITY OF SELECTED STRAINS FROM THE GENUS METARHIZIUM SP. FOR THE ELIMINATION OF TRICLOSAN

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A few words about the author(s):

Dominika Piwowarska is a graduate of the University of Łódź, with a Master's degree in Microbiological Biotechnology. The main areas of her scientific interests are toxicology, degradation of EDCs compounds and environmental detoxification.

Abstract:

The widespread use of triclosan (TCS) in everyday products means that this compound is increasingly often detected in many ecosystems. The reason for concerns about the impact of TCS on organisms is the similarity of its structure to harmful pollutants such as BPA dioxins. According to numerous studies, TCS can impair the endocrine system of both humans and animals through the antagonistic effect towards not only natural estrogen receptors, but also androgen receptors. In addition, it is now recognized as a potential carcinogenic, mutagenic and teratogenic agent.

The aim of this study was to assess the ability of selected strains of filamentous fungi belonging to the genus Metarhizium to eliminate triclosan from the growth environment. Among the filamentous fungi of the genus Metarhizium selected for microscopic examination, Metarhizium brunneum, Metarhizium robertsii 6519, Metarhizium anisopliae ARSEF 7487 and Metarhizium robertsii ARSEF 727 were capable of eliminating TCS from the growth medium. The greatest loss of the xenobiotic was observed in 10-day-old cultures incubated with triclosan at a concentration of 2.5 mg/L, conducted with the use of M. brunneum and M. anisopliae ARSEF 7487, where respectively 50.8% and 49.8% of the test compound were lost.

Studies on the elimination of triclosan by Metarhizium fungi forms the basis for further analyses and may, in the future, be used to develop innovative methods of removing xenobiotic substances from the natural environment.

Keywords:

triclosan, Metarhizium, elimination, detoxification, toxicity

FALCO PEREGRINE AFTER ACCIDENT DURING HUNTING – VETERINARY CASE

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A few words about the author(s):

I am second year student at faculty of Veterinary Medicine in University of Warmia and Mazury in Olsztyn and an active member of SKN of Little Mammals and Avian Diseases there. For about three years I have official falconer qualifications.

Abstract:

In falconry peregrine falcon is seen as one of classic birds. He is the fastest flying hunter. As a bird of prey, he is a predator and in wild his ability to survive depends on his successful attacks. To mantain success he uses his speed and talons and through the impact the prey loses consciousness or life.

Bird described in the case has been probably attacked on his prey by other bird. It is most likely what happened due to his injuries type, which are small but went deep through the falcon back. He also had bruises, which indicate that fight has taken place.

The presentation shows the steps taken to support falcon's recovery, the treatment, the unexpected complications and the outcome of this effort. It also highlights the need to adjust methods to the patient. As he was a falconry bird, the bound between him and falconer should be taken into consideration. Otherwise than in the case of wild bird, here the trust for a human is desirable trait and it shouldn't be affected if it is possible. For example: by too forceful actions patient can gain the fear of being hooded. Later, it can become a behavioral problem. But, the fact bird was previously trained and his character is well known can be also an advantage as it makes medicament easier to apply.

It's a short study case both from veterinary medicine and falconry view.

Keywords:

birds of prey, veterinary medicine, avian medicine, falconry

FEEDING THE ORNITHOFAGS IN EXAMPLE OF PEREGRINE FALCON

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Abstract:

Birds of prey classify as bird predators, which use their specific talons and sometimes beak features to catch other animals and feed on them. As ornithofags we define those species, which has only (or mostly if they don't have the choice) birds in their diet. Peregrine falcon is an example for both of these groups.

When feeding the falcon in captivity it is very important to make his diet as close to his natural diet as possible. The fact that this specie represents the ornithofags should be taken in consideration. As they catch only birds, peregrine falcon have a little different nutrition needs than other birds of prey.

The presentation is a guideline based on experience and book knowledge. It includes specie description, food preparation process, food types, highlight on health problems which wrong feeding may cause, tips and example of diet of two falcons during different times of a year, showing their needs, reaction and things that affected them.

Keywords:

birds of prey, feeding

THE PROCEDURE OF RAPTORS HATCHLING REARING FOR REHABILITATION PURPOSE

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I am second year student at faculty of Veterinary Medicine in University of Warmia and Mazury in Olsztyn and an active member of SKN of Little Mammals and Avian Diseases there. For about three years I have official falconer qualifications.

Abstract:

The hatchlings of any raptor may get into wildlife rehabilitation centre due to different situations e.g. parents or nest loss. To rear them successfully it is necessary to know the basics about their mental conditions. The most important process that occur in hatchling is the process of imprinting. It can be affected by humans and can change bird psyche for all life. Imprinting definition is used to describe situations in which bird learns the characteristics of some stimulus. The bird become „imprinted" onto something. The subject will become something with which bird will be identifying himself in future. That's leading point, because bird will try to interact and will show mating behaviour towards it. In effect, from hatchling will grow adult, which will not extend the species. In presentation are shown main mistakes, which should be avoid, explanations of their consequences and suggestions for improving bird rearing at such centres, due to birds of prey behavioural knowledge.

Keywords:

birds rehabilitation, birds of prey, birds rearing, wildlife

RESEARCH ON SELECTED PROPERTIES OF ADSORBENTS FOR LIQUID CHROMATOGRAPHY

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A few words about the author(s):

Graduate of the Faculty of Chemistry at Rzeszow University of Technology, faculties: Biotechnology and Chemical and process engineering. Research topics: liquid chromatography, extraction chromatography, proteins extraction.

Abstract:

Conventional liquid chromatography is commonly used in preparative scale work to purify and isolate different chemical components of a mixture. It is a separation technique and it is carried out either in a column or a plane. Liquid chromatography generally utilizes very small packing particles. It is very important to correctly determine the particle size distribution of adsorbents. The analytical method of determining size distribution should be repeatable and accurate. The objective of the work was to examine the particle size distribution of adsorbents used in liquid chromatography and validate the analytical method. The dynamic light scattering method was used. This value was measured via probability density curves. Commercial adsorbent used as column packing in liquid chromatography was used. In this study, the effects of dispersion type, mixing time and ultrasonic exposure time on grain size distribution and specific surface area were investigated. The effect of measurement parameters on characteristic diameters was also determined. Measurements were performed using the method in suspension.

Keywords:

adsorbents, liquid chromatography, particle size distribution

EXAMINATION OF MECHANICAL PROPERTIES OF ACTIVATED CARBONS

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Graduate of the Faculty of Chemistry at Rzeszow University of Technology, faculties: Biotechnology and Chemical and process engineering. Research topics: liquid chromatography, extraction chromatography, proteins extraction.

Abstract:

Activated carbons are porous adsorbents obtained by carbonization and activation. They are characterized by a very large specific surface area and are therefore often used in adsorption processes for water and wastewater treatment, taste and odor improvement, and removal of undesirable organic compounds from liquids. The advantages of activated carbons are their chemical and thermal stability, highly developed porous structure and the possibility to modify the surface properties. The properties of activated carbons depend on the surface area and pore size, but particle size is also an important factor. Determination of the grain size distribution enables the selection of appropriate parameters for the technological process, determines the rheological properties, and also determines the flowability of the powder. The objective of the work was to examine the particle size distribution of activated carbons by the laser diffraction method. The influence of mixing time, dispersion liquid and sonification time on the particle size distribution was analyzed. Based on the tests, the particle size distribution, specific external surface and characteristic diameters were determined.

Keywords:

adsorbents, activated carbons, particle size distribution

INVESTIGATION OF THE INFLUENCE OF OPERATION PARAMETERS ON PARTICLE SEPARATION IN CONTINUOUS HOPPER PAN TRANSFER GRANULATION

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Graduate Rzeszow University of Technology, specialization: Chemical technology. PhD student at the Institute of Catalysis and Surface Chemistry Polish Academy of Sciences. Research activities: properties of powders, granulation.

Abstract:

This study investigated the effect of operating parameters on particle separation in continuous hopper pan granulation. Pan granulation was carried out using primary dolomite particles and sprayed sodium lignosulfonate binder solution. The effects of individual changes in operating parameters on the process behaviour and quality of the product and intermediate product taken directly from the granulator - called pan - were investigated. Based on the differences in the granule size distribution of the product and pan samples, the particle separation function was determined. The pan samples and product samples were analysed offline. Particle size distribution (PSD) of each sample was measured offline by dynamic light scattering. The output from the analyser is PSD, normalized with respect to the volume of the particle collection for each sample. The granules were characterized in terms of characteristic granule size and mechanical properties. The results show a clear relationship between the process parameters and the separation function. It is shown that all the investigated process parameters affect the particle separation.

Keywords:

pan granulation, continuous operation, agglomeration

SECONDARY HYPOPARATHYROIDISM IN TORTOISES – CASE REPORT

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4th year veterinary student in Olsztyn. I bind my interests and future work towards exotic animals.

Abstract:

The aim of the study was to present the problem of Metoabolic Bone Disease (MBD) on the example of a clinical case.

The patient was a tortoise named Fredzia exhibiting the following symptoms: lack of appetite, depression and swelling around the eyes. An interview and clinical examination were conducted, and blood chemistry tests were ordered. After the treatment was initiated, control tests of biochemical parameters were performed after 14, 35 and 120 days.

The data obtained from the history indicated inadequate housing conditions and a diet not adapted to this species. Clinical examination showed general poor condition, deformation of the carapace and low body weight. The obtained results of blood chemistry, as well as the improvement after the applied treatment, allowed for the diagnosis of MBD in Fredzia.

The presented clinical case shows that despite the wide access to literature and information on the internet, the owners' knowledge of the conditions of keeping reptiles as companion animals is still insufficient. Hence the great role of veterinarians in educating and advising pet owners on the needs of their pets.

Keywords:

reptiles, MBD, animal welfare

NOURISHMENT OF RABBITS

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A few words about the author(s):

4th year veterinary student in Olsztyn. I bind my interests and future work towards exotic animals.

Abstract:

In recent times, many myths and superstitions have arisen regarding the care of rabbit relationships. Almost every fan and breeder of this species has their own preferences and preferences regarding the establishment of such a different food in their pets. It is almost always related to rabbit health concerns, but unfortunately there is often no physiologycall cause.

Vegetables and fruits - are they essential in a rabbit's diet?

One of such myths is, for example, the provision of carrots as a healthy component of everyday nutrition. Due to the large amount of simple sugars, carrots are not directly and easily used by the rabbit intestines and are only an excellent substrate for the multiplication of bacteria that often cause gas and inflammation of the gastrointestinal tract. Fruits (apples, pears, peaches, etc.). The mechanism of their harmful action is similar to that of carrots. Of course, they can be served in very small amounts from time to time as a snack, but those owners who have had severe bowel disease with their pets, combined with their atony and flatulence, quickly "heal" of these dietary habits. Of course, you can find arguments in favor of periodic administration of certain fruits (e.g. bananas, whose properties are described as prebiotic, or pineapples as components of a diet that inhibits the formation of hair balls), but it is better to follow the general rule of not giving fruit, because without them, rabbits will be fine. handled unexpectedly well.

Keywords:

rabbits, feeding

BASIC OF RABBIT'S STOMATOLOGY

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Abstract:

The aim of the study was to present the most common cases of rabbit dentistry and the difficulties that a veterinarian may encounter in his practice.

Rabbits are often visited to veterinarians with symptoms such as reduced and/or selective appetite, weight loss, apathy or diarrhea. Although they may suggest gastrointestinal motility disorders, they should first of all sensitize the doctor to possible diseases of the oral cavity, including teeth. In this case, a complete dental examination should be performed. It is even recommended to conduct such a study in healthy animals, without clinical signs, as part of the basic clinical trial in order to detect possible disorders as early as possible. This is extremely important because in the early stages of many abnormalities treatment is effective and relapses can often be prevented by changing the diet. Later, the only treatment is palliative care.

Keywords:

dentistry, small mammals, exotic pets

SEARCHING FOR ACTIVE COMPOUNDS IN SCHISANDRA CHINENSIS FRUITS BY TLC-DB

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I am a PhD student in department of Chromatogrpahy at Faculty of Chemistry of Maria Curie Skłodowska University in Lublin. My research focuses on the search for active compounds in plants of the Schisandra family by TLC-DB.

Abstract:

Schisandra chinensis is a new pharmacopoeial species introduced just a few years ago to European phytotherapy due to its traditional use in Chinese medicine. It was used, among others, for the treatment of cough, shortness of breath or insomnia. S. chinensis is also known for its adaptogenic properties which can support the treatment of neurodegenerative disorders, particularly Alzheimer's disease. The compounds specific for this species - dibenzocyclooctadiene lignans – are responsible for the biological properties of the plant. S. chinensis fruits are also rich in monosaccharides, polysaccharides and organic acids.

Thin layer chromatography (TLC) is a useful tool for the analysis of various biological compounds and natural products, because it provides a simple separation and convenient visualization of many samples in parallel in the relatively short time. TLC-direct bioautography (TLC-DB) for acetylcholinesterase (AChE) inhibition and TLC-DB against B. subtilis were performed, followed by micro-preparative separation of fractions which were subsequently subjected to LC-MS tentative identification. Additionally, screening analysis was done using both biological detection and derivatization reagents (e.g. AS, thymol, NP-PEG). Both TLC screening and effect-directed analysis (TLC-DB followed by MS analysis) of S. chinensis fruit revealed components with biological activity, especially antibacterials (citric acid) and inhibitors of AChE (lignans).

Keywords:

Schisandra chinensis, TLC-direct bioautography, acetylcholinesterase inhibition, effect directed analysis, LC-MS

PREPARATION OF FIBERS FOR MICROEXTRACTION TO STATIONARY PHASE CONTAINING GRAPHITE AND THEIR APPLICATION FOR THE ANALYSIS OF SELECTED ORGANIC COMPOUNDS

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A few words about the author(s):

M. Eng. Jakub Woźniak, graduate of the Military University of Technology, multiple laureates of the rector's scholarship for the best students, involved in several scientific conferences and a scientific research project.

Abstract:

This presentation describes the process of modification of graphite pencil leads to use them as graphite sorption fibers for SPME, and the process of optimizing extraction conditions using self-produced graphite sorption fibers for SPME. The SPME technique, its genesis, advantages over other techniques used, and the principle of its operation are described. Optimization is discussed in detail, i.e. the individual elements that affect the extraction carried out with this technique. The methodology for preparing graphite fibers for SPME from graphite pencil leads and the methodology for preparing samples testing the properties of obtained fibers for SPME are described. The sorption properties of graphite pencil cartridges were investigated, and the conditions for their use for testing selected organic compounds were optimized. The extraction efficiency using self-made fibers was compared to the extraction efficiency carried out with commercially available fiber with triple sorption coating. The obtained results are presented in the form of tables and graphs. The conclusions were presented. The obtained results may constitute the basis for further development and research of cheap and readily available graphite sorption fibers for SPME, used for the analysis of selected organic compounds.

This work was partially supported by a research project fund “Elimination of modern military threats related to dangerous substances with military potential” # GB MON/13-994/2018/WAT/2018

Keywords:

SPME, graphite fibers for SPME, gas chromatography, optimization

PREVENTION OF METABOLIC DISEASES OF THE TRANSITIONAL PERIOD IN DAIRY COWS

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Abstract:

Transition period starts 21 days before calving. Ketosis is one of those most common after calving. The main cause in cows is a negative energy balance, which occurs with excessive fatness during the dry period and energy deficiency after calving. Another cause of primary ketosis is poor cow nutrition. Secondary ketosis is caused by malnutrition caused by other ailments. Prevention during the dry period is the administration of feed that will be used at the peak of lactation. Postpartum prevention - administration of balanced rations with the elimination of woody silage from old grasses, alfalfa and rotten silage. Holistic prevention is adding some hay / straw to the TMR. The fatty degeneration liver syndrome is a metabolic disorder closely related to disturbances in energy metabolism in the perinatal period, most often in pre-parturition cows with high production potential, but poorly fed. Rumen acidosis is the result of feeding a large amount of fodder rich in easily digestible carbohydrates. It can be prevented by avoiding excess of unstructured carbohydrates, using additives that increase rumen fluid buffering, TMR system, increasing the frequency of feeding, proper mixing of feed, feeding "ad libitum". Before giving birth, cows have a reduction in feed intake. Therefore it is necessary to use specialized supplements, eliminate sodium bicarbonate from the TMR, follow an anionic diet, increase the share of nutrients essential for the immune system in the nutritional doses.

Keywords:

ketosis, dry period, rumen acidosis

FELINE INTERSTITIAL IDIOPATHIC CYSTITIS (FIC)

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Abstract:

Feline idiopathic cystitis occurs in young or middle-aged cats with combination of symptoms like dysuria, stranguria, pollakiuria, periuria, haematuria. Etiopathogenesis can be related to viral infection and altered immune response, disturbances in the morphology or function of the bladder, neurogenic inflammation, mast cell degranulation and antihistamines, psychoendocrine dysfunction. These symptoms usually take the form of a sudden episode and resolve spontaneously in 5-7 days in most cats, but may recur within 1-2 years and in some cats be chronic. Obstructive FIC is possible, especially in males. Cats with FIC produce small amounts of concentrated and infrequent urination, and inflammatory proteinuria and stress-induced rapid breathing result in an alkaline urine pH. Then the risk of crystallization and the amount of struvite formed increase. Assuming the theory of urothelial barrier damage is correct, urine components are in direct contact with the urothelium and deeper layers of the bladder wall - the ends of the myelin C-type fibers in the submucosa are irritated and stimulated = pain sensation and the release of substance P responsible for the development of neurogenic inflammation. Microscopic examination of the feline bladder sections revealed mast cell infiltration, degranulation and activation. Treatment is based on behavioral therapy, and to limit the animal's stress. In severe cases, it is recommended to introduce psychotropic drug therapy with amitriptyline.

Keywords:

cats, dysuria, inflammation, bladder

CAT FLUE- OPHTALMOLOGY CASES

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Abstract:

The disease is polyetiological. Almost 90% of cases are caused by feline herpesvirus type 1 (FHV-1), also called feline rhinotracheitis virus, and feline calcivirus (FCV). Less commonly, the infection is caused by Bordatella bronchiseptica and Chlamydophila felis. The aim of the study is to present etiopathogenesis, various diagnostics of treatment methods, focusing on the changes observed in the eyeball in the course of feline rhinitis. Infection: Sick cats shed FHV in oral, nasal and conjunctival secretions; shedding may last for 3 weeks. Infection requires direct contact with a shedding cat. Disease signs: Feline herpesvirus infections cause acute rhinitis and conjunctivitis, usually accompanied by fever, depression and anorexia. Affected cats may also develop typical ulcerative, dendritic keratitis. Diagnosis: Samples consist of conjunctival, corneal or oropharyngeal swabs, corneal scrapings or biopsies. It is not recommended that cats recently vaccinated with a modified-live virus vaccine are sampled. Positive PCR results should be interpreted with caution, as they may be produced by low-level shedding or viral latency. Depending on the cause of the changes, different treatments are used, for example. The most effective antiviral drugs used in FHV-1 therapy belong to acyclic nucleotide analogues. Cidofovir is present in the form of a complex solution with a concentration of 0.5% An effective oral tablet drug is famciclovir.

Keywords:

feline herpesvirus, rhinitis, conjunctivitis

SYNTHESIS OF STEROIDAL SAPOGENINS WITH CARBACYCLIC F-RING

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A few words about the author(s):

A research team led by prof. Morzycki Department of Natural Products Chemistry at the Faculty of Chemistry, University of Białystok.

Abstract:

For many centuries, steroid compounds have been an excellent source of inspiration for the creation of biologically active compounds. In many cases, even a slight change in the structure of the steroid significantly changes the properties of the original. Such modifications include, for example, the replacement of one atom of an element with another or the transformation of one functional group into another. The aim of this project was to reduce the hydrophilicity and remove one of the oxygen atoms in the designed tigogenin derivatives, therefore the entire transformation procedure focused on the chemistry of the steroid E / F ring system.

The route to steroid spiroethers was: the hydrogenation of diosgenin to tigogenin, the formation of the dinorcholate lactone from tigogenin, the protection of the 3-OH group of the lactone with a silyl ether, the Grignard reaction of the protected lactone with terminal alkyl dibromides and finally the restoration of the E-ring by acid hydrolysis. During the execution of the project, the TLC technique was used both to control the progress of the reaction as well as to evaluate the method and effectiveness of the separation of steroid products by means of column chromatography. A specific mixture of phosphoromolybdic acid and cerium (IV) sulfate in ethanol and sulfuric acid was used to visualize the chromatogram.

Keywords:

Grignard reaction, sapogenin, diosgenin, tigogenin

ABSTRACTS OF

POSTERS

TECHNICAL & NATURAL SCIENCES

A NEW APPROACH TO MECHANOCHEMISTRY - CUSTOM MADE MILLING VIALS REVIEW

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A few words about the author(s):

Agata Baran is a lecturer and PhD Student working at Military University of Technology in Warsaw. Her main field of study is focused on hydrogen storage materials, including synthesis and characterization in the context of the functional parameters.

Abstract:

Previous years have shown that climate change became a climate crisis. Hence, it is crucial to find a green energy source. Hydrogen seems to be one of the most perspective energy carriers due to the largest gravimetric density. Hydrogen has many advantages, but when it comes to mobile applications – it can be dangerous. The reason for that is the storage method. One of the relatively safe storage options is based on solid-state hydrides. That method is characterized by low-pressure filling (several bars) and heat evolution during loading. One of the best ways of solid-state hydrogen storage is based on metal hydrides, which are often synthesized by mechanochemistry methods. The technique is based on the processing of powder particles in ball mills and has several variants – mechanical alloying (MA), mechanical milling (MM), and reactive milling (RM). Each of the methods is based on a different occurrence, and it is associated with specific process conditions (the type of the mill, milling speed, time, grinding media (balls), ball-to-powder weight ratio, presence of the process control agents, and many more). The mill's manufacturers provide many commercially available solutions, but under laboratory conditions, they can often be unsatisfactory for particular experiments. Hence, we tried to upgrade the functionality of the commercially available milling cylinders, which is the subject of the poster.

Keywords:

mechanochemistry, solid state hydrogen, metal hydrides, magnesium hydride

AN EXAMINATION OF LITHIUM AMIDE SYNTHESIS AS A SOLID STATE HYDROGEN STORAGE MATERIAL

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A few words about the author(s):

Agata Baran is a lecturer and PhD Student working at Military University of Technology in Warsaw. Her main field of study is focused on hydrogen storage materials, including synthesis and characterization in the context of the functional parameters.

Abstract:

The aim purpose of the work is connected to lithium amide synthesis. Lithium amides belong to the complex hydrides group of functional materials. The synthesis was performed with the use of two different methods. Both of them are connected with the reaction of pure metallic lithium with a gaseous mixture (hydrogen and nitrogen with different ratios). One of them is based on reactive milling, and another one needed Sievert's apparatus. It allowed achieving increased temperaturę and pressure conditions, which is required to the synthesis occurrence. As a result, nine samples were manufactured accordingly to the experiment plan. Each sample synthesis had its technological process parameters. It allowed to synthesized materials with different phase compositions and properties. All materials features were examined with XRD analysis, DSC, TGA, and MS analysis. Obtained results were analyzed in order to find correlations between technological process parameters and synthesized materials properties.

Keywords:

solid state hydrogen storage, lithium amide, Sievert's apparatus, mechanochemical synthesis

SNAIL-1/CX43 SIGNALLING AXIS REGULATES THE SENSITIVITY OF GLIOBLASTOMA MULTIFORME CELLS TO TEMOZOLOMIDE

Jessica Catapano (1)*, Tomasz Wróbel (1), Filip Rolski (1), Natalia Janik (1), Małgorzata Kaczyńska (2), Kinga Gzieło (2), Zbigniewa Madeja (1), Zuzanna Setkowicz-Janeczko (2), Jarosław Czyż (1), Damian Ryszawy (1)

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A few words about the author(s):

PhD student from the Department of Cell Biology, focused on glioblastoma multiforme and cancer treatment with temozolomide.

Abstract:

Temozolomide (TMZ) is an alkylating agent, which easily penetrates blood-brain barrier and is independent of hepatic metabolism. To estimate the mechanisms of the tolerance of GBM cells to TMZ, we investigated a short and long-term impact of TMZ on the invasive properties of T98G cells, including their motility and transmigration potential in vitro. A cytostatic/pro-apoptotic effect of TMZ on T98G cells was accompanied by a relatively high invasive potential of T98G cells that managed to survive a pulse TMZ treatment. Furthermore, a permanent reprogramming of TMZ resistant T98G cells towards an aggressive, Snail-1/Cx43- positive, fibroblastic-like phenotype was observed after a long-term TMZ treatment. These cells maintained increased invasive properties after TMZ ablation, as confirmed by the invasion tests ex vivo and in vivo. Ectopic down-regulation of Snail-1 or Cx43 sensitized these cells to TMZ, whereas Snail-1/Cx43 up-regulation by expression vectors increased the resistance of wildtype T98G cells to this drug. These observations suggest thatTGF/Snail-1/Cx43 signaling axis regulates the resistance of GBM cells to TMZ and confirm the interrelations between Snail-1 and Cx43 in GBM progression.

Keywords:

glioblastoma multiforme, temozolomide, Cx43, Snail-1

LUMINESCENT MATERIALS BASED ON A TUNGSTATE-MOLYBDATE MATRIX

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Justyna Czajka – Research Assistant, passionate of chemical science; Agata Szczeszak – Assistant Professor, passionate of nanotechnology; Nina Kaczorowska – PhD Student, passionate of nanotechnology; Stefan Lis – Professor, passionate of nanotechnology.

Abstract:

The new multicolor tungstate-molybdate microphosphors were synthesized by a conventional, high temperature solid state method. Our thorough investigation included the analysis of their morphology, structure and tunable emission. A series of molybdate-tungstate phosphors co doped with Tb^{3+} and Eu^{3+} was prepared in two steps taking into account the different composition of the matrix and the concentration of doped lanthanides ions. X-ray diffraction (XRD) patterns of the samples confirmed the desired tetragonal crystal structure with the space group of I41/a of the luminescence materials. The color shift of the emission from green-yellow to orange-red was confirmed by the 1931 Comission Internationale de l'Eclairage (CIE) chromaticity coordinates and presented on the CIE chromaticity diagram.

Keywords:

luminescence, lanthanides, chromaticity, optical materials, tungstate-molybdate phosphors

SPECTROSCOPIC PROPERTIES OF NEW PHOSPHORS WITH TUNABLE LUMINESCENCE

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Abstract:

Following the global trends of new innovative luminescent materials, with a wide range of applications, including in solar cells, bioimaging, scintillators, light emitting diode (LED), lasers and field emission displays, we have prepared and described new tunable luminescent materials. Inorganic phosphors with a tungsten-molybdenum matrix co-doped with trivalent rare-earth ions: terbium (Tb^{3+}) and europium (Eu^{3+}), were synthesized in the traditional high temperature solid state reaction. The structural and morphological properties of new phosphors were determined, and then luminescence spectroscopy (luminescence spectra and lifetime measurements) was described. The influence of different emitter concentrations (Tb/Eu) and various matrices (W/Mo ratio) on luminescent, structural and morphological properties was investigated and determined.

Keywords:

lanthanides, mixed calcium molybdate-tungstate, optical materials, phosphors

RADIOACTIVE WASTE – HOW TO SOLVE THE PROBLEM?

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A few words about the author(s):

The author is a student of chemistry from the Faculty of Chemistry at the Maria Curie-Sklodowska University in Lublin.

Abstract:

Nuclear energy, production of drugs, production of other materials containing radioactive elements is directly related to generate waste. This work presents methods which can solve this problem. The fact that there is one nuclear stockyard in Poland - in Różan is worth noting.

Keywords:

radioactive waste, vitrification, nuclear stockyard

ALKALOIDS – DEADLY POISONS OR LIFE-SAVING MEDICINAL POTENTIAL?

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A few words about the author(s):

I am a chemistry student specializing in chemistry and diagnostics.

Abstract:

Alkaloids – deadly poisons or life-saving medicinal potential?

Alkaloids are naturally occurring compounds. They are produced by many organisms which include bacteria, fungi, plants and animals. They occur in the form of sparingly water-soluble crystals and have a characteristic bitter taste. Today, the well-known alkaloids are morphine [1], strychnine, quinine [2] and nicotine.

Scientists are very hopeful about alkaloids - they want to use them as anti-cancer drugs, drugs against mental and degenerative diseases. At current, of the pink periwinkle are used in the treatment of cancer. Quinine, which is found in quinine trees, has strong anti-inflammatory and antipyretic effects. This alkaloid has been used in the treatment of malaria. Despite their many benefits, alkaloids are very strong poisons for both humans and animals. Some of them were used for defense purposes. Indian tribes used curare to poison the arrows of bows. Alkaloids were also used in agriculture as insect repellent [3].

[1] Postepy biologii komórki, Sz. Biliński, L. Hryniewiecka, B. Kamińska, J. Kawiak, W. Kilarski, M. Olszewska, B. Płytycz, M. Zabel, J. Żeromski, polskie towarzystwo anatomiczne, tom 29, 4/2002, (531-688)
[2] Akaloidy kory chinowej – małe cząsteczki, które wiele mogą, K. Kacprzak, P. Czarnecki, 2013, 67, 5-6
[3] Roślinne trucizny. Alkaloidy i ich wykrywanie, Biologia w Szkole, Ples M, 2 (2018), Forum Media Polska Sp. z o.o., str. 59-63.

Keywords:

alkaloids, stimulant, bow, poison

PATIENT GAIT ANALYSIS SYSTEM BASED ON 6DOF SENSOR SYSTEM

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A few words about the author(s):

Authors are Ph.D. students at AGH University in Krakow. Michał Góra – specialist in mechanical and robotics systems; CTO at ATMAT Sp. z o.o. Robert Grolik – researcher in field of 3D printing, AI algorithms and robotics; CEO at 4Robot Sp. z o.o.

Abstract:

The research was aimed to create a new, easy-to-use system for measuring the position of the lower limbs during movement. Existing systems are highly complicated and stationary or designed to work with entertainment or movie systems. Due to the present improvement of the measurement accuracy of the 6DOF systems have been found the possibility to use them directly. Combining data from a gyroscope, accelerometer and appropriate placement on the body allows for precise reading, following the recommendations of a physiotherapist and a technician operating rehabilitation equipment.

The structure of the solution relies on the MPU6050 multi-axis measuring systems and open-source software libraries. The system assumed a modular configuration with a scalable number of sensors and recording on an SD card due to the high volume of information.

Built-in pre-filtering is done in real-time so that the output is clean from noise.

The comprehensive solution was tested in laboratory conditions and then installed on a passive exoskeleton. The results of measurements obtained from the new design, compared to a certified medical system based on vision cameras, showed direct suitability for reproducing the movement of the lower body parts.

The resulting data is the right solution for quick modeling of exercises and inspection of patients immediately before the activities without the necessity for expensive complex systems.

Keywords:

motion analysis, rehabilitation, movement recording, MPU6050, 6DOF

HOLZ100 TECHNOLOGY

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A few words about the author(s):

Daniel Kozłowski is student of AGH in Cracow. He is a member of „Koło naukowe budownictwa i geomechaniki". His field of study is civil engineering.

Abstract:

The Holz100 technology is a modern technology based on wood. The man who invented and patented this idea is called Erwin Thoma. He is from Austria and there he started to spread his idea. Nowadays Holz100 technology is known in more countries, but still a lot of people do not know about this conception. This technology is known for its incredible properties. In The poster i would like to show how is building material of Holz100 is made. Also I would like to explain and show you why this technology is excellet and usefull. From this poster you will get know about various achievements and records of this technology. I hope you will learn a lot of interesting things from my poster.

Keywords:

Civil Engineering, wood, technology

"GREEN" BUILDINGS CERTIFICATION

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A few words about the author(s):

Student of civil engineering at AGH University of Science and Technology in Kraków. Student belonging to the scientific association "Construction and Geomechanics".

Abstract:

The subject of the poster is the characteristics, features that certified buildings have and the requirements that must be met for a building to be certified. The project was carried out with the support of the "Construction and Geomechanics" scientific association with supervisors: Daniel Wałach,BEng, PhD and Justyna Jaskowska-Lemańska, BEng, MSc and a member of the circle Milena Kucharska, BEng,MSc.

Keywords:

certificate, green, building, energy saving

THE COMPARISION OF A TRADITIONAL HOUSE WITH AN ENERGY-EFFICIENT HOUSE

Tomasz Krawczyk

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A few words about the author(s):

The poster was made by a student of the AGH University of Science and Technology, who studies Civil Engineering. Project was supervised by a representative of a Science Club of Civil Engineering and Geomechanics: Milena Kucharska, BEng, MSc.

Abstract:

Building a detached house requires a lot of time and money. It is very important to define the effect we expect at the very beginning. For this purpose, I created a poster to compare an energy-efficient house with a traditional house.

The poster covers such issues like the cost of individual building elements. In the case of energy-efficient buildings cost is 15-25% higher than in the case of a traditionally reared up building.

It also focuses on the requirements for energy demand, which in the case of energy-efficient houses is three times lower.

Next is taking into consideration the comparsion of solids and shapes of the buildings. The body of an energy-saving house is characterized by simplicity, while a traditional house has various shapes depending on the functionality of the rooms.

Another difference is about the window and door woodwork. Energy-efficient houses use as much glazing as possible to capture solar energy, and attention is paid to reduce thermal bridges.

Moreover, it considers thermal transmittance and heat conduction through an element of the building envelope.

At the end it shows the basic difference as it comes to thermal insulation where requirements of the energy-efficient house are higher.

To sum up, the construction of a traditional house is cheaper and easier, but in long term perspective the energy-efficient house has more advantages not only for the environment but also for homeowner.

Keywords:

traditional house or energy-efficient house

EFFECT OF SOME HERBAL PLANT EXTRACTS ON PHYTOPATHOGENIC FUNGI IN VITRO

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A few words about the author(s):

The authors of the abstract are associated with the University of Life Sciences in Lublin and are engaged in research in the field of integrated pest management as well as biochemical analyzes of plants.

Abstract:

The aim of the research was the laboratory effect of some herbal plant extract (horseradish - Armoracia rusticana L., yarrow - Achillea millefolium L., tansy - Tanacetum vulgare L. on the growth of selected phytopathogenic fungi such as Alternaria alternata, Botrytis cinerea, Colletotrichum coccodes, Fusarium oxysporum. 5%, 10%, 20% concentrations of plant extracts were tested. Alcohol extracts from tansy and yarrow leaves had a higher concentration of flavonoids, polyphenols and were characterized by higher antioxidant activity. Plant extracts limited the growth of fungi to a varying degree, depending on the fungus species, the type of extract and its concentration. The strongest fungistatic effect of alcohol extracts was recorded on the 4th day of the experiment against Alternaria alternata and Botrytis cinerea in the case of 20% tansy extract (Aa-39.1%, Bc-37.1%) and 20% yarrow extract (Aa-23.1%, Bc-59.6%). The weakest fungistatic effect was shown after application of horseradish leaves extract for all fungal strains. The fungistatic activity of the extracts decreased with time. The weakest fungistatic effect of the extracts was recorded against Botrytis cinerea, where the extracts inhibited the linear growth of the fungus only in the first days of the experiment. The fungistatic activity of the herbal plant extracts depended on the content of biologically active compounds

Keywords:

plant extracts, pathogenic fungi, flavonoids, fungistatic activity

MODEL FOR GAMMA RAY EMISSION FROM FERMI BUBBLES

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A few words about the author(s):

Physics student, University of Lodz. Passionate about photography and folk dance.

Abstract:

The Black Hole in the Milky Way has been much more active in the past, what today is observed as Fermi Bubbles. The black hole is surrounded by an accretion disk. Orthogonal to surface of accretion disc , a jet of plasma is launched from the regions of the Black Hole. Gamma rays are produced by relativistic electrons in jet that Comptonize the radiation produced by stars in thin disc of Galaxy. The aim of my work is to calculate the differential spectrum of gamma rays produced by relativistic electrons in regions beyond the galactic disk. We consider three scenarios: (1) first gamma rays are produced by mono-energetic electrons; (2) gamma rays are produced by electrons with the power-law spectrum; and (3) gamma rays are produced by electrons in the extended jet. We also consider gamma ray spectra with various spectral indexes of electrons or various extenssion of the jet. We show that Comptonization of the radiation from thin disc Galaxy by relativistic electrons can be responsible for the gamma rays emission in Fermi Bubbles.

Keywords:

Galaxy, nucleus – radiation mechanisms, non-thermal – gamma-rays, galaxies

INFLUENCE OF MOISTURE CONTENT ON THE MECHANICAL PROPERTIES OF BIOMASS WITH LIGNITE MIXTURES

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A few words about the author(s):

Graduate Rzeszow University of Technology, specialization: Chemical technology. PhD student at the Institute of Catalysis and Surface Chemistry Polish Academy of Sciences. Research activities: properties of biomass, granulation.

Abstract:

Effect of moisture content on mechanical characteristics of biomass and lignite mixtures has been determined. A technique of Jenike shear tester was applied for mechanical measurement. The materials used were commercially available lignite, and three type of biomass materials: sawdust, Dried Distillers Grains with Solubles (DDGS) and meat and bone meal. The mixtures with lignite contained different levels of biomass mass content. The influence of moisture content on mechanical properties was investigated. It was shown that mechanical properties improved with increasing flowability when moisture content increased. It was shown that the increase of moisture content worsened flowability of the mixtures, while the increase of biomass content reduced the influence of moisture and stabilized mechanical properties of the mixtures.

Keywords:

biomass, lignite, humidity

MICROBIOLOGICAL ANALYSIS OF BIRCH TREE SAP

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A few words about the author(s):

V. Kolotylo and W. Sęk – students of the Faculty of Food Technology of (WULS-SGGW) M. Kieliszek and A.M. Kot – promoters of engineering and master's theses, authors of several dozen articles (listed in JCR), managers of research projects.

Abstract:

The potential of using non-wood forest benefits is not only the subject of numerous scientific publications, but also an important aspect in the sustainable development of forestry. The non-wood material that deserves special attention is birch sap, referred to as an ecological product. The popularity of birch tree sap is increasing, and literature indicates numerous health benefits of consuming them. The basic factor determining the suitability of food products for processing in the food industry is their safety in relation to humans. The aim of this study was to determine the microflora present in birch tree sap from various regions of Poland. The studies determined the total number of microorganisms as well as the amount of molds and yeasts. The lowest contamination was found in the birch sap from Warszawa-Raszyn (7.0×102 cfu/mL), and the highest from Wyszków (1.2×104 cfu/mL). The plant fluids from Skarżysko were characterized by the highest number of fungi (3.1×102 – 1.1×103 cfu/mL). The lowest contamination of molds and yeasts was found in birch secretions from Warsaw-Raszyn and Wyszków (1.0×101 cfu/mL). Due to the high variability and low durability of birch sap, their quality should be constantly monitored.

Keywords:

birch tree sap, microbiological analysis, quality, API test

FACTORS DETERMINING TOXICITY OF CHEMICAL COMPOUNDS

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A few words about the author(s):

I am a Master's student at the Faculty of Chemistry of Maria Curie-Skłodowska University in Lublin.

Abstract:

The toxicity of a chemical compound can be determined by a variety of factors, for example, chemical structure or physicochemical properties. Many nuances affect the chemical nature of compounds, even stereoisomers can vary dramatically in their level of toxicity, and thalidomide is a prime example of this. Considering the chemical structure, it is important to pay attention to the presence of substituents that increase or decrease the toxicity of compounds. From this, it is even possible to infer the toxicity of a compound. However, it is known that the chemical structure alone is not enough to accurately determine this.

Keywords:

toxicity, chemical compound, chemical structure, physicochemical properties

FENOFIBRATE REDUCES PRO-TUMORIGENIC POTENTIAL OF CANCER STEM CELL-LIKE CELLS WITHIN DRUG-RESISTANT PROSTATE CANCER CELL POPULATIONS

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A few words about the author(s):

I carry on the research on the involvement of prostate cancer stem cells in the determination of collective cancer cell reactions to metronomic (docetaxel/fenofibrate-based) therapies.

Abstract:

Multipotent cancer stem cells (CSC) are involved in tumor adaptation to therapeutic regimens. Due to their drug-resistance, they represent a promising target for treatment strategies of prostate tumors. Fenofibrate (FF) has recently been pinpointed as a potential metronomic agent that augments the sensitivity of cancer cells to chemotherapeutic drugs. We hypothesized that FF interferes with the drug-resistance of prostate cancer cell populations through the interference with the functions of cancer stem cell-like (SCL) cells.

Analyses of naïve and docetaxel (DCX)-resistant DU145 cells revealed minute sub-populations of CD133+/CD44-, CD133+/CD44+ and CD133-/CD44+ SCL cells. SCL fractions were elevated within DCX-treated naïve and DCX-resistant DU145 cell line populations. More prominent increase of SCL-fraction was also observed in naïve, and to lower extent, in drug-resistant DU145 lineages upon combined DCX/FF treatment, which confirms their drug-resistance. These SCL cells offspring displayed neoplastic and invasive phenotype similar to that of parental cells; however, they showed increased, P-gp-dependent DCX- but not DCX/FF resistance. Loss of drug-resistance over time of SCL cells offspring was accompanied by induction of their EMT and invasive potential, and combined DCX/FF treatment interfered with this process. These observations confirm the phenotypic plasticity of SCL cells and its role in the maintenance of prostate cancer cell heterogeneity and drug-resistance.

Keywords:

prostate cancer, emt, drug resistance, microevolution, fenofibrate

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