PRINCE OF SONGKLA UNIVERSITY

35th Anniversary
Faculty of Science and Technology
Prince of Songkla University, Pattani Campus
S&T for Sustainable Future

10th SCI-TECH SYMPOSIUM 2021

FACULTY OF SCIENCE AND TECHNOLOGY
PRINCE OF SONGKLA UNIVERSITY PATTANI CAMPUS

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Preface

The 10th year of Sci-Tech Symposium on May 25th, 2021

Congratulations to the ***Sci-Tech Symposium*** on its tenth anniversary! This year is very special in celebrating the 35th anniversary of the Faculty of Science and Technology at Pattani Campus of the Prince of Songkla University. Also, this is the first time for the Sci-Tech Symposium to be virtual, online only, due to the Covid-19 epidemic.

I am delighted to welcome all presenters and participants to the Symposium, contributing to the benefits from this annual event.

I would like to thank the organizing committee, students, lecturer, staff and evaluation committee for their work to make this symposium a (virtual) reality again, well done!

Asst. Prof. Dr. Taewee Tongdang Karrila
Vice Dean for Academic Affairs, Faculty of Science and Technology

Message from Dean

In the midst of disruption era and global pandemic caused by coronavirus disease (COVID-19), I am glad to see that our SciTech Symposium (STS) is continued on a virtual or online platform. In any changes there are always chances. We learn how to adapt, develop and make use of technology to support our work and learnings. STS, a name adopted after SGS or SciTech Grad Symposium, has a long journey to its 10th anniversary in 2021 expanding to involve both undergraduate and postgraduate students. STS has established itself as a platform for academic exchanges, presentation skill practice and networking. For learners, this STS is a venue where you can learn from others about their work, keep an update in various aspects of science and technology. There is a chance to share your ideas and contributes your academic knowledge. As the presentations will be in English, this event thus provides a good chance to develop your language skills too. Faculty of Science and Technology, Prince of Songkla University, Pattani Campus continues to maintain its excellences in teaching, research and innovation as well as academic outreaches. This kind of symposium is one of the activities that we are keen to support for the benefits of our students. It is a pity that participants cannot meet in person, but I hope that you all can make the event lively online by discussing your ideas and asking questions.

There are 18 oral presentations and 3 poster presentation this time. In organizing this event, there are several people who are working backstage to ensure a smooth and good flow of the day. Thanks everyone for your contribution. I wish this event a great success both in hard and soft skill development aspects. On behalf of the Faculty of Science and Technology, I would like to express my sincere thanks to Vide Dean for Academic Affairs, Assistant Dean, presenters, participants, organizing committee members, and staff who make this STS2021 happened.

"*The capacity to learn is a gift; the ability to learn is a skill; the willingness to learn is a choice.*"
Brian Herbert

Assoc. Prof. Dr. Kannika Sahakaro
Dean, Faculty of Science and Technology, PSU, Pattani Campus

Message from Assistant Dean

It is our pleasure to welcome all participants to the 10th Sci-Tech Symposium 2021 (STS-10). A major goal of this symposium is to bring SAT student and academic staff together to exchange and share their experiences and research results in the aspects of science and technology.

Now, the COVID-19 pandemic has affected many parts of our lives. To follow social distancing measures, we have shifted our in-person conferences to virtual meetings. So, the STS-10 this year is hosted virtually. If this is your first time attending a virtual scientific conference, you can implement some practices to help you get the best experience. However, the primary challenge of attending a virtual conference is that you lose out on the face-to-face networking aspect. No matter how benefits and challenges the virtual conference are, you remember the reasons why you are attending this, which most likely have to do with presenting and learning about research, gaining professional development skills and networking with others.

We would like to thank the organization staff and the members of the program committees. We also would like to express our gratitude to the reviewers, for providing help in the review process, and the authors for contributing their research result to the conference.

We wish all attendees will have a rewarding experience and use this occasion to meet friends. We look forward to seeing all of you next year at the conference.

Asst. Prof. Dr. Thammarat Kaewmanee
Assistant Dean, Faculty of Science and Technology

Program

The 10th Sci-Tech Symposium (STS-10)
Tuesday, May 25th, 2021
Meeting Room 3, by ZOOM Application
Faculty of Science and Technology, Prince of Songkla University, Pattani Campus

Time	The 10th Sci-Tech Symposium
10:30-11:00	Registration online by using Google form
11:00-11:15	Report address: Chairman of postgraduate students Opening Remarks: Assoc. Prof. Dr. Kannika Sahakaro (Dean of Faculty of Science and Technology, PSU Pattani)
11:15-11:25	Introducing the evaluation committee and rules of poster presentation
Asst. Prof. Dr.Siwaporn Pinkaew, Dr. Apichai Bourchookarn, Asst. Prof. Dr. Subhan Salaeh and Miss Suwanan Daengwilai as secretary	
11:25-11:30	PP-01 – Effects of Azodicarbonamide Content on the Properties of Natural Rubber Foam (Fateehah Baru, Polymer Technology) – M.Sc.
11:30-11:35	PP-02 – Influence of Blending Techniques on Vulcanization Behavior of Rubber Foam Based on NR/EPDM Blends (Baharee Sama, Polymer Technology) – M.Sc.
11:35-11:40	PP-03 – Study of Chemical Composition of Indigenous Rice (Hanee Kaetong, Applied Chemistry) – M.Sc.
11:40-11:45	Introducing the evaluation committee for oral presentations (morning session) and rules
Assoc. Prof. Dr. Apiradee Saelim, Dr. Chutima Monchawin, Dr. Arinda Ma-a-Lee and Miss Nur-asikin Masaesa-i as secretary	
11:45-12:00	OP-01 – Application of the Normalized Difference Vegetation Index (NDVI) for Assessing Land Surface Temperature in Central Sumatra Indonesia (Tofan Agung Eka Prasetya, Research Methodology) – Ph.D.
12:00-12:15	OP-02 – The Analysis of Land Surface Temperature Change in Bogota, Colombia During 2000 to 2020 (Khodeeyoh Kasoh, Research Methodology) – M.Sc.

Time	The 10th Sci-Tech Symposium
12:15-12:30	OP-03 − Statistical Analysis of Long-term Health Effects of Thailand's Oil Spill on the Health of Spill Cleaners (Benjamin Atta Owusu, Research Methodology) – Ph.D.
12:30-12:45	OP-04 − A Simple Statistical Model for Forecasting COVID-19 Pandemic in South and South-East Asian Countries (Ameen Mhamad, Research Methodology) – M.Sc.
	Speaker introduction - MC
12:45-13:15	Invited Speaker: Prof. Dr. Virasakdi Chongsuvivatwong on the topic of "COVID-19 and Graduate Study: Opportunity and Threat"
13:15-13:20	Continuing oral presentations (afternoon session)
13:20-13:35	OP-05 − Factors Associated with Negative Emotional Responses to Cyberbullying Among Young People in a Southern Province of Thailand (Rusnat Noipom, Research Methodology) – Ph.D.
13:35-13:50	OP-06 − Occurrence and Intensity of Malaria in Southernmost Provinces of Thailand (Lumpoo Ammatawiyanon, Research Methodology) – M.Sc.
13:50-14:05	OP-07 − Attitude Toward the Half-Half Co-Payment Scheme Among People in Muang Pattani (Lukman Dunthara, Research Methodology) – M.Sc.
14:05-14:20	OP-08 − Pandemic Global Confirmed Cases and Deaths in the Coronavirus Disease 2019 (Jeayareeyoh Jeasoh, Research Methodology) – Ph.D.
14:20-14:35	OP-09 − The Association Between Body Mass Index and Glomerular Filtration Rate Decline in Adult Patients with Chronic Kidney Disease (Nantiya Khounung, Research Methodology) – Ph.D.
14:35-14:50	OP-10 − Land Surface Temperature Variation and Major Factors in Barranquilla, Colombia (Nasuha Chetae, Research Methodology) – M.Sc.
14:50-16:30	Break
16:30-16:35	Continuing oral presentations (evening session)
Asst. Prof. Dr. Walairat Bourchookarn, Dr. Patthamawadee Tongkaew, Asst. Prof. Dr. Anoma Titithammawong, Asst. Prof. Dr. Rattana Jariyaboon and Miss Nur-asikin Masaesa-I as secretary	

Time	The 10th Sci-Tech Symposium
16:35-16:50	OP-11 − Biohydrogen Production from Dark Fermentation Effluent by Coupling MFC-MEC System (Nattapol Raybut, Applied Chemistry) – M.Sc.
16:50-17:05	OP-12 − Acetic Acid Production from Palm Oil Mill Effluent Wastewater by Anaerobic Fermentation (Sovannry Kheang, Industrial Chemistry) – B.Sc.
17:05-17:20	OP-13 − Isolation and Screening of Lactic Acid Bacteria (LAB) for Antagonizing *Vibrio parahaemolyticus* (AHPND strains) in White Shrimp (*Litopenaeus vannamei*) (Apisit Kimtun, Fishery Science and Technology) – M.Sc.
17:20-17:35	OP-14 − Stomach Content of Brown Decorated Sea Urchin, *Temnopleurus toreumaticus* (Leske, 1778) in Pattani Bay, Pattani Province (Sofiyudin Maae, Fishery Science and Technology) – M.Sc.
17:35-17:50	OP-15 − Role of Pom-Nang Seaweed, *Gracilaria* spp. on Growth and Survival of Juvenile Mud Crab, *Scylla paramamosain* (Wasina Rungruang, Fishery Science and Technology) – M.Sc.
17:50-18:05	OP-16 − Comparison the Effect on Weight Loss Between Using Only Mobile Application and Mobile Application Plus Nutrition Counselor in Weight Management, Short Term Study (Sulaila Samuyama, Food Science and Nutrition) – B.Sc.
18:05-18:20	OP-17 − Modification and Characteristics of Palm Oil-Based Polyol by Thiol-Ene Reaction (Sofia Mekarat, Polymer Technology) – Ph.D.
18:20-18:35	OP-18 − Comparing Sources of Nitrogen Fertilizer on Growth and Protein Content in Mung Bean and Sunflower Microgreens (Paweena Hassama, Agricultural Science and Technology) – M.Sc.
18:35-18:50	Accounting of scores given, summary, and committee meeting
18:50-19:05	Announcing the awards and closing remarks
19:05-19:15	Closing Remarks: Asst. Prof. Dr. Taewee Tongdang Karrila (Vice Dean for Academic Affairs of Faculty of Science and Technology, PSU Pattani)

#OP=Oral Presentation, PP= Poster Presentation

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Oral Presentations

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Oral Presentations
Sci-Tech Symposium (STS-10)

OP-01

Application of the Normalized Difference Vegetation Index (NDVI) for Assessing Land Surface Temperature in Central Sumatra Indonesia

Tofan Agung Eka Prasetya[1,2], Munawar[1,3], Muhamad Rifki Taufik[4], Sarawuth Chesoh[1*], Apiradee Lim[1], and Don McNeil[1]

[1]Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Thailand
[2] Health Department, Faculty of Vocational Studies, Universitas Airlangga, Indonesia
[3] Statistic Department, Faculty of Mathematics and Science, Syah Kuala University, Indonesia
[4]Faculty of Health Science, Universitas Darussalam Gontor, Indonesia

[*]Corresponding author: sarawuth.c@psu.ac.th

Abstract: The assessment of Land Surface Temperature (LST) can reflect air temperature variation that is affected by physical factors such as elevation, land cover, based on computing the normalized difference vegetation index (NDVI). In this analysis, a multiple linear regression model of LST variation was performed using data from NASA's Terra satellite's Moderate Resolution Imaging Spectroradiometer (MODIS) from 2000 to 2018. The highest variation in LST was found in savanna areas, with approximately 1.3 °C/decade, while the lowest variation was found in evergreen broadleaf forest and woody savanna, with a decrease of 2.1 °C/decade. The overall mean change of LST was -0.4 °C/decade and the regression model with LST as the dependent variable and elevation, land cover type and NVDI as independent variables produced an R square of 0.376. The variation in LST was different depending upon the NDVI. Application of these findings can be used for inspecting state of the regional climate change relating to land use, land cover change and deforestation.

Keywords: albedo; land cover change; MODIS

OP-02

The Analysis of Land Surface Temperature Change in Bogota, Colombia During 2000 to 2020

Khodeeyoh Kasoh*, Salang Musikasuwan, and Rattikan Saelim

Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani, 94000, Thailand

*Corresponding author: khodeeyoh38508@gmail.com

Abstract: The objectives of this study were (i) to analyze the seasonal patterns and trends of land surface temperature between 2000 and 2020 in Bogota, Colombia and (ii) to examine factors that related to variation of temperature change in Bogota, Columbia from 2000-2020 using MODIS data. The observation data used in this study were obtained from MODIS LST Data for 9 sub-regions in Bogota (958 observations for each sub-region). The seasonal patterns were examined for all sub-regions. The trends of LST were examined by using the cubic spline function and simple linear regression for all 9 sub-regions. The results showed that the lowest and the highest LST were found in sub-region 6 on day 3 December 2010 and day 7 April 2018 during the mid of winter and summer seasons of the year, respectively. While, the highest mean LST in subregion 5 was 37.52 degree celcius. Finally, it can be found that the trends of LST in sub-region 2 and 4 have been increasing 0.298 and 0.462 degree celcius per decade, respectively. On the other hand, the trends of sub-region 1, 3, 5, 6, 7, 8, and 9 have been decreasing with the values of -0.193, -0.320, -0.405, -0.464, -0.761, -0.229, and -0.488 degree celcius per decade, respectively.

Keywords: land surface temperature; normalized difference vegetation index; cubic spline function

OP-03

Statistical Analysis of Long-term Health Effects of Thailand's Oil Spill on the Health of Spill Cleaners

Benjamin Atta Owusu[1,2,4*], Apiradee Lim[1,2], Thammasin Ingviya[2,3]

[1]Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand
[2]Air Pollution and Health Effects Research Center, Prince of Songkla University, Hat Yai Campus, 90110, Thailand
[3]Department of Family Medicine and Preventive Medicine, Prince of Songkla University, Hat Yai Campus, 90110, Thailand
[4]Multidisciplinary Research and Innovation Centre, Kumasi, Ghana

[*]Corresponding author: benteeta@gmail.com

Abstract: The Rayong oil spill incident of July 2013 leaked over 50,000 barrels of crude into the Gulf of Thailand. The Rayong Hospital conducted a surveillance program to monitor the blood component levels of oil spill cleanup workers. To date, no longitudinal study has been conducted to evaluate the possible long-term adverse effects of the Rayong oil spill exposure in the workers who participated in the cleanup activities. This longitudinal study assesses the long-term health effects from the oil spill among 869 cleanup workers. The generalized estimating equation was used to determine the trends of haematological and hepatic parameters among the workers and multinomial logistic regression was used to determine the presence of significant increasing trends, significant decreasing trends and non-significant trends in the haematological indices. The results showed that trends of haemoglobin (0.026 g/dL per year), haematocrit (0.109 % per year), red blood cell count (0.018 cell/μL per year) platelet count (3.3×10^3 cells/μL per year) were significantly increasing among the oil spill cleanup workers. However, aspartate aminotransferase (-1.495 IU/L per year) and alanine aminotransferase (-0.407 IU/L per year) had significant decreasing trends. When adjusted for age, smoking status, and occupation, the trends of platelet count, mean corpuscular volume and mean corpuscular hemoglobin remained significantly increasing. Blood urea nitrogen, creatinine and AST had significant increasing trends when adjusted for age, smoking and occupation.

Keywords: clean-up; longitudinal study; haematological indices; oil spill

OP-04

A Simple Statistical Model for Forecasting COVID-19 Pandemic in South and South-East Asian Countries

Ameen Mhamad, Nurin Dureh*, Areena Hazanee

Department of Mathematical and Computer Sciences, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: nurin.d@psu.ac.th

Abstract: Nowadays, countries around the world have been facing the crises due to the epidemic of coronavirus disease 2019 (COVID-19). This study aims to construct a model for forecasting COVID-19 using a linear regression model with natural cubic spline. The data used in this study were obtained from publicly available databases updated daily and located at GitHub run by Microsoft. The results found that the model fits the data extremely well, defined as that maximizes the mean r-squared value in India, Pakistan, Bangladesh, Nepal, Sri-Lanka, Philippines, Malaysia, Thailand, Vietnam and Australia are 0.997, 0.979, 0.992, 0.978, 0.995, 0.961, 0.975, 0.942, 0.989, 0.886, 0.945 and 0.589, respectively and provides forecasts of daily changes, which signalled when action is needed. Moreover, this model is routinely applicable to all such regions in the world, and can be extended to accommodate additional predictors such as environmental and demographic variables.

Keywords: COVID-19; linear Regression; natural Cubic spline; forecasting; south and south-east asia

OP-05

Factors Associated with Negative Emotional Responses to Cyberbullying among Young People in a Southern Province of Thailand

Rusnat Noipom[1,3], Apiradee Lim[1,*], Ruthaychonee Sittichai[1,2], Sarawut Sukkhum[1,3], Nurin Dureh[1], Arinda Ma-Aree[1]

[1]Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Thailand
[2]Information Management Program, Kids and Youth Development Research Unit, Research Center for Educational Innovations and Teaching and Learning Excellence, Faculty of Humanities and Social Sciences, Prince of Songkla University, Pattani 94000, Thailand
[3]Centre of Excellence in Mathematics, Commission on Higher Education, Ratchathewi, Bangkok, Thailand, 10400

[*]Corresponding author: apiradee.s@psu.ac.th

Abstract: This study investigates the associations between level of education, social support, social stress and experience of being a victim and negative emotional responses to cyberbullying among secondary school and university students in Pattani province, southern Thailand. The data were collected using a self-administered questionnaire on 606 students across eight secondary schools and two universities in the province. Chi-square test was employed to examine the associations between the determinants and the negative emotional responses. Multiple logistic regression was used to determine the strength of associations between the determinants and outcome. The results show that negative emotional responses were reported by 34.7% of respondents. Being at secondary school, low social support, high social stress and experience of being a cyber-victim were associated with negative emotional responses. This study proposes that, in order to provide the students with better emotional responses to cyberbullying, teachers, parents and policy makers should focus on providing proper social supports and reducing social stress.

Keywords: cyberbullying; negative emotional responses; social support; social stress; cyber-victim

OP-06

Occurrence and Intensity of Malaria in Southernmost Provinces of Thailand

Lumpoo Ammatawiyanon*, Phattrawan Tongkumchum, Apiradee Lim and Don McNeil

Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, 94000, Thailand

*Corresponding author: lumpoo55@gmail.com

Abstract: Malaria remains one of the serious health problems in the southernmost provinces of Thailand. This study aimed to identify sub-districts where malaria occurred and to estimate disease intensity in southernmost provinces. Occurrence is defined as having at least one case of malaria in a data record and is coded as binary. Intensity is measured as a conditional incidence rate where the incidence rate is greater than zero. A logistic regression model was fitted to estimate disease occurrence in each sub-district with a gender-age group, year, population group, and sub-district as determinants. Log-linear regression model was fitted to estimate intensity rates. Overall occurrence is 10.9%. Age patterns show a peak at ages 20-29 for males and a broader lower peak for females. Sub-districts show variation, with areas of high occurrence, especially in Yala. Overall intensity is 431 cases per 100,000 population. The intensity shows moderate increases with age for each sex, a decrease over the decade from 2008 to 2018, and high variation among sub-districts, with pockets of high intensity in Yala and Narathiwat. The sub-districts with high malaria occurrence and intensity are all located in the forested mountainous area bordering Malaysia. The present study revealed that it is possible to identify areas of high malaria using models of occurrence and intensity. Moreover, malaria still continues to be one of the major public health problems in some parts of southernmost provinces. This result can help the public health authority to improve its surveillance and response system by targeting specific populations and areas.

Keywords: malaria; occurrence; intensity; southernmost provinces

OP-07

Attitude toward the Half-Half Co-Payment Scheme among People in Muang Pattani

L. Dunthara*, J. Tanupattarasorn, M. Masamae, N. Salae, N. Paekpan, Y. Samah and N. Chealong

Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: vega.mang38@gmail.com

Abstract: Half-Half Co-Payment scheme is the project from Thai government policy to restore the economy at the foundation level for entrepreneurs after COVID-19 unraveled lockdown. The aim of this study was to investigate factors associated with attitude toward the Half-Half Co-Payment scheme among people in Muang Pattani. Data were collected using survey questionnaires through an online tool Google Form between January and February 2021. There were 200 participants in this study. Linear regression was used to investigate factors associated with attitude toward the Half-Half Co-Payment scheme. The results showed that most people thought the half-half project should accommodate people who do not have smartphones. Having bachelor's degree or higher education, being a laborer and living outside the municipality Muang and Rusamilae had a higher attitude toward the Half-Half Co-Payment scheme. To benefit more on this project, the government should provide more accessible channels not only via smartphone, or online application, especially to the elderly.

Keywords: attitude; half-half co-payment scheme; muang pattani

OP-08

Pandemic Global Confirmed Cases and Deaths in the Coronavirus Disease 2019

Jeasoh, J.[1*], Tongkumchum, P.[1] and Jaearsae, J.[2]

[1]Department of Argriculture and Fishery Technology, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand
[2]Faculty of Nursing, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

[*]Corresponding author: jeayareeyoh.j@psu.ac.th

Abstract: This study aimed to investigate patterns and trends of confirmed cases and deaths of coronavirus disease 2019 (COVID-19) from selected countries**.** Daily data on coronavirus disease during January 22, 2020 – May 14, 2020 were obtained from publicly available databases updated daily and located at GitHub run by Microsoft. The weekly time series data were analyzed. Mortality rates were calculated as number of deaths divided by cumulative for confirmed cases minus cumulative for recovered cases. The results showed that the number of confirmed COVID-19 cases and deaths by continent, America has the highest number of cases, followed by Europe and Asia as well as number of deaths. Death rate was 8.04% in Europe, followed by 5.14% in America, and 2.64% in Africa. For the top ten countries, three countries (US, Russia, and Brazil) had patterns with similar numbers of cases. Other seven countries (Spain, Italy, Germany, the UK, France, Turkey, and Iran) began the pattern with similar number of cases. The patterns of confirmed cases for the US, Russia and Brazil increased with time whereas the patterns for other seven countries reach peak around early April.

Keyword: coronavirus disease 2019; confirmed cases; death cases

OP-09

The Association between Obesity and Glomerular Filtration Rate Decline in Adult Patients with Chronic Kidney Disease

Nantiya Khounung[1*], Arthit Intarasit[2], Apiradee Saelim[2], Pakwan Riyapan[2]

Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani 94000, Thailand

[1]Faculty of Nursing, Prince of Songkla University, Pattani Campus, Pattani 94000, Thailand
[2]Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani 94000, Thailand

[*]Corresponding author: nantiya6911@gmail.com

Abstract: Chronic kidney disease (CKD) is a major public health problem. Obesity is a major risk factor for non-communicable diseases. However, a few studies have examined the effect of obesity BMI on progressive patients with glomerular filtration rate decline in general Thai population. This study was to investigate the relationship between obesity and the glomerular filtration stages in patient with CKD. A total of 311 patients with CKD aged 20–60 years were obtained from Pattani Provincial Health Office in 2019-2020. Patients with non-communicable diseases, not on the treatment of peritoneal dialysis and hemodialysis, loss to follow up more than one year, underweight and incomplete data were excluded from this study. Thus, 273 patients were used for further analysis. Multiple logistic regression analysis was used to explore the association between obesity and glomerular filtration stages in patients with CKD. The result showed that obesity was not significantly associated with glomerular filtration stages. Further studies should include other main factors cause the declining of the glomerular filtration rate.

Keywords: obesity, glomerular giltration rate, chronic kidney disease

OP-10

Land Surface Temperature Variation and Major Factors in Barranquilla, Colombia

Nasuha Chetae*, Rattikan Saelim, and Salang Musikasuwan

Department of Mathematics and Computer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani, 94000, Thailand

*Corresponding author: nasuhachetae@gmail.com

Abstract: The rapid urbanization in big cities has had a remarkable effect on the urban climate, and environment. Many kinds of research mostly focus on land use and land cover (LULC) impact on Land surface temperature (LST). This research aims to analyze the seasonal patterns and trends of LST using simple linear regression and cubic spline model. After that, the ARIMA model will be applied for the prediction of LST. The data of this study is MODIS time-series data for 8 days LST and for 16 days NDVI data obtaining from the NASA website. Study area characteristics divided into 9 sub-region areas covering Barranquilla city of Colombia from January 2001 to December 2020. Results indicate that sub-region 4 and 7 have high R-squared values or high variance more than other sub-region. Is 0.566, 0.419 respectively, which can explain 34.3°C, 32.4°C respectively percent of LST variance and there is one sub-region that has a small variance but the high temperature at 34.2°C is the sub-region 2 have R-squared values is 0.134. Show that land surface temperatures in Barranquilla city, which the LST trend was to slightly drop and the LST pattern all 9 sub-region have a different temperature depends on the context of each area.

Keywords: land surface temperature; normalized difference vegetation index; cubic spline function; linear regress; ARIMA

OP-11

Biohydrogen Production from Dark Fermentation Effluent by Coupling MFC-MEC System

Nattapol Raybut[1,2], Rattana Jariyaboon[1,2], Alissara Reungsang[3,4], and Prawit Kongjan[1,2*]

[1]Department of Science, Faculty of Science and Technology, Prince of Songkla University, Pattani 94000, Thailand
[2]Bio-Mass Conversion to Energy and Chemicals (Bio-MEC) Research Unit, Faculty of Science and Technology, Prince of Songkla University, Pattani 94000, Thailand
[3]Department of Biotechnology, Faculty of Technology, Khon Kaen University, Khon Kaen 40002, Thailand
[4]Research Group for Development of Microbial Hydrogen Production Process, Faculty of Technology, Khon Kaen University, Khon Kaen, 40002, Thailand

[*]Corresponding author: prawit.k@psu.ac.th

ABSTRACT: Hydrogen can be potentially produced from effluent of dark fermentation by using bio-electrochemical system, which is consisted of microbial fuel cell (MFC) as a power source for microbial electrolysis cell (MEC). However, the voltage output of the most MFC is not enough to power MEC. In this investigation, hydrogen production from dark fermentation effluent by using an MFC-MEC system is feasibly demonstrated by connecting the capacitor circuit (two arrays of capacitor) between MFC and MEC to boost voltage generated from the MFC to sufficiently supply to MEC. The system was conducted in fed-batch mode for 14.7 h. Dark fermentation fed with 20 g-xylose/L could generate hydrogen production rate of 1061.72 mL H2/L-D, corresponding to hydrogen yield of 148.27 mL H2/g VS. The voltage generated from MFCs and voltage input of MECs (Discharged from capacitor circuit) was approx. 0.133 V and 0.265 V respectively, after operating time of 7 h. The final concentration of hydrogen in MEC head space was 61% and methane was not detected. This system can be used for hydrogen production at low voltage output of 0.133 V from MFCs, providing alternative way to increase voltage in MFC-MEC coupled system.

Keywords: biohydrogen; microbial electrolysis cell; microbial fuel cell

OP-12

Acetic Acid Production from Palm Oil Mill Effluent Wastewater by Anaerobic Fermentation

Sovannry Kheang, Prawit Kongjan* and Rattana Jariyaboon

Department of Industrial Chemistry, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: prawit.k@psu.ac.th

Abstract: This study was to determine the optimum condition which strict on the ration of substrate mixtures and operation time in fermentation without pH and temperature adjustment, to achieve the high volatile fatty acids (VFAs) from palm oil mill effluent wastewater (POME) in anaerobic fermentation condition. The sub-culture of the previous sample with high volatile fatty acids and POME sludge were also conducted as inoculums with the POME at the same operation times to compare the potential of VFAs production with the fresh POME sludge as inoculum with the same substrate. The high VFA yield of 9892.86 mg/L was operated by mixing sample in ratio of 2:8:50 g/L of inoculum: substrate: sugar with initial pH of 3.49, COD of 98,000 mg/L and TS of 9.2787 g%, allowed to GC-FID analysis was found that the acetic acid were produced about 9.12 g/L for 10 days fermentation.

Keywords: palm oil mill effluent; volatile fatty acid; gas chromatography flame ionization detector; anaerobic fermentation; sub-culture

OP-13

Isolation and Screening of Lactic Acid Bacteria (LAB) for Antagonizing *Vibrio parahaemolyticus* (AHPND strains) in White Shrimp (*Litopenaeus vannamei*)

Apisit Kimtun*, Saweit Chaimongkol, Chonlatee Cheewasedtham, Pochanart Kanjan*

Department of Fishery Science and Technology Program, Faculty of Science and Technology, Prince of Songkla University, Pattani 94000, Thailand

*Corresponding author: pochanart.k@psu.ac.th; apisitkimtun1996@gmail.com

Abstract: Shrimp farming in Thailand has been very problematical due to Vibrio parahaemolyticus, which causes acute hepatopancreatic necrosis disease (AHPND). To effectively overcome this problem, efficacious lactic acid bacteria (LAB) candidates were isolated from shrimp farms near coastal areas. Fifty strains of LAB were screened for their ability to control pathogenic V. parahaemolyticus (AHPND strains). LAB strain of TBPV1 exhibiting highest reduction of V. parahaemolyticus by agar spot and agar well assay was identified as Enterococcus faecalis TBPV1 based on the nucleotide sequence of its 16S rDNA. Co-cultivation of V. parahaemolyticus and E. faecalis TBPV1 showed complete reduction of V. parahaemolyticus at 12 h under aerobic condition, whereas E. faecalis TBPV1 increased from 5.29 to 9.47 Log CFU/mL. Additionally, E. faecalis TBPV1 could produce extracellular enzymes for utilization protein. This study indicated the strong potential for the application of E. faecalis TBPV1 for the control of pathogenic V. parahaemolyticus and also as a probiotic for Pacific white shrimp.

Keywords: LAB; *vibrio parahaemolyticus*; AHPND; *litopenaeus vannamei*

OP-14

Stomach Content of Brown Decorated Sea Urchin, *Temnopleurus toreumaticus* (Leske, 1778) in Pattani Bay, Pattani Province

Sofiyudin Maae, Jitima Suwanmala* , Sukree Hajisamae

Department of Argriculture and Fishery Technology Faculty of Science and Technology, Prince of Songkla University, Pattani 94000, Thailand

*Corresponding author: jitima.s@psu.ac.th

Abstract: This study is aimed to analyze stomach content of the brown decorated sea urchin *Temnopleurus toreumaticus* found in Pattani bay. Altogether, 144 samples of live sea urchins were collected. They were categorized into four groups based on size; small (2.33-3.52 cm.), medium (3.53-3.81 cm.), large (3.82-4.01 cm.) and extra-large (4.02-4.92 cm.). The stomachs were cut and the food items contained were counted and identified and the data was statistically analyzed. It was found that polychaete (29.82%), crustacean (24.26%) and mollusc (23.16%) were the main food items found in the stomachs. Fullness index between the four size-classes of sea urchin were not significant ($P>0.05$), but the numbers of food item were significant ($P<0.001$). The highest number of food item was found in the small size class and the lowest was in the extra-large size class. Diet overlap between size classes was clearly observed. This scientific information is helpful for the management of sea urchin resources and their application for future sea urchin culture.

Keywords: diet overlap; fullness index; stomach content; *Temnopleurus toreumaticus*

OP-15

Role of Pom-nang Seaweed, *Gracilaria* spp. on Growth and Survival of Juvenile Mud Crab, *Scylla paramamosain*

Wasina Rungruang[1*], Sukree Hajisamae[1], Jitima Suwanmala[1], and Mohammad Tamrin Mohamad Lal[2]

[11]Department of Argriculture and Fishery Technology, Faculty of Science and Technology, Prince of Songkla University, Pattani 94000, Thailand
[2]Borneo Marine Research Institute, Universiti Malaysia Sabah, Jalan UMS, Kota Kinabalu 88400, Malaysia

[*]Corresponding author: wasinattinan@gmail.com

Abstract: Effect of diets with different Pom-nang seaweed powder (PSP) level supplemented, and Pom-nang seaweed used as shelter was conducted using tested crablets with an initial body weight of 0.02 g. Two factors including five dietary treatments (PSP0%, PSP2%, PSP4%, PSP6%, and control; mysid shrimp) and two treatments of Pom-nang seaweed as a shelter (Pom-nang seaweed as a shelter and without shelters) on weight gain (WG), specific growth ratio (SGR), protein efficiency ratio (PER), survival rate and feed conversion ratio (FCR). The experiment was performed with 3 replicates for each treatment (10 crabs per replicate). Interaction between two factors on WG, SGR and PER were observed ($p<0.05$). The WG and SGR of crablets fed with control diet were significantly higher than those of crablets fed with other diets ($p<0.05$). However, PER fed with PSP4% was significantly higher than those of crablets fed with other diets ($p<0.05$). Pom-nang seaweed as a shelter showed significantly higher than without Pom-nang seaweed as a shelter ($p<0.05$) on WG, SGR and PER. The FCR and survival rate of crablets showed no significant effect of dietary diets with different Pom-nang seaweed supplementation's level ($p>0.05$). However, Pom-nang seaweed as a shelter showed significantly lower than without Pom-nang seaweed as a shelter ($p<0.05$) on FCR of crablets. The experiment indicates that the optimum supplement of dietary diets shall be 4% of Pom-nang seaweed and Pom-nang seaweed as a shelter suitable for nursing stage of the crable

Keywords: juvenile mud crab; gracilaria spp; growth rate; survival rate; crablet

OP-16

Comparison the Effect on Weight Loss Between Using only Mobile Application and Mobile Application Plus Nutrition Counselor in Weight Management, Short Term Study

Sulaila Samuyama* and Laksana Chaimongkol

Department of Food Science and Nutrition, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: sulaisamu@gmail.com

Abstract: Obesity is prevalent worldwide in all age groups. It is a major risk factor of metabolic syndrome including diabetes, dyslipidemia and hypertension which lead to cardiovascular diseases, a leading cause of death. Intensive weight management needs counseling by nutritionist. According to limiting number of them, using mobile application having guidelines and function for self-monitoring in weight management may increase accessibility for the obese people to control their weight. Thus, this study aims to compare the weight loss between two groups who use mobile application only and use application in addition to nutrition counselor in weight management. Thirty-eight obese volunteers were included in the study. They are randomly sample into either one group (19 person per group). Body composition, 3-day food record and 7-day exercise record were measured at baseline and 3rd month after intervention. The results showed that weight changes after 3 months were reduced by 0.45±1.08 kg in mobile application and 0.42±0.68 kg in mobile application plus nutritionist group (p = 0.901). Thus, it can be concluded that using mobile application only is able to comparatively reduce weight with using nutritionist plus mobile application.

Keywords: mobile application; weight management; obesity

OP-17

Modification and Characteristics of Palm Oil-based Polyol by Thiol-Ene Reaction

Sofia Mekarat, Anuwat Saetung* and Tulyapong Tulyapitak

Department of Rubber Technology and Polymer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani 94000 Thailand

*Corresponding author: anuwat.s@psu.ac.th

Abstract: Novel bio-polyol was successfully prepared by modification of palm oil with 2-mercaptoethanol and 2-Hydroxy-2-methyl propiophenone photoinitiator. The reaction was done under UV irradiation for 5 h at room temperature via Thiol-ene reaction. The effect of molar ratio of 2-mercaptoethanol and palm oil (1:1, 2:1, 3:1, 4:1 and 7:1) on modified palm oils structure and their double bond conversion was investigated by FT-IR and ^{1}H-NMR techniques. Their hydroxyl value was also studied. Chemical structure of all palm oil-based polyols was confirmed by a new peak at 3300-3500 cm^{-1} corresponding to the presence of hydroxyl groups. Addition, double bond conversion and hydroxyl value of palm oil-based polyols were increased with increasing the molar ratio of 2-mercaptoethanol and palm oil.

Keyword: palm oil; polyol; characteristics and modification

OP-18

Comparing Sources of Nitrogen Fertilizer on Growth and Protein Content in Mung Bean and Sunflower Microgreens

Paweena Hassama*, Shariff Srisorayut and Eaknarin Ruarak

Department of Argriculture and Fishery Technology, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani 94000, Thailand

*Corresponding author: phussama@gmail.com

Abstract: A microgreen is one of the important vegetables which are small vegetables and a harvest time at 7-10 days with 2-3 leaves. The consumption of microgreens has increased because people pay more attention to healthy foods which are safe and contain essential nutrients for their good health. This work thus attempted to compare sources of nitrogen fertilizer on growth and protein content in mung bean and sunflower microgreens. The experiment compared 4 sources of nitrogen fertilizer including nitrate, ammonium, urea, glutamate and distilled water for a controlled treatment. In the growth parameters, fresh weight, dry weight, chlorophyll, carotenoid, and xanthophyll were determined. The determinations of the nutritional parameters were done by determining nitrate, nitrite, ammonium, amino acids and total protein. We found that the growth of the microgreens was not different among the 5 treatments. However, we had found a positive effect on protein contents in mung bean and sunflower microgreens in nitrate and glutamate treatments.

Keywords: microgreen; nitrogen fertilizer; protein; growth increasing

Poster Presentations
Sci-Tech Symposium (STS-10)

PP-01

Effects of Azodicarbonamide Content on the Properties of Natural Rubber Foam

Fateehah Baru, Sitisaiyidah Saiwari and Nabil Hayeemasae*

Department of Rubber Technology and Polymer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: nabil.h@psu.ac.th

Abstract: In this work, various types of natural rubber foam were prepared in order to meet the basic properties required by ASTM D1056. Such foams were prepared by varying the content of Azodicarbonamide (ADC) from 2 - 10 phr. The investigation covered the curing behaviors, physical and mechanical properties of natural rubber foam. It was found that the addition of ADC gave longer scorch and cure times for natural rubber compounds. The relative foam density of natural rubber foam decreased and the expansion ratio of natural rubber foam increased over the content of ADC. This was simply due to the increase in gas phase raised by the ADC. Furthermore, the hardness property decreased with increasing ADC content. The compression set increased upon the inclusion of ADC to an optimum at 8 phr loading, thereafter the value was decreased. From the overall properties, the use of ADC at 6 phr has given the basic requirements properties according to standard specification for flexible cellular materials-sponge or expanded rubber.

Keywords: natural rubber foam; azodicarbonamide; aoam lensity; hardness

PP-02

Influence of blending techniques on vulcanization behavior of rubber foam based on NR/EPDM blends

Baharee Sama, Nabil Hayeemasae, Ammarin Kraibut and Sitisaiyidah Saiwari*

Department of Rubber Technology and Polymer Science, Faculty of Science and Technology, Prince of Songkla University, Pattani Campus, Pattani, 94000, Thailand

*Corresponding author: sitisaiyidah.s@psu.ac.th

Abstract: This research aims to prepare high aging resistance natural rubber foam by blending natural rubber (NR) and ethylene propylene diene rubber (EPDM). Vulcanization behaviors of the rubber blends with various blend techniques were studied. The blending techniques used include simple blend, carbon black filled EPDM masterbatch blend and technique of preheating rubber compound and blowing agent before blending. It was found that with using the simple blend technique, two peaks of vulcanization curve were observed when a blowing agent was present in the rubber formulations which indicated the blend incompatibility. Similar result was found in case of masterbatch blend technique that the carbon black filled EPDM masterbatch was prepared and later blended with NR and chemicals. It was found that the two peaks of vulcanization curve were again observed for both additions of carbon black filled EPDM masterbatch at the first and the last of mixing stages. Finally, improvement of blending techniques was performed by preheating rubber compound and blowing agent before blending. With using this technique, the two peaks of vulcanization curve were vanished indicating the usual vulcanization behavior of the rubber blend occurred and it is recommended as a suitable blending technique for preparation of rubber foam based on NR/EPDM blend.

Keyword: natural rubber; ethylene propylene diene rubber; rubber foam; blend technique

PP-03

Study of Chemical Composition of Indigenous Rice

Hanee Kaetong*, Saowapa Chotisuwan and Jareerat Ruamcharoen

Department of Science, Faculty of Science and Technology, Prince of Songkla University, Pattani campus, Pattani, 94000, Thailand

*Corresponding E-mail; miemee0060@gmail.com

Abstract : This research study focused on the chemical composition i.e., amylose , protein, ash and moisture content of flour from four species of indigenous rice i.e., Homkradangnga, Leb nok pattani, Maono and Majanu rices. It was found that Majanu rice had the highest amylose content with 30.59% and then Leb nok pattani rice with 27.93%. The amylose content of Homkradangnga and Maono rices found at 26.08 and 26.15%, respectively, were similar. It was also found that protein content of Leb nok pattani, Maono and Homkradangnga rices were comparable in the range of 7.10-7.40 %, while that of Majanu rice was 10.08%. Homkradangnga rice had the highest ash content of 2.06% and Maono rice had the lowest ash content of 0.72%. The moisture content of the Homkradangnga and Leb nok pattani rices were similar at 11.20% and 11.13%, respectively, while the Majanu rice had the lowest moisture content of 7.05%. This finding was correlated to the structure and morphology of rice. All of indigenous rice are hard and have highly crystallinity.

Keywords : indigenous rice; chemical composition; amylose content

(สำเนา)

คำสั่งคณะวิทยาศาสตร์และเทคโนโลยี
ที่ 43/2564
เรื่อง แต่งตั้งคณะกรรมการดำเนินโครงการประชุมวิชาการ Sci -Tech Symposium (STS-10)
คณะวิทยาศาสตร์และเทคโนโลยี

เพื่อให้การดำเนินงานโครงการประชุมวิชาการ Sci -Tech Symposium (STS-10) ของคณะวิทยาศาสตร์และเทคโนโลยี วันอังคารที่ 25 พฤษภาคม 2564 เป็นไปด้วยความเรียบร้อยและบรรลุวัตถุประสงค์ ดังนั้น อาศัยอำนาจตามความในมาตรา 44 แห่งพระราชบัญญัติมหาวิทยาลัยสงขลานครินทร์ พ.ศ. 2559 จึงขอแต่งตั้งคณะกรรมการดำเนินโครงการประชุมวิชาการ Sci -Tech Symposium (STS-10) คณะวิทยาศาสตร์และเทคโนโลยี ดังนี้

ที่ปรึกษา

1. คณบดีคณะวิทยาศาสตร์และเทคโนโลยี

คณะกรรมการอำนวยการ

1. รองคณบดีฝ่ายวิชาการ	ประธานกรรมการ
2. ผู้ช่วยคณบดี (ผู้ช่วยศาสตราจารย์ ดร.ธรรมรัตน์ แก้วมณี)	รองประธาน
3. หัวหน้าสำนักงานบริหาร คณะวิทยาศาสตร์และเทคโนโลยี	กรรมการ
4. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาเคมีประยุกต์	กรรมการ
5. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาชีววิทยาประยุกต์	กรรมการ
6. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาฟิสิกส์ประยุกต์	กรรมการ
7. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาเทคโนโลยีพอลิเมอร์	กรรมการ
8. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาวิธีวิทยาการวิจัย	กรรมการ
9. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาเทคโนโลยีการประมง	กรรมการ
10. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาวิทยาศาสตร์การอาหารและโภชนาการ	กรรมการ
11. ประธานคณะกรรมการบริหารหลักสูตร วท.ม. สาขาวิชาคณิตศาสตร์ประยุกต์และนวัตกรรมการสอนคณิตศาสตร์	กรรมการ
12. ประธานคณะกรรมการบริหารหลักสูตร ปร.ด. สาขาวิชาเทคโนโลยีพอลิเมอร์	กรรมการ
13. ประธานคณะกรรมการบริหารหลักสูตร ปร.ด. สาขาวิชาวิธีวิทยาการวิจัย	กรรมการ
14. ผู้ช่วยศาสตราจารย์ ดร.อโนมา ธิติธรรมวงศ์	กรรมการ
15. ผู้ช่วยศาสตราจารย์ ดร.รัตนา จริยาบูรณ์	กรรมการ
16. ผู้ช่วยศาสตราจารย์ ดร.รัตติกานต์ แซ่ลิ่ม	กรรมการ
17. นางอัชรีดา วันสุไลมาน	กรรมการและเลขานุการ
18. นายมารีกี มะเด็ง	กรรมการและผู้ช่วยเลขานุการ
19. นางสาวขวัญฤทัย อาจไพรินทร์	กรรมการและผู้ช่วยเลขานุการ

ให้คณะกรรมการชุดนี้มีหน้าที่เสนอนโยบายและกำหนดแนวทางในการดำเนิน โครงการประชุมวิชาการ Sci-Tech Symposium(STS-10) ของนักศึกษาระดับปริญญาตรี ปริญญาโท และปริญญาเอก คณะวิทยาศาสตร์และเทคโนโลยี ให้เป็นไปด้วยความเรียบร้อย

คณะกรรมการฝ่ายตัดสินผลงานทางวิชาการ

การเสนอผลงานภาคบรรยาย

1. รองศาสตราจารย์ ดร.อภิรดี แซ่ลิ่ม	ประธานกรรมการ
2. ผู้ช่วยศาสตราจารย์ ดร.รัตนา จริยาบูรณ์	กรรมการ
3. ผู้ช่วยศาสตราจารย์ ดร.อโนมา ธิติธรรมวงศ์	กรรมการ
4. ผู้ช่วยศาสตราจารย์ ดร.วไลรัตน์ บัวชูก้าน	กรรมการ
5. ดร.ชุติมา มัญชวินทร์	กรรมการ
6. ดร.อารินดา มะอาลี	กรรมการ
7. ดร.ปฐมาวดี ทองแก้ว	กรรมการ
8. นางสาวนุรอาสิกิน มะแซสะอิ	เลขานุการ

การเสนอผลงานภาคโปสเตอร์

1. ดร.อภิชัย บัวชูก้าน	ประธานกรรมการ
2. ผู้ช่วยศาสตราจารย์ ดร.สุบฮาน สาและ	กรรมการ
3. ผู้ช่วยศาสตราจารย์ ดร.ศิวพร ปิ่นแก้ว	กรรมการ
4. นางสาวสุวนันท์ แดงวิไล	เลขานุการ

คณะกรรมการฝ่ายตรวจทานบทคัดย่อ

1. ผู้ช่วยศาสตราจารย์ ดร.ธรรมรัตน์ แก้วมณี	ประธานกรรมการ
2. รองศาสตราจารย์ ดร.อภิรดี แซ่ลิ่ม	กรรมการ
3. ผู้ช่วยศาสตราจารย์ ดร.อโนมา ธิติธรรมวงศ์	กรรมการ
4. ผู้ช่วยศาสตราจารย์ ดร.รัตติกานต์ แซ่ลิ่ม	กรรมการ
5. ผู้ช่วยศาสตราจารย์ ดร.สิทธิศักดิ์ จันทรัตน์	กรรมการ
6. ดร.ณัฏฐากร วรอัฐสิน	กรรมการ
7. ดร.สมรักษ์ พันธ์ผล	กรรมการ
8. ดร.ภควรรษ ทองนวลจันทร์	กรรมการ
9. นางอัชรีดา วันสุไลมาน	เลขานุการ

ให้คณะกรรมการชุดนี้ มีหน้าที่ตรวจทานบทคัดย่อ ประเมินผลงานทางวิชาการภาคบรรยายและภาคโปสเตอร์ ของนักศึกษาระดับปริญญาตรี ปริญญาโท และปริญญาเอก ที่นำเสนอในโครงการประชุมวิชาการ Sci -Tech Symposium (STS-10) ให้เป็นไปด้วยความเรียบร้อย

คณะกรรมการดำเนินงาน

1. รองคณบดีฝ่ายวิชาการ	ประธานกรรมการ
2. ผู้ช่วยคณบดี (ผู้ช่วยศาสตราจารย์ ดร.ธรรมรัตน์ แก้วมณี)	รองประธาน
3. หัวหน้าสำนักงานบริหาร คณะวิทยาศาสตร์และเทคโนโลยี	กรรมการ
4. นางไลลานี อิสกันดา	กรรมการ
5. นางสาวขวัญฤทัย อาจไพรินทร์	กรรมการ
6. นายประทีป เอื้อนมงคล	กรรมการ
7. นายสุไลมาน ดามิ	กรรมการ
8. นายภานุมาศ เผือกภูมิ	กรรมการ
9. นายมะรอเซ็ง สือมา	กรรมการ
10. นายนิฮาฟีซี บินแวดอเลาะ	กรรมการ

11. นายถิรวิทย์ คงสอนหมาน	กรรมการ
12. นางสาวภัณฑิรา เก้าเอี้ยน	กรรมการ
13. นางสาวคัสนีรา อุสมัน	กรรมการ
14. นางสาวฮานีย์ แกต่อง	กรรมการ
15. นางสาวอัสมา สันตตินบีวงศ์	กรรมการ
16. นางสาวดาริกา คาวิจิตร	กรรมการ
17. นายสอฟียูดีน มะแอ	กรรมการ
18. นางสาวภาวินีย์ กลีบทอง	กรรมการ
19. นางสาวธนภรณ์ เริ่มวงศ์	กรรมการ
20. นายณัฐพล เหร่บุตร	กรรมการ
21. นางสาวมัณฑนา ดอนนกลาย	กรรมการ
22. นางสาวศจีณัฐ ศรีทองธรรม	กรรมการ
23. นางสาวสุวนันท์ แดงวิไล	กรรมการ
24. นายอภิสิทธิ์ กิ้มตั้น	กรรมการ
25. นางสาวนุรอาสิกิน มะแซสะอิ	กรรมการ
26. Mr.Teuku Haris Iqbal	กรรมการ
27. นางสาวฟารีดา วงศ์แดง	กรรมการ
28. นายทรงฤทธิ์ ใบดุเก็ม	กรรมการ
29. นางสาวโซเฟีย เมฆารัฐ	กรรมการ
30. นางสาวฮานาน หะยีมะดีเย๊าะ	กรรมการ
31. นายอัมรินทร์ ไกรบุตร	กรรมการ
32. นางสาวฟาตีฮะห์ บารู	กรรมการ
33. นายมาตูรีดี มะสาแม	กรรมการ
34. นางสาวนูรอัยนี เจ๊ะหลง	กรรมการ
35. นายเฟาซี สาและ	กรรมการ
36. นางอัชรีดา วันสุไลมาน	กรรมการและเลขานุการ
37. นายมารีกี มะเด็ง	กรรมการและผู้ช่วยเลขานุการ
38. นายสูลกิฟลี สาแม็ง	กรรมการและผู้ช่วยเลขานุการ
39. นางสาวนภาพรรณ สมาแอ	กรรมการและผู้ช่วยเลขานุการ

ให้กรรมการชุดนี้ มีหน้าที่ดำเนินการโครงการประชุมวิชาการ Sci -Tech Symposium (STS-10) ร่วมกับกลุ่มนักศึกษาระดับปริญญาตรี ปริญญาโท และปริญญาเอก คณะวิทยาศาสตร์และเทคโนโลยี ให้เป็นไปตามแนวทางที่กำหนดและบรรลุวัตถุประสงค์

ทั้งนี้ ตั้งแต่ 1 เมษายน 2564 เป็นต้นไป

สั่ง ณ วันที่ 11 พฤษภาคม พ.ศ. 2564

(ลงชื่อ) กรรณิการ์ สหกะโร

(รองศาสตราจารย์ ดร.กรรณิการ์ สหกะโร)
คณบดีคณะวิทยาศาสตร์และเทคโนโลยี

สำเนาถูกต้อง
อัชรีดา วันสุไลมาน
(นางอัชรีดา วันสุไลมาน)
นักวิชาการศึกษาชำนาญการ

อัชรีดา/ร่าง/พิมพ์/ทาน

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