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الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
يُؤَسِّسُهَا الْمَلِكُ أَلِإِبْرَاهِيمُ رَجَبُ الْمَلِكِي
Garden of Knowledge and Virtue

Program Book

4th
International
Seminar on
Chemical
Education

ISCE



Program Book

ISCE

4th International Seminar on Chemical Education

“Chemistry Resilience and Continuity in the Covid-19 Pandemic”

September 15, 2021, Indonesia



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يُؤْتِي الْعِلْمَ رُحْمًا يُغْنِي عَنْهُ وَالْعِلْمُ يُرَبِّحُ
Garden of Knowledge and Virtue



Preface

International Seminar on Chemical Education 2021 (ISCE 2021) is conducted by Department of Chemistry, Faculty of Mathematics and Natural Science, Islamic Universitas Islam Indonesia, Yogyakarta at September 15th, 2021. The seminar under the theme "Chemistry Resilience and Continuity in the Covid-19 Pandemic".

The aim of the seminar is to explore and develop the concept of learning, innovation and competence building as a chemistry education framework. The objective of ISCE is to stimulate the establishment of knowledge based strategies or teaching development in Senior High School and College. The idea of the seminar is to bring together interesting issues about what is going on ASEAN countries, School, university and to share experience regarding methodology of design thinking in teaching area.

Topic of interest to be covered in the conference includes, but not limited to:

1. Chemistry education curriculum and policy
2. Teacher learning and education (in-service and pre-service teachers)
3. Environmental and social issues in chemistry
4. Assessment and evaluation
5. Independence learning and digital learning
6. Skill oriented and instructional learning in 21st century
7. Classroom action research in sciences
8. Environmental chemistry and its aspects
9. Renewable and sustainable energy
10. Materials and advance materials
11. Green chemistry, chemical engineering and chemical process

This program and abstracts book provides some information concerning the schedule, list of presenter and poster presenter. Hopefully, this book helps the participants for intensively listen and get valuable information in the conference.

The scientific program of ISCE 2021 comprises the following:

Keynote speakers	6 papers
Invited speakers	5 papers
Total papers for oral presentation	56 papers
Total papers for poster presentation	25 papers
Total papers	92 papers





Chairperson's Foreword

Dear Participants, Friends and Colleagues,

Assalamu'alaikum Wr. Wb.

It is a great pleasure for me to have your participation in an online 4th International Seminar on Chemistry Education, held by Chemistry Department, Universitas Islam Indonesia. This seminar is a kind of academic activity and tradition in our department which intended to bring opportunity to all lecturers, researchers and students from all around the world. The conference aims to stimulate our participants to explore the latest development and innovation including latest instrumentation, recent applications and assessment of future commercial trends and opportunities. As we know that science and technology including chemistry and chemical industries are developing fast at recent years, so it requires the highlights on chemistry research, and moreover, it will be closely related with chemistry education sector. In other side, pandemic covid-19 changes everything including how the education being delivered. Explorations on many adaptable teaching-learning modes as well as the updating recent progresses in chemistry, chemical and chemistry education research are important. This webinar is one of the efforts, and in addition, an energetic and dynamic scientific gathering especially with all participants respected presence.

As similar with previous seminar, this webinar will compiled the presented papers in proceeding and selected journal. Again, thank you very much for your participations, and enjoy the webinar.

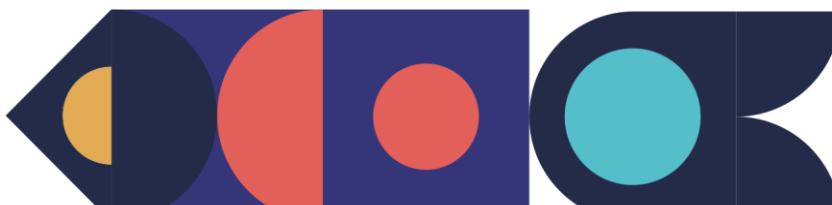
Wassalamu'alaikum Wr. Wb.



Prof. Dr. Is Fatimah, M.Si.

Chairperson

International Seminar on Chemistry Education





Opening Speech from the Rector of Universitas Islam Indonesia

All the distinguished invited speakers,

All the participants,

First of all, I would like to express my great appreciation to the Department of Chemistry Universitas Islam Indonesia as one of the organizers of the program the 4th International Seminar on Chemical Education 2021 (ISCE 2021) with the theme "Chemistry Resilience and Continuity in the Covid-19 Pandemic".

The pandemic situation is clearly not a cause of stagnancy, but in addition to consider it as a calamity to be mitigated, we may use our best creativity to harvest its blessings in disguise. Fostering the use of information technologies in conducting our business processes and learning activities, among others.

Hence, I am proud that this important event is being organized fully virtual to put safety as our top priority. But, at the same time, I understand that to a great extent, the virtual seminar will be more flexible to be arranged, without scarifying its quality. And, to some extent, it may become new norms in the future, as nowadays, it has been widely accepted without meaningless debates.

I would like to thank all the parties that make this seminar possible: the speakers, the participants, and the organizing committee members.

Knowing that committee has selected outstanding speakers from various prestigious institutions, I do believe that all of the participants will find this seminar personally insightful, professionally relevant, and intellectually rewarding.

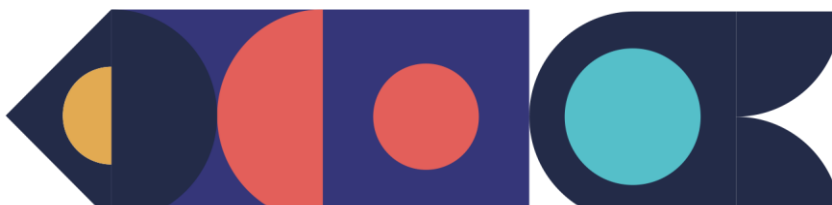
I thank you.



Prof. Fathul Wahid, S.T., M.Sc., Ph.D.

Rector

Universitas Islam Indonesia





Welcome Address from the Campus Director of International Islamic University Malaysia

It is indeed a great pleasure and honour for me to welcome all of you at the 4th INTERNATIONAL SEMINAR ON CHEMICAL EDUCATION (ISCE). May I also congratulate all parties involved in making this conference possible. This conference is a departure from previous ISCE in that for the first time, it is held virtually. Now, participants can access and attend this conference from anywhere around the globe, thus providing ample opportunity for discussion from home.

The abstract book is a testament to the value of mutual aims and strong ties between universities by gathering research work from various countries towards latest advances in chemical learning strategies during the Covid-19 Pandemic.

The theme of this year's conference, "Chemistry Resilience and Continuity in the Covid-19 Pandemic", is truly appropriate in responds to the current challenges faced by our respective nations. The urgency and motivation to engage on exploratory initiatives in basic and applied research, as well as building skills that seek to be more sustainable and inventive based on science and technology, is more vital than ever before, given the present pandemic scenario.

On behalf of the International Islamic University Malaysia, I would like to express my most sincere gratitude to all participants for their participation and valuable contributions to the 4th ISCE. In addition, my heartfelt thanks go to the conference organiser from Universitas Islam Indonesia, and collaborators from Himpunan Kimia Indonesia and International Islamic University Malaysia who have put out their best in making this conference a success. I sincerely wish this conference achieves its goal of forging new ground in chemical learning strategies. I wish everyone a productive conference!

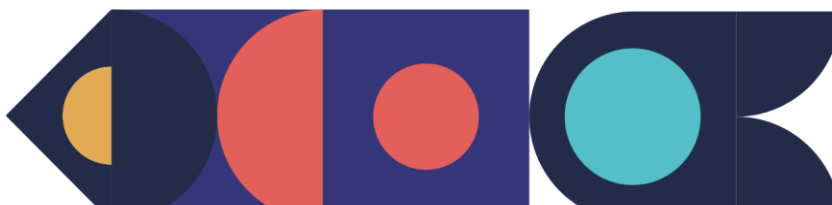


Prof. Dr. Kamaruzzaman Yunus

Campus Director

International Islamic University Malaysia

Kuantan Campus





Remarks by the Chairman of the Indonesian Chemical Society

Honorable Rector of Universitas Islam Indonesia
Honorable speaker, guests, organizing committee, and participants
Ladies and Gentlemen

Praise and gratitude towards Allah SWT, who has given His Grace, so that we are all here to attend the 4th International Seminar on Chemical Education, 2021. On behalf of the Indonesian Chemical Society, I would like to congratulate and salute the organizing committee for organizing this successful scientific meeting even though we were still in the pandemic situation that made us unable to meet each other.

Chemistry education becomes something important in this pandemic situation. Inventions and innovations in the delivery of learning and the things that support it are needed so that the materials provided in learning can be conveyed and appropriately understood. The Indonesia Chemical Society is delighted to see students, young and experienced scientists from Indonesia and other countries come to this seminar and share your expertise and knowledge. It will contribute to our society's continual development because we can create more bonds, collaboration, and networking, primarily in chemical education.

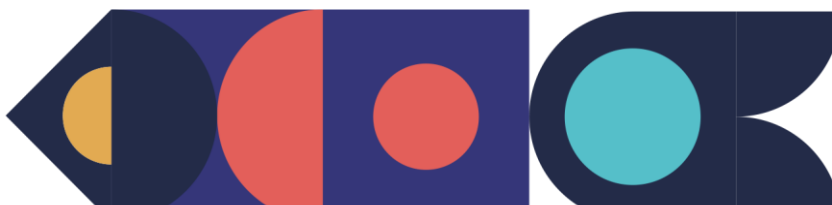
Finally, I thank and welcome all of you to this conference. I would like to express my gratitude and hope that you will have a good atmosphere conference and fruitful meeting.

Thank you.



Dr. Mohamad Rafi

President
Indonesian Chemical Society 2020





Committee Chairs

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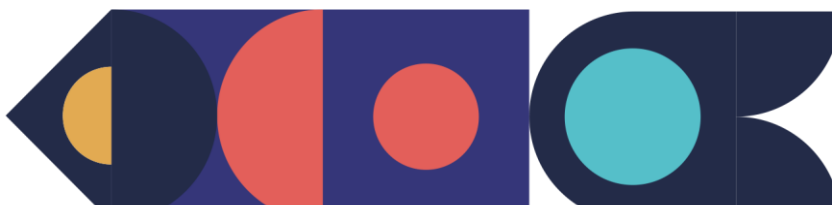
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Dr. Noraslinda Muhamad Bunnori

Asst. Prof. Dr. Mohamad Norazmi Ahmad

Asst. Prof. Dr. Wan Khartini Wan Abdul Khodir

Sabri Bin Abdullah





General Information for Participants

Registration

Access to the Zoom meeting is open 15 minutes before the event starts. The registration process will be accommodated on the link https://bit.ly/ISCE-2021_conference on September 15th, 2021 starts from 08.00-08.30 AM (Jakarta time).

A Polite Request to All Participants

1. All participants must dress modestly.
2. Microphone should be turn off during the session and allow to be turn on as requested by the master of ceremony or the moderator as well.



3. Participants are encouraged to use a virtual background during the event or change the profile picture with the virtual background that can be downloaded on the website of ISCE.
4. The question for speakers should follow the instruction from moderator, either delivers directly or through the chat box and the moderator will arrange the questions and answers session at the end of each session.
5. The name of participants during the conference using the following format,
Presenter : Room number_lastname_afiliation (abbreviation),
Example : R.1_Muhaimin_UII
6. The changing rules will be submitted later including those that have not been decided by the committees.

Oral and Poster Presentation

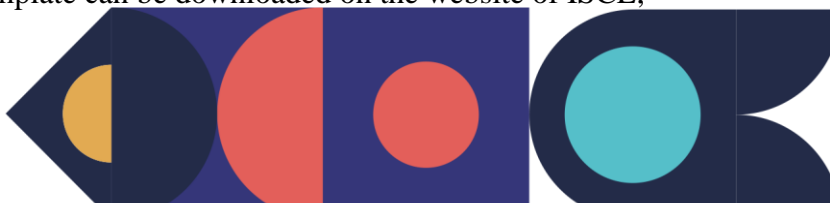
To engage the participants on scientific advancements, the committees has set oral and poster presentations using Google Classroom as media platform. Presenters need to adhere to the following guidelines to guarantee the successful of the session.

Oral Presentations

1. Presenter will be invited into zoom meeting by the committee,
2. Presenter is allowed to choose the mode of presentation either indirect (by video) or direct (face to face) and continue with Question & Answer session,
3. For indirect mode, the presentation video with a maximum duration of 5 minutes and no more than 5 slides. The video is uploaded into the following link https://bit.ly/ISCE2021_PresentationVideo on latest **13 September 2021**,
4. The presentation is scheduled in conjunction with other sessions in the conference program,
5. The presentation template can be downloaded on the website of ISCE.

Poster Presentations

1. The poster dimension is A3 portrait and following the given template as provided in the link,
2. The poster formatted in pdf maximum of 10 MB,
3. The poster must be uploaded on **13 September 2021** maximum on the following link https://bit.ly/ISCE2021_PresentationPoster or class code **tcmybsr**,
4. The poster file should be named as follows: ID paper_fullname_affiliation,
5. The presentation, as well as discussion, will be delivered asynchronously by google classroom,
6. The presentation file template can be downloaded on the website of ISCE,





7. The poster presentation is fully owned by the participants, after which the participants must delete the file from Google Classroom maximum on September 16th, 2021, at 4 PM (Jakarta Time),
8. The committees are not responsible for the undesirable things related to the poster presentation after the conference is over.

Certificate

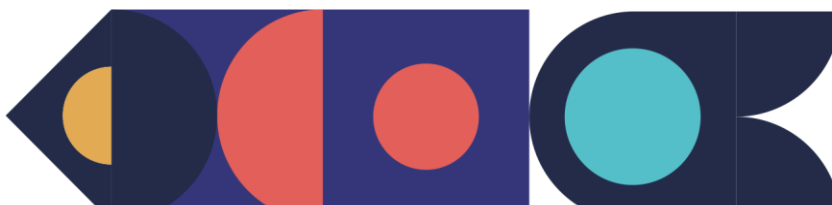
Certificate of Presentation or Certificate of Attendance

A certificate of attendance includes participant's name, certifying the participation in the conference.

Certificate Distribution

Oral and poster presenters will receive a certificate of presentation from the ISCE Conference Committee in a form of e-certificate via each participant's email.

The certificate of presentation will not be issued, either at or after the conference, to authors whose papers are registered but not presented.



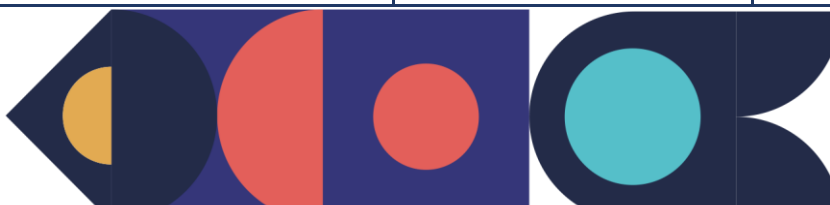


Time Schedule

The 4th International Seminar on Chemical Education (ISCE) 2021

Wednesday, September 15th, 2021

Time	Activity	PIC	Media
08.00-08.30	Registration	Committees	
08.30-08.40	Opening Ceremony Recitation of Holy Qur'an National Anthem of Indonesia Hymn of Universitas Islam Indonesia	Mila Minhatul Maula, S.Pd.	Zoom
08.40-08.45	Welcoming Address by The Chair Person of ISCE	Prof. Dr. Is Fatimah, M.Si.	Zoom
08.45-08.50	Welcoming Address by The President of Indonesian Chemical Society	Dr. Mohamad Rafi	Zoom
08.50-08.55	Welcoming Address by The Campus Director of International Islamic University Malaysia, Kuantan	Prof. Dr. Kamaruzzaman Yunus	Zoom
08.55-09.10	Opening and Welcoming Address by The Rector of Universitas Islam Indonesia	Prof. Fathul Wahid, S.T., M.T., Ph.D.	Zoom
09.10-09.15	Photo Session	Mila Minhatul Maula, S.Pd.	Zoom
09.20-09.35	<i>Plenary Session 1</i> Prof. Dr. Edy Cahyono, M.Si. Universitas Negeri Semarang Indonesia <i>"Strengthening the Student's Representation Ability on Mastering the Concepts of Organic Reaction Mechanisms Through Project-Based Learning"</i>	Moderator Dr. Nurasyikin Hamzah	Zoom
09.35-09.50	Prof. Dr. Supawan Tantayanon Chulalongkorn University Thailand <i>"Online Teaching Hands-on Chemistry Experiments: Small Scale Chemistry"</i>		
09.50-10.05	Pradeep Shukla, Ph.D. University of Queensland Australia <i>"Changing dynamics of chemical manufacturing- Centralized plant v/s Distributed plants"</i>		
10.05-10.30	Discussion		
10.30-10.45	<i>Plenary Session 2</i> Prof. Dr. Mustafa SÖzbilir Ataturk University Turkey <i>"Teaching Chemistry during Covid-19 Lockdowns"</i>	Moderator Imam Sahroni, M.Sc.	Zoom
10.45-11.00	Prof. Dr. Kamisah Osman Universiti Kebangsaan Malaysia Malaysia <i>"From Higher Order Thinking to Computational Thinking Skills: Implication to Chemistry Teaching and Learning"</i>		
11.00-11.15	Prof. Shin-Ichi Ohira, Ph.D (Sci) Kumamoto University Japan		





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Supawan Tantayanon	Online Teaching Hands-on Chemistry Experiments: Small Scale Chemistry	Keynote Speaker	3
Pradeep Shukla	Changing Dynamics of Chemical Manufacturing- Centralized Plant v/s Distributed Plants	Keynote Speaker	4
Mustafa Sözbilir	Teaching Chemistry during Covid-19 Lockdowns	Keynote Speaker	5
Kamisah Osman	From Higher Order Thinking to Computational Thinking Skills: Implication to Chemistry Teaching and Learning	Keynote Speaker	6
Shin-Ichi Ohira	Electrodialytic Ion Handling for Chromium Speciation Analysis	Keynote Speaker	7
Gani Purwiandono	Synthesis of Cubic-Shape $\text{La}_2\text{Ti}_{1-x}\text{V}_x\text{O}_7$ Nanocrystal and Its Photoelectrochemical Property	Invited Speaker	9
Salmahaminati, Minori Abe, Indra Purnama, Jacob Yan Mulyana, Masahiko Hada	Density Functional Study of Metal-to-Ligand Charge Transfer and Hole-Hopping in Ruthenium(II) Complexes with Alkyl-Substituted Bipyridine Ligands	Invited Speaker	10
Deny Susanti	Marine Algae: Chemistry and Potential	Invited Speaker	11
Antuni Wiyarsi	Extending Students' Analytical Thinking Ability in Acid Base Learning via Common Knowledge Construction Model	Invited Speaker	12
Nurul Nadiyah Rosly, Nor Azlina A. Rahman, Shafida Abd Hamid	Perception of Undergraduate Students in Learning Organic Chemistry at Kulliyyah of Science (IIUM): A Preliminary Study	Invited Speaker	13

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Program Book

4th International Seminar on Chemical Education

"Chemistry Resilience and Continuity in the Covid-19 Pandemic"



Abstract of the Invited Speakers

September 15, 2021

Universitas Islam Indonesia
International Islamic University Malaysia





Marine Algae: Chemistry and Potential

Deny Susanti

Department of Chemistry, Kulliyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia

Abstract. Seaweeds or macroalgae are valuable marine plants that have garnered much attention from the public due to their high bioactive, nutrients and minerals content. They are classified into three higher taxa, namely *Chlorophyta* (green seaweed), *Phaeophyta* (brown seaweed) and *Rhodophyta* (red seaweed), based on their pigmentation. Due to their the valuable nutrition and bioactive components, seaweeds have been used in multiple applications, including in cosmeceutical, nutraceutical and pharmaceutical industries as well as in fine chemical and enzymes production. The extraction of these components is influenced by various process parameters such as drying methods, solvent extraction, pH, temperature, extraction time, solid to solvent ratio etc. Thus, it is important to design the experimental to get the optimised condition to get the significant amount of the interest components. Response surface methodology (RSM) is one of the economically efficient experimental procedure for optimising this complex process. Compared to using 'one to one factor' method, RSM is far better since in RSM the several process variables simultaneously interact with each other. Therefore, in this presentation underlying the approach of our research on the optimisation of the extraction of valuable components in seaweeds will be discussed.

Keywords: seaweeds, chemical compounds, potential





co-organized by:

Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Islam Indonesia (UII)
Kulliyah of Sciences, International Islamic University Malaysia (IIUM)