

# **International Conference on Inventions & Innovations for Sustainable Agriculture (ICIISA 2016)**

Agriculture and Agricultural Science Procedia Volume 11

Hua Hin, Thailand  
7 - 9 July 2016

**Editors:**

**Pawapol Kongchum  
Stephen S. Tobe**

ISBN: 978-1-5108-3613-6

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© by Elsevier B.V.  
All rights reserved.

Printed by Curran Associates, Inc. (2017)

For permission requests, please contact Elsevier B.V.  
at the address below.

Elsevier B.V.  
Radarweg 29  
Amsterdam 1043 NX  
The Netherlands

Phone: +31 20 485 3911  
Fax: +31 20 485 2457

<http://www.elsevierpublishingsolutions.com/contact.asp>

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

|   |     |
|---|-----|
| <b>EDITORIAL PREFACE</b> .....  | 1   |
| <i>Stephen S. Tobe</i>  |     |
| <b>YIELD AND QUALITY OF CABBAGE (BRASSICA OLERACEA L. VAR. CAPITATA) UNDER ORGANIC GROWING MEDIA USING VERMICOMPOST AND EARTHWORM PONTOSCOLEX CORETHRURUS INOCULATION</b> .....         | 5   |
| <i>N. Nurhidayati, Usman Ali, Indiyah Murwani</i>   |     |
| <b>ADVANCED SOIL HYDROLOGICAL STUDIES IN DIFFERENT SCALES FOR SUSTAINABLE AGRICULTURE</b> .....   | 14  |
| <i>Uwe Schindler, Lothar Mueller, Georg Von Unold, Frank Eulenstein, Wolfgang Durner, Johann Fank</i>   |     |
| <b>ANTIMICROBIAL ACTIVITY OF THAI-HERBAL PLANTS AGAINST FOOD-BORNE PATHOGENS E. COLI, S. AUREUS AND C. JEJUNI</b> .....   | 20  |
| <i>Watanya Jarriyawattanachaikul, Prapansak Chaveerach, Nipa Chokesajjawatee</i>  |     |
| <b>PHYTASE PRODUCTION OF ASPERGILLUS NIGER ON SOYBEAN MEAL BY SOLID-STATE FERMENTATION USING A ROTATING DRUM BIOREACTOR</b> .....   | 25  |
| <i>Sukanya Saithi, Anan Tongta</i>  |     |
| <b>ORGANIC FARMING WITH BIO-MULCHING—A NEW PARADIGM FOR SUSTAINABLE LEAF YIELD &amp; QUALITY OF MULBERRY (MORUS ALBA L.) UNDER RAINFED LATERITIC SOIL CONDITION</b> .....               | 31  |
| <i>Barna Chakraborty, Manab Kundu, R. N. Chattopadhyay</i>  |     |
| <b>EVALUATION OF THE EFFECT OF WATER ACTIVITY AND TEMPERATURE ON LAG PHASE AND GROWTH RATE OF AFLATOXIGENIC ASPERGILLUS SECTION FLAVI STRAINS ISOLATED FROM STORED RICE GRAIN</b> ..... | 38  |
| <i>Supunnika Somjaipeng, Panthita Ta-Uea</i>  |     |
| <b>ANALYZING LYCOPENE CONTENT IN FRUITS</b> .....   | 46  |
| <i>Theerarat Suwanaruang</i>  |     |
| <b>AGRICULTURAL LAND USE SYSTEMS AND GROUNDWATER QUALITY: IMPACT ASSESSMENT USING NUTRIENT BALANCES FOR EVALUATION, MONITORING AND CONSERVATION OF NATURAL RESOURCES</b> .....          | 49  |
| <i>Frank Eulenstein, Marion Tauschke, Uwe Schindler, Lothar Müller, Marcos A. Lana, Roland Schindler, Walter H. Mayer, Hartwig Drechsler, Nils Cremer</i>                               |     |
| <b>CLIMATE CHANGE AFFECTS NITROGEN AND SULPHUR LOAD IN PERCOLATED WATER FROM AGRICULTURAL LANDSCAPES</b> .....  | 59  |
| <i>Frank Eulenstein, Uwe Schindler, Lothar Müller, Matthias Willms, Askhad K. Sheudzhen, Sandro L. Schindwein, Marion Tauschke, Axel Behrendt, Marcos A. Lana</i>                       |     |
| <b>IMPROVEMENT OF TARO LEAVES USING PRE-TREATED ENZYME AS PREBIOTICS IN ANIMAL FEED</b> .....   | 65  |
| <i>Pornpan Saenphoom, Suphavadee Chintong, Sunee Phiphatkitphaisan, Sureerat Somsri</i>   |     |
| <b>CARBON RELEASE FROM AGRICULTURAL CULTIVATED PEATS AT SUNGAI HITAM WETLAND, BENGKULU PROVINCE, INDONESIA</b> .....  | 71  |
| <i>Muhammad Faiz Barchia</i>  |     |
| <b>SUSTAINABILITY INDICATORS FOR ASSESSING AND MONITORING THE SUSTAINABLE LAND MANAGEMENT IN THE COMMERCIAL RICE ZONE OF THE LOWER PAK PHANANG RIVER BASIN, THAILAND</b> .....          | 77  |
| <i>Meraman Muntas</i>   |     |
| <b>THE STUDY OF CARCASS YIELDS AND MEAT QUALITY IN CROSSBRED NATIVE CHICKEN (CHEE)</b> .....  | 84  |
| <i>Doungnapa Promket, Khanitta Ruangwittayanusorn, Thasawan Somchan</i>   |     |
| <b>IDENTIFICATION AND SEASONAL ANALYSIS OF DEGRADED TROPICAL PEATLAND BY USING ALOS AVNIR-2 DATA</b> .....  | 90  |
| <i>Dandy Aditya Novresiandi, Ryota Nagasawa</i>   |     |
| <b>MONITORING THE HYGIENE OF RAW MILK FROM FARMS TO MILK RETAILERS</b> .....  | 95  |
| <i>Khanitta Ruangwittayanusorn, Doungnapa Promket, Anut Chantiratikul</i>   |     |
| <b>THE SOURCE OF SILICON FOR THAI RICEBERRY GERMINATED ON TOP OF AN AQUEOUS SOLUTION</b> .....  | 100 |
| <i>Amonrujee Nakphlaiphan, Phanisa Wittayapanitchakorn, Pichayapa Praipapanpong, Thanit Pewnim</i>  |     |

|   |            |
|---|------------|
| <b>EVALUATION MODELS FOR DECISION SUPPORT IN THE CONTEXT OF ORGANIC FARMING SYSTEM .....</b>  | <b>105</b> |
| <i>Boonyong Punantapong</i>   |            |
| <b>EVALUATING ACTIVE CASSAVA CULTIVATING AREAS SURROUNDING THE FACTORIES PRODUCING ETHANOL FOR ENERGY USING GIS IN THAILAND.....</b>            | <b>112</b> |
| <i>Surutcha Pichaichanlert, Weerin Wangjiraniran</i>  |            |
| <b>EFFECT OF GREEN TEA EXTRACT ON VIBRIO PARAHAEMOLYTICUS INHIBITION IN PACIFIC WHITE SHRIMP (LITOPENAEUS VANNAMEI) POSTLARVAE.....</b>         | <b>117</b> |
| <i>Pawapol Kongchum, Suphavadee Chimtong, Nantanat Chareansak, Papimon Subprasert</i>   |            |
| <b>EFFECTS OF EXTENDERS ON FRESH AND FREEZING SEMEN OF BOER GOAT .....</b>  | <b>125</b> |
| <i>Phakatip Yodmingkwan, Somchit Guntaprom, Juggrid Jaksamrit, Krittiya Lertchunhakiat</i>  |            |
| <b>OLIGOSACCHARIDE PRODUCTION FROM AGRICULTURAL RESIDUES BY NON-STARCH POLYSACCHARIDE DEGRADING ENZYMES AND THEIR PREBIOTIC PROPERTIES.....</b> | <b>131</b> |
| <i>Suphavadee Chimtong, Pornpan Saenphoom, Natamart Karageat, Suttaya Somtua</i>  |            |
| <b>EFFECT OF EGGSHELL AS A CALCIUM SOURCE OF BREEDER COCK DIET ON SEMEN QUALITY .....</b>   | <b>137</b> |
| <i>Krittiya Lertchunhakiat, Pornpan Saenphoom, Manassanun Nopparatmaitree, Supawadee Chimthong</i>  |            |
| <b>COMPARISONS OF PHYSICAL CHARACTERISTICS OF CROSSBRED BOER GOAT FUR SKIN TANNED BY COFFEE POMACE AND GROS MICHEL BANANA BUNCH .....</b>       | <b>143</b> |
| <i>Krittiya Lertchunhakiat, Mathurada Keela, Phakatip Yodmingkwan, Wilaiwan Sirothanaput, Ajchara Rungroj</i>                                   |            |
| <b>Author Index</b>   |            |