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INTERNATIONAL CONGRESS OF NEW HORIZONS IN SCIENCES ABSTRACT BOOK

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İ.T.Ü. MTAL (MESLEKİ VE TEKNİK ANADOLU LİSESİ)

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TENSORFLOW MACHINE LEARNING LIBRARY

Lecturer Mustafa OF
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Abstract
Tensorflow is a popular jscript library for Machine Learning. Tensorflow allows us to train and deploy machine learning in a web browser. Tensorflow allows us to add machine learning functions to any web application. About 70,000 years ago, the human brain began to develop "Cognitive Intelligence". Some of the skills he has developed include: Understanding words, understanding numbers, understanding counting. Cognitive intelligence also produced: understanding languages, understanding of computation, understanding of a personal mind, understanding of abstract thinking. Computers are a result of the human need to perform Complex Calculations. Artificial intelligence and machine learning are the result of the never-ending development of advanced computers. Artificial intelligence suggests that machines can imitate humans. Some of the characteristics that people can imitate are: speaking, thinking, learning, planning, understanding. In this study, artificial intelligence and machine learning, which is a sub-discipline, will be explained. A sample application will be made by giving detailed information about Tensorflow, a library used for machine learning.

Keywords: Tensorflow, machine learning, artificial intelligence, python

MULTI COMPONENT REACTIONS AND CHARACTERISATION OF NEW 1-AMINO-5-AROYL-4-ARYL-1H-PYRIMIDINE-2-THIONE DERIVATIVES WITH CHLORO-1,3-DIONES

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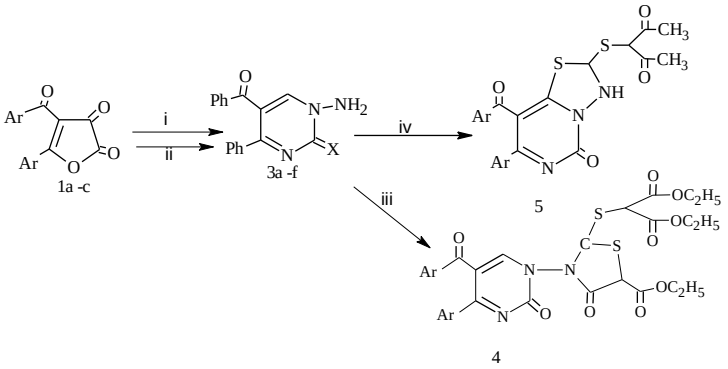
Abstract

Pyrimidines, being an integral part of DNA and RNA in it, play an essential role in several biological processes and have conciderable chemical and pharmalogical importance, particularly, the pyrimidine ring can be found in nucleoside antibiotics, antibacterial, cardiovascular as well as agrochemical and veteran products. In view of these important properties, we decided to extend our investigations related to preparing new heterocycles, which include the pyrimidine ring in their structure. In this study, we reported the synthesis of new pyrimidine derivatives from the reactions of amino-pyrimidines with 3-chloropentane-2,4-dione and diethyl chloro malonate in the presence of CS2 and KOH. The structures of all new synthesized heterocyclic compounds are confirmed by spectroscopic and elemental analyses.



Scheme1. i) Semicarbazone or thio-semicarbazone, ii) H^+, H_2O, iii)) CS_2, KOH, 3-chloropentane-2,4-dione, iv) CS_2, KOH, diethyl chloro malonate,

Acknowledgements: We thanks to retired Prof. Dr. İsmail Yıldırım.

Keywords: Diethyl chloro malonate, pyrimidine, multi component reaction

SUSTAINABILITY OF HOUSEHOLD WATER TREATMENT METHODS FOR ARSENIC REMOVAL IN AFGHANISTAN (CASE STUDY)

ABDUL WAHED AHMADI
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Abstract
Arsenic contamination in groundwater is an huge risk and big problem on a global scale in the many countries. Over fifty million people in more than seventy countries are affected by arsenic pollution in drinking water. The main sources of arsenic contamination in groundwater are considered to be anthropogenic, gelogenic (geothermal) and biogenic. Therefore, as groundwater is one of the main important drinking water sources in Afghanistan and it is highly susceptible to be contaminated by any of these sources, the need for suitable and sustainable water filtration and treatment technologies for arsenic removal is sensed. Currently, 78% of the population relies on groundwater which is mainly being taken using household tub wells in order to access safe drinking water. Recently, the high level of arsenic contamination of groundwater in Afghanistan becomes a critical problem. According to a study on water quality in Afghanistan, 459 out of 746 water point samples showed high level of arsenic contamination and it exceeds the World Health Organization (WHO) standard. The main goal of this research study is the comparative evolution of the current arsenic removal technologies and methods in developing countries such as Afghanistan. Additionally, it is critically review the current state of arsenic contamination of groundwater in Afghanistan in order to suggest sustainable household arsenic removal methods. For this purpose, the three most popular household arsenic removal technologies such as Sono Sand Filter, Kanchan Arsenic Removal and Arsenic Bio Sand Filter already tested in a study area (Nawalparasi district of Nepal). Based on the tests, samples analysis report and assessment of existing household arsenic removal technologies; it has been shown that the Arsenic Bio Sand Filter (ABSF) is the most effective method. In this method removal of arsenic is done with an effectiveness of 95 %. Additionally, the method is very effective for removal the pathogens, bacteria, iron, and turbidity reduction. Finally, the outcome of this study will assists the authorities and decision makers to develop some mitigation policies for controlling potential contamination of arsenic in the groundwater, which will lead to improve the public health by reducing arsenic related diseases.

Keywords: Arsenic, Contamination, Household, Groundwater

ASSESSMENT OF SHORELINE CHANGES IN KARPEN- QERRET- GOLEM'S AREA

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Abstract
Albania's coastline has a length of about 450 km, with wide access to the Adriatic and Ionian seas, where various forms of sandy and rocky beaches are combined, with the possibility of touristic use. The study of shoreline changes is concentrated in Karpen-Qerret-Golem's area, as the most frequented beach sector by locals and foreign tourists, as well as in the last three decades as very important area for the development of business in the field of construction. The purpose of the study is to compare the shorelines shown in the topographic maps of 1:10 000 scale (editions of 1978), on Ortophotos (1994, 2007, 2015, 2018) and 2021 GNSS measurements in the study area, as well determining the direction and rate of the shoreline changes. Since 1978, due to the shoreline erosion it lost over 810 000 m2, while the rise in sea level, caused by climate change, paints an even more shocking image for the future. The objectives of the study are providing evidence of the shoreline changes in Karpen-Qerret-Golem's area, as well as giving recommendations for stopping or reducing of shoreline erosion in this important sector.

Keywords: Shoreline changes, Erosion, accretion, average rate, lost/gained area, map, Ortophoto, GNSS

EVALUATION OF THE COORDINATE TRANSFORMATION MODELS BETWEEN THE ETRF2000, EPOCH2008.0 AND ALB1986 REFERENCES

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Abstract
Several GNSS measurement campaigns have been carried out in Albania (October 1994, February 1998, September 1998) for the connection of the State Geodetic Network with the Global or European Reference System. Based on the results of the latest GNSS measurement campaign of Fall 2007-Spring 2008 the best relationship until now between the local and ETRF references was found. Aim of this study is to present the different transformation models applied in the Albania, as well as the test results of the transformation models in different areas. Since, the models of the transformed planimetric coordinates referred ETRF2000 into ALB1986, are not officially approved it recommended to be applied for the topographic mapping of the territory of Albania up to a scale of 1: 5000. These models can be improved if we will carry out additional measurements at the existing points of the horizontal control network referred to ALB1986.

Keywords: GNSS, coordinate transformation, ITRF/ETRF/ALB reference

THE MOST APPROPRIATE CARTOGRAPHIC PROJECTION FOR ALBANIA'S CONDITIONS

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Abstract
Since 1868 onwards, different institutes (Military Geographical Institute of Vienna, Austria; Military Geographical Institute of Florence, Italy; CNIGA-IK Moscow Institute; former Military Topographic Institute of Albania) have been built different geodetic bases for supporting of the mapping of the Albanian territory in different scales (1: 75000/ 50000/ 25000/ 10000/ 5000) in different projections. Especially, since 1948, all cartographic and numerical information with great practical and study value based on the classical Albanian coordinate reference ALB86. After the 1990's, cartographic information (Orthophotos, vector maps, cadastral maps, etc.) were based on global (ITRFxx) or European (ETRFyy) references. In different countries the large-scale topographic maps in the different projections for various engineering projects recommended. Aim of this study is to analyze and show the most appropriate cartographic projection for Albania's conditions.

Keywords: Cartographic projection, ellipsoid, distortion scale factor, TM/UTM/TMzn projection

PHTHALOCYANINE AND HETEROATOM-DOPED CARBON QUANTUM DOTS CONJUGATE: SYNTHESİS AND ELECTROCHEMICAL INVESTIGATION

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Abstract
The redox properties of the phthalocyanine (Pc) ring are well known and it has been established that the redox activity of Pc can be increased by complexation with redox active metal cations, such as Co2+ and Fe2+. Enhancing the redox activity of phthalocyanines is important in expanding the use of these complexes in various electrochemical applications. Conjugation of phthalocyanine to quantum dots (QDs) can be exploited to improve the electro and photophysical properties of phthalocyanine complexes [1].

In this study, peripherally, hydroxythioethyl terminal group substituted metal-free phthalocyanine (H2Pc) and cobalt (II) phthalocyanine (CoPc) were noncovalently (electrostatic and/or π–π interaction) attached to carbon QDs containing boron to form QD-Pc nanoconjugates [2]. The QD-Pc conjugates were characterized using different spectroscopic techniques. Electrochemical performances of QD-Pc conjugates were investigated using cyclic voltammetry (CV) to determine the influence of carbon QDs containing boron on the redox mechanism of H2Pc and CoPc.

Acknowledgements

This work was supported by Istanbul Technical University─ Scientific Research Projects Unit (ITU-BAP) [Project Numbers: 44255].

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Keywords: Phthalocyanine, quantum dot, redox

ASSUMPTION CONTROL IN PARAMETRIC AND NON-PARAMETRIC DATA AND AN APPLICATION IN R

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Abstract
The validity of the assumptions about the tests should be controlled by looking at the explanatory statistics of the analyzed data to choose the tests to be applied while performing the statistical analysis, that is, to determine which of the parametric or non-parametric tests will be used. Parametric tests are applied by providing some assumptions about the parameters of the population from which the sample is drawn. The most important of these assumptions are; It can be stated that the populations from which the samples are drawn show normal distribution, the populations from which the samples are drawn have the same variances, the observations in the samples are independent of each other, and the dependent variables are quantitative (scalar) at least on the interval scale. In cases where at least one of the assumptions about parametric tests can not be met, non-parametric tests are used. Several procedures need to be done to understand whether the assumptions about parametric and non-parametric statistical methods are valid. These; examining descriptive statistics, making a visual assessment, and statistical tests. In this study, the above-mentioned processes will be introduced to control the assumptions of parametric and non-parametric data, and the application will be made on a data set in R, which is a powerful, free and open-source software environment for statistical calculation and graph-based analysis, and the analysis results will be evaluated.

Keywords: Parametric, Non-parametric, Assumption control, Statistical calculation, R

COMPARISON OF STATISTICAL SOFTWARE PROGRAMS USED IN GRADUATE THESES IN THE FIELD OF SCIENCE IN THE LAST 10 YEARS

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Abstract
It is important to determine which statistical software program will be used in statistical research in theses in the field of Science. Invented by Ross Ihaka and Robert Gentleman of the University of Auckland, New Zealand, R was officially announced in 1997 as a free and open-source software environment and programming language for statistical computing and graphical drawing. R, which can also be used for advanced statistical and mathematical studies through various packages and functions, also provides benefits to researchers who want to develop their statistical software. Python, one of the popular programming languages published by Guido van Rossum in 1991, is technically a language that is compiled first and then interpreted through compiled code. With Python, it is possible to work in various scientific fields including big data and complex mathematical operations, as well as in fields such as Artificial Intelligence, Machine Learning, and Image Processing. SPSS, which has been officially named IBM SPSS Statistics since August 2010, is a software program for statistical analysis, the first version of which was released in 1968. As an indicator of the popularity of programming languages, according to the TIOBE Programming Community index, which is updated monthly, in October 2022, Python and R were in the top 20 in the ranking, while SPSS could not enter this list. Within the scope of the purpose of this study, a comparison was made between R and Phyton and SPSS, which are statistical software programs used in graduate theses prepared in the field of Science in the last 10 years, obtained from the Council of Higher Education National Thesis Center. Despite the existence of open-source programming languages, the persistent use of SPSS, which is one of the very expensive programming languages, and the reasons for this are discussed.

Keywords: Programming language, R, Phyton, SPSS, Council of Higher Education National Thesis Center

STATISTICAL LITERACY

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Abstract
Katherine K. Wallman defined statistical literacy as the ability to understand and critically evaluate statistical results that affect our daily lives and to appreciate the contribution statistical thinking can make to public and private, professional and personal decisions. Being able to read and make sense of the statistics encountered in the news, media, and surveys is of great importance in terms of adapting to the changing world in today's information society. A society consisting of people who can not read and evaluate statistics and can not interpret the graphics they see is not considered a fully developed society. Statistical literacy users, who can access and filter complex data of information, always need to improve their statistical skills. For this purpose, ease of expression and statistical literacy skills should be provided at a level that people from every profession can understand. This study covers the importance of people of all ages and occupations having statistical literacy skills and efforts to develop different methods and strategies to increase these skills, taking into account strategic priorities.

Keywords: Statistical literacy, Statistical skill, Statistics

DEVELOPMENT OF PRIMER THAT CAN BE USED ON BOTH INTERIOR AND EXTERIOR PAINTS

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Abstract
Preparing the wall before painting the walls is the first step to ensure the longevity of the paint. Primers applied to the wall surface are the best option for this. Primer application has various benefits, and these benefits can be listed as ensuring the adhesion of the paint to the surface, increasing durability, protecting the surface to be painted, and increasing the paint efficiency. Primers serve to develop high-performance paint systems by creating a bridge between the paint, and the surface and providing adhesion. In general, different types of primer are used on interior and exterior surfaces. In this study, a general-use primer that can be used on both interior and exterior surfaces has been developed. For this, a general-purpose primer recipe was designed by changing the ratio of pigment and binder. To check whether the new recipes provide the interior primer feature or not, tests based on TS 5808 standards and TS 7847 standards for exterior primer features were applied. These standards include water absorption and vapor permeability, opacity, and gloss tests. The UV effect of the produced primers for exterior paint applications is also evaluated with the accelerated weathering test (QUV). While the result of adhesion tests (TS EN ISO 2409) for the developed primer performance was determined in the range of 0-5 (0: the best – 5: the worst), it was determined that the opacity (Kbar 7) value should be between 0 for the transparent product and 84-90 for the non-transparent products. For the developed product, an opacity condition of min 87 was provided in the studies, and a matte that has the targeted values was obtained. A product suitable for general use has been developed with optimum properties, which will prevent cost increase due to possible confusion with general use primer study, can compete in the market, and meet customer needs.

Keywords: Primer, exterior paint, interior paint, adhesion test

DESIGN, SIMULATION AND PRODUCTION OF ROBOTIC HANDS AND CONTROL WITH ARTIFICIAL INTELLIGENCE

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Abstract
In this paper, we have implemented as following: - Design of robotic hand prototype, - Assembling parts in Inventor, - Simulation of robotic hand in Matlab, - Building robotic hand parts, - Electrical connections, - Correlating physical, printed and Simscape hands. In addition, we introduce a robotic hand that can perceive surrounding objects and grasp the object of interest. We also here present 3D printed solutins that is a solution close to the natural hand as is practical, being more affordale, composed of a fewer pieces, and having a lower mass. We implemented the YOLO algorithm for the detection of everyday objects, filtering information on the presence of man-made objects, and sending that real-time information by serial communication on the robotic hand microcontroller.

Keywords: Robotic Hand, Artificial Intelligence, Yolo Algorithm, Design, Simulation, Control

PREVENTION OF HARVEST AND POST-HARVEST FOOD LOSSES IN AGRICULTURE

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Abstract
This study is designed to find solutions to harvest and post-harvest food losses in agriculture. While it has been determined that nearly half of the product losses experienced in the agricultural products produced are caused by the mistakes made in the harvest and post-harvest supply chain, the fact that the products produced do not comply with the usual standards and are not preferred by retail buyers cause the producer to earn a profit much lower than the production costs. In addition, the products that cannot be sold in the market due to sudden market contractions cannot be evaluated in the supply chain, causing losses in food raw materials. At this point, it is solved with artificial intelligence supported food recovery software. It can instantly monitor the idle capacities of food production facilities so that food products that cannot find a place in the market can produce suitable for food and cosmetic products, can define processes for businesses and prepare alternatives for the most suitable product form. At the same time, it will facilitate business partnership processes by following all processes of food production facilities in terms of preventing possible risks during the production phase. By following all stages, identifying possible risks allows products that cannot find a place in the market to be evaluated in the food supply chain before they turn into garbage and to take a place in the value chain. Thus, it reduces food inflation by increasing the added value of products, reducing food waste, facilitating access to food. Most importantly, it prevents the waste of our world resources and increases the sustainability of these resources.

Keywords: Agricultural technologies, artificial intelligence, food losses, supply chain, added-value

SECONDER FREQUENCY CONTROLLER DESIGN OF A TWO-AREA SYSTEM VIA CROW SEARCH ALGORITHM

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Abstract
This paper presents a novel approach for Secondary Frequency Control (SFC) in a two-area power system. The SFC is an important control process to ensure frequency stability of power systems and also known as an automatic generation control. Various controller methods are used for the SFC in power systems. In this study, Proportional - Integral (PI) controller type is used for the SFC and a novel meta-heuristic method, the Crow Search Algorithm (CSA) is proposed to determine the optimal values of Kp and Ki, which are the gain parameters of the PI controller. The proposed CSA has been tested in a two-area interconnected power system with a thermal generator units. In the 3rd second of the simulation, a load change of 0.1 per unit was applied in Area-2 and the frequency stabilization performance of the controller against this load disturbance was examined. The obtained results were compared with the Genetic Algorithm and Ziegler-Nichols results known as the traditional method. The results show that the proposed CSA method has a shorter settling time and less overshoot than other methods.

Keywords: Crow search algorithm, PI controller, Seconder frequency controller

INVESTIGATION OF THE ROLE OF ALLIUM SATIVUM MICRORNAS IN THE REGULATION OF EPILEPSIA-RELATED GENES

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Abstract
miRNA-mediated cross-kingdom gene regulation is one of the hot topics in recent years.The ability to switch between species and mediate gene regulation in different species, which emerges as a result of miRNA molecules being in a more stable structure than previously thought, shows that nutrition cannot be limited to energy intake alone. In this study, it was first confirmed by bioinformatics studies that conserved miRNAs found in Allium Sativum (Garlic), a plant consumed with diet, target epilepsy-related genes in humans. Six conserved miRNAs, namely Ast-mir1, Ast-mir2, Ast-mir3, Ast-mir4, Ast-mir5 and Ast miR6, were found in the Allium Sativum plant. After various filtering processes, Ast-miR2, Ast-miR3 and Ast-miR5 were selected from these miRNAs. The genes PCDH19, SLC6A1 and CNTN2 targeted by these miRNAs, respectively, were identified. After these genes were identified, in vitro validation in SH-SY5 cell culture was carried out within the scope of the study. By transfecting these miRNAs into the cell culture where the target genes are expressed, it was investigated whether the expression of target genes at the RNA level changed. In these studies, it was found that target genes did not show any change in RNA level. Inclusion of studies at the protein level in further studies will shed light on this relationship. With the deepening of these studies, it can be ensured that therapy through diet will be possible in the coming years.

Keywords: Allium Sativum, Cross-Kingdom Gene Regulation, Mırna

DISTANCE DEPENDENT PERFORMANCE OF MICROSTRIP PATCH ANTENNA FOR BREAST TUMOR DETECTION

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Abstract
One of the most prevalent and dangerous diseases among women worldwide is breast cancer. The early identification of this disease is therefore crucial. However, typical methods for diagnosing breast cancer have some drawbacks. In order to overcome these disadvantages, microwave imaging methods have been developed. This study presents the design and modification of a rectangular microstrip patch antenna on an FR-4 substrate operating at 2.45 GHz in the ISM band for breast cancer detection. Both the proposed antenna and a five-layer breast phantom with and without a 5 mm-radius tumor were designed using CST software. To detect the presence of a tumor, distance dependent simulations were performed between the antenna and the breast phantom. The simulation outcomes revealed that the return loss, electric field, magnetic field, and surface current all change when a tumor is present in the breast phantom. Moreover, our results indicated that the antenna located 20 mm from the breast phantom can identify the tumor more efficiently compared to the antenna located at 40 mm. We also observed that the VSWR of the antenna is lower than 2, which is an acceptable limit for radiation. Due to its tumor detection capability and acceptable SAR values, our proposed antenna can be used as a sensor in biomedical applications.

Keywords: Microstrip Patch Antenna (MPA), Microwave Imaging (MWI), Breast Tumor, Breast Cancer Detection, Biomedical Applications

STATISTICAL ANALYSIS OF AIR POLLUTANTS IN TÜRKİYE AND ITS CONNECTION WITH COVID 19

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Abstract
The COVID-19 pandemic, which spread primarily from the Wuhan city to other provinces of the People's Republic of China and then to other countries in the world, has created great changes in people daily life. In line with the measures taken by countries against this virus, practices such as using masks, not using public transport, staying isolated at home, semi-curfews and lockdowns have been observed. Although the loss of life caused by COVID-19 raises concerns around the world, the harms of air pollution to human health are much more frightening. Curfew practices, measures, and restrictions have been taken around the world to prevent the spread of COVID-19 have an extremely important effect on air quality. In Türkiye, where curfews and various travel restrictions are also implemented, human behaviours and living habits, which have a direct impact on pollutant concentrations in the atmosphere, are changed due to the COVID-19 Pandemic. Türkiye has followed different policies such as tightening the measures during the pandemic process and relaxing the measures when the number of cases decreased and starting the normalization periods. In this study, it is aimed to determine, analyse, and evaluate pollutant concentrations (PM_{10}, SO_2, NO_2) in 5 following periods representing the duration of implementation of curfew and other measures in Türkiye. While 16thMarch-31stMay represents the first curfew, 1stJune-31stOctober represents the normalization period, 1stNovember-15thMarch represents the second curfew period in which cases increase, 16thMarch-17thMay represents the third wave of coronavirus, and 18thMay-30thJune represents the period of gradual normalization and the removal of bans. In addition, these periods are also considered for the same dates in 2019 and 2020 to see relative changes. In Türkiye, an average of 2.08% increase in PM_{10} concentrations in the curfew periods and 6.15% in the normalization periods is observed compared to the previous year. In SO_2, an average increase of 7.56% is observed in the curfew periods and an increase of 32.01% in the normalization periods. In NO_2, an average of 5.19% decrease was observed in the curfew periods and a decrease of 1.92% in the normalization periods.

Keywords: Air Pollution, Curfew, Lockdown, Health, Türkiye

WATER SOLUBLE N,N,N PINCER TYPE BIS(2-PYRIDYLIMINO) ISOINDOLINE (BPI) AND METAL COMPLEXES

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Abstract

Pincer ligands are an important class of compounds in organometallic and coordination chemistry due to their many successful applications. Bis(2-pyridylimino)isoindoles (BPIs) are one of the pincer-type ligands notable for their unique structural properties and diverse coordination chemistries. These ligands act as a meridionally coordinating pincer ligand system, providing a flexible coordination cavity containing three nitrogen donor sites (NNN) for the metal ion. Metal complexes of BPI have previously been employed as catalysts for several organic transformation processes, as model compounds for probing metal coordination environments of biological systems, and as a mediator for controlled radical polymerization of acrylates [1-5].

Most of the studies on bis(2-pyridylamino)isoindolines and their metal complexes in the literature are related to homogeneous catalysis and biomimetics [6]. It is important to synthesize water soluble metal complexes from the point of view of biomedical applications. Based on this conception, in this study, we have considered the synthesis and characterization of bis(2-pyridylamino)isoindolines having glyceryl group.

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Keywords: 1,3-Bis (2-pyridillino) isoindole (BPI), Water solubility, Photophysical Analysis

INVESTIGATION OF CHANGES IN TRANSPORTATION MODE CHOICE FOR HOME-WORK TRIP OF A MEDIUM-SIZED CITY DURING THE COVID-19 PANDEMIC: TEKİRDAĞ, SÜLEYMANPAŞA CASE

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Abstract
The Covid-19 pandemic has caused radical changes all over the world, leading to the adoption of new habits, and is one of the most topical issues of the recent period. Both the trips made and the mode choices in these trips have been affected by the pandemic conditions. Within the scope of this study, transportation mode choices in the context of home-work trips in Süleymanpaşa district of Tekirdağ province, a medium-sized city, were examined and it was investigated whether the changes in these choices were affected by the pandemic conditions. For this purpose, users were asked questions about mode choice through surveys. A total of 259 respondents who made a commute during at least one of the development phases of the pandemic and chose a mode of transportation were included in the analysis. At the end of the study, although some changes in mode preference were observed in descriptive statistics, it was determined using various statistical methods that the data were not normally distributed. Therefore, the nonparametric Wilcoxon Signed Rank Test was used in the next stage of the analysis. In the medium-sized city of Süleymanpaşa, unlike small and large-sized cities, transportation mode choices for home-work trips during the Covid-19 pandemic period were not significantly affected by the pandemic.

Keywords: Covid-19, Medium Sized City, Home-Work Trips, Transportation Mode Choice, Tekirdağ, Süleymanpaşa

GRAPHENE YARN PRODUCTION

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Abstract
In this study, graphene yarn which are promising in the smart field of wearable technology, have become a material with high potential due to their mechanical properties. However, the fragility of graphene yarn and the inability to maintain their continuity are an obstacle. With the production of graphene yarn from graphene oxide, which has been focused on for the last seven years, advanced functional material areas such as electronic textiles, energy storage areas, batteries, sensors and filters will serve an area that sheds light. Graphene yarns are expected to replace Pan-based carbon yarns with their raw material source being easily available, cheap production method, and easy-to-install process stages. There are many methods for obtaining graphene oxide from graphite to carry out the work done. Some of those; Exfoliation Method, Chemical Vapor Deposition Method (CVD), Epitaxial Growth Method, Hummers Method were used as Hummers method, which is the most widely used method in the study, and then it will be brought into the graphene oxide preservation yarn formula by wet spinning grafting method and to be dried. Yarn production will be done by taking into consideration the consumer's eye such as the type of bath, feeding speed, razor tip diameter. After the drying processes, mechanical and physical measurements will be done. According to the results that emerged later, it is aimed at providing integration into wearable textiles that appeal to the field of advanced functional components that they need today. Details of all execution up to this stage will be included in the presentation.

Keywords: Graphene yarn,Hummers Metod, Wet Spinnig, coagulation bath

NANOFIBER MATS BASED ON ALCOHOL SOLUBLE PVC/PEI BY ELECTROSPINNING TECHNIQUE

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Abstract
Herein, a novel electrospun nanocomposite fiber mats possessing poly(vinyl chloride) (PVC) and polyethyleneimine has been prepared for the first time by facile and versatile strategy in the literature. Due to different polarity issues, these two polymer solutions that could not be electrospun from in the same solvent a single syringe at once under normal conditions were successfully processed after related modification of poly(vinyl chloride) and blending it with polyethyleneimine in the same harmless solvent. For this purpose, neat PVC was partially modified with sodium azide and subsequently the PVC-N3 grafted with bis(diethoxyphosphoryl) acetylene (BDPA) via metal-free azide–alkyne 1,3-dipolar cycloaddition reaction to obtain the alcohol-soluble PPVC. The blend of with PPVC and PEI in methanol with volume ratios of 90/10 and 85/15 were electrospun from a single syringe. The obtained nanofiber mats and their intermediates in various stages are fully characterized spectral, chromatographic, wettability and thermal analyses.

Keywords: Electrospinning, metal-free azide–alkyne 1,3-dipolar cycloaddition, poly (vinyl chloride), polyethyleneimine

ENERGY STORAGE IN HYBRID ELECTRIC VEHICLES

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Abstract
Energy sources, chemical energy storage (lead-acid battery, lithium-ion battery, nickel-metal hydride (NiMH) battery, nickel-zinc battery, nickel-cadmium battery), electrical energy storage (capacitor, supercapacitor), hydrogen storage, It is of various types such as mechanical energy storage (flywheel), production systems (fuel cell, solar cell, wind turbines, regenerative braking system). However, each of the energy sources has different characteristics, size and efficiency. These features make energy sources unique for different types of electric vehicles. In EV application, energy storage has an important role as the device used needs to regulate and control the energy flow. There are various factors such as energy density, power density, cycle efficiency, self-charge and discharge characteristics and life cycles to select suitable energy storage devices. In this study, these factors were analyzed and the differences between storage systems were analyzed and the most suitable one was tried to be determined in terms of economy and efficiency. The results were shared.

Keywords: Electric vehicle(EV) , Energy storage , battery