

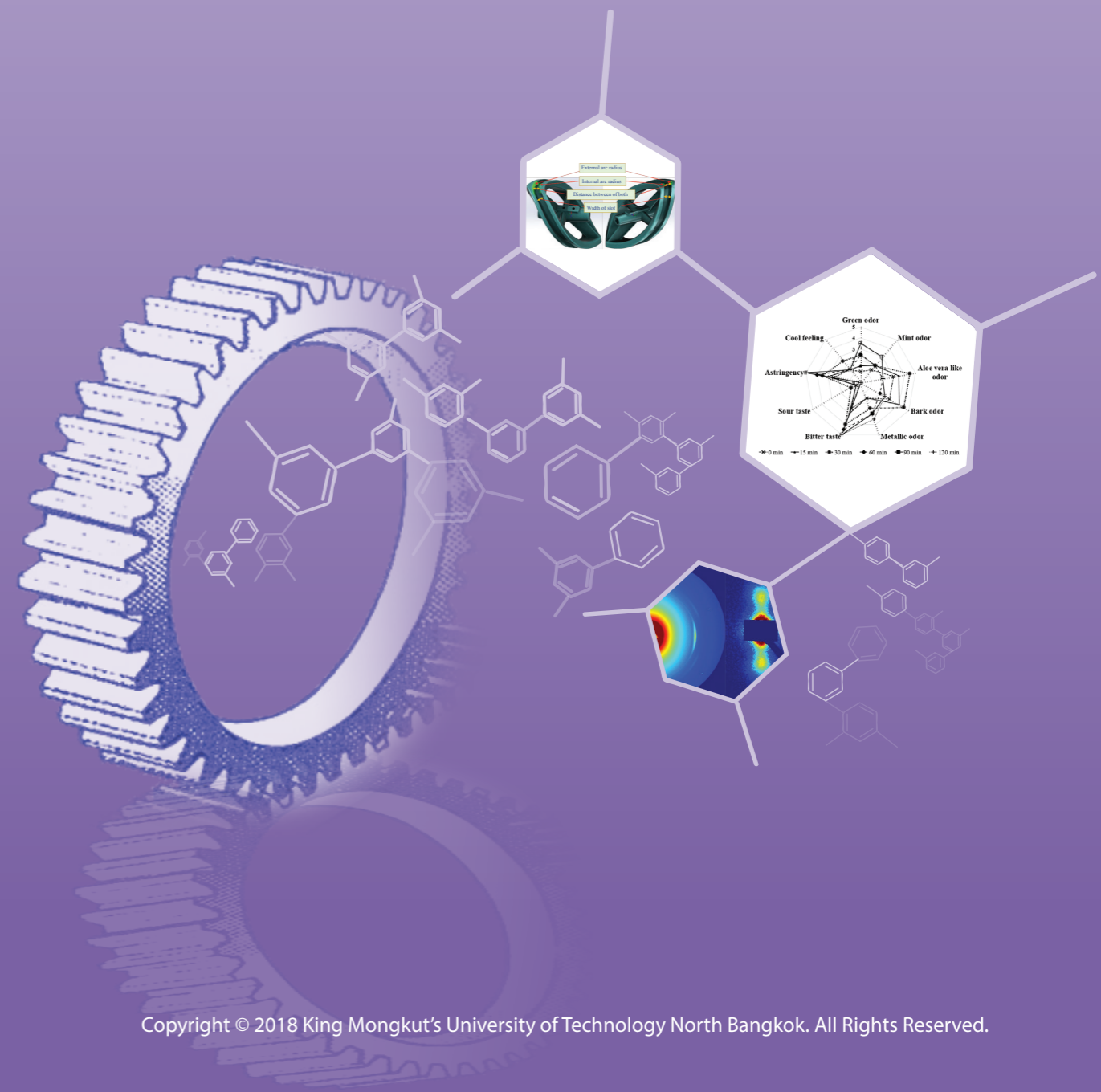


Editorial Corner

- 83 Prospect of *in vitro* Metabolic Engineering
Yu-Shen Cheng

Research Articles

- 85 A Memory Integrated Artificial Bee Colony Algorithm with Local Search for Vehicle Routing Problem with Backhauls and Time Windows
Naritsak Tuntitippawan and Krisada Asawarungsangkul
- 93 An Enhancement of Lighting System Energy Efficiency Using an Automatic Light Dimming Control
Athisamai Sophan and Chaiyapon Thongchaisuratkrul
- 103 Bioethanol Production from *Ceratophyllum demersum* L. and Carbon Footprint Evaluation
Thirasit Kusolsongtawee, Thawipon Wuttillerts, Suphang Chulalaksananukul and Luksanaree Maneechot
- 109 Effect of Extraction Conditions on Color, pH, Flavor Profile and Ribonucleotide Contents of *Limnophila aromatica* (Lam.) Merr. Extracts
Phantiwa Soimaloon, Lay Horng-Liang and Patcharaporn Tinchan
- 117 Enhancing Capacity Planning through Lean Principles and Simulation: A Case Study of a Local Hospital in Thailand
Wannalak Laotaweesub, Nantakrit Yodpijit, Juthamas Choomlucksana and Manutchanok Jongprasithporn
- 127 Metakaolization Effect on the Thermal and Physiochemical Properties of Kankara Kaolin
Nurudeen Salahudeen
- 137 Product Design Review in a Virtual Reality Environment
Channarong Trakunsaranakom, Suthep Butdee, Frédéric Noël and Philippe Marin
- 151 Structural Investigation of Poly(lactic acid) Cast Film by Using Synchrotron X-ray Scattering Technique
Suttinun Phongtamrug, Phatcharin Phakpharin, Siritwat Soontaranon and Supagorn Rugmai



KMUTNB: IJAST

King Mongkut's University of Technology North Bangkok
International Journal of Applied Science and Technology

Paper Citation is as Followed: KMUTNB Int J Appl Sci Technol

ISSN: 2465-4531

Schedule

no. 1 January–March
no. 3 July–September

no. 2 April–June
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.ijast.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

The KMUTNB: IJAST, through full research papers and compact reviews, covers all applications of science and technology. The journal bridges the crucial gap between basic research and patenting of an invention, targeting a broad audience of academic and industrial researchers, as well as the increasingly important world of scientists and engineers at start-up companies. The journal provides a forum for scientists and engineers, physicists, and chemists to communicate on the most important topics in the field of:

- Technology (Engineering): Production Engineering, Mechanical Engineering, Automotive Engineering, Aerospace Engineering, Electrical Engineering, Communication Engineering, Computer Engineering, Control Engineering, Chemical Engineering, Industrial Engineering, Biomedical Engineering, Civil Engineering and etc.
- Applied Science: Natural Sciences, Social Sciences, Physics, Mathematics/Statistics, Energy, Agro/Food, Materials, Information Technology, Agricultural Sciences and etc.

Indexed by 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: ijast@op.kmutnb.ac.th

Copyright © 2018 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.