

# PROCEEDING

## THE 5<sup>th</sup> BOGOR INTERNATIONAL CONFERENCE FOR APPLIED SCIENCE



“ Embracing  
The Global Society  
to Face New Normal Era  
through Applied Science ”

November 11<sup>th</sup>, 2021  
Virtual Conference

Organized By:



Vol. 5 No. 1



**PROCEEDING**  
**5<sup>th</sup> BOGOR INTERNATIONAL CONFERENCE**  
**FOR APPLIED SCIENCE 2021 (5<sup>TH</sup> BICAS 2021)**

Theme:

“Embracing the Global Society to Face New Normal Era  
through Applied Science”

VIRTUAL CONFERENCE

NOVEMBER 11<sup>th</sup> 2021



## **PROCEEDING**

### **5<sup>th</sup> Bogor International Conference for Applied Science 2021**

### **5<sup>th</sup> BICAS 2021**

Theme:

“Embracing the Global Society to Face New Normal Era through Applied Science”

ISBN: -

PUBLISH DATE:

VIRTUAL CONFERENCE

CONFERENCE DATE: NOVEMBER 11<sup>th</sup> 2021

### **Committee:**

*Steering Committee:*

Board of Patron:

1. Assoc. Prof. Dr. H. Martin Roestamy, SH., MH.
2. Dr. H. Bambang Widjojanto, SH., LL.M
3. Dr. Hj. R. Siti Pupu Fauziah, M.Pd.I
4. Assoc. Prof. Dr. Ir. Dede Kardaya, M.Si
5. Assoc. Prof. Dr. Hj. Rita Rahmawati, M.Si
6. Samsuri, SE., MM

Advisor:

1. Dr. Ir. Ristika Handarini, M.P
2. Dr. Irwan. Ch, SE., MM
3. Ir. Himmatl Miftah, M.Si

*Organizing Committee:*

Conference Chair:

1. Prof. Ir. Mohamad Ali Fulazzaky, CES., DEA

Co Conference:

1. Dr (cand). Radif Khotamir Rusli, M.Ed

Secretary:

1. Mas Nur Mukmin, SE., M.Ak

Finance:

1. Warizal, SE., MH
2. Nurul Annisa Yuniarti, M.Pd

Promotion and Relation:

1. Dra. Ginung Pratidina, M.Si
2. Faisal Tri Ramdhani, S.Sos., M.AP

Paper and Publication:

1. Dr. Rasmitadila, ST., M.Pd

Secretariat:

1. Muhamad Encep, S.Kom, M.Kom
2. Muslim, SE
3. Riska Rahmawati
4. Dimas Bayu Nugroho
5. Rafael Nuansa Ramadhon

Reviewer:

1. Prof. Ir. Mohamad Ali Fulazzaky, CES., DEA (Head of Scientific Reviewer)
2. Prof. Mohammad Winugroho, Ir., M.Sc.
3. Prof. Dr. Hanafi Nur, Ir., M.Sc
4. Prof. Dr. Djaja Sibardja Sutaatmadja, Ir., M.Sc
5. Dr. Ir. Mardiah, M.Si
6. Dr. Ir Arifah Rahayu, M.Si
7. Dr. Ir. Wini Nahraeni, M.Si

Editor:

1. Radif Khotamir Rusli, M.Ed
2. Mas Nur Mukmin, SE., M.Ak
3. Muslim, SE

**Publisher:**  
Unida Press  
Universitas Djuanda Bogor  
Indonesia  
Jl. Tol Ciawi No. 1 Bogor 16720

## PREFACE

Dear ladies and gentlemen,

In this very precious moment, I would like to convey my warm regards and high appreciation for the eminent speakers, distinguished guests, respected colleagues, and all participants, from the deepest of our heart for having you joining our conference.

In 2021, we have successfully done our responsibility as scholars and researchers through The 5<sup>th</sup> Bogor International Conference for Applied Sciences (BICAS). Present our research finding virtually worldwide, proofs that knowledge have no boundaries, time, and place border. Even, the pandemic will not stop us to invent, create and publish. We should be more than proud, and this proceeding is dedicated for all participants who have share their remarkable research to the world. This current conference consist of researchers from several countries such as Indonesia, Malaysia, United Kingdom, Taiwan, Brunei Darussalam, and Pakistan.

Hereby, we would like to thank to Yayasan Pusat Studi Pengembangan Islam Amaliah Indonesia and all remarkable keynote speakers thank you for making the conference full of bright new knowledge. With the deepest of gratitude, we are more than proud to have all partners in the conference. Thank you to our loyal partner Universitas Ibn Khaldun that have been collaborating since the first BICAS and BICSS.

Through the theme “Embracing the Global Society to Face New Normal Era through Applied Science”, we have more than 40 scholars joined the conference in variety field of study such as Applied Science, Agriculture, Poultry & Husbandry, Fisheries, Bioscience, Engineering & Technology, Computer Science, Food Science, Sciences, Medicine & Applied Health, Pharmacy.

The conferences hope to serve as a forum to exchange ideas and experiences on findings and thoughts presented in empirical and theoretical assessments among Indonesian and overseas academicians and researchers. We deeply say thank a lot to all of you who make this conference happened. Thanks, are also deserved for the committee members and editorial boards for their tirelessly contributions to this conference. Finally, we hope that the pandemic is over and we could meet in person the next Bogor International Conference for Applied Science. Thank You.

Sincerely,

**Prof. Ir. Mohamad Ali Fulazzaky, CES, DEA, PhD.**

Conference Chair

**SYNOPSIS**

1. Virtual Seminar Implementation with ISBN Full Paper Proceedings and in collaboration with affiliated journals from the University of Djuanda IJAR. The 5<sup>th</sup> BICAS 2021, in collaboration with the Co-Host, Universiats Ibn Khaldun, who has always been our conference partner since 2017. Thank you for such a great collaboration. We hereby express our gratitude and appreciation to Universitas Ibn Khaldun for its willingness to become a partner of Djuanda University in the implementation of The 5<sup>th</sup> BICAS 2021. Also all remarkable keynote speakers for the willingness to share valuable thoughts though this conference.
2. Theme: **Embracing the Global Society to Face New Normal Era through Applied Science**
3. Participants: 29 People
4. Consists of several universities including:

Indonesia	Universitas Djuanda, Ibn Khaldun University, Akademi Kebidanan Al-Ikhlas, Pakuan University, Politeknik Negeri Sambas, Universitas Gunadarma, Universitas Nusa Bangsa
International	Thailand, Germany, Iran, Vietnam, Malaysia, Cambodia, France, US

## CONTENTS

<b>COVER .....</b>	<b>i</b>
<b>PREFACE .....</b>	<b>v</b>
<b>SYNOPSIS .....</b>	<b>vi</b>
<b>CONTENTS .....</b>	<b>vii</b>
<b>THE KEYNOTE SPEAKER ABSTRACTS .....</b>	<b>vii</b>
<b>PROCEEDING ARTICLES .....</b>	<b>vii</b>
<b>ABSTRATC .....</b>	<b>vii</b>

### 1. PROCEEDING ARTICLES

No	Article Title	Institution	Page
1	DIETARY SUPPLEMENTATION OF GARCINIA ATROVIRIDIS REDUCES MALONDIALDEHYDE LEVELS OF SPENT LAYER DUCK  Author: Dede Kardaya, Dewi Wahyuni	Universitas Djuanda	1-6
2	POTENTIAL OF BANANA PEEL EXTRACT ( <i>Musa paradisiaca</i> ) AS GLUCOSIDASE INHIBITOR IN MOLECULAR DOCKING  Author: Amelya Putri Zamzami, Erna Puspasari, Muhammad Rifqi, Tiana Fitrilia, Titi Rohmayanti	Universitas Djuanda	7-13
3	EFFECTS OF NEEM SOLUTION EXTRACT ON PESTS AND DISEASES AND DEVELOPMENT OF RED CHILI PLANTS  Author: Oktavianus Lumban Tobing, Yanyan Mulyaningsih	Universitas Djuanda	14-18
4	Evaluation of Carriers for Development of Sappan ( <i>Caesalpinia sappan</i> L.) Extract-Based Indicator Labels  Author: Hikmah Nur Chosidah, Muhammad Fakhri Kurniawan, Nursyawal Nacing, Tiana Fitrilia	Universitas Darwan Ali	19-28
5	RESPONSE OF RED CHILI PLANTS AT VARIOUS CONCENTRATIONS AND TIME OF ADMINISTRATION OF LOCAL MICROORGANISMS OF KEPOK BANANA WEEVIL  Author: Yanyan Mulyaningsih	Universitas Pendidikan Indonesia	29-33
6	ANALYSIS OF PUBLIC PERCEPTION OF URBAN BUS OPERATION USING CLASSIC ASSUMPTION AND MULTIPLE LINEAR REGRESSION TESTS  Author: Muhamad Rinaldi, Muhammad Nanang Prayudyanto, Syaiful	Universitas Muhammadiyah Jakarta	34-37

7	Specificity of Pork Gene Primer Design (Sus scrofa) for Loop-Mediated Isothermal Amplification Analysis Method Author: Afrizal Araaf Majid, Dwi Wulandari, Isma Kusmiati, Mediasti Rahmasari, Muhamad Rizki Fauzi, Rosy Hutami	Universitas Muhammadiyah Jakarta	38-40
8	The Effect Of Repleacing Fish Meal With Maggot Flour In the Ration On The Physical Charasteristics Of KUB Chicken Author: Dewi Wahyuni, S.Pt, M.Si, Dr.Ir Anggraeni, M.Si, Udin Bahrudin	Djuanda University	41-44
9	nutrition counseling in the first thousand days of life for stunting prevention Author: Siti Rafika Putri	Djuanda University	45-49
10	Physical Quality of Noodles from Native and Modified Canistel Flours (Pouteria campechiana) Author: Aminullah, Noli Novidahlia, Sri Rejeki Retna Pertiwi	UNIVERSITAS DJUANDA	50-55
11	A review of cascara from various types of Indonesian coffee bean origin Author: Nindya Atika Indrastuti	Djuanda University	56
12	COLOUR AND TEXTURE PROFILE OF MUNTOK WHITE PEPPER (Piper nigrum Linn) HARD CANDY Author: Distya Riski Hapsari, Fuji Lestari Nurjulianti, Rosy Hutami, Siti Nurhalimah	Universitas Djuanda	57-61
13	Phytochemical Analysis and Vitamin C Content in Biscuits With Addition of Siam Orange (Citrus Nobilis Microcarpa) Dregs Powder Author: Hidayat Asta, Kiki Kristiandi, Rini Fertiasari	Teknologi Industri Pertanian Universitas Djuanda	62-70
14	MITIGATION OF HORTICULTURAL PRODUCT DISTRIBUTION RISK BASED ON ENTERPRISE RISK MANAGEMENT (ERM) METHOD Author: Arti Yoesdiarti, Himmatul Miftah, Ikhsan Qodri Pramartaa, Santia Afandi, Tiara Amanda Lestari, Vigia Marfuah Zuher	universitas djuanda	71-73
15	WEANING FOOD: A FORMULATION FROM PUMPKIN PUREE AND NUTS Author: Mardiah, Retno Kartika Rosdiana2, Tiana Fitrilia	Stikes A Yani Cimahi	74-85

16	Chemical and Sensories Characteristics Hard Candy Habbatussauda (Nigella Sativa) and Honey (Apis Mellifera Linneus) Author: Wilna Iznillillah	Universitas Djuanda	86-90
17	The Effectiveness of Fish Meal with Maggot (Hermetia Illucens) Substitution in Ration on the Percentage of Boneless Kampung Unggul Balitnak (KUB) Chicks Author: Abdullah Baharun, Ristika Handarini, Rully Abdul Haq	Faperta Universitas Djuanda Bogor	91-98
18	FUNCTIONS OF VISUAL MESSAGES AS PRESENTATION AND PROMOTION MEANS IN CHANGING THE HOKKAN INDONESIA LOGO BY SOCIAL DISTANCING Author: Maria Fitriah, Nia Rohmaniah	Universitas Indo Global Mandiri	99-108
19	Isolation of Triterpenoids Natural Products from Ethyl Acetate Extract of Aglaia angustifolia (Miq.) Leaf Author: Delia Ayu Karisma, Devy Susanty, Ricson Pemimpin Hutagaol, Srikandi	Akbid cianjur	109-121
20	INFLUENCE OF BIOFERTILIZER AND KNO <sub>3</sub> FERTILIZERS ON THE GROWTH, QUALITY AND PRODUCTION OF KAILAN PLANTS (BRASSICA OLERACEAL VAR. ALBOGLABRA) Author: Nurochman , Panji sakti Nugraha	Akademi farmasi yarsi pontianak	122-129

# EFFECTS OF NEEM SOLUTION EXTRACT ON PESTS AND DISEASES AND DEVELOPMENT OF RED CHILI PLANTS

Oktavianus Lumban Tobing<sup>1</sup>, Yanyan Mulyaningsih<sup>2</sup>

<sup>1</sup>Department of Agrotechnology, Faculty of Agriculture, Universitas Djuanda, Jalan Tol Ciawi No 01 Ciawi 16720 Bogor, Indonesia

<sup>2</sup>Department of Agrotechnology, Faculty of Agriculture, Universitas Djuanda, Jalan Tol Ciawi No 01 Ciawi 16720 Bogor, Indonesia

<sup>1</sup> E-mail address [oktavianus@unida.ac.id](mailto:oktavianus@unida.ac.id) <sup>2</sup> E-mail address [yanyan.mulyaningsih@unida.ac.id](mailto:yanyan.mulyaningsih@unida.ac.id)

Corresponding Author: Email Address [oktavianus@unida.ac.id](mailto:oktavianus@unida.ac.id)

## Abstract

*The red chili plant is a seasonal plant included in fruit vegetables. Yields and growths are often disrupted by aphid pests and anthranose disease. The damage caused can be mild, moderate, and severe depending on the ferocity of pests and diseases, the supportive environment, and the susceptibility of chili plants. Extract of neem leaf solution has the potential to overcome pest disorders and diseases of chili plants therefore this study was conducted. The purpose of the study was to find out the effect of giving extracts of neem leaf solution against aphid pests and anthranose disease as well as the results and growth of chili plants. The method used is the design of a randomized trial of a factorial group with two factors and three repetitions. The first factors are the main solution I1: 300 g of neem leaf powder per liter of methanol 100%, I2: 600 g of neem leaf powder per liter of methanol 100%, and I0: not given powder. The second factor is the application stage J0: not given 0 days after planting (dap), J1:7 dap, J2: 7.14 dap, J3: 7,14,21 dap, J4: 7,14,21,28 dap, J5: 7,14,21,28,35 dap. The results of the study of extracts of neem leaf solution have a significant effect on aphid pests but not on anthranose disease. The results and growth of chili plants have a significant effect. The contribution of the research is that the administration of neem leaf extract solution can suppress the infestation of aphid pests but not in anthracnose disease. Crop yields and growth have increased.*

*Keywords: chili plant response, Neem extract; pest disorders of disease*

## I. INTRODUCTION

Extract of neem leaf solution can control the disturbance of aphid pests and anthrax disease as well as the development of red chili plants such as crop yields and growth. Extract of neem leaf solution based on the results of citations contains compounds azadirachtin, Nimbin, Nimbin, solanine, and meliantriol. Nimbin serves as fungicides, viralides, and bactericides, while others serve as insecticides with different mechanisms of action against pests. The results of laboratory tests on extracts of neem leaf solution found 11 secondary metabolite compounds, including potential vegetable / natural pesticides. This study aims to find out the effect of extracting neem solution against aphid pests and anthrax disease as well as the results and growth of red chili plants.

The study used a randomized trial design of factorial groups with 3 repetitions, namely the parent solution consisting of I0: not given powder, I1:300 g of neem leaf powder per liter of methanol 100%, and I2:600 g of neem leaf powder per liter of methanol 100% and application stage J0: not given 0 days after planting (dap), J1:7 dap, J2: 7.14 dap, J3: 7,14,21 dap, J4: 7,14,21,28 dap, J5: 7,14,21,28,35 dap. The two main solutions have a significant effect on pests but not on diseases, also have a significant effect on the yield and growth of red chili plants. The stage of application has a significant effect on pests, not on diseases, also has a significant effect on results and growth. The parent solution and application stages

affect the treatment of control or are not given the extract. This study is different from previous findings because the treatment factors are different and the observed object is also different.

## II. METHODOLOGY

The research took place from March to July 2021 at the location of Gapoktan Repeh Rapih, Sukamantri Village, Tamansari Subdistrict, Bogor Kaupaten, West Java. Research materials use a set of tools for extracting neem leaves. Ektrask obtained is applied to chili plants in the field by using a hand sprayer for each plant given 200 ml of extract solution. The research method uses a randomized trial design of factorial groups with 2 factors and 3 repetitions. The first factor is the main solution I0: not given neem leaf extract, I1:300 g neem leaf powder per 1 liter of methanol 100%, I2: 600 g neem leaf powder per 1 liter of methanol 100%, and the second factor is the resistance application of neem leaf extract i.e. J0: no application of 0 days after planting (dap), J1: application of age 7 dap, J2: age application (7.14) dap, J3: age application (7.14.21) dap, J4: age application (7.14,21.28) dap, J5: age application (7.14,21,28.35) dap. Plant variables shown in the results and discussion include the height of the plant, the number of leaves, the number of branches, the length of the fruit, the severity of pests aged 60 and 70 days after planting, and the table of the severity of the disease. The quantitative data obtained is processed using Microsoft programs and determined which variables show the contribution of real effects, selected for inclusion in this paper.

## III. RESULTS AND DISCUSSION

Figures 1, 2, 3, 4, 5, 6, 7 describe the effect of the application of the parent solution (I1, I2) and the stages of application (J1, J2, J3, J4, J5) limited to variable growth, yield, pest severity and chlorophyll content of the leaves. Table 1 shows the effect of the application of the parent solution (I1, I2) and the application stages (J1, J2, J3, J4, J5) on the variable severity of anthranose disease. The application of the parent solution I1 with I2 as well as between the stages of the application shows a fluctuating graph.

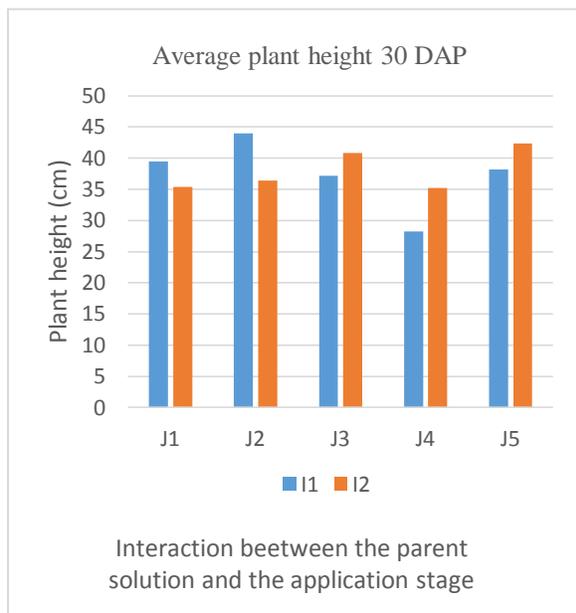


Figure 1. Parent solution, stage of application to plan height

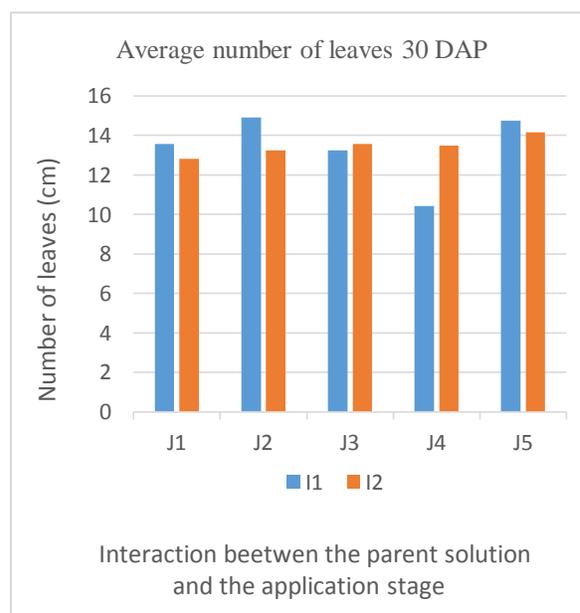


Figure 2. Parent solution, stage of application to the number of leaves

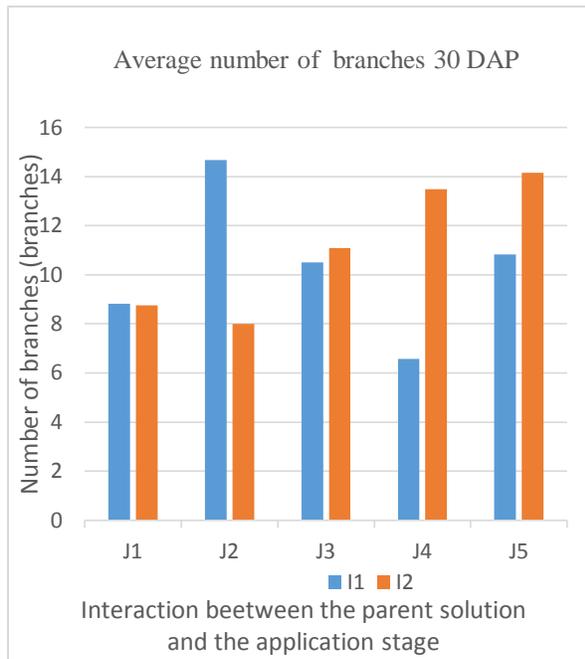


Figure 3. Parent solution, stage of application to number of branches

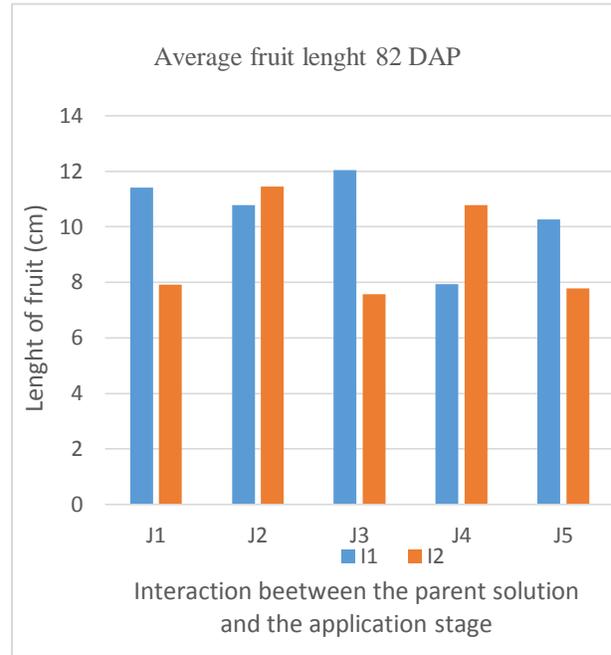


Figure 4. Plant solution, stage of application to fruit length

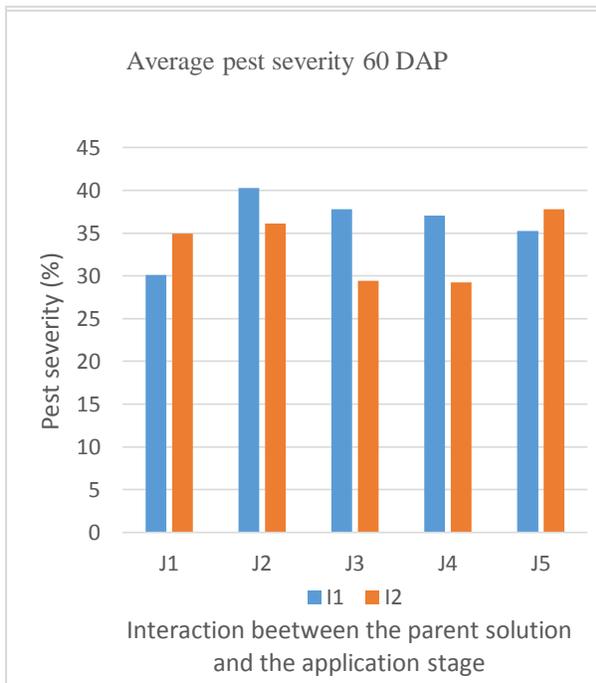


Figure 5. Parent solution, stage of application to Pest severity 60 DAP

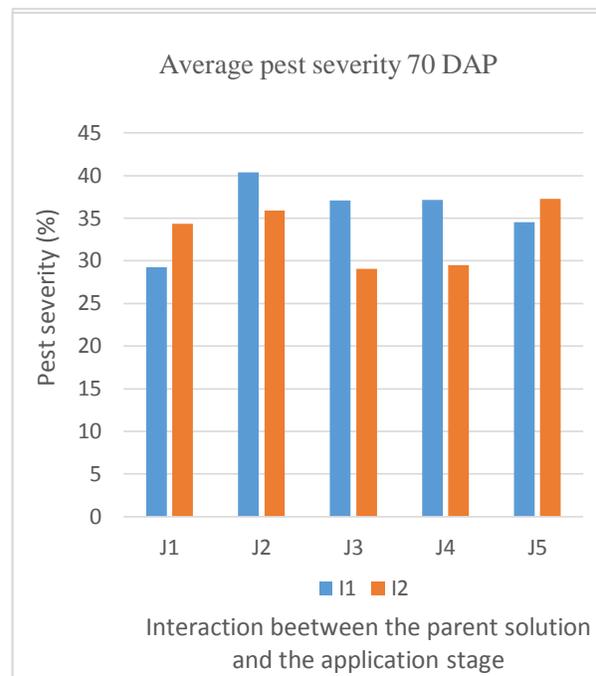


Figure 6. Parent solution, stage of application to pest severity 700 DAP

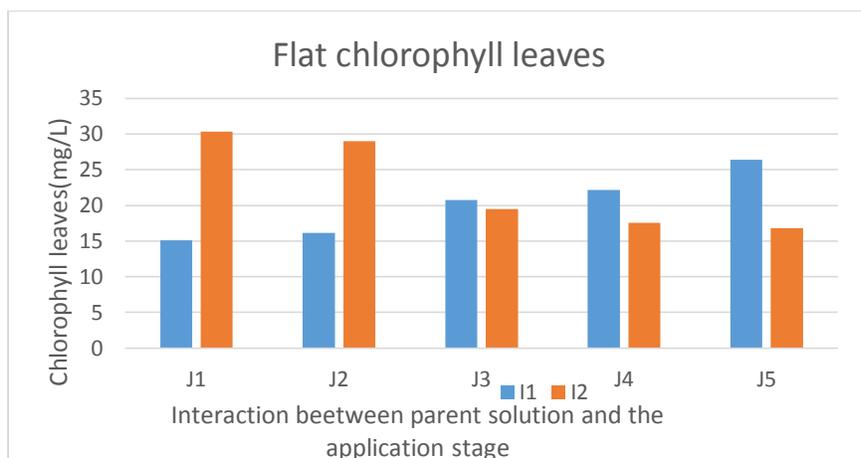


Figure 7. Parent solution, stage of application to chlorophyll leaves

Table 1 Average disease severity

Average disease severity						
Perlakuan	54 HST	59 HST	66 HST	73HST	80 HST	Rata-rata
Kontrol	1,40 a	2,23 a	5,17 a	5,93 a	7,20 a	4,387a
Parent solution						
I1	1,75 a	4,29 a	7,96 a	11,46 a	12,35 a	7,56a
I2	1,99 a	4,22 a	9,07 a	17,33 a	21,89 a	10,9a
Application stages						
J1	1,10 a	3,90 a	10,53 a	14,02 a	15,97 a	9,103a
J2	3,58 a	6,08 a	12,18 a	19,25 a	22,15 a	12,65a
J3	1,88 a	4,52 a	8,65 a	19,05 a	20,70 a	10,96a
J4	1,78 a	3,72 a	6,07 a	13,52 a	19,05 a	8,827a
J5	0,98 a	3,05 a	5,13 A	6,13 a	7,73 a	4,607a

The infestation of aphid pests or anthranose disease can disrupt the development of chili plants, especially in the components of chili yield and growth. In this study, the treatment of the parent solution I1(300 g/ l) with I2 (600 g / l) had a significant effect on pest disorders (pest severity), while the treatment of application stages (J1, J2, J3, J4, J5) did not have a significant effect. The occurrence of pest attacks can cause chili results to fluctuate. Treatment of parent solutions I1 and I2 or the stages of application does not have a significant effect on anthranose disease means that anthranose disease is considered homogeneous or equally mild between treatments. This is because at the time of research from March to July 2021 there is a more dry season than the rainy season where anthrax disease develops rapidly in the humidity around high plants or  $RH \geq 80\%$ . Natural pesticides derived from neem leaf extract can be as an insecticide and non-insecticide (function, bactericidal, viricide), this is by the findings of compounds found in neem leaves such as neem, nimbidin, salanin, meliantriol, azadirachtin.

Some arguments related to the results of the study will be outlined in the article below.

Secondary metabolite compounds derived from neem leaves based on laboratory tests found 11 compounds that include potential as vegetable or natural pesticides. Some of the findings of previous studies that could reinforce the results of this study are put forward in some of the arguments below.

Biopesticides derived from neem extract include azadirachtin which can control some pests. Mechanisms work by expelling, inhibiting eating, interfering with growth, and reproduction. The formulation of neem does not directly kill pests, but changes the behavior of pests insignificantly, decreasing the damage and reproductive potential of pests [1].

Research methods use online databases and papers on the prospects of neem (functions as fertilizers or pesticides against pests and diseases, pharmaceutical industries such as biological activities with metabolite production, environmental biotechnology as vegetable pesticides). Mimba has the potential as fertilizers, animal feed supplements, plant defenses against insects (bioinsecticides), and pathogenic microorganisms (antimicrobial activity) in the agricultural or pharmaceutical industries such as metabolite compounds that are antitumor, antioxidants, and anti-bactericidal activity, also according to reports used for combination with nanoparticles (Green nanoparticles)[2].

The research aims to find out the losses due to aphid pests, the benefits of plants as plant insecticides, how to plant insecticides work, plant-based insecticide research on red chili aphids, obstacles, and strategies for the development of vegetable pesticides. In the dry season, the loss due to aphids ranges from 40%, outside the dry season 10-30%, and 90% as a vector. Vegetable pesticides are grouped into three types based on the mechanism of action are natural ingredients with antifitopatogenic compounds (agricultural antibiotics), phytoxyction, regulate plant growth (phytotoxins, plant hormones, and the like) and compounds are active against insects (insect hormones, pheromones, antifidan, repellents, attractants, and insecticides). Aphids on red peppers can be controlled using plants including garlic, tobacco, turmeric, neem, papaya, distance, brotowali, soursop, and red pepper [3].

The effect of dosing neem seeds against *A. gossypii* and the growth character of the red chili plant. The dose used (0, 25, 50, 75, 100, 125) grams, and carbofuran pesticide comparison. The best result is that a dose of 50 grams of neem seeds per polybag can suppress the population of *A. gossypii* and show the best influence on the growth character of plants, namely the chlorophyll content of leaves, plant height, the hardness of the leaves of chili plants and the level of element N absorbed [4].

Mimba has the active ingredients azadirachtin, salanin, meliantriol, nimbin, and nimbidin as a result of secondary metabolites that control plant pests and diseases by affecting growth, feeding power, reproduction, and oviposition [5].

The results of laboratory analysis of neem leaf extract contain 11 compounds, some of which are fungicides (anti-fungi) and insecticides (anti-insect pests). It is on this basis that this study was conducted to find out how many roles natural pesticide formulations of leaf origin neem against the suppression of pest disorders and the main diseases of chili plants. With the known emphasis on the disorder, it has to do with the results and growth of chili plants.

The treatment of the combination of neem leaves with cayenne pepper by testing the concentration of a solution consisting of 5 levels is 0%, 5%, 10%, 15%, and 20% against the mortality of green aphids in vitro results obtained a combination of neem leaves and cayenne pepper fruit waste between treatments significantly different. The best result of 15% concentration for the handling of green aphid pests of chili plants [6].

The effect of giving neem leaf extract is P0: 0 ml extract, P1: 50 ml extract, P2: 75 ml extract, P3: 100 ml extract which is each dissolved with 1 liter of water. The results showed a significant influence on the suppression of mortality of whitefly (*Bemisia tabaci*). Doses of 50 ml and 75 ml are the best effects on whitefly [7].

Effectiveness of vegetable pesticides against pest control of chili plants using treatment A: control, B: 100 ml/plant garlic extract, C: 100 ml/plant neem extract, D: 100 ml/soursop extract plant. It found two pests are aphids and whitefly that attack plants. The results obtained application of 100 ml/plant neem leaf extract is the most effective treatment to suppress pest populations in chili plants [8].

Know the effect of some botanical insecticide preparations (neem and other plants) on insect reproduction. The research uses methods of literature studies. The result obtained from mapping is that insect reproduction is influenced by the viscosity of the concentration of botanical insecticide preparations. The reproduction rate of insects is lower when the concentration of lethal is higher [9].

Testing 6 concentrations of neem leaf extract, consisting of M0:0%, M1:1%, M2:5%, M3:10%, M4:15%, and 5M:20% against the control of anthrax disease caused by *Colletotrichum capsici* fungus in post-harvest red chili fruit showed a significant effect. The best concentrations of 15% and 20% for the control of anthrax disease are seen to be smaller colony diameter sizes and lower disease incubation periods [10].

Treatment consists of 3 factors are first mushroom *Colletotrichum acutatum* and *Colletotrichum gloeosporioides*, both vegetable pesticides with active ingredients neem (Agr I and Agr II), third 6 standards of pesticide concentration treatment (0%, 0.5%, 1%, 2%, 3%, 4%, and 5%). Based on the results of testing it is known that vegetable pesticides Agr I and Agr II can inhibit the growth of mushrooms in vitro and Agr I is more potential to control *Colletotrichum* spp. However, the vegetable pesticide Agr I is unable to control pathogens that have been present in plant tissues [11].

The purpose of the study was to find out the effectiveness of the extract fraction of neem leaves and castor leaves as bio fungicides against the growth of *C. capsici* in vitro causing anthrax disease in chili peppers. The results obtained extract of neem leaf alcohol fraction 90%, leaf extract distance alcohol fraction 10%, alcohol fraction 90%, ethyl acetate fraction 10%, and n-hexane fraction 90% potential as a vegetable fungicide that can inhibit colony growth and formation of Spores *C. capsici* [12].

Testing two treatment factors, banana weevil extract consists of (0, 15, 30, and 45) % and neem leaves from (0, 15, 30, 45) % to the reconditioning of chili growth and production. The administration of neem leaf extract has a significant effect on the width of the title of age 44 and 54 days after planting, the area of the leaves interacting at the age of 44 and 64 days after planting, the number of branches interacting age 54 days after planting, and the incidence of disease interacting age 44 days after planting. Findings from the study of neem leaf extract had a significant effect on growth, but banana weevil extract had no significant effect on production because during the 5 months of research there was a long dry season [13].

Test the exposure of some plant extracts against the growth of *Colletotrichum gloeosporioides* that cause anthrax in chili (*Capsicum annuum* L.). Plant extract consists of control, neem leaf extract, betel leaf extract, distance leaf extract, saliar leaf extract, extract saliar+betel leaves, saliar leaf extract+j.tintir, saliar leaf extract+neem, betel leaf extract+j.tintir, betel leaf extract+neem, j.tintir+neem leaf extract, saliar+betel leaf extract+betel+j.tintir+neem, saliar leaf extract+betel+j.tintir, saliar leaf extract+betel+neem and betel leaf extract+j.tintir+neem. The results showed the treatment of tintir distance plant leaf extract, betel+mimba plant leaf extract, and saliar+betel+mimba plant leaf extract significantly inhibited the growth of *C. gloeosporioides* but did not significantly inhibit the growth of *C. gloeosporioides* spores. [14].

The effect of the administration of a solution of neem leaves and banana weevil moles on anthrax disease and the growth of red chili plants. The treatment consists of two factors: the concentration of neem leaf solution (0%, 15%, 30%, 45%) and the concentration of mol banana weevil (0%, 15%, 30%, 45%). As a result, the concentration of neem leaf solution did not have a significant effect on all observed worshippers. The concentration of 45% banana weevil MOL solution had a significant effect in increasing plant height, leaf count, number of productive branches, and fruit weight per plant compared to the control treatment, but was no less noticeable compared to the concentration of 30%. Anthranose attacks do not occur against all plants observed in all treatments, meaning the percentage of disease incidence and the severity of the disease is 0%. This is due to environmental factors that are not supportive of the development of *Colletotrichum* sp fungus. [15].

#### IV. CONCLUSION AND NEWNESS

Application of mimba stock solution and application stages proven to suppress aphid pest attacks and potentially also suppress the attack of anthracnose disease as long as there is a conformity between environmental factors and pathogens that cause anthracnose disease. Secondary metabolite compounds from neem leaf extract contribute to the suppression of aphid pests, increased yield, and growth of red chili plants. The implications of this study can be used to control pests and diseases of chili plants, as well as potentially control pests and diseases of horticultural plants found in Indonesia.

#### ACKNOWLEDGEMENT

The authors wish to thank the ministry of research and technology of higher education, which has funded the research. Thanks also go to the Directorate of Research and Community Service of Djuanda University, which supported the research.

#### V. REFERENCES

- [1] Adhikari Kripa., Sudip Bhandari., Dikshya Niraula & Jiban Shrestha. 2020. Use of neem (*Azadirachta indica* A. Juss) as a biopesticide in agriculture: A review. *Journal of Agriculture and Applied Biology*. 1(2): 100-117.
- [2] Ana Paula Ferreira., Débora Elisa Antunes de Mendonça., João Arthur dos Santos Oliveira, & Helio Conte. 2019. Neem (*Azadirachta indica* A. Juss) as a Biotechnological tool: a short review. *Journal of Luminária, União da Vitória*. 21(02): 28-35.
- [3] Purnamasari Ika & Sri Endah Nurzannah. 2021. Tumbuhan Indonesia potensian sebagai insektisida nabati untuk mengendalaikan hama kutu daun (*Aphis gossypii*) dan *Myzus persicae* pada tanaman cabai merah. In: Website: <http://jurnal.fp.uns.ac.id/index.php/semnas>. Prosiding Seminar Nasional Fakultas Pertanian UNS.
- [4] Muchlis Ardi Zulfikar. 2021. The effects of various doses of *Azadirachta indica* A. Juss. Seed cake against *Aphis gossypii* (Glover) and growth characters of red chili plants (*Capsicum annum* L.). *Journal of Plant Protection Cropsaver* 4(1): 15-26.
- [5] Hasibuan Muainah., Erpina Delina Manurung., dan Lely Zulhaida Nasution. 2021. Pemanfaatan dan mimba (*Azadirachta indica*) sebagai pestisida nabati. *Jurnal. FP. UNS.*, 5(1): 1153-1158. Prosiding seminar nasional <http://jurnal.fp.uns.ac.id/index.php/semnas>
- [6] Rajab Ahmad Mijwad., Ari Hayati., dan Hasan Zayadi. 2018. Pengaruh larutan kombinasi daun mimba (*Azadirachta indica*) dengan buah cabai rawit (*Capsicum frutescens*) terhadap mortalitas kutu daun hijau (*Aphis gossypii*) secara in vitro. *Jurnal sains alami* 1(1): 1-6. <http://riset.unisma.ac.id/index.php/mipa/article/view/1390>
- [7] Maharani, Sri., Yusmaidar Sepriani, dan Hilwa Walida. 2020. Pengaruh ekstrak daun mimba (*Azadirachta indica* Juss) terhadap mortalitas hama kutu kebul (*Bemisia tabaci*). *Jurnal mahasiswa agroteknologi* 1(2): 55-60
- [8] Haerul., Muhammad Izzdin Idrus, dan Risnawati. 2016. Efektifitas pestisida nabati dalam mengendalikan hama pada tanaman cabai. *Jurnal Agrominansia* 1(2): 129-136
- [9] Risnawati. 2021. Meta analisis: perkembangan sediaan insektisida botani berdasarkan pengaruhnya terhadap reproduksi serangga. *UG Jurnal* 15(5): 24-31.
- [10] Ali Muhammad., Yunel Venita., dan Benny Rahman. 2013. Uji beberapa konsentrasi ekstrak daun mimba (*Azadirachta indica* A. Juss.) untuk pengendalian penyakit antraknosa yang disebabkan jamur *Colletotrichum capsici* pada buah cabai merah pasca-panen. *Jurnal unri* :1-14. [https://sagu.ejournal.unri.ac.id/index.php/JSG/...](https://sagu.ejournal.unri.ac.id/index.php/JSG/) · PDF file
- [11] Paradisa Yashanti Berlinda., Wahyuni, Enung Sri Mulyaningsih., Ambar Yuswi Perdani., dan Arief Heru Prianto. 2020. Evaluasi pestisida nabati dengan ekstrak mimba (*Azadirachta* sp.) untuk

- pengendalian pertumbuhan Antraknosa pada buah cabai *Jurnal Fitopatologi Indonesia* 16(3): 112-122. DOI: 10.14692/jfi.16.3.112–122
- [12] Ningsih Yanti., Efri., dan Titik Nur Aeny. 2013. Pengaruh fraksi ekstrak daun mimba (*Azadirachta indica* A.) dan daun jarak (*Jatropha curcas* L.) terhadap diameter koloni dan jumlah spora jamur *Colletotrichum capsici* penyebab penyakit antraknosa pada cabai (*Capsicum annum* L.). *Jurnal Agrotek Tropika* 1(3): 325-330. [jurnal.fp.unila.ac.id/index.php/JA/article/download/2059/1815](https://jurnal.fp.unila.ac.id/index.php/JA/article/download/2059/1815) · PDF file
- [13] Lumban Tobing Oktavianus dan Yanyan Mulyaningsih. 2020. The reconditioning growth of production of chili through the banana hump and neem leaf extract. *Indonesian Journal of Applied Research* 1(3): 136-148. <http://Scholar.google.co.id/Scholar?hl=id&as-dt=0%2C5&q=jurnal+mimba+kutu+daun+dan+antraknosa&btnG=>
- [14] Pranyata Agus., Efri Suskandini Ratih Dirmawati., Muhammad Nurdin. 2021. Efektivitas komposisi beberapa ekstrak tumbuhan terhadap pertumbuhan jamur *Colletotrichum gloeosporioides* penyebab antraknosa pada cabai (*Capsicum annum* L.). *Jurnal Agrotek Tropika*, 9(1): 52-59. <https://jurnal.fp.unila.ac.id/index.php/JA/article/download/4778/3389> · PDF file
- [15] Aziziy Muhammad Hifniy., Oktavianus Lumban Tobing., dan Yanyan Mulyaningsih. 2020. Studi serangan antraknosa pada pertumbuhan cabai merah (*Capsicum annum* L.) setelah aplikasi larutan daun mimba dan mol bonggol pisang. *Jurnal Agronida*, 6(1): 22-32. <https://ojs.unida.ac.id/JAG/article/download/2668/pdf> · PDF file



**THE 5<sup>th</sup> BOGOR  
INTERNATIONAL CONFERENCE  
FOR APPLIED SCIENCE**

UNIVERSITAS DIJANDA

ISBN 978-602-6585-89-9



9 786026 585899



Number: 012/BICAS/5TH/11/2021

# CERTIFICATE

this certificate is proudly presented to :

***Yanyan Mulyaningsih***

as **PRESENTER** of the paper entitled:

*"Response Of Red Chili Pants At Various Concentrations And Time Of Administration Of Local Microorganisms Of Kepok Banana Weevil"  
(Yanyan Mulyaningsih)*

in The 5<sup>th</sup> Bogor International Conference for Applied Science 2021,  
"Embracing the Global Society to Face New Normal Era through  
Applied Science".  
Conducted Virtually on November 11<sup>th</sup>, 2021.

Chairman,

Handwritten signature of Mohd. Ali Fulazzaky in black ink.

Mohd. Ali Fulazzaky, Ph. D

Rector of Universitas Djuanda,



Assoc. Prof. Dr. Ir. Dede Kardaya, M.Si