

# Table of Contents

## Preface, Committees

## Chapter 1: Technologies in Food Processing and Pharmacology

<b>Determination of Lead Desorption from <i>G. fisheri</i> Seaweed Using Edible Eluents by Voltammetry at the Hanging Mercury Drop Electrode</b>	3
C. Khamkaew and S. Manaboot	
<b>The Optimization of Ultrasonic Extraction for Benzoic Acid Determination in Curry Paste Samples by Using UV-Visible Spectrophotometry</b>	9
M.N. Thongsrinoon, P. Naun-Ong and Y. Ketyothin	
<b>A DFT Investigation of the Molecular Structure and UV Absorption Spectra of 2-Ethylhexyl 2-Hydroxybenzoate (Octisalate) and Meta-Substituted 2-Ethylhexyl 2-Hydroxybenzoate: Sunscreen Applications</b>	15
D.W. Punyain	
<b>Checking Adulteration of Aromatic, Amylose Content and Glutinous in Rice by Using Molecular Marker</b>	22
M.A. Boondech and S. Sajaw	
<b>Synthesis and Study of Naphthoquinones Derivatives</b>	26
M.C. Klinchan, R. Namngam, A. Sitsongkham and P. Chuawong	
<b>First Principles Study on the Stability and Electronic Structures of 7,8-Dichloro-4-Oxo-4H-Chromene-3-Carbaldehyde</b>	31
P.L. Toh, M. Meepripruk, L.S. Ang, S. Sulaiman and M.I. Mohamed-Ibrahim	
<b>Isolation of Bacteria from Clarifier Effluent of Sour Pork Industry Able to Produce 1,3-Propanediol from Crude Glycerol</b>	37
A.P.D.P. Pinyaphong and P. Sriburee	
<b>Influence of Organic Supplements on Growth and Development of <i>In Vitro</i> Shoots of <i>Bulbophyllum dhaninivatii</i> Seidenf</b>	42
A.P.D.A. Kongbangkerd, S. Watthana and K.O. Srimuang	
<b>Inclusion Complex of Plai Oil and β-Cyclodextrin</b>	47
A. Jimtaisong and N. Saewan	
<b>Effect of Chitosan and Alginate Concentration on Size and Bactericidal Activity against <i>Escherichia coli</i> of Chitosan/Alginate/Silver Nanoparticle Beads</b>	54
D.P. Mahasawat, K. Hlongkeaw and S. Charoenrit	
<b>Inhibition of Herpes Simplex Virus Type 2 <i>In Vitro</i> by Durian (<i>Durio zibethinus</i> Murray) Seed Coat Crude Extracts</b>	60
J. Nikomtat, P. Pinnak, K. Lapmak, P. Tammalungka, T.T. Thiankhanithikun and Y. Tragooolpua	
<b>Nutritional Value and Anthocyanins of Mulberry and Roselle Mixed Fruits Jam</b>	65
R. Wongchalat and D.R. Chatthongpisut	
<b>Effect of Different Cooking Method on Cooking Loss and Lipid Oxidation in Buffalo Meat</b>	70
P. Klinhom, J. Klinhom and S. Methawiwat	
<b>Nondestructive Determination of Maturity of the Monthong Durian by Mel-Frequency Cepstral Coefficients (MFCCs) and Neural Network</b>	75
P. Khunarsa, J. Mahawan, P. Nakjai and N. Onkhum	
<b>Preparation of <i>Acorus calamus</i> L. Microcapsules</b>	82
J. Ketwaraporn and A. Kongdee Aldred	

## Chapter 2: Technologies for Production of Renewable Energy

<b>Electricity Production from Organic Wastes Fermentation by Microbial Fuel Cell Process</b>	91
P. Moonsri, W. Pongpian and P. Juantrong	
<b>Biodiesel Production from <i>Sterculia foetida</i> Oil by Using Solid Support Catalyst</b>	98
D.A. Vorasingha	

## **Biogas Production from Anaerobic Co-Digestion of Food Waste Mixed with Domestic Wastewater**

S. Pongthornpruek and S. Watmuang 103

## **Social Impact Assessment of the Biogas Production through Biomass for Bansuanmiang School under the Smart School Project**

P. Thanarak 108

## **Comparative Analysis of Exergy and Efficiency for Stratified Thermal Storage Tank with Solar Flat Plate and Evacuated Tube Collectors**

S. Sukchai, Y. Mensin and W. Wansungnern 114

## **Chapter 3: Advanced Materials and Chemical Technologies**

### **UV Irradiation Effect on the Surface $\text{KTaO}_3$ Crystals**

M.S. Suwanwong, A. Hutem, S. Kerdmee and P. Moonsri 121

### **Biocomposites Based on Thermoplastic Starch Reinforced with Recycled Paper Cellulose Fibers**

A. Wattanakornsiri, S. Tongnunui, T. Jamnongkan and C. Migliaresi 126

### **Effect of Curing Time and Temperature on the Structural Stability of Melamine Formaldehyde Polymers**

D.P. Katekomol 131

### **Production of Activated Carbon from Moldy Damaged Tamarind-Pod**

P. Moonsri, W. Pongpian and K. Moonsri 137

### **Biodesulfurization of Dibenzothiophene by a Newly Isolated *Agrobacterium tumefaciens* LSU20**

D.I.B.W. Gunam, M. Iqbal, I.W. Arnata, N.S. Antara, A.A.M. Dewi Anggreni, Y. Setiyo and I.B.P. Gunadnya 143

## **Chapter 4: Computational Algorithms and Procedures, Signal and Data Processing**

### **A Comparison of ORC-Compress Performance with Big Data Workload on Virtualization**

K. Rattanaopas, S. Kaewkeerat and Y. Chuchuen 153

### **Investigation of Z-R Relationships for Monsoon Seasons over Southern Thailand**

D.S. Kirtsang and P. Chantraket 159

### **Ultrasonic Signal Reconstruction Using Compressed Sensing**

R.J. Liou 165

### **Cross-Layer Optimization for Efficient Delivery of Scalable Video over WiMAX**

P.D.L. Wang, C.Y. Chang and A.P.D.J. Huang 171

### **A New Block Matching Algorithm for Motion Estimation**

C.M. Wu and A.P.D.J. Huang 178

### **Excited-State Energy Eigenvalue Evaluation of the Quantum Mechanical Potential**

$V(x)=\frac{1}{2}m\omega^2x^2+\mu x^3$  via Numerical Shooting Method 184

M.N. Sriboonrueang, M.S. Suwanwong and A. Hutem

### **The Analytical Description of Projectile Motion of Cricket Ball in a Linear Resisting Medium the Storm Force**

S. Kuaykaew, S. Kerdmee, P. Banyenugam, P. Moonsri and A. Hutem 188