IBSC

International Bioscience Conference and the
8th International PSU – UNS Bioscience Conference

Towards the SDG Challenges

ONLINE

25-26 November 2021, Novi Sad, Serbia

BOOK OF ABSTRACTS

IBCS2021 is organized jointly by:

University Prince of Songkla, Thailand

University of Novi Sad, Faculty of Sciences, Serbia

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PROGRAM IBSC 2021
25-26. NOVEMBAR 2021.

25th NOVEMBER, 2021	
DAY 1 9:00 - 18:00 (CET)	
REGISTRATION	**8:45 – 9:00 CET**
09:00 – 09:20	**OPENING CEREMONY:** • Prof. *Milica Pavkov Hrvojević*, Dean of the Faculty of Sciences, University of Novi Sad, Serbia • Prof. *Anchana Prathep* Dean of the Faculty of Science, Prince of Songkla University, Thailand • Prof. *Neda Mimica-Dukić*, President of the Scientific Committee, Faculty of Sciences University of Novi Sad, Serbia
09:25 – 10:05	**PLENARY LECTURE 1:** **Prof. Snežana Đorđević** Division of Bioscience, University College London (UCL), UK **Title: *Evolutionary and Functional Links between Neuropilins and VEGF***
10:10 – 10:50	**PLENARY LECTURE 2:** **Prof. Anchana Prathep** Prince of Songkla University (PSU), Faculty of Sciences, Thailand **Title: *Seagrass Biodiversity and Conservation for Sustainable Development Goals: A Case Study from Thailand***
10:55 – 11:35	**PLENARY LECTURE 3:** **Prof. Imre Vass** Hungarian Academy of Sciences; Institute of Plant Biology, Biological Research Center of HAS, Szeged, Hungary **Title: *Application of Plant Phenotyping Methods in Research and Breeding***
11:40 – 12:20	**PLENARY LECTURE 4:** **Prof. Viktor Nedović** Ministry of Education, Science and Technological Development of the Republic of Serbia, University of Belgrade, Faculty of Agriculture, Serbia **Title: *Encapsulated Bioactives for the Food Industry***
BREAK	

13:00 – 16:00	**Track 1: Biology and Environment** **Invited lectures:** **13:00 - 13:20** Sari Kontunen-Soppela, University of Eastern Finland (UEF), Joensuu, Finland: "*Acclimation and Adaptation Capacity of Northern Silver birch (Betula pendula) Populations to Climate Change*" **13:25-13:45** Carmen Arena, University of Naples Federico II, Naples, Italy: "*Plants in Extreme Environments: Focus on Space*" **13:50-14:10** Adriana Basile, University of Naples Federico II, Naples, Italy: "*Biomarkers of Heavy Metal Pollution in Bryophyta*" **14:15-14:35** Biljana Basarin, University of Novi Sad, Faculty of Sciences, Serbia: "*Detailed Analysis of Extreme Heatwaves in Serbia, South-East Europe*" **Oral presentations (T1)** **14:40-14:50** Aleksandra Tubić, University of Novi Sad, Faculty of Sciences, Serbia: "*Adsorption mechanism of magenta printing dye on polyethylene microplastics*" **14:55-15:05** Kringpaka Wangkulangkul, University Prince of Songkla, Faculty of Science, Thailand: "I*nfluence of monsoon-driven oceanographic variability on recruitment of rocky intertidal dominant sessile species*" **15:10-15:20** Thanwarat Sangkuanun, University Prince of Songkla, Faculty of Science, Thailand: "*The roles of dragon fruit oligosaccharide on immunity of freshwater crustacean, Daphnia magna*" **15:25-15:35** Milica Stankovic, University Prince of Songkla, Faculty of Science, Thailand: "*Seagrass ecosystems as nature-based solution for climate change mitigation*" **15:40-15:50** Apisara Nakpan, University Prince of Songkla, Faculty of Science, Thailand: "*Habitat use by the cryptic sea slug Elysia pusilla (Bergh, 1872) (Sacoglossa) in a tropical Halimeda macroloba Decaisne, 1841 meadow*"
	Track 3: Biochemistry, Molecular Biology and Biomedicine **Invited lectures:** **13:00-13:20** Vassiliouss Roussos, Department of Pharmacy, National and Kapodistrian University of Athens, Greece: "*Algal Bioactive Metabolites for Biomedical Applications*" **13:25-13:45** *Silvia Rocha*, University of Aveiro, Chemistry Department, Aveiro, Portugal: "*Rethinking Plants as Excellent Sources of Health and Wellness-Promoting Compounds: Inspired by Nature and Science*"

13:00 – 16:00	**13:50-14:10** Sergej Tomić, University of Belgrade, INEP- Institute for Aapplication of Nuclear Energy Department for Immunology and Immunoparasitology, Belgrade, Serbia: "*Immunological profiles of COVID-19 patients reveal promising indicators and therapeutic targets for severe forms of the disease*" **14:15-14:35** Wipawadee Sianglum, Prince of Songkla University, Faculty of Science, Thailand: "*Proteomic Analysis of Antimicrobial Effects of Lupinifolin in Vancomycin-Resistant Enterococci*" **Oral presentations (T3)** **14:40-14:50** Arnon Chukamnerd, Prince of Songkla University, Faculty of Medicine, Thailand: "*Genomic analysis of carbapenem-resistant Acinetobacter baumannii clinical isolates using whole-genome sequencing data*" **14:55-15:05** Tatjana Majkić, University of Novi Sad, Faculty of Sciences, Serbia: "*The effects of Plantago l. water extracts on mRNA expression of enzymes involved in cyclooxygenase pathway of arachidonic acid metabolism*" **15:10-15:20** Jelena Bašić, University of Niš, Faculty of Medicine, Serbia: "*The influence of glucokinase regulatory protein gene polymorphisms on lipid profile in acute ischemic stroke patients*"
	Track 2: Biotechnology and Bioengineering **Invited lecture:** **14:40 – 15:00** Jelena Pejin, University of Novi Sad, Faculty of Technology, Serbia: "*Triticale in Beer Production*" **Oral presentations (T4)** **15:05-15:15** Petra Djuza, BioSense Institute, University of Novi Sad, Serbia: "*A deep learning-based prediction model for soybean yield*" **15:20-15:30** Viruja Ummat, Teagasc Ashtown Food Research Centre, UCD School of Biosystems and Food Engineering, University College Dublin, Ireland: "*Ultrasound assisted depolymerization of sulfated polysaccharide (fucoidan) from seaweed*" **15:35-15:45** Ermenegilda Vitale, University of Naples Federico II, Italy: "*Light quality and biostimulant application: a sustainable approach to improve antioxidant properties and photosynthesis in soybean (Glycine max l. Merril) sprouts*" **15:50-16:00** Živan Mrkonjić, University of Novi Sad, Faculty of Technology, Serbia: "*RSM and ANN optimization of polyphenols recovery from Thymus serpyllum herbal dust using microwave-assisted extraction*"
16:00 – 18:00	**PARALLEL POSTER SESSIONS** **T1, T2, T3 & T4**

26th NOVEMBER, 2021	
DAY 2 9:00 - 17:00 (CET)	
REGISTRATION	**8:45 – 9:00 CET**
09:00 - 09:40	**PLENARY LECTURE 1:** **Prof. Antonio J. Meléndez-Martínez** Universidad de Sevilla, Nutrition and Food Science, Toxicology and Legal Medicine **Title: *Carotenoids and Derivatives: Versatile Compounds for Nature and the Agro-Food Industry***
09:45 - 10:25	**PLENARY LECTURE 2:** **Prof. Declan Troy** The Agriculture and Food Development Authority (TEAGASC), Ireland **Title: *Emerging Technologies and Consumer Perception for Sustainable Meat Processing***
10:30 – 11:10	**PLENARY LECTURE 3:** **Prof. Gianluca Polese** Federico II University of Naples, Italy **Title: *Octopus' Suckers a Multitasking Sensor***
11:10 – 12:00	**BREAK**
12:00 – 16:00	**Track 1: Biology and Environment** **Invited lectures:** **12:00-12:20** Mladen Horvatović, University of Novi Sad, Faculty of Sciences, Serbia: "*Serbian Stick Grasshopper – Pyrgomorphula serbica (Pančić, 1882) The Most Striking but Little-Known Endemic of Serbian Fauna*" **12:25-12:45** Jaruwan Mayakun, Prince of Songkla University, Faculty of Science, Thailand: "*Underappreciated Roles of Calcareous Green Alga Halimeda*" **12:50-13:10** Sara Bumrungsri, Prince of Songkla University, Faculty of Science, Thailand: "*Local and Landscape Compositions Influence Stingless Bee Communities and Pollination Networks in Tropical Mixed Fruit Orchards, Thailand*"

12:00 – 16:00	**Track 2: Biotechnology and Bioengineering** **Invited lecture:** **13:15-13:35** Komwit Surachat, Prince of Songkla University, Faculty of Science, Thailand: "*In Silico Safety Assessment of Probiotics for Human Use Using Genomics and Bioinformatics Analysis Approach*"
	Oral presentations (T1/T2) **13:40-13:50** Saowalak Malawa, Faculty of Natural Resources, Prince of Songkla University, Thailand: "*Efficiency of indian-almond leaf (Terminalia catappa Linnaeus, 1767) extracts in rearing Siamese fighting fish (Betta splendens Regan, 1910)*" **13:55-14:05** Jirapan Satjarak, Faculty of Natural Resources, Prince of Songkla University, Thailand: "*Post-prandial changes in digestive enzymes and chyme characteristics in bigfin reef squid (Sepioteuthis lessoniana)*" **14:10-14:20** Paweena Sanpradit, Faculty of Science, Prince of Songkla University, Thailand: "*Alterations of growth, oxidative stress and energy reserves in Daphnia magna after ZnO exposure under thermal stress*" **14:25-14:35** Aleksandar Bajić, University of Novi Sad Faculty of Sciences, Serbia: "*Signal crayfish, Pacifastacus leniusculus (Dana, 1852) new invasive species in the waters of Serbia*" **14:40-14:50** Serena Ducoli, University of Brescia, Department of Information Engineering, Italy, and INSTM: "*Nanoplastics characterization at the biological interface*" **14:55-15:05** Payal Patel, School of Science, Indrashil University, India: "*Characterization and purification of a novel halothermotolerant l-Asparaginase from Bacillus licheniformis ppd37 and its anti-proliferative activity against cancer cell lines*" **15:10-15:20** Dimitrije Stefanović, University of Novi Sad, BioSense Institute, Serbia: "*Suppression of ring artifacts in reconstructed holographic images using graph signal processing*"

12:00 – 16:00	**Track 3: Biochemistry, Molecular Biology and Biomedicine** **Invited lectures:** **12:00-12:20** Ioannis Mourtzinos, Aristotle University of Thessaloniki, Greece: "*Stability and Color Evolution of Anthocyanins from Cornelian Cherry Extracts in Different Food Systems*" **12:25-12:45** Pimonsri Mittraparp-arthorn, Prince of Songkla University, Faculty of Science, Thailand: "*Impact of climate change in the adaptation and virulence of marine luminous bacterium Vibrio campbellii*" **12:50-13:10** Nebojša Kladar, University of Novi Sad, Faculty of Medicine, Department of Pharmacy, Serbia: "*The current status of Cannabis sativa L. therapeutic potential*"
	Track 2: Biotechnology and Bioengineering **Invited lecture:** **13:15-13:35** Patamarerk Engsontia, Prince of Songkla University, Faculty of Science, Thailand: "*From Butterfly Diversity to Peptide Drug Discovery*" **Oral presentations (T3)** **13:40-13:50** Tatjana Majkić, University of Novi Sad Faculty of Sciences, Serbia: "*Wine against obesity – Cabernet Sauvignon wine as inhibitor of pancreatic lipase*" **13:55-14:05** Jakkrit Nukitram, Faculty of Science, Prince of Songkla University, Thailand: "*Medial prefrontal cortex local field potential oscillations and attenuated craving behaviors in methamphetamine-induced addictive-like behaviors mice in response to Mitragyna speciosa (Korth.) Havil. leaves extract treatment*"
12:00 – 15:00	**Track 4: Agri-food and Biosensing** **Invited lectures:** **12:00-12:20** Oskar Marko, University of Novi Sad, BioSense Institute, Serbia: "*Digital Services for Farmers Based on Sentinel-2 Satelllite Images and Advanced Machine Learning*" **12:25-12:45** Pissared Muangnil, Prince of Songkla University, Faculty of Science, Thailand: "*Prebiotic Oligosaccharides: Dietary Strategies for Improving Gut Health*" **12:50-13:10** Chongdee Buranachai, Prince of Songkla University, Faculty of Science, Thailand: "*A 3D Gelatin Aerogel Sorbent for the Extraction of Polycyclic Aromatic Hydrocarbons in Tea Drinks*" **13:15-13:35** Alena Stupar, Institute for Food Technology, University of Novi Sad, Serbia: "Natural Deep Eutectic Solvents for Green Agri-Food Solutions"

12:00 – 15:00	**Oral presentations (T4)** **13:40-13:50** Ivana Dimić, University of Novi Sad, Faculty of Technology: "*Cherry seed oil: supercritical fluid extraction of lipophilic bioactive compounds*" **13:55-14:05** Sofia Lalou, School of Chemistry, Aristotle University of Thessaloniki, Greece: "*Natural carotenoids and pectin from the juice by-product of microwave-heated persimmon fruits (cv. Jiro)*" **14:10-14:20** Dragana Miladinović, Institute of Field and Vegetable Crops, National Institute of Republic of Serbia: "*Oil crops breeding at IFVCNS – new tools for tackling changing environment and market demands*" **14:25-14:35** Anastasia Kyriakoudi, School of Agriculture, Faculty of Agriculture, Forestry and Natural Environment, Aristotle University of Thessaloniki, Greece: "*Screening of hydrophobic deep eutectic solvents for the extraction of tomato carotenoids*" **14:40-14:50** Anastasia Loukri, School of Agriculture, Aristotle University of Thessaloniki, Greece: "*Recovery of bioactive compounds using green extraction solvents*" **14:55-15:05** Stamatia Christaki, School of Agriculture, Forestry and Natural Environment, Aristotle University of Thessaloniki, Greece: "*Incorporation of bioactive compounds from oregano plant to Greek whey cheeses*"
15:00 – 17:00	**PARALLEL POSTER SESSIONS** **T1, T2, T3 & T4**
17:00 – 17:30	**CLOSING REMARKS**

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ABSTRACTS

PLENARY LECTURES

T4-P-7 Within-field correlation between satellite-derived vegetation indices and grain yield of wheat

Dragana Blagojević, Stefanija Stojković, Sanja Brdar, Vladimir Crnojević[39]

KEYWORDS: vegetation indices; yield; correlation; agriculture; satellite.

INTRODUCTION:

In recent times, satellite-derived vegetation indices were widely used in the field of agriculture especially in the assessment of crop damage and crop progress as well as in clarification of spatial variability of yield. These types of analyses play an important role in the estimation of the health condition of each crop during its growth and provide an opportunity for timely decision making.

OBJECTIVES:

This research aimed to inspect the correlation coefficients, during the crop growth stages, between vegetation indices (VIs) derived from Sentinel-2 imagery and grain winter wheat yield derived from yield monitoring and select the most promising indices for monitoring crop growth and yield estimation.

METHOD / DESIGN:

The satellite images in 10m resolution were selected based on crop growth stages, from the end of tillering phase (beginning of March 2019) until the full ripening (end of June 2019). For the analysis, the BBCH-scale for cereals was used. Yield observations were performed at harvest on five fields in one season and twelve VIs were calculated across 10 growth stages. To designate their correlation and dependence, a statistical comparison of the VIs and yield was made. The Pearson's and Spearman's correlation coefficients were calculated, and their statistical significance was tested using p-value (at p=0.01, p=0.05).

RESULTS:

According to the crop growth stages, the highest correlation coefficients were detected from the early boot stage (BBCH 41) until the middle of development of the fruiting stage (BBCH 73 – early milk). In that period the correlation coefficients varied from 0.39 to 0.84 depending on the field. Based on the location, the highest correlation coefficient values for all 12 indices were recorded for the parcel named C-6 (April 15), and the lowest values for the parcel named C-10 (June 29). Most of the indices showed statistically significant dependence (at the p<0.01 and p<0.05 significant levels) on the yield in the first five growth stages except the chlorophyll vegetation index (CVI) for the parcel named C-11 (p=0.21, p=0.39).

CONCLUSIONS:

To conclude, the last growth stage named ripening showed the lowest values both for correlation coefficient and statistical significance which means that VIs also had low values because the reflectance is weak in this growth stage and wheat is about to be harvested. In the first five stages, VIs showed significantly high spectral reflectance values since in this period the leaf is full of chlorophyll pigments. Analyzing the correlation coefficient in different stages of wheat growth, we look at the current state of crops and have the opportunity to take appropriate measures in time to increase yields or save inputs at specific locations.

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