ICSD 2021

7TH INTERNATIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT

Book of Abstracts

October 13-17,, 2021

www.icsd.eu

7th INTERNATIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT (ICSD)

ISBN 978-605-81426-3-3

BOOK OF ABSTRACTS OF THE

7th INTERNATIONAL CONFERENCE ON SUSTAINABLE DEVELOPMENT (ICSD)

OCTOBER 13,-17 2021, HYBRID CONFERENCE, ISTANBUL

Edited by

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Published, 2021

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WELCOME TO ICSD 2021

On behalf of the organizing committee, we are pleased to announce that the 4th International Conference on Sustainable Development (ICSD-2021) is held from October 13-17, 2021 in Istanbul, Turkey (Hybrid Conference). ICSD 2021 provides an ideal academic platform for researchers to present the latest research findings and describe emerging technologies, and directions in Sustainable Development issues. The conference seeks to contribute to presenting novel research results in all aspects of Sustainable Development. The conference aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Sustainable Development. It also provides the premier interdisciplinary forum for scientists, engineers, and practitioners to present their latest research results, ideas, developments, and applications in all areas of Engineering and Natural Sciences. The conference will bring together leading academic scientists, researchers and scholars in the domain of interest from around the world. ICSD 2021 is the oncoming event of the successful conference series focusing on Sustainable Development. The scientific program focuses on current advances in the research, production and use of Engineering and Natural Sciences with particular focus on their role in maintaining academic level in Engineering and Applied Sciences and elevating the science level. The conference's goals are to provide a scientific forum for all international prestige scholars around the world and enable the interactive exchange of state-of-the-art knowledge. The conference will focus on evidence-based benefits proven in clinical trials and scientific experiments.

Best regards,

Prof. Dr. Özer ÇINAR

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CHANGES IN COLOR AND DRYING TIME OF MODIFIED POLYVINYL ACETATE ADHESIVE WITH NANOPARTICLES

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Abstract:

Adhesive bookbinding is growing in popularity due to advancements in adhesive binding technology, shorter delivery time and the introduction of innovative materials. It is suitable for medium-volume books and enables the production of durable and flexible end-products in accordance with today's market needs, such as smaller product volumes and personalized consumer requirements. Polyvinyl acetate (PVAc) adhesives are widely used in the printing industry for paper, board, leather and cloth. In addition, water-based PVAc adhesives are more environmentally acceptable, compared to used hotmelt adhesives. In order to improve PVAc limiting and to retain its existing positive properties, numerous studies dealing with modification of PVAc adhesives have been carried out. The aim of this research was to investigate the impact of PVAc modification with SiO2 and TiO2 nanoparticles on the end-product appearance and the productivity of the production process, more precisely the change in color and drying time. Colorimetric values of dried PVAc and nano-modified PVAc adhesive films were measured on five different paper substrates, according to ISO 11475:2017 standard, in order to calculate the total color difference (CIDEDE2000). Results showed that the color difference between dried PVAc and nano-modified PVAc films is not recognizable by a standard observer, but it is slightly higher for the sample modified with TiO2. The drying time of PVAc and nano-modified PVAc adhesive films was observed over a period of 60 minutes. Adhesives were applied on transparent foil and observed under UV light in a Judge II X-rite lightbox. Results showed that nano-TiO2 PVAc adhesive has a much shorter drying time. According to obtained results, it can be concluded that both types of nano-modified PVAc adhesives, as well as the original PVAc, are suitable for the production of end-products with a visible adhesive line. By adding TiO2 nanoparticles the productivity of the production process can be improved due to reduced drying time.

Keywords: Adhesive Color, Adhesive Drying Time, Nanoparticles, Polyvinyl Acetate, Short-Run Products

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EVALUATION OF RURAL YOUTH EMPLOYMENT OPPORTUNITIES WITH S.W.O.T ANALYSES BY THE CONTEXT OF RURAL DEVELOPMENT :A CASE STUDY OF DUZCE

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Abstract:

In the concept of rural development, the elements that will contribute to the improvement of economic and social conditions in the agriculture, forestry and rural tourism sectors of all individuals living in a certain rural area are activated and the local people benefit from these elements at the highest level. In rural development studies, it is aimed to create income-generating fields of activity in agriculture, animal husbandry and forestry, to make existing livelihoods more efficient, to carry out infrastructure and education works in rural areas, and to provide employment opportunities for rural youth. The most important source of income in the rural areas of Duzce is agricultural production. In the area, products such as pumpkin, corn, tobacco and rice, especially hazelnuts are cultivated, strawberries are grown and beekeeping activities are increasing in Yigilca region. There are many rural tourism enterprises in Duzce region and it is seen as an alternative income, especially in the employment of local youth and increasing the quality of life within the scope of rural development.

Within the scope of the study, opportunities for the development of the region and employment of young people in rural tourism, agriculture and forestry sectors in Duzce region were evaluated. Strengths and weaknesses, opportunities and threats were revealed by applying S.W.O.T analysis. Suggestions were made for eliminating socio-economic problems, reducing migration from rural to urban areas and evaluating the young workforce. Within the framework of opportunities, the trainings organized for the local people within the scope of the Regional Development-oriented Mission Differentiation Project of Duzce University were discussed. Non-wood forest products, beekeeping, api-therapy, medicinal-aromatic plant breeding, field guidance in ecotourism, etc. Emphasized as new business areas.

Keywords: Rural Youth, Rural Development, Youth Employment, Duzce

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EVALUATION OF WOMEN'S ENTREPRENEURSHIP IN RURAL AREA IN THE CONTEXT OF ECOTOURISM, ECO-ENTREPRENEURSHIP AND RURAL DEVELOPMENT: THE CASE STUDY OF DUZCE

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Abstract:

"Ecotourism", which is defined as nature-based tourism, is mentioned as one of the the rural development tools today. Ceballas-Lascurian introduced the concept of ecotourism in 1987; It is defined as the type of tourism carried out with the interest in cultural resource values together with the natural environment, wild animals and vegetation in areas with minimal human impact. Irish economist Richard Cantillon defined the "entrepreneur" as the person who organizes the business and assumes the risk of the enterprise in order to make a profit. Entrepreneurship is the fulfillment of these activities by taking risks and realizing the plans operating in the production or service sector. Today, especially with the change of technology and needs, entrepreneurship has become more widespread. With the establishment of KOSGEB (Small and Medium Enterprises Development and Support Administration) in Turkey in the 20th century, the increase in grants and supports led to an increase in entrepreneurial activities. Duzce is one of the important destinations in terms of ecotourism with its location a few hours away from the cities of Istanbul and Ankara, its proximity to transportation networks, natural resources and vegetation. It is among the tourism areas preferred by tourists from the neighbour cities for daily or weekend trips. In the rural areas of Duzce, Karduz, Kizik, Purenli plateau etc. highland tourism in the areas; rafting tourism in Buyuk Melen river, which passes by Cumayeri-Dokuzdegirmen village; bicycle tourism; 330 km long trekking route in the province; Cave tourism with Sarikaya, Fakili, Aksu and Gokceagac caves; Caravan tourism is carried out with the suitability of its regional structure. There are also various recreation areas where tourists can spend their free time. In these areas, various activities such as hiking, mountaineering, swimming, sunbathing, cycling, picnic and camping, taking nature photos, painting and watching the scenery are carried out. With the ecotourism-based development strategy called "ECOVISION" planned by the East Marmara Development Agency for Duzce province. It is aimed to protect the natural resources and local culture of the province, as well as the development of the region and employment opportunities for the rural youth and women of the region. There are many studies in the literature revealing that there is a direct strong relations between ecotourism, local products, rural development, employment opportunities and women's entrepreneurship. With this study, evaluating the role of women entrepreneurs in ecotourism areas in Duzce, determining the participation rates of women in ecotourism in the region, carrying out their commercial activities, perhaps using only the fields or fields they own, employment opportunities for youth in rural areas are revealed. The aim of the study is to increase the contribution of women living in Duzce to the economy and to raise awareness for female entrepreneur candidates.

Keywords: Eco-Entrepreneurship, Ecotourism, Rural Development, Rural Youth, Rural Women, Duzce

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THE BEHAVIOR OF IRREVERSIBLE THERMOCHROMIC INKS IN THE PAPER RECYCLING PROCESS

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Abstract:

Thermochromic printing inks are special chromogenic inks that change their color by exposure at a certain temperature, which is usually called the activation temperature (TA). The color change can be irreversible or reversible. The property of irreversible color change in relation to temperature exposure over time, allows the development of numerous indicators. As such, they can be used to monitor the storage and transportation of temperature-sensitive products, such as refrigerated and frozen foods, drugs, temperature-sensitive chemicals, or biological materials, etc. Since the ink formulation is an important factor in the deinking process, the aim of this research is to determine the recycling efficiency of irreversible thermochromic prints. Thermochromic inks differ from conventional printing inks in formulation and pigment size due to the presence of microcapsules that are much larger than conventional pigment particles. For this study, two irreversible thermochromic printing inks are printed by screen printing in full tone, on one printing substrate. To explain the behavior of these inks in the recycling process, the hydrophobicity of the sample surface was examined, as one significant factor in the flotation process using the contact angle of water. Recycling of prints was carried out in laboratory conditions, by chemical deinking flotation in alkaline conditions. Sheets were made for each sample before and after flotation. Optical properties of the recycled samples show that these inks are difficult to recycle. The deinking flotation method is not entirely the best method for recycling of irreversible thermochromic inks because slight differences in the optical properties of the laboratory paper samples before and after flotation are achieved. Future research should go in the direction of new techniques such as adsorption and enzymatic deinking.

Keywords: Thermochromic Inks, Paper Recycling, Optical Properties, Surface Properties

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USE OF STRUCTURAL EQUATION MODELING TO DEVELOP A SUSTAINABLE HUNTING SCALE

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Abstract:

Ensuring the sustainability of hunting and wildlife, by identifying hunter profiles with different characteristics in Turkey; it can be possible by analyzing the perceptions and attitudes of hunters regarding hunting and the continuity of wildlife. The aim of this study is to develop a sustainable hunting scale with structural equation modeling in order to determine the perceptions and attitudes of hunters about the sustainability of hunting and wildlife. In order to achieve this aim, it is aimed to determine the basic components of sustainable hunting by using Confirmatory Factor Analysis and Structural Equation Modeling in the method of the study by obtaining data with structured and closed-ended questionnaires to be developed with hunters with hunting certificates. Within the scope of the study, the studies on sustainable hunting in the literature were examined and statements that could constitute the main factors were formed. As a result of the study, it is planned to bring policy suggestions to decision makers and practitioners with the scale that can be developed.

Keywords: Sustainable Hunting, Hunter's Associations, Scale Development, Confirmatory Factor Analysis.

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INFLUENCE OF AGED NANOTECHNOLOGICAL INKJET NEWSPAPER PRINTS ON THE OPTICAL PROPERTIES OF RECYCLED LABORATORY PAPER SHEETS

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Abstract:

Paper recycling has become an imperative at the end of the life cycle of all paper products. It is common for newspapers to be printed with an offset printing technique, but digital printing technique also finds its place in this area. The development of technological processes in printing technology is usually associated with innovations in printing presses, but significant contributions also occur in the use of new graphic materials. In this research special attention was given to new formulation of printing ink which is based on nanotechnology. The samples of newspapers were printed on a digital printing press Kodak Prosper 6000C. The mentioned printing press was chosen because of the drying station that uses near-infrared energy to dry inks immediately. The significance of this method is important because it provides the possibility of printing newspapers, but due to the reduction of energy use, which contributes to the reduction of the carbon footprint and the greenhouse effect. Another notable reason to use the selected printing press is in the use of new inks formulation which are based on nanotechnology. Nano-sized inks particles provide important properties to the prints obtained for example good colour consistency. Due to the stated property, as well as due to a good comparison with the real conditions of recycling of newsprint the printed samples of newspapers were subjected to a process of accelerated aging. The process of accelerated aging was conducted at several different intervals in order to to study the effect of accelerated aging on the properties of recycled laboratory paper sheets. The process of accelerated aging was simulated in a climate chamber under conditions of elevated temperature and humidity. Samples were prepared by using standard techniques for accelerated ageing: moist-heat based on the standard ISO 5630-3 (80 °C and 65% relative humidity). By changing the printing technique, using nanotechnology-based inks, the changes in the qualitative properties of recycled sheets of laboratory paper occur. Changes in qualitative properties are manifested in the changes in the optical properties of laboratory sheets of paper, which are studied in this scientific paper.

Keywords: Inkjet Newspaper, Nanotechnology Inks, Paper Recycling, Optical Properties

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ADVANCED QUALITY AND SUSTAINABILITY WHEN PRINTING IRREVERSIBILE THERMOCHROMIC INKS

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Abstract:

Worldwide, there is a growing need for use of recyclable and biodegradable materials, made from natural resources, for a variety of applications. This trend is followed by the printing industry as well, which is trying to use environmentally friendly materials and reduce the consumption of environmentally unfriendly materials. In addition, the used materials should give the satisfying quality of the end-product. Thermochromic inks can be reversible (color change is multiple) or irreversible (color change is one-time and permanent). Irreversible printing inks are initially either colorless or colored and when exposed to high temperatures they get colored or change to another color.

Therefore, the aim of this paper is to examine the possibilities of two printing substrates (uncoated and coated) for the application of irreversible thermochromic inks in order to find a more environmentally friendly option that gives a satisfactory print quality. For the purposes of the study, two water-based inks with different activation temperatures (60° and 75°C) were used. Also, mixing these two colors in a 50:50 ratio was examined. The dynamics of color change was monitored through one heating cycle every few degrees. Their colorimetric characteristics were described using spectral reflection curves and the CIELAB color system. Based on the obtained results, it can be concluded that with the change of temperature, the color tone changes slowly and continuously. The differences are evident for the selected printing substrates due to their different properties. However, these variations are imperceptible to the eye of the observer and according to the obtained results, it can be concluded that the tested inks behave similarly on the used substrates. In addition, more environmentally sustainable materials can be a good option in the use of printing with irreversible water-based thermochromic inks.

Keywords: Thermochromic Inks, Sustainable Materials, Colorimetric Characteristics

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DURABILITY EXAMINATION OF THE UHF RFID LABELS WITH RESPECT TO ENVIRONMENTAL CHANGES IN TERMS OF ELEVATED TEMPERATURE AND UV RADIATION

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Abstract:

One of the key points of interest of sustainability is the preservation of products in order to make full use of their predicted lifespan. In that sense UHF RFID labels are no different. UHF RFID labels have replaced traditional labels in a wide range of products, from unique luxury products to commercial packaging. The reason lies primarily in economy. Namely, tagged products are easy to track throughout the entire production and supply chain. The question arises as to what extent the quality of the label is affected by exposure to different environmental conditions within production and distribution chain process. To this end, durability of the UHF RFID labels with respect to environmental changes were examined. Samples were exposed to electromagnetic radiation (artificial aging for 48h and 96h) and elevated temperatures (50 °C and 60 °C). Changes in the conductivity and read range frequency of the UHF RFID label antennas were determined. In order to get an insight into the degree of degradation, image analysis of the samples was performed with the Personal IAS imaging device.

Keywords: RFID Labels, Accelerated Aging, Image Analysis

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UI GREENMETRIC RANKING PERFORMANCE ANALYSIS OF UNIVERSITIES IN TURKEY: SUGGESTIONS TOWARDS TO BECOMING GREEN CAMPUSES

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Abstract:

There is growing attention to UI GreenMetric from all over the world since it was established in 2010. Turkey totally have 207 universities and 43 of them was applied to UI GreenMetric in 2019. The aim of this study is to analyse UI GreenMetric ranking performance of universities in Turkey and giving suggestions towards to becoming green campuses. The data used in the study were taken from the UI GreenMetric's official website. According to the results; the most successful category was transportation (TR) while the unsuccessful categories were "energy and climate (EC)" and "water (WR)" in Turkey. In addition, 72% of the applicant universities from Turkey have not ranked in the first 300. The rankings of universities in Turkey have been decreased according to the general ranking results. The major problems are coming from lack of sustainability offices and inability to provide data for the application. Institutional data keeping and monitoring system and targeting global indicators such as Sustainable Development Goals were suggested in order to achieve long term success.

Keywords: Sustainability, Sustainable Development Goals (Sdgs), UI Greenmetric, Green Campus, Higher Education Institutions (Heis).

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JOB PLANNING IN THE GRAPHIC INDUSTRY IN TERMS OF PROJECT MANAGEMENT

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Abstract:

Rising number of natural disasters in terms of floods, fire, hurricanes, etc. leads to growing concern in mankind to be more determinative in the sustainable development, i.e. to diminish mankind's impact on nature. The change in the mindset applies to the whole business and workforce included in the production. Acknowledging the role of the projects in the everyday processes, the concept of sustainable development should be integrated in the way the projects are planned, organized, executed and managed. To some extent print houses have already employed a workflow management system to their business which enables them better control in the execution of their production. Nevertheless, there is need for improvement in the sustainability direction. This paper aims to analyse job planning in a small print house and compare it to the sustainable project principles. Results of the analysis showed that print house often work with external purchase orders where product characteristics are already determined. The production of a product is not treated as a small project with all its aspects (processes included, schedule, material costs, product's quality). Usual communication is between two neighbouring processes and information about production is often limited to basic data such as time spent on the production.

It is visible that implementing project-based job planning in the production workflow could improve production efficiency which will lead to lower impact on the nature. Key aspects should be increase influence in the product definition (size, substrate, technology used) by improving communication with product designers. Include more information about the process execution to enable better planning, increase the process efficiency and lower waste material. In addition, stressing the process efficiency and sustainable production to the employees will bring them on a path of pursuing sustainable development of the company, but using the principles in the everyday life as well.

Keywords: Graphic Industry, Job Planning, Sustainable Project Management

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DIGITALIZATION OF FARMING AND SUSTAINABLE AGRICULTURAL DEVELOPMENT

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Abstract:

Digitization is one of the most recent processes of transformation of world agriculture by overcoming existing environmental, economic and social problems and can be called the "third green revolution", since digital farming technologies allow to analyze and process large amounts of information, control and reduce production risks, meet the information needs of a wide range of stakeholders, from the state to the end consumer, as well as to ensure overall security. To answer the question of link between digitalization of the agricultural sector and sustainable development the article analyzes the potential of ICT technologies in agriculture, studies models of digital farming, considers the prospects for using digital economy tools in solving the problems of sustainable development of the agricultural sector. In particular, the article examines the advantages of ICT in terms of the rationality and sustainability of agriculture, provides an overview of the main technologies of intelligent farming in interaction with the infrastructure of the agricultural market. It also analyzes potential shortcomings, identifies barriers that impede the timely and large-scale implementation of information technologies in agricultural enterprises, limit the availability of the “digital revolution” in agriculture for small farmers and women, especially in developing countries. A practical analysis of this problem consists in conducting an economic and statistical analysis of the use of modern high-precision agricultural technologies in the vegetable growing industry. As a result of an econometric assessment of the data of small and medium-sized agricultural enterprises, the main factors of the existing development trends are identified and the main problems of sustainable development of sub-sectors are highlighted. The final model presupposes the development of an integrated approach to organizing sustainable development aimed at preserving natural landscapes, as well as improving scientific methods for environmental monitoring of agricultural lands and other areas that have not been effectively used.

Keywords: Agriculture, Digitalization, Information And Communication Technologies, Sustainable Development

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