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Preface

To cite this article: 2022 *IOP Conf. Ser.: Earth Environ. Sci.* **980** 011001

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PREFACE

Dear colleagues,

We are glad to announce the release of the 4th International Conference of Food and Agriculture (ICOFA-2021). The ICOFA is an annual conference organized primarily by Politeknik Negeri Jember. In this year the theme of our conference is "Scientific and Technological Efforts in Sustainable Food and Agriculture"

Surely, we plan to conduct this conference physically just like the previous ICOFA two years ago in November 2019. However, due to the COVID-19 pandemic, the situation has not subsided, the 4th ICOFA 2021 was carried out virtually as same as ICOFA 2020 by the Zoom meeting platform. We took this option because this conference was already designated and funded. Keynote and invited speakers were also scheduled for this event. Many delegations and authors requested for this conference to be performed, even virtually, since they need it to cover their publication and sharing knowledge requirements.

The key directions of the conference covered the discussion of advanced achievements and touch upon the main aspects of agriculture engineering and biotechnology, organic agriculture, animal science related to food, food science and technology, food safety, food security and sovereignty, IT for agriculture and renewable and novel energy sources.

The conference was run as planned on 6th November 2021 for the plenary session to 7th November 2021 for the parallel session and supported by a virtual event organizer started from 9.00 am to 5.00 PM. Conference models are a Plenary session with keynotes (40 minutes for each keynote speech) and participants' presentations (20 minutes for each presentation). A total of 144 participants (120 presenters and 24 non-presenters) from Universities, Research Institutes, and also Government Departments joined the conference in over five countries from Japan, Thailand, India, South Korea, and Algeria.

Our honorable speakers were Dr. Nishu Gupta SRM from the Institute of Science and Technology, India, Prof. Kyung-Min Kim, Ph.D. from Kyungpook National University, Korea, Prof. Dr. Tosawat Seetawan from Sakon Nakhon Rajabhat University, Thailand and Associate Professor Bibin Bintang Andriana, Ph.D. from Kwansei Gakuin University, Japan.

More than 120 full papers were submitted to the 4th ICOFA 2021. After a pre-review on originality and language, the peer review process was arranged by Editorial Committee and 73 manuscripts were selected for publication in IOP Conference Series: Earth and Environmental Science (EES).

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We also wish to thank the keynote speaker, invite speakers, presenters, and participants, and all authors for contributions to the 4th ICOFA 2021 and colleague members of the organizing committee, please accept my deep appreciation for your hard working in ensuring the success of the conference.

Editor-in-Chief, ICOFA 2021
Dr. Ir. Rosa Tri Hertamawati, M.Si, IPM

A list of Steering Committees and Organizing Committees are available in this pdf.

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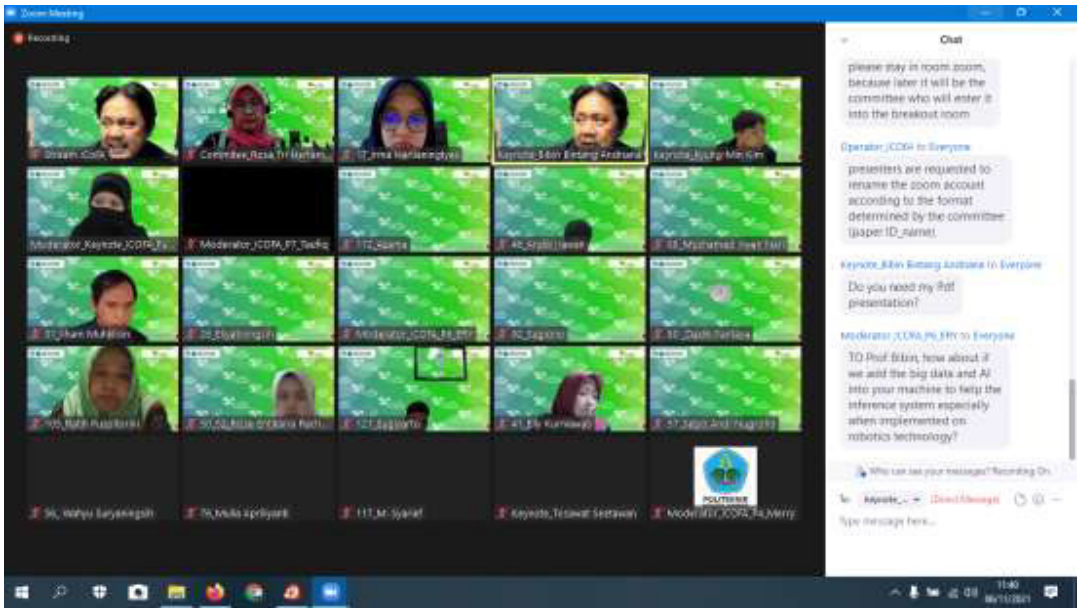
Suryadi	Supporting Staff

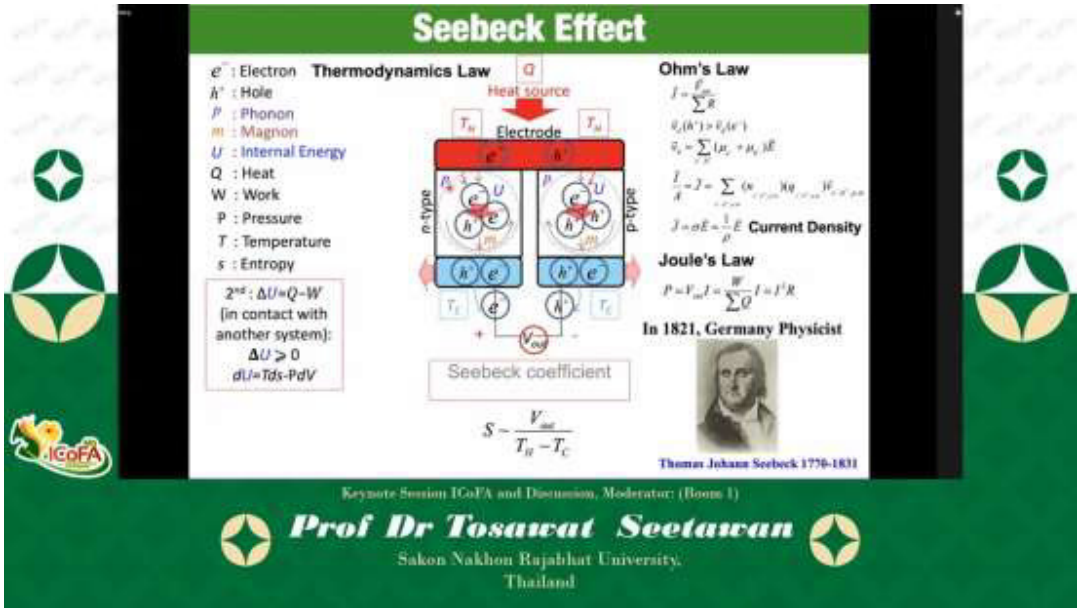
Conference Photograph

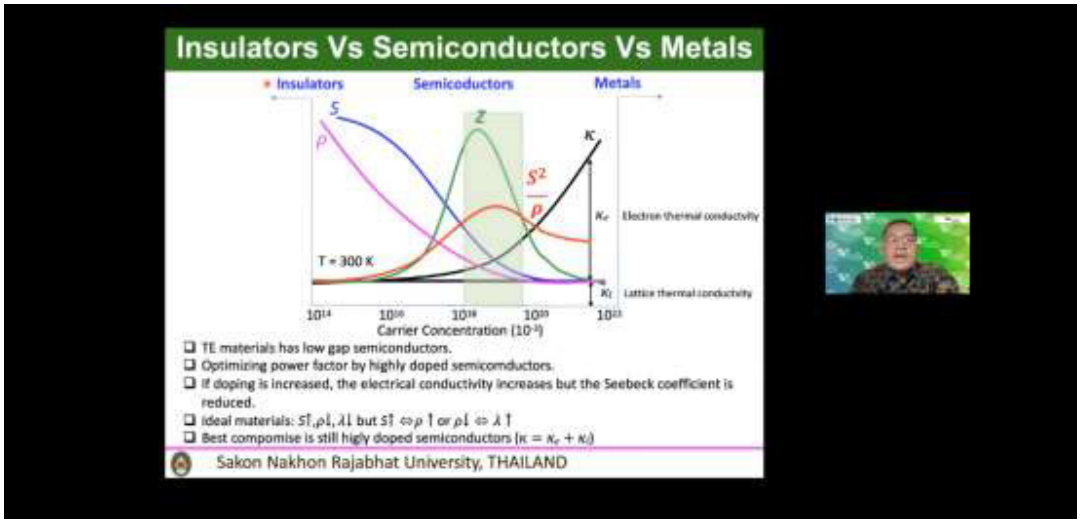
Plenary Session



4th International Conference on Food and Agriculture (ICoFA) 2021 Politeknik Negeri Jember
POLITEKNIK NEGERI JEMBER
ICoFA
Keynote Session ICoFA and Discussion
Putri Santika, S.ST, M.Sc
Moderator

POLITEKNIK NEGERI JEMBER
ICoFA

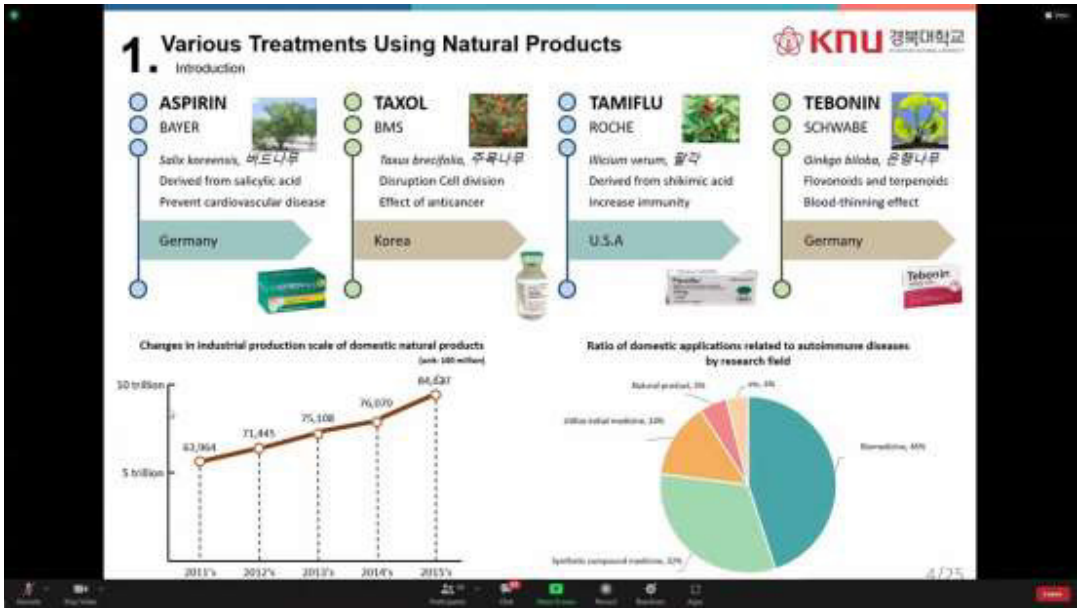

Seebeck Effect
e⁻ : Electron
h⁺ : Hole
P : Phonon
m : Magnon
U : Internal Energy
Q : Heat
W : Work
P : Pressure
T : Temperature
s : Entropy
2nd : ΔU=Q-W
(in contact with another system):
ΔU > 0
dU=Tds-PdV
Thermodynamics Law
Q
Heat source
Electrode
n-type
p-type
Seebeck coefficient
Ohm's Law
Current Density
Joule's Law
In 1821, Germany Physicist
Thomas Johann Seebeck 1770-1831
Keynote Session ICoFA and Discussion, Moderator: (Room 1)
Prof Dr Tosawat Seetawan
Sakon Nakhon Rajabhat University,
Thailand


Insulators Vs Semiconductors Vs Metals
Insulators
Semicoductors
Metals
T = 300 K
Electron thermal conductivity
Lattice thermal conductivity
Carrier Concentration (10⁻³)
TE materials has low gap semiconductors.
Optimizing power factor by highly doped semicomductors.
If doping is increased, the electrical conductivity increases but the Seebeck coefficient is reduced.
Ideal materials: S↑,ρ↓, λ↓ but S↑ ⇔ρ ↑ or ρ↓ ⇔ λ ↑
Best compomise is still higly doped semiconductors (κ = κe + κl)
Sakon Nakhon Rajabhat University, THAILAND

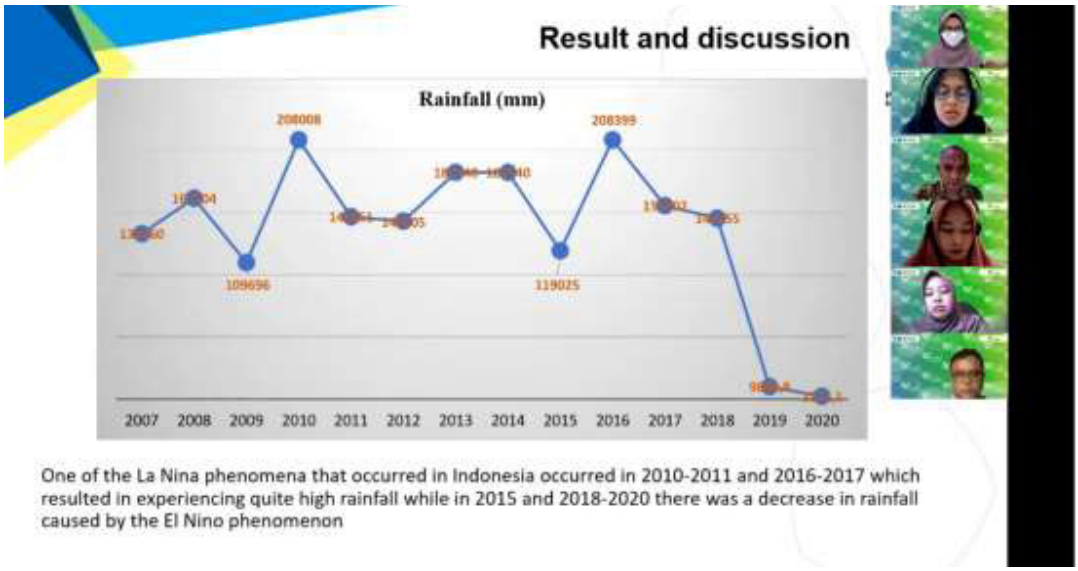
4th International Conference on Food and Agriculture (ICoFA) 2021 Politeknik Negeri Jember
POLITEKNIK NEGERI JEMBER
ICoFA
Keynote Session ICoFA and Discussion, Moderator: (Room 1)
Assistant Professor Bibin Bintang Andriana
Departement of Biomedical Chemistry, Graduate School of Science and Technology,
Kwansei Gakuin University, Japan

ICoFA
Jember, Indonesia
November 6th, 2021
KWANSEI GAKUIN
MASTERY FOR SERVICE
Rapid and Non-Labelling Detection Method in Food Safety and Adulteration
MASTERY FOR SERVICE
Sato's Laboratory:
Hidetoshi Sato (Prof.)
Andriana Bibin Bintang (Associate Prof.)
Keynote Session ICoFA and Discussion, Moderator: (Room 1)
Assistant Professor Bibin Bintang Andriana
Departement of Biomedical Chemistry, Graduate School of Science and Technology,
Kwansei Gakuin University, Japan

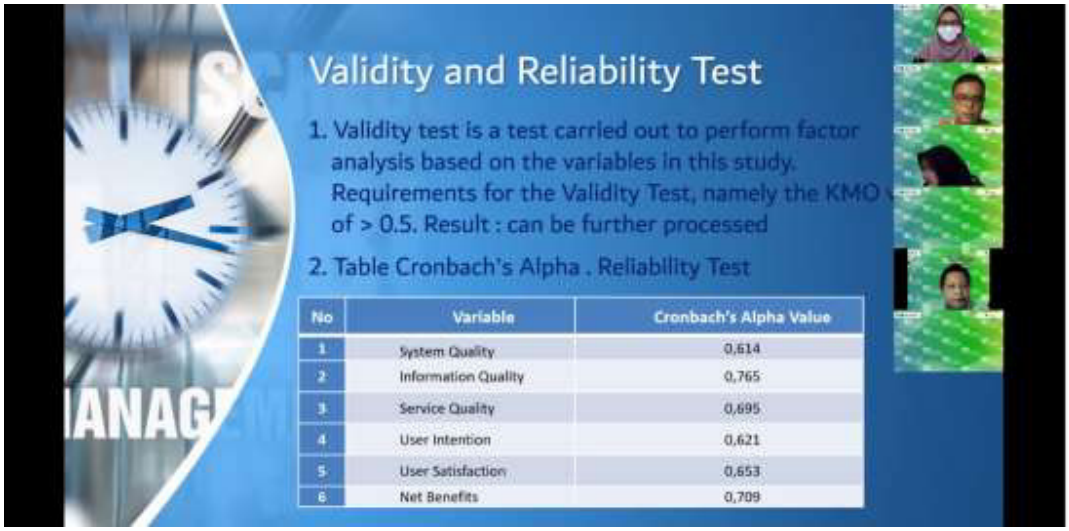
POLITEKNIK NEGERI JEMBER
ICoFA
Keynote Session ICoFA and Discussion, Moderator: (Room 1)
Prof Kyung-Min Kim, Ph. D
Division of Plant Biosciences School of Applied Biosciences, Collage of Agriculture and Life Sciences,
Kyungpook National University, Korea

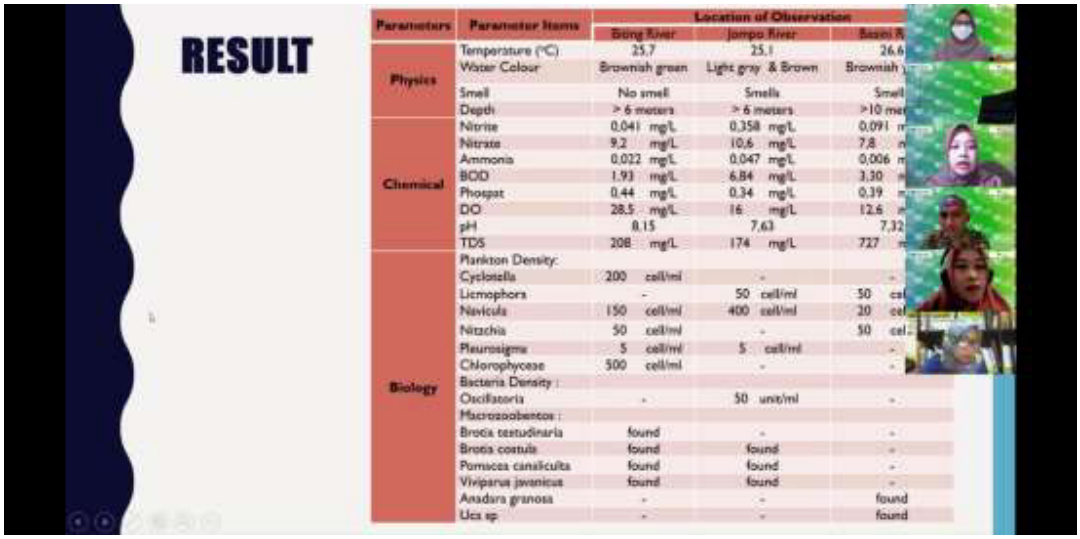

1. Various Treatments Using Natural Products
Introduction
KNU 경북대학교
ASPIRIN
BAYER
Salix koreensis, 버드나무
Derived from salicylic acid
Prevent cardiovascular disease
Germany
TAXOL
BMS
Taxus brevifolia, 주목나무
Disruption Cell division
Effect of anticancer
Korea
TAMIFLU
ROCHE
Illicium verum, 팔각
Derived from shikimic acid
Increase immunity
U.S.A
TEBONIN
SCHWABE
Ginkgo biloba, 은행나무
Flovonoids and terpenoids
Blood-thinning effect
Germany
Changes in industrial production scale of domestic natural products
10 trillion
5 trillion
63,964
71,445
75,108
76,070
84,627
2011's
2012's
2013's
2014's
2015's
Ratio of domestic applications related to autoimmune diseases by research field
4/25

Parallel Session



INTRODUCTION
development of crude palm oil (CPO) in Indonesia
Impacts the amount of waste produced
Oil palm empty fruit bunches (OPEFB) which cover 30-35
of the total weight of fresh fruit bunches
Hardly degrade and produce gases such as CH_4, H_2S, NH_3
and NOx


Validity and Reliability Test
1. Validity test is a test carried out to perform factor analysis based on the variables in this study. Requirements for the Validity Test, namely the KMO of > 0.5. Result : can be further processed
2. Table Cronbach's Alpha . Reliability Test
No | Variable | Cronbach's Alpha Value
1 | System Quality | 0,614
2 | Information Quality | 0,765
3 | Service Quality | 0,695
4 | User Intention | 0,621
5 | User Satisfaction | 0,653
6 | Net Benefits | 0,709


RESULT
Parameters
Parameter Items
Location of Observation
Bong River
Jompo River
Physics
Temperature (°C) 25.7 25.1
Water Colour Brownish green Light gray & Brown
Smell No smell Smells
Depth > 6 meters > 6 meters
Chemical
Nitrite 0.041 mg/L 0.358 mg/L 0.091
Nitrate 9.2 mg/L 10.6 mg/L 7.8
Ammonia 0.022 mg/L 0.047 mg/L 0.006
BOD 1.93 mg/L 6.84 mg/L 3.30
Phospat 0.44 mg/L 0.34 mg/L 0.39
DO 28.5 mg/L 16 mg/L 12.6
pH 8.15 7.63 7.32
TDS 208 mg/L 174 mg/L 727
Biology
Plankton Density:
Cyclotella 200 cell/ml -
Licmophora - 50 cell/ml 50
Navicula 150 cell/ml 400 cell/ml 20
Nitzchia 50 cell/ml - 50
Pleurosigma 5 cell/ml 5 cell/ml -
Chlorophycease 500 cell/ml - -
Bacteria Density :
Oscillatoria - 50 unit/ml -
Macrozoobentos :
Brocia testudinaria found - -
Brocia costula found found -
Pomacea canaliculta found found -
Viviparus javanicus found found -
Anadara granosa - - found
Uca sp - - found

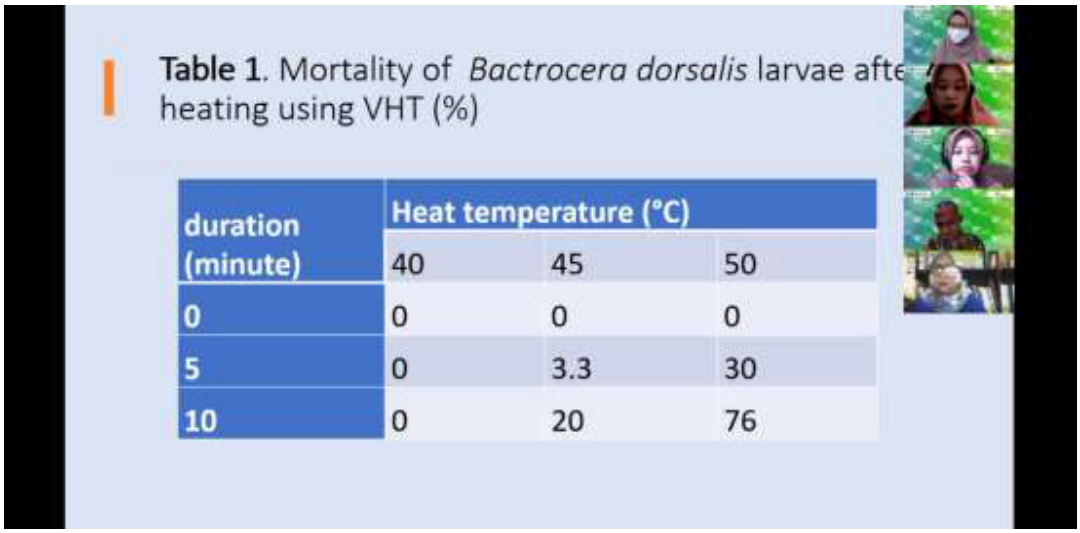


Table 1. Mortality of Bactrocera dorsalis larvae afte
heating using VHT (%)
duration (minute)
Heat temperature (°C)
40
45
50
0
0
0
0
5
0
3.3
30
10
0
20
76