Contents

Editorial Corner

Insect Biorefinery: Sustainable Application of Insects in Circular Economy *Yu-Shen Cheng*

Review Article

A Predictive Negative Sequence Current Control Algorithm for Voltage Imbalance Compensation and Power Oscillation Minimization under Unbalanced Conditions

Nehal Helaly

How Organic Fertilizers can be used as a Plant Nutrient Source in Hydroponics: A Review Elman Cantero Torres and Carolyn Grace Galo Somera

Research Articles

A Novel Bacterial Foraging Optimization Based Multimodal Medical Image Fusion Approach
Gurusigaamani Ayyanar Muthulingam and Velmurugan Subbiah Parvathy

A Study of Password Management Behaviors of Young People

Chatphat Titiakarawongse and Sirapat Boonkrong

Activity and Stability of Lipases Immobilized onto Acetylated Bacterial Cellulose

Linh Tran Khanh Vu, Anh Thuy Kim Nguyen and Ngoc Lieu Le

Analysis of Teachers' Competences for Industry 4.0 Subjects: A Case of Thai Higher Education Institutions

Rui M. Lima, Rui M. Sousa, Lino Costa, Cristiano Jesus, Diana Mesquita, Athakorn Kengpol, Warapoj Meethom and Pisut Koomsap

Bioactive Constituent and Eugenol Synthase 1 Gene of Thai Red Holy Basil (Ocimum tenuiflorum L.)

Siriporn Sripinyowanich, Wiboonwan Soipetch, Pariya Maneeprasert, Noppamart Lokkamlue, Siriluck lamtham and Chareerat Mongkolsiriwatana

Combination of Coagulation and VUV+H₂O₂ for the Treatment of Color and Organic Matter in Treated Effluent Wastewater from a Sugar Factory

Pradabduang Kiattisaksiri, Noppakhun Petmark and Thunyalux Ratpukdi

Confidence Interval for the Difference Between Variances of Delta-Gamma Distribution

Wansiri Khooriphan, Sa-Aat Niwitpong and Suparat Niwitpong

See Inside Cover

Academic Enhancement Department (AED)
King Mongkut's University of Technology North Bangkok (KMUTNB)
1518 Pracharat 1 Road, Wongsawang, Bangsue, Bangkok 10800, Thailand Tel. (66) 2555-2238-40, E-mail: asep@op.kmutnb.ac.th
http://www.ijast.kmutnb.ac.th

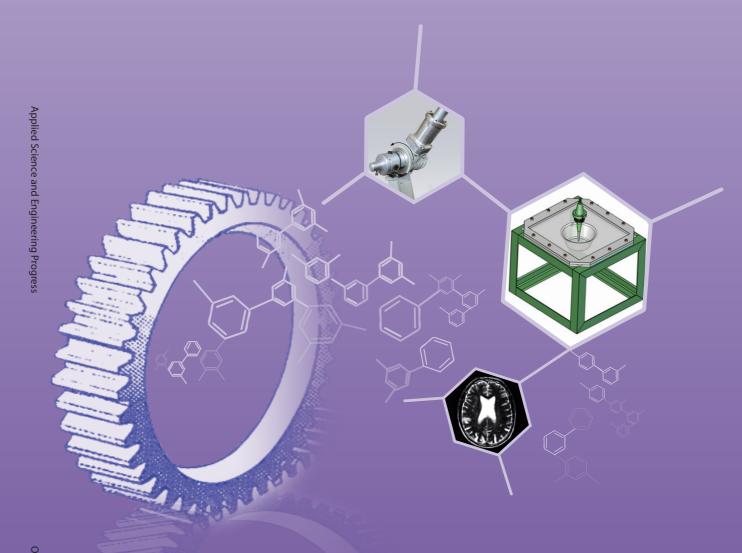




Applied Science and Engineering Progress

Vol. 16, No. 4, October-December 2023

E-ISSN: 2673-0421



Paper Citation is as Followed: Applied Science and Engineering Progress

E-ISSN: 2673-0421

Schedule

no. 1 January–March no. 2 April–June

no. 3 July–September no. 4 October–December

Editorial Policy

Paper, comprising review and report of original scientific research, will be judged for publication on the basis of evaluation by independent reviewers. Such reports and articles include those containing substantial supported theories, innovative work, substantial experimental results, useful and constructive discussion, and review articles standardized to regional or international acceptance. Each volume will comprise four issues. In addition, special issue containing the proceedings of conferences may be produced. These will be designated as supplements to the appropriate volume and number. An electronic journal is also provided on the website (http://www.asep.kmutnb.ac.th). The editors reserve the right to require revision of the submitted manuscript as a condition for final acceptance.

The university and the editorial board claim no responsibility for the contents or views expressed by the authors of individual articles. Copying allowed freely provided acknowledgement is made thereof. All articles submitted for publication will be assessed by a group of distinguished reviewers.

Focus and Scope

Applied Science and Engineering Progress (ISSN: 2672-9156, E-ISSN: 2673-0421) is an international, double-blind peer-reviewed by at least two independent reviewers, open access scientific journal, free of charge, published by King Mongkut's University of Technology North Bangkok (KMUTNB) since 2008. Applied Science and Engineering Progress published original research articles, reviews, and editorial corner in areas of applied science and engineering. The journal also publishes high quality and peer-reviewed papers presented at conference hosted/co-hosted by KMUTNB to expand the research connection between scientists and engineers. Applied Science and Engineering Progress also aims to introduce research progress of applied science and achievements of engineering development to the world community by demonstrating the significance of research investigations and demonstrations. Accepted manuscript to Applied Science and Engineering Progress will be published every quarter in PDF formats (March, June, September, and December).

Applied Science and Engineering Progress consists of two major sections in Applied Science and Engineering field:

Applied Science - This section contains topics in the multidisciplinary domain of applied science and technology on solving technical problems and developing the application of academic research. The focus of this section target to disseminate the progress of the analysis of problem, finding solution and synthesis of knowledge in the fields such as bioprocess technology, chemistry, information technology, and other topics related to applied science.

Engineering - This section contains topics in the combination of engineering, invention and innovation and focuses on solving technical problem. The targets of this section includes research works in applications of engineering and technology such as electrical and electronics, industrial production, mechanical engineering, and other topics related to engineering.

Indexed by SCOPUS, Thai-Journal Citation Index Centre (TCI), ASEAN Citation Index (ACI), CrossRef, Google Scholar and SCITE

Website for Submissions: http://www.ijast.kmutnb.ac.th

Contact: asep@op.kmutnb.ac.th

Copyright © 2023 by King Mongkut's University of Technology North Bangkok. All rights reserved.

No part of this publication may be reproduced stored or transmitted in any material form or by any methods including electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the publisher, except in accordance with the provisions of the Copyright Design and Patents Act 1988.

Contents

Research Articles (Continued)

Effect of Viscosity on Sensory Profile and Consumer Perception: Case Study of Soup-Based Products

Chang TingChen, Nantawan Therdthai and Aussama Soontrunnarudrungsri

Enhancing Disturbance Rejection of PID Controllers for DC Joint Motors of Trajectory Tracking Robots Using Disturbance Observer

Pinit Ngamsom

Evaluation of Bioactive Compounds and Mineral Composition in Thai-Variety Amaranths

Jareerat Chunthawodtiporn, Benya Manochai, Kornkanok Santhi and Peerapong Pornwongthong

Experimental Investigation on the Performance of a Dehumidifier Constructed from a Water-to-Air Heat Exchanger Coated with Composite Desiccant of Mesoporous Silica Gel and LiCl

Jintana Srimuk, Surapong Chirarattananon, Pipat Chaiwiwatworakul, Adisak Nathakaranakule, Pattana Rakkwamsuk and Siriluk Chiarakorn

Health Risk Assessment of Gaseous Pollutants in the Ambient Environment of Rayong City, Thailand: The Initiative of the EEC Area

Sawaeng Kawichai, Sopittaporn Sillapapiromsuk and Susira Bootdee

Integration of Three Vehicle Fleet Types for Delivering Relief Supplies During a Natural Disaster Patchara Kitjacharoenchai and Peerapol Sittivijan

Investigation of Fiber Optic-Based-Refractometer for Biogas Sensing

Phairin Thaisongkroh and Saroj Pullteap

LNG Portfolio Diversification Optimization Model of Thailand

Nutmethee Tuchinda, Seksun Moryadee, Chalida U-tapao and Leamthong Laokhongthavorn

Monitoring of Mean Processes with Mixed Moving Average – Modified Exponentially Weighted Moving Average Control Charts

Khanittha Talordphop, Saowanit Sukparungsee and Yupaporn Areepong

New Designing Mixed Double Moving Average-Cumulative Sum Control Chart for Detecting Mean Shifts with Symmetrically and Asymmetrically Distributed Observations

Nongnuch Saengsura, Yupaporn Areepong and Saowanit Sukparungsee

Phytochemical Profiling, Antioxidant, and Antityrosinase Activities of Bamboo Leaves in Thailand Sirinta Kasemsukphaisan and Sarunyaporn Maksup

Set up of a Microbial Fuel Cell for the Treatment of a Garden Compost Leachate: Impact of the External Polarizing Electric Resistance Upon the Chemical Oxygen Demand Removal

Imene Laaz, Mostefa Kameche and Christophe Innocent

Synthesis Gas Production with Gasification Technology from Municipal Solid Waste

Anotai Srimalanon and Pongsakorn Kachapongkun

The Optimization of Sheet Forming on Residual Stress and Surface Roughness with Two Point Incremental Forming Process (TPIF) of Aluminum Alloy Parts

Suriya Prasomthong and Keattipong Onbat