

**INTERNATIONAL CONFERENCE
ON INTERDISCIPLINARY
FOOD SECURITY
(ICIFS 2017)**

October 19–20th, 2017
Universitas Andalas
Padang, West Sumatra – Indonesia



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OCTOBER, 19-20th, 2017

UNIVERSITAS ANDALAS

PADANG, WEST SUMATERA, INDONESIA



Welcome Message from the Conference Chair
International Conference on Interdisciplinary Food Security (ICIFS) 2017

Dear Honorable and Distinguished guests,
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi
Wabarakatuh and Good Morning

On behalf of the ICIFS 2017 organizing committee, I am honored and delighted to welcome you to the International Conference on Interdisciplinary Food Security at Andalas University, Padang, Indonesia. I believe we have chosen a venue that guarantees a successful technical conference amid the culture and scenery of Padang.



Our technical program is rich and varied with 5 keynote speeches and 3 invited talks and more than 80 technical papers split between 5 parallel oral sessions and 1 poster sessions. The speakers and participants came from different countries, consist of Academicians, Scientist, Researchers, practitioners, professionals, and government officials from multidiscipline branch of knowledges, who gathered here today to share and discuss new findings and applications of innovations for ensuring food security, in particular for those who in dire needs. We also expect to provide technical demonstrations, and numerous opportunities for informal networking.

As a conference chair of ICIFS 2017, I know that the success of the conference depends ultimately on the many people who have worked with us in planning and organizing both the technical program and supporting social arrangements. In particular, we thank the steering committee for their wise advice and brilliant suggestion on organizing the technical program; the Program Committee for their thorough and timely reviewing of the papers, and to the Rector of Andalas University as well as the Head of Institute for Research and Community Service of Andalas University who have helped us to share the costs of ICIFS 2017 for all

participants. Recognition should go to the all Organizing Committee members who have all worked extremely hard for the details of important aspects of the conference programs and social activities.

Finally, I hope that this forum will provide common platform and support the exchange of knowledge, while at the same time offer constructive dialogue across and within the various interest and stakeholder groups, including the intended beneficiaries, and arrive at the best solutions to our terminal goal, securing the food for all mankind.

Thank You,

Dr. Eng. Muhammad Makky

Welcome Speech Head of Institute for Research and Community Service

Dear Honorable and Distinguished guests,
Ladies and gentlemen,

Assalamu'alaikum Warahmatullahi
Wabarakatuh and Good Morning

It is with great pleasure that I welcome the participants of the "International Conference on Interdisciplinary Food Security 2017". Knowledge should be acquired and imparted to the people. The quest for knowledge has been from the beginning of time but knowledge only becomes valuable when it is disseminated and applied to benefit humankind. It is hoped that this conference will be a platform to gather and disseminate the latest knowledge which can be adopted for securing the food for mankind. Academicians, Scientist, Researchers and practitioners from multidiscipline branch of knowledge who gathered here today will be able to share and discuss new findings and applications of innovations for ensuring food security, in particular for those who reside in developing countries. It is envisaged that the intellectual discourse will result in future collaborations between universities, research institutions and industry both locally and internationally. In particular it is expected that focus will be given to issues on environmental and sustainability.

Researchers in the multi sectoral aspects related to food security have been progressing worldwide. Food is a basic right. Food security are the foundations of a decent life, a sound education and the achievement of the Millennium and Sustainable Development Goals. Over the past year, we have witnessed a chain reaction that threatens the very foundations of life for millions of the world's people. Rising energy prices drove up the cost of food and ate away the savings that people otherwise would have spent on health care or education.



The human cost of the food crisis has been enormous. Millions of families have been pushed into poverty and hunger. Over the past year and a half, food insecurity led to political unrest in some 30 countries. Yet because the underlying problems persist, we will continue to experience such crises, again and again -- unless we act now. That is why we are here today.

We must make significant changes to feed ourselves, and most especially, to safeguard the poorest and most vulnerable. We must ensure safety nets for those who cannot afford food. We must transform agricultural development, markets and how food is distributed. We must do so based on a thorough understanding of the issues. That is the only possible way we can meet the Goals of Food Security.

Thank You,

Dr. Ing. Uyung Gatot S. Dinata, MT

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Conference Programs

International Conference on Interdisciplinary Food Security (ICIFS) 2017 Andalas University, 19 October 2017

No	Time	Activities
1	07.30-08.30	Registration
08.30-09.00		Opening Ceremony Venue: Seminar Room, Building E, Andalas University
2	08.30-08.40	Welcome Message from the Conference Chair (Dr. Eng. Muhammad Makky)
3	08.40-08.50	Welcome Speech from Head of Institute for Research and Community Services Andalas University (Dr.-Ing. Uyung Gatot S. Dinata)
4	08.50-09.00	Opening Ceremony by Rector of Andalas University (Prof. Tafdil Husni, SE, MBA, Ph.D)
09.00-12.00		Plenary Session Venue: Seminar Room, Building E, Andalas University
6	Session Chair: Dr. Eng. Muhammad Makky	
	09.00 - 09.30	Dr. Ir. Muhammad Prama Yufdy, M.Sc. Indonesian Agency for Agricultural Research and Development Ministry of Agricultural, INDONESIA "The Role of Agricultural Innovation in Supporting Indonesia Food Security Program".
	09.30 - 10.00	Prof. Dr. Mikio Umeda Kyoto University, JAPAN Secretary Gen. of CIGR (Intl. Commission of Agric. and Biosystems Eng.), BELGIUM "Smart Farming in Japan, Past, Present and Future".
	10.00 - 10.30	Prof. Dr. Abdul Rashid Mohamed Shariff Smart farming Technology Research Center, MALAYSIA Universiti Putra Malaysia, MALAYSIA "Multidisciplinary Efforts in the Advancement and

No	Time	Activities
		Applications of Modern Technology in Addressing Concerns of Food Security
	10.30 - 11.00	Prof. Dr. Helmi Andalas University, INDONESIA "Sustainability Science Perspective to Support Interdisciplinary Initiatives in Food Security and Delivery of SGDs"
	11.00 - 11.30	Assoc. Prof. Dam Sao Mai Biotechnology & Food Technology Institute, VIETNAM "The Role of Rice Producing in Ensuring Food Security"
	11.30 - 12.15	Q & A
	12.15 - 13.30	Lunch Break
	13.30 - 17.00	Parallel Sessions Venue: Convention Hall, Parallel Rooms No. 1-5, Andalas University
	17.00 - 17.30	Best Presentation Award Closing Ceremony Venue: Ball Room, Convention Hall, Andalas University

Parallel 1: Room 1, Convention Hall, Andalas University

(Topics: Business-science cooperation to advance food security, Complexity and tools for decision making for food security, Consumer behavior, nutritional security and food assistance programs, Environmental and social sustainability, Global and local analyses of food security and its drivers)

No	Name	Code	Time	Title
Session Chair: Prof. Dr. Rudi Febrimansyah (Andalas University)				
<i>Business-science cooperation to advance food security</i>				
1	Herwenita	ABS-7	13.30-13.42	Swamp Land Optimization in Supporting Food Security and Enhancing Farmers Welfare in South Sumatra Indonesia
2	Adrizal	ABS-12	13.42-13.54	The development of entrepreneurship culture for supporting beef self-sufficiency in West Sumatra
3	Edison	ABS-18	13.54-14.06	Financial Feasibility Study Of Smallholders Palm Oil In Muaro Jambi District Jambi Province
4	Amir Halid	ABS-38	14.06-14.18	Distribution development strategy of corn processed (corn stick and corn dodol) production to achieve corn competitive product market in Gorontalo province
<i>Complexity and tools for decision making for Food Security</i>				
5	Ediset	ABS-5	14.18-14.30	Socio-economic Factors of Farmers Affecting Innovation Implementation on Livestock of Enterprises in West Sumatra
6	Lisa Nesti	ABS-39	14.30-14.42	Competitive Analysis Of Crude Palm Oil In West Sumatera Province To Other Province In Sumatera Island In Domestic Market
<i>Consumer behavior, nutritional security and food assistance programs</i>				
7	Peggy Awanti Nila Krisna	ABS-4	14.42-14.54	The perception and attitude of consumers towards venison from captive breeding as an alternative source of protein
8	Ismed	ABS-11	14.54-15.06	Effects of Temperature and Storage Time on Film with Natural Dye of senduduk Fruit Extract as Smart Packaging in Detecting Spoilage on Chicken Meat

No	Name	Code	Time	Title
<i>Environmental and social sustainability</i>				
9	Rudi Febriamansyah	ABS-62	15.06-15.18	Livelihood Profile and Problem Identification of Upstream Communities in the Upper Catchment of Batang Kuranji, Padang-West Sumatra, Indonesia
10	Fitrimawati	ABS-63	15.18-15.30	Bridging social capital of beef cattle farmer's based on farmer s household welfare
11	Nuning Setyowati	ABS-68	15.30-15.42	Internet adoption by young generation as farming education media in indonesia
<i>Global and local analyses of food security and its drivers</i>				
12	Widia Dara	ABS-9	15.42-15.54	Physico-chemical properties and Antioxidant Activities of Karamuntingang (Rhodomytustomentosa) syrup
13	Dwi Yuzaria	ABS-23	15.54-16.06	Analysis of animal protein food security in west sumatra

Parallel 2: Room 2, Convention Hall, Andalas University
(Topics: Environmental and social sustainability)

No	Name	Code	Time	Title
Session Chair: Prof. Azwar Rasyidin (Andalas University)				
1	Azwar Rasyidin	ABS-10	13.30-13.42	Land evaluation productivity of riced field on different physiography system and parent rocks
2	Triesha Retno Astari	ABS-25	13.42-13.54	X-ray exposure effect of micronucleus of lymphocyte cells frequency for biological dosimeter development
3	Inkreswari Retno Hardini	ABS-27	13.54-14.06	The Recommendation Application of Hotel Location Using VIKOR and Entropy Method in Mobile Access
4	Taufiq Ihsan	ABS-29	14.06-14.18	Behavioural Responses of Nile Tilapia (Oreochromis niloticus) by Sublethal Exposure to Chlorpyrifos (Case Study: Lake Kembar West Sumatra)
5	Yenny Oktavia	ABS-33	14.18-14.30	Communication Strategy in Developing the Capacity of Aquaculture Agribusiness Actors
6	Yusriani Nasution	ABS-36	14.30-14.42	Comparison of Sediment Trap in the Water Catchment Area of Salak and Non-Salak Land at the East AngkolaSubdistrict
7	Yetty Septiani Mustar	ABS-44	14.42-14.54	An analysis of Food Safety: A Challenge and Opportunity to Protect Children from Hazardous Additive Substances
8	Erizal Mukhtar	ABS-46	14.54-15.06	Aboveground biomass and tree diversity in forest conservation of palm oil plantation, West Sumatra, Indonesia
9	Tertia Delia Nova	ABS-49	15.06-15.18	The Effect of Plant Utilization Salviniamolesta (Kiambang) as an Environmentally Friendly Duck Feed
10	Tivany Edwin	ABS-52	15.18-15.30	Effect of chlorpyrifos exposure on gill tissue of tilapia
11	Lucky Zamzami	ABS-58	15.30-15.42	The local wisdom in marine resource conservation for sustainable food security in indonesia

Parallel 3: Room 3, Convention Hall, Andalas University

(Topics: Governance (including science and technology) for food security, Nutrition and public health in food security)

No	Name	Code	Time	Title
Session Chair: Prof. Nalwida Rozen (Andalas University)				
<i>Governance (including science and technology) for food Security</i>				
1	Afdhol Dzikri	ABS-3	13.30-13.42	Application of food and drinking based on android with fcfs method
2	Nalwida Rozen	ABS-17	13.42-13.54	Minapadi-sri pattern on rice cultivation of ir42 variety
3	Dwi Ely Kurniawan	ABS-20	13.54-14.06	Sale Applications of Fishermans Catch with C2C Marketplace Model Using SMS Gateway
4	Yuerlita	ABS-61	14.06-14.18	Farmers Participation in Irrigation Management in NagariPanningahan, Solok Sub-District, West Sumatra
5	Ellina Mansyah	ABS-73	14.18-14.30	TROPICAL FRUIT RESEARCH AND DEVELOPMENT PROGRAMMES OF ITFRI
<i>Nutrition and public health in Food Security</i>				
6	Afriani Sandra	ABS-72	14.30-14.42	ISOLATION AND IDENTIFICATION OF LACTIC ACID BACTERIA FROM TEMPOYAK AS STARTER OF FERMENTED MILK
7	Khalil	ABS-8	14.42-14.54	Physical Properties and Nutritive Values of Oyster Shells as Mineral Sources for Feeding of Poultry
8	Salomo Hutahaean	ABS-13	14.54-15.06	Antidiabetic Effect of SaurauivulcaniKorth. Leaves Extracts on Type II Diabetic Mice Model
9	Salomo Hutahaean	ABS-14	15.06-15.18	Epitope Prediction of Mn-SOD protein of Ganodermaboninense Pat for Antibody Production
10	Sahadi Didi Ismanto	ABS-21	15.30-15.42	The Influence of Drying Temperature on Chemical Components of Herbal Tea Leaves (SpondiasDulcis, Soland)
11	I Ketut Budaraga	ABS-43	15.42-15.54	Estimating Shelf life of Drinking Corens with Arrhenius Method
12	Ferawati	ABS-69	15.54-16.06	The Potential of Lactic Acid Bacteria Isolated From Arenga Pinnata Merr Liquid as a Probiotics

Parallel 4: Room 4, Convention Hall, Andalas University

(Topics: Wisdom Agriculture for Food Security, Reducing risks to food production and distribution from climate change, Social justice and Food Security)

No	Name	Code	Time	Title
Session Chair: Renny Eka Putri PhD (Andalas University)				
<i>Wisdom Agriculture for Food Security</i>				
1	Renny Eka Putri	ABS-42	13.30-13.42	Online Measuring Of Grain Flowrates and Its Measurement Sensitivities with Pitch and Roll Angles
2	Jusuf Wahyudi	ABS-41	13.42-13.54	The concept of erradication of plant pests and diseases for agriculture extension
3	Muhammad Makky	ABS-54	13.54-14.06	Nondestructive evaluation for Moisture Content Determination of Local Rice
4	Muhammad Makky	ABS-55	14.06-14.18	Thermal Influence on CPO Storage
5	Kesuma Sayuti	ABS-60	14.18-14.30	Antioxidant activity of Kolangkaling Jam added with juice of Syzygiumoleana (Pucukmerah) Fruit
<i>Reducing risks to food production and distribution from climate change</i>				
6	Benni Satria	ABS-51	14.30-14.42	Dosage use fungi mycorrhiza arbuscular (fma) on the growth of three genotipe agar wood(aquiliariaspp. l.) to ready release and applications field
7	Armansyah	ABS-53	14.42-14.54	Diversity of Arbuscular Mycorrhizae Fungi (AMF) indigenous in rhizosphere of of Citronella (Andropogonnardus L.) in the dry West Sumatra
8	Rusfidra	ABS-70	14.54-15.06	Estimation of Inbreeding Rate of Pitalah Duck as Germ Plasm at West Sumatra Province
9	Rusfidra	ABS-71	15.06-15.18	A review of west Sumatra local ducks as poultry genetic resources in Indonesia
<i>Social justice and Food Security</i>				
10	Alfian Zein	ABS-15	15.18-15.30	Food security status of fishermen households in the coastal areas of west Sumatra, Indonesia
11	Hasan Ibrahim	ABS-37	15.30-15.42	Empowerment of women farmers in sustainable food management based on local wisdom (Nagari Koto Tuo,

No	Name	Code	Time	Title
				Harau district, Lima Puluh Kota regency, West Sumatra)
12	Gunarif Taib	ABS-22	15.42-15.54	Production Factor Analysis Affecting the Improvement of Local Food Industry Marketing in West Sumatera
13	Yesi Puspita	ABS-74	15.18-15.30	Preserving The Food Security Of Minangkabau Cultures On Asean Economic Community Era : An Semiotic Study Of "Rangkiang" As A Symbolic Representation Of Food Saving
14	Uyung Gatot S	ABS-75	15.54-16.06	Wind Tunnel Experiment On A Propeller Wind Tunnel Model Using Winglets
15	Rahmi Wati	ABS-76	15.06-15.18	Competitiveness Assesment Of Industrial Commodities Of Livestock In Payakumbuh City, West Sumatra

Parallel 5: Room 5, Convention Hall, Andalas University
(Topics: Food production and supply)

No	Name	Code	Time	Title
Session Chair: Prof. Dr. Fauzan Azima (Andalas University)				
1	Yurnalis	ABS-2	13.30-13.42	New Single Nucleotide Polymorphisms Detected in Exon 5 of the Bovine Growth Hormone Gene in Local Cattle Breeds in West Sumatera Province of Indonesia
2	Neswati	ABS-16	13.42-13.54	Encapsulation of Caesalpiniasappan, L. Heartwood with Several of Maltodextrin Concentrations and Drying Techniques on Antioxidant Activity and Antibacterial Activity
3	Dharia Renate	ABS-19	13.54-14.06	Developing technology of natural color: The effect of peel extract of melinjo (Gnetumgnemon L.) on quality of red chili puree
4	Wenny Surya Murtius	ABS-24	14.06-14.18	Isolation and Characterization of Lipid Degraded Bacteria from Galamai Leftovers
5	Irawati Chaniago	ABS-26	14.18-14.30	Weeds associated with wheat crop at alahan panjang, west sumatra
6	Vioni Derosya	ABS-28	14.30-14.42	Effect of Low Temperature Storage for Uncooked Sala Lauak
7	Kusumiyati	ABS-32	14.42-14.54	Non-destructive Detection of Two Cucumber Cultivars Fruit Quality using NIR Spectroscopy
8	Tuty Angraini	ABS-34	14.54-15.06	The Effect of Boiling Time on Polyphenol Compounds and Antioxidant Activity of Ciplukan (PhysalisAngulata.L)
9	Ani Nuraisyah	ABS-40	15.06-15.18	Effect of glutamine and lysine amino acid crosslinking by transglutaminase in rice bread production
10	Anna Noordia	ABS-45	15.18-15.30	Foam Mat Drying of Banana Juice: Experimental Analysis of Banana varieties and Egg Albumen Foam
11	Fauzan Azima	ABS-47	15.30-15.42	Physicochemical and Functional Properties of Tubers Starches
12	Aronal Arief Putra	ABS-65	15.42-15.54	Profile comparison between traditional buffalo fermented milk collected from two farmers in West Sumatra: A Preliminary Study
13	Riry Prihatini	ABS-48	15.54-16.06	Research on banana (musa spp.) in vitro culture

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Abstracts of Keynote Speakers

THE ROLE OF AGRICULTURAL INNOVATION IN SUPPORTING INDONESIAN FOOD SECURITY PROGRAM

Muhammad Syakir

Indonesian Agency for Agricultural Research and Development, INDONESIA

Abstract

Indonesia has now entered the era of global economy, so the concept of agricultural industrialization needs to be enforced, as it is one of the keys to free trade in the global era. The competitiveness of agricultural products must be strengthened, so that Indonesia is not flooded with outer products and only becomes a market or consumer. In this regard, agricultural innovation becomes a very important part that cannot be separated to support the realization of sustainable food security. Indonesian Agency for Agricultural Research and Development (IAARD) has shown its real role in supporting the Indonesia's food security program by producing various agricultural innovation that have been utilized by the community, such as varieties and superior seeds, fertilizers, biopesticides, processing technology as well as agricultural tools and machinery. In order to support sustainable food security, IAARD was developed strategic agriculture innovation. Innovation of research results support the required food security program are the innovation of land resources, water and climate management, seed innovation, cultivation, pest and disease of plant controlling processing of agricultural products for each commodity, and thematic innovations related to somatic embryogenesis, Nano technology, transgenic, and bioindustry farming based on agroecology.

Keywords: food security, agricultural innovation, sustainable agriculture

NON-DESTRUCTIVE DETECTION OF TWO CUCUMBER CULTIVARS FRUIT QUALITY USING NIR SPECTROSCOPY

Kusumiyati, Jajang Sauman Hamdani, Wawan Sutari, Syariful
Mubarok, dan Indah Kurniasari

Universitas Padjadjaran

Abstract

Cucumber fruit quality can be detected by the non-destructive method such as NIR Spectroscopy. NIR determines the content quality of the product rapidly, precise, and accurate. This study aims to predict the quality component of cucumber cultivars Bandana and Wulan by a non-destructive method using portable NIR. The experiment was conducted at Post Harvest Laboratory of Agriculture Faculty of Padjadjaran University and the instrument used to measure the fruit quality in a non-destructive way was the NIR (NirVana AG410, Integrated Spectronics Pty, Ltd, Australia). To determine cucumber internal quality it was done from the evaluations obtained by a non-destructive method (NIR) and a destructive method. The calibration and validation models are built using the partial least squares (PLS) method. The result shows that the quality component of the non-destructive cucumber method using NIR has accuracy values similar to the conventional method. In the observed result quality component, the correlation coefficient (R) is close to 1.00 and the standard of calibration error (SEC) is low or close to 0.00.

THE EFFECT OF BOILING TIME ON POLYPHENOL COMPOUNDS AND ANTIOXIDANT ACTIVITY OF CIPLUKAN (*Physalisangulata* .L)


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Abstract

This study aimed to determine the effect of boiling time on polyphenol compounds and antioxidant activity ciplukan (leaves, stems, fruit, roots and mixture of each plant part). This research used Randomized Block Design (RBD) with five groups (leaves, stems, fruit, roots, and mixture of each part of the plant) and three treatments (10, 20 and 30 minutes). The analysis for the experiment were the antioxidant activity of each part of the plant by using various incubation time, the antioxidant activity and total polyphenol for each treatment. The results showed that the duration of boiling had a significant effect on total polyphenols but no significant effect on antioxidant activity. The highest total polyphenols were obtained on leaves with 30 min boiling duration (1210.5 mg GAE / g), and the highest antioxidant activity was also obtained on leaves with 30 min boiling time (88.32%).

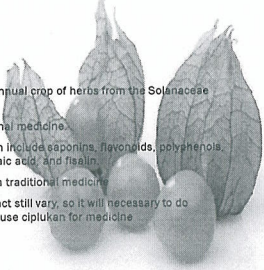




THE EFFECT OF BOILING TIME ON POLYPHENOL COMPOUNDS AND ANTIOXIDANT ACTIVITY OF CIPLUKAN

Tuty Anggraini, Busra Al Hafit and Netty Sri Indeswari


Introduction



- Ciplukan (*Physalis angulata*, L.) is an annual crop of herbs from the Solanaceae family
- Has been widely recognized as traditional medicine.
- Chemical content contained in ciplukan include caponins, flavonoids, polyphenols, chlorogenic acid, sugar substances, elaic acid, and fisalin.
- Ciplukan plants are generally used as a traditional medicine.
- The process to make the ciplukan extract still vary, so it will necessary to do research about boiling time in order to use ciplukan for medicine.

Objectives

- to determine the influence of boiling time on polyphenol compounds and antioxidant activity of boiled water of ciplukan plants (leaves, stems, fruits, roots and whole plants)



Materials and Methods

- ciplukan plant (*Physalis angulata*, L)
- The chemicals for the analysis used in this study were ethanol, aquades, DPPH, methanol, follin-ciocelteu reagents, Na_2CO_3 5%, citric acid, acetic acid

Design

Randomized Block Design (RBD) with five groups and three treatments.

- The treatment provided for each group consisted of:
 - A: Boiling time of 10 minutes
 - B: Boiling time of 20 minutes
 - C: Boiling time of 30 minutes
- The group was the difference parts of the plants, namely: leaves, stems, fruit, roots, and mixture of each part of the plant.

Analysis

- Boiling process of ciplukan plant (total polyphenol and antioxidant activity)
- Making syrup (sensory evaluation)

RESULT AND DISCUSSION

Antioxidant of Raw Material

Material	Antioxidant Activity (%)			
	30 minutes	45 minutes	30 minutes	45 minutes
Leaf	33.71	30.36	42.22	40
Flower	16.6	13.01	21.53	13.71
Stem	37.21	17.65	18.53	87.32
Root	47.84	30.23	41.62	49.93
Whole *	33.73	30.1	40.95	38.12



Total Polyphenols of Boiled Ciplukan

Part of Plant	Total Polyphenol (mg/g) ± Standard Deviation		
	A (30 minutes)	B (45 minutes)	C (30 minutes)
Leaf	922.67 ± 66.75 a	910.67 ± 63.58 b	1210.5 ± 50.02 c
Flower	268.67 ± 55.41 a	426.5 ± 41.39 b	446.83 ± 59.68 c
Stem	458.67 ± 108.65 a	639.67 ± 68.44 b	1003.67 ± 212.02 c
Root	321.5 ± 23.68 b	543.5 ± 100.7 b	603.5 ± 78.04 c
Whole *	237.17 ± 94.5 a	440.33 ± 54.91 b	171.67 ± 104.1 c

Note: (±) Standard of Dev.
The numbers on the same line followed by normal small letters are significantly different according to DMST $\alpha = 5\%$.

- ciplukan leaf had several phenol components, which are: kaemferol-3,7-di-O-glycoside, quersetin-3-O-glycoside, and kaemferol-3-O-glycosides.

Table 1. Total Polyphenol of Boiled Water of Ciplukan Plant

Part of Plant	Antioxidant Activity (%) ± Standard Deviation		
	A (30 minutes)	B (45 minutes)	C (30 minutes)
Leaf	74.29 ± 10.00	64.61 ± 1.91	68.32 ± 0.59
Flower	31.86 ± 6.78	32.14 ± 3.42	35.53 ± 8.54
Stem	51.51 ± 5.21	65.93 ± 8.00	55.17 ± 4.43
Root	32.74 ± 3.86	36.22 ± 9.76	36.81 ± 5.54
Whole *	49.48 ± 3.10	66.48 ± 12.5	49.84 ± 8.04

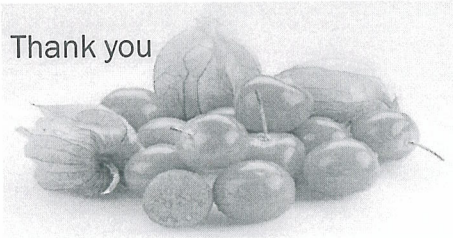
Result of sensory evaluation test of ciplukan leaves syrup

Appreciation	Value of Appreciated Polyphenol
Leaf	4.10 ± 0.01
Flower	1.31 ± 0.17
Stem	2.48 ± 0.59

Conclusion

1. Different treatment of boiling time in each part of ciplukan plant significantly affect the total polyphenols, but no significant effect on the antioxidant activity obtained. Different group had a very significant effect on total polyphenols and antioxidant activity.
2. The best boiling time was treatment C (30 minutes boiling time) because it had the most optimal time efficiency in extracting bioactive components from ciplukan plants maximally.

Thank you





Certificate of Participation



is Awarded to

Tuty Anggraini

as

Presenter

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