THE 9 INTERNATIONAL CONFERENCE
ON BIOSCIENCE AND BIOTECHNOLOGY

BOOK OF ABSTRACTS

Bioscience And Biotechnology for Sustainable Development
Bali, September 20th - 22nd , 2018

Dies Natalis
UNIVERSITAS
UDAYANA

Organized By Agriculture Faculty
of Udayana University

THE 9TH INTERNATIONAL CONFERENCE ON BIOSCIENCE AND BIOTECHNOLOGY

Biosciences and Biotechnology
for Sustainable Development

BALI, SEPTEMBER 20th – 22nd, 2018

Book of Abstracts

ORGANIZED BY FACULTY OF AGRICULTURE UDAYANA UNIVERSITY

Editors:
Rindang Dwiyani, I Nyoman Wijaya, I Gusti Alit Gunadi,
I Md. Agus Dharmadiatmika, I. P. Sudiarta, Naniek Kohdrata
Ni Wyn. Febriana Utami, A.A. Keswari Krisnandhika, Lury Sevita Yusiana,
A.A.A. Wulandira Djelantik and I.G.N.A. Putra Kusuma

TIME SCHEDULE
9th INTERNATIONAL CONFERENCE ON BIOSCIENCE AND BIOTECHNOLOGY

Venue: Post Graduate Building (3rd floor), PB. Sudirman Street, Denpasar – Bali
September 20th – 22nd

First Day: ICBB Conference (September 20th , 2018)

No	Time (local time)	Activities	Committee
1	08.00-09.00	Registration	
2	09.00-09.40	Opening Ceremony:	MC
		a. Opening Dance b. Speech by Chairperson of Organizing Committee c. Direction Note d. Speech by Dean of Faculty of Agriculture, Udayana University e. Speech by Rector of Udayana University and also Open the Conference	I G.A A.Rai Asmiwyati, Ph.D Prof. Dr. Wirawan Prof. Dr. N. Rai Prof. Dr. A.A. Raka Sudewi
3	09.40-10.50	Keynote Speakers a. Prof Dewa Ngurah Suprapta, Ph.D b. Mutsuaki Suzuki, Ph.D	Moderator : Prof. I Gusti Agung Ayu Ambarawati, Ph.D
4	10.50-11.00	Break	
5	11.00-12.30	Invited Speakers a. Prof. Dr. Ryota Sakamoto b. Prof. I Komang Damar Jaya, Ph.D. c. Prof. Dr. A. Priyatmojo d. Q & A	Moderator : Naniek Kohdrata, SP. M.LA
6	12.30-13.30	Lunch Break and Pray Time	
7	13.30-15.00	Invited Speakers a. Kota Katayama, Ph.D b. Daichi Yamada, Ph.D c. I Putu Sudiarta, Ph.D. d. Q & A	Moderator : Wijaya Ph.D
8	15.00-15.30	Break and parallel session preparation	
9	15.30-17.30	Paralel Session	Comittee

		a. Agriculture 1 Plant Disease b. Agriculture 2 Agronomy and Horticulture c. Agriculture 3 Landscape architecture and agribusiness d. Veterinary and Animal Husbandry	
10	19.00-21.00	AOBBC meeting and Dinner	Alit Hotel

Second Day: ICBB Conference (September 21st , 2018)

No	Time (local time)	Activities	Committee
1	9.00-10.50	Invited Speakers a. Prof. Hee-Wan Kan, Ph.D b. Prof. Dr. Deuk-Hwan Lee c. Prof. Koki Homma d. Dr. Ramona Maggini e. Q & A	Moderator : Dr. I Wayan Budiasa
2	10.50-11.00	Break	
3	11.00-12.50	Invited Speakers a. Prof. Masahiro Nogawa, Ph.D. b. Ria Ramadhani (Sales and marketing manager PT. Pandu Biosains). e. Q & A	Moderator : I Putu Sudiarta, Ph.D
4	12.50-14.00	Lunch Break and Pray Time	
5	14.00-17.00	Joint seminar Nagoya Institute of Technology	Committee : Wijaya Ph.D
6	14.00-17.00	Workshop Metagenome (Safitri-Field application scientist PT. Pandu Biosains)	Moderators : Putu Sudiarta, Ph.D
7	14.00-17.00	a. Agriculture 4 Plant Pest b. Agriculture 5 Soil Science c. Agriculture 6 Biotechnology	Committee
7	17.00-18.00	Closing Ceremony Closing Speech by Dean of Faculty of Agriculture	MC Prof. N. Rai

Third Day : ICBB Conference (September 22nd , 2018)
Scientific field trip

SCHEDULE OF PARALLEL PRESENTATION

AGRICULTURE 1 PLANT DISEASE

No	Name Presenter	Title	Institution	Time	Moderator
1	Wiwik susanah rita	Antifungal activity of phenolic compounds from samanea saman (jacq.) Merr) leaves against fusarium solani, pathogenic fungi causing stem rot disease on dragon fruits	Departement of chemistry-faculty of science and maths udayana university	15.30-15.40	I Ketut Suada
2	I made sudarma	The first report: rotten fruit sugar-apple in bali	Agroecotechnology study program, faculty of agriculture, udayana university	15.40-15.50	
3	I ketut sumiartha	Influence of some packages of technology to disease development on cayenne chili plant (capsicum frutescens l.) And long chili (capsicum annuum l.) In the highlands	Agroecotechnology study program, faculty of agriculture, udayana university	15.50-16.00	
4	I wayan suanda	The identification of wilt disease pathogen in tomato plants and the biological control	Prodi pendidikan biologi fpmipa ikip pgri bali	16.00-16.10	
	Discussion			16.10-16.30	
5	I ketut suada	Combination application of trichoderma spp. And lignohumate product to control clubroot disease	Agroecotechnology study program, faculty of agriculture, udayana university	16.30-16.40	I Ketut Sumiartha

		and promote the growth of brassicae plant			
6	Wayan adiartayasa	Variation of symptoms and genetic cause of the cvpd disease on citrus plants in bali	Agroecotechnology study program, faculty of agriculture, udayana university	16.40-16.50	
7	Cokorda javandira	Sustainability of subak farming in denpasar city with use botanical pesticides	Agrotechnology department, agriculture faculty, university of mahasaraswati denpasar	16.50-17.00	
8	Rai, I N.	Identification of endomychorrhizal variability in rooting area of snake fruit morphologically and genetically	Agrotechnology Department, Agriculture Faculty, University of Mahasaraswati Denpasar	17.00-17.10	
	Discussion			17.10-17.30	

AGRICULTURE 2 AGRONOMY AND HORTICULTURE

No	Name Presenter	Title	Institution	Time	Moderator
1	Iga. M.s. agung	Panicle removal increased stalk ethanol production of sweet sorghum [sorghum bicolor (l.) Moench]	Faculty of agriculture udayana university	15.30-15.40	Prof. Dr. Ridang Dwiyani
2	Ni luh made pradnyawathi	Influence of temperature on the quality of cacao beans (theobroma cacao l.) On various fermentation methods conducted by local farmers	Faculty of agriculture udayana university	15.40-15.50	
3	Rahman hairuddin	increased plant growth of orchid vanda species using some concentrations of auksin and giberelin in in vivo	Universitas cokroaminoto palopo	15.50-16.00	
4	Taufiq hidayat	Increased roselle seed germination (hibiscus sabdariffa l.) Through various dormancy breaking techniques	Balai penelitian tanaman industri dan serat	16.00-16.10	
	Discussion			16.10-16.30	
5	Mayasari yamin	Sugarcane callus morphology on multiple concentrations of 2,4 dichlorophenoxy acetic acid) and indole acetic acid in-vitro	Universitas cokroaminoto palopo	16.30-16.40	

6	I m. Mahaputra wijaya	Isolation and identification of high-potential alcohol producing yeast in lau from karangasem-bali using uv-visible spectroscopy	Department of agro-industrial technology udayana university,	16.40-16.50	
7	Ni kadek dwipayani lestari	Development of leaf culture lilium longiflorum thunb. With combination treatment naa and bap plant growth regulator	Dhyana pura university	16.50-17.00	
8	I made sukadana	Ethanol extract of onion (allium cepa l.) For wound burns treatment	Departement of chemistry-faculty of science and maths udayana university	17.00-17.10	
	Discussion			17.10-17.30	

AGRICULTURE 3 LANDSCAPE ARCHITECTURE AND AGRIBUSINESS

No	Name Presenter	Title	Institution	Time	Moderator
1	Fabiola Baby	Challenge to Integrating Biodiversity Management in Landscape Planning and Design	Universitas Sam Ratulangi	14.00-14.10	Prof. I Gusti Agung Ayu Ambarawati, Ph.D
2	Naniek Kohdrata	Park Functionality on Service distance range: Case Study Lapangan Puputan Badung I Gusti Ngurah Made Agung, Denpasar	Landscape Architecture Study Program, Faculty of Agriculture, Udayana Universty	14.10-14.20	
3	Anak Agung Keswari Krisnandika	Landscape character identification of settlement at three development region of badung regency	Landscape Architecture Study Program, Faculty of Agriculture, Udayana University	14.20-14.30	
4	I Dewa Putu Oka Suardi	Productive business development in efforts to strengthen Subak as agribusiness institution in badung regency	Agribusiness Study Program, Faculty of Agriculture, Udayana University	14.30-14.40	
	Discussion			14.40-15.00	
5	I Gusti Agung Ayu Ambarawati	Improvement of Cocoa Farmer's Bargaining Position through Institutional Strengthening	Agribusiness Study Program, Faculty of Agriculture, Udayana University	15.00-15.10	Anak Agung Keswari Krisnandika SP. M.Si

6	Made Antara	Economic perspective of bioscience and biotechnology	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.10-15.20	
7	Gede Mekse Korri Arisena	Area mapping and implementation of agriculture insurance for the subak organization in bali province	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.20-15.30	
	Discussion			15.30-15.50	

VETERINARY AND ANIMAL HUSBANDRY

No	Name Presenter	Title	Institution	Time	Moderator
1	I Ketut Berata	Lead heavy metal contamination in spinal bone marrow of bali cattle slaughtered at traditional slaughter house	Veterinary Faculty of Udayana University	15.30-15.40	Ni Wayan Febriyana Utami, SP, M.Si
2	Kadek Karang Agustina	Soil-transmitted helminth infection on free-roam dogs in bali	Departmen of Veterinary Public Health, Faculty of Veterinary Medicine, Udayana University	15.40-15.50	
3	Anak Agung Ayu Mirah Adi	Molecular characterization of virulent NDV Genotype VII from layer chicken in Tabanan Bali	Veterinary Faculty of Udayana University	15.50-16.00	
	Discussion			16.10-16.30	
4	I Wayan Sudira	The Potential of Temulawak Capsule to Increase Antibody Titer in Kintamani's Puppies After Rabies Vaccination	Veterinary Faculty of Udayana University	16.30-16.40	Prof. Dr. Anak Agung Ayu Mirah Adi
5	Made Sriasih	Gastrointestinal parasite infection on Bali cattle raised in semi-intensive farming system in Dompu, Sumbawa Island: a preliminary study	Fakultas Peternakan Universitas Mataram	16.40-16.50	

6	Gusti Ayu Mayani Kristina Dewi	Quality of egg lohmann brown gaves ration flour skin dragon fruit (hylocereus polyrhizus) fermentasion	Fakultas Peternakan Universitas Udayana	16.50-17.00	
	Discussion			17.00-17.20	

AGRICULTURE 4 PLANT PEST

No	Name Presenter	Title	Institution	Time	Moderator
1	I wayan supartha	The emergence phenomenon of new pests species, liriomyza spp. (diptera: agromyzidae) and their local parasitoid readiness in vegetable crops in bali	Agroecotechnology study program, faculty of agriculture, udayana university	15.30-15.40	Dr. G. K. Susrama
2	I nyoman wijaya	The contagion of disease cvpd (citrus vein of phloem degeneration) by diaphorina citri kuwayama (homoptera: psyllidae) in plants siam citrus	Agroecotechnology study program, faculty of agriculture, udayana university	15.40-15.50	
3	I wayan susila	Fruit flies species and its parasitoid associated on star fruit plant (averrhoa carambola l.) In gianyar regency.	Agroecotechnology study program, faculty of agriculture, udayana university	15.50-16.00	
	Discussion			16.00-16.20	
4	Ni putu eka pratiwi	Population development and preference of thrips parvispinus karny (thysanoptera: thripidae) on parts of the large chili plant (capsicum annuum l.)	Students of the dry land agriculture master program, faculty of agriculture, udayana university	16.20-16.30	Prof. Dr. I Wayan Supartha
5	Latizio Beni da Costa Cruz	Factors Affecting the Incidence of Color Polymorphism in Beet Armyworm, Spodoptera exigua	Students of the Dry Land Agriculture Master Program,	16.30-16.40	

		(Hubner)(Lepidoptera: Noctuidae) on Onion	Faculty of Agriculture, Udayana University		
6	Hamid	Response of Liriomyza chinensis Kato (Diptera: Agromyzidae) on Biophysical and Biochemical Characteristics of Onion Varieties (Allium cepa L.)	Doctoral Program (S3) of Agricultural Science	16.40-16.50	
	Discussion			16.50-17.10	

AGRICULTURE 5 SOIL SCIENCE

No	Name Presenter	Title	Institution	Time	Moderator
1	Nengah Netera Subadiyasa	Bali plus mineral fertilization for improving production, quality and farm income gumitir flower	Agroecotechnology study program, faculty of agriculture, udayana university	14.00-14.10	Dr. Anak Agung Istri Kesumadewi
2	I Made Mega	Application of Gaharu-C Fertilizer Formulation in Agarwood Plant (Gyrinops versteegii) on Specific Location in Tabanan Regency	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	14.10-14.20	
3	Ni Made Trigunasih	Agroecosystems of land suitability in kuta selatan district area for commodity development hortikultura fruits, in badung district, bali	Agroecotechnology study program, faculty of agriculture, udayana university	14.20-14.30	
4	Indayati Lanya	Ertilizer and fertilizer residues on kailan production (brassica oleracea l) and beetroot (beta vulgaris l) in andisol soil, baturiti, tabanan bali	Agroecotechnology study program, faculty of agriculture, udayana university	14.30-14.40	
	Discussion			14.40-15.00	
	Break			15.00-15.10	
5	Ni Luh Kartini	Organic Integrated Agriculture Systems Sabicaitaa Increases Soil Fertilizer And Farmer Income	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.10-15.20	

		In Banjar Yeh Mampeh Desa Batur Selatan			
6	Baso Amir	Combination of Sago Pulp and Fertilizer of Cow Manure on Nodule Root Effectiveness of Generative Phase Related to Peanut Yield on Acid Soil	Cokroaminoto Palopo University	15.20-15.30	
7	Ida Ayu Putu Suryanti	The Macro Nutrient Level and Number of Bacteria in Liquid Organic Fertilizer Combination From Banana Stems and Coconut Fibers with Local Microorganism MA-11 as Bioactivator	Ganesha University of Education	15.30-15.40	
8	Ni Nengah Soniari	Isolation and Identification of Azotobacter of some type of land use in Jegu Vilages, Penebel District, Tabanan	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.40-15.50	
	Discussion			15.50-16.10	

AGRICULTURE 6 BIOTECHNOLOGY

No	Name Presenter	Title	Institution	Time	Moderator
1	I Made Siaka	Speciation and bioavailability of pb and cd in sediment of badung river estuary	Chemistry Department of Maths and Sciences Faculty, Udayana University	14.00-14.10	Vederis Leunardus
2	Dewi Syahidah	Does interferon (IFN) exist in C. quadricarinatus?	IMRAFE, Gondol, Bali	14.10-14.20	
3	I Gusti Ngurah Santosa	The waste water potential of lagoon itdc nusa dua as a renewable water source	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	14.20-14.30	
4	I Ketut Budaraga	Study of Organoleptic Quality of Fresh Corens Drinks with the Use of Various Types of Citrus	Universitas Ekasakti	14.30-14.40	
	Discussion			14.40-15.00	
	Break			15.00-15.10	
5	Betty Indriati Sagala	Propagation of Seedless Lime (Citrus aurantifolia) with Terminal Shoot Explants and Lateral Buds.	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.10-15.20	Prof. Dr. I Gusti Ngurah Santosa
6	Vederis Leunardus	The DNA Mutations of Some Citrus Plants in Bali that Harboring CVPD r DNA Fragment Indicating Some Different Characters	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.20-15.30	

7	Trian Wangsa Purwanto	Histophatology Structure of Siam Citrus Petiole (Citrus Nobilis L. Var. Microcarpa) Infected by (Citrus Vein Phloem Degeneration) (CVPD) at Mild and Severe Attack Rates.	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.30-15.40	
8	Whisnu Ida Bagus	The Alignment between CVPD r Gene from Resistant and non-Resistant Citrus Plants in Bali and its Homology with Gene from NCBI Gene Bank	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University	15.40-15.50	
	Discussion			15.50-16.10	Discussion

POSTER PRESENTER

No	Name	Title	Institution
1	Desak Nyoman Dewi Indira Laksmi	Comparison of head index and body morphometric between white, black, brown and mixed colored fur male kintamani dogs	Veterinary Faculty, Udayana University
2	Anak Agung Ngurah Badung Sarmuda Dinata	In vitro study – addition of moladef in ration to rumen fermentation, dry matter and organic matter digestibility	Balai Pengkajian Teknologi Pertanian
3	Luh Gde Sri Surya Heryani	Study of morphology and morfometry of kintamani dog duodenum	Fakultas Kedokteran Hewan, Unud
4	Anak Agung Ngurah Badung Sarmuda Dinata	Nutrient content of coffee berries husk fermented with different types of inoculant	BPTP Balitbangtan Bali
5	Made Pharmawati	Potency of enhalus acoroides as source of chlorophyll	Biology Department, Faculty of Mathematics and Natural Sciences, Udayana University, Kampus Bukit Jimbaran, Bali
6	Ida Ayu Pasti Apsari	Isolation type of contamination Parasites in Soil	Veterinary Medicine
7	Ni Kadek Yunita Sari	Antifungi activities of white frangipani leaf extract (plumeria acuminata) on the growth of candida albicans	Dhyana Pura University
8	Putu Udayani Wijayanti	Comparative Study of Ritual Implementation in Farming Related to Subak Sustainability in Subak Anggabaya Denpasar and Subak Gde Sukawati Gianyar	Departement of Agribusiness, Faculty of Agriculture, Udayana University

9	Devi Ulinuha	Relation of carbon, nitrogen and bacteria in sediment of badek and mewek river, malang, indonesia	Brawijaya University / Udayana University
10	Ni Luh Utari Sumadewi	The Application of a Substance Natural Colors of An Extract Banana Excrescence Ketip (Musa paradiasciaca L.) As on Cloth Cotton Textile Dye	Prodi Kesehatan Masyarakat Universitas Dhyana Pura
11	I Nyoman Puja	Study of soil fertility status to determine specific location fertilizer recommendation of paddy	Faculty of Agriculture Udayana University
12	I Putu Sudiarta	Influence of Some Packages of Technology on Pests Development on Chili Plants in Highland Area	Faculty of Agriculture Udayana University
13	Ketut Ayu Yuliadhi	The potential of diadegma semiclausum Hellen as the natural enemy of Plutella xylostella l. on cruciferae plants	Udayana University
14	Ni Made Susun Parwanayoni	Synergistic effectivity of mansoa alliacea and allamanda cathartica leaf extracts controlling stem rot disease in peanut plants (Arachis hypogaea) at the greenhouse	Udayana University
15	Made Sritamin	Homology of specific protein 16 kda isolated from infected siam bangli citrus leaf and spesific protein isolated from invective insect vector diaphorona citri by western blot	Faculty of Agriculture, Udayana University
16	Alfi Hermawati Waskita Sari	Prevalence and Intensity Trichodina sp. On Nile Tilapia (Oreochromis niloticus) in the Badung River, Bali Province for the Biomonitoring of Ecosystem	Department of Aquatic Resource Management, Faculty of Marine Science and

			Fisheries, Udayana University, Bali, Indonesia
17	Widhiantini	The Role of Indigeneous Institution of Subak in Retarding Farm Land Conversion	Faculty of Agricultural, Udayana University, Bali
18	I Wayan Widyantara	Economies of Scale Use of Red Chilli Farming Production Factors	Faculty of Agricultural, Udayana University, Bali
19	Ni Nengah Darmiati	Population Dynamics of Pests and Natural Enemies of Rice Plants (oryza sativa L.) In Kertalangu Village, East Denpasar	Faculty of Agricultural, Udayana University, Bali
20	A.A. Ayu Agung Sri Sunari,	Parasitoid Competition Power of Neochrysocharis formosa and Neochrysocharis okazakii in utilizing the host Liriomyza spp.	Faculty of Agricultural, Udayana University, Bali
21	Hishar Mirsam	The role of cabbage waste filtrate as biologigal control of phytophthora palmivora and bio-decomposer of cocoa pod waste	Universitas Cokroaminoto Palopo
22	I Gusti Alit Gunadi	The effect of composition and content of water media plants to high growth of grape seeds (vitis vinifera l.) Var. Pb-89	PS.Agroekoteknologi
23	Eka Sudartik	Utilization (trichoderma sp) as a biological agent fusarium screen disease in diamond plants luwu district	Universitas Cokroaminoto Palopo
24	Nining Triani Thamrin	The population and intensity of the pest on several rice varieties in sub district turikale regency of maros	Universitas Cokroaminoto Palopo

25	Sumantri	Effect of Characteristics of Cocoa Farmers on Farmers Group Dynamics in Pengkendekan Village, Sabbang District, North Luwu Regency	Universitas Cokroaminoto Palopo
26	Sang Ayu Made Intan Putri Rahayu	Distribution, Population and Damage Percentage of Citripestis sagittiferella Moore (Lepidoptera: Pyralidae) at Bali Citrus cultivation Center	Faculty of Agriculture, Udayana University
27	Kadek Adi Marthana	The Distribution, Population and Damage Percentage of Citripestis Sagittiferella Moore (Lepidoptera:Pyralidae) on Large Citrus Fruits in Bangli and Gianyar Regencies.	Faculty of Agriculture, Udayana University
28	Wakifatul Hisani	Optimization of tambak land use and poc application in improving growth and production of rice plant (oryza sativa l.) In bone district	Universitas Cokroaminoto Palopo
29	I Nyoman Gede Ustriyana	Analysis of Farmers Attitude towards Developing Agricultural Cooperative in Subak Jatiluwih	Faculty of Agriculture Udayana University
30	I Made Mega Adnyana	Utilization extract of chromolaena odorata and imperata cylindrika to control thrips parvispinus karny (hemiptera: aphididae) on the chili plants (capsicum annuum l.)	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University
31	I Dewa Putu Singarsa	Treatment of plant powder treatment (root, rod and flower) tuba (derris elliptica) on nematoda attack of roots on greenhouse	Agroecotechnology Study Program, Faculty of Agriculture, Udayana University

32	Anak Agung Istri Mirah Dharmadewi	Effect of adding mushrooms Trichoderma sp. To aronan rice as organic fertilizer to the vegetative growth of tomato plants	FPMIPA IKIP PGRI BALI
33	Nyoman Febriani	Population Density and Presentage of damage Red Mite *Tetranychus urticae* Koch (Acarina : Tetranychidae) on Siam Citrus (*Citrus nobilis* Lour) treated with Acaricide Pyridaben 135 g/l	Agroecotechnology Studies Program, Faculty of Agriculture, University of Udayana
34	Ni Wayan Suniti	Diversity of rizospher micoflorm of healthy and wilt diseases of chili plants (Capsicum frutescens l.) At kertalangu village east denpasar	Agroecotechnology Studies Program, Faculty of Agriculture, University of Udayana
35	Dwi Widaningsih	Range of Alternative Hosts for Kebul Flea Bemisia tabaci (Gennadius) in Planting Chili Rawit (Capsicum frustescent) in Kerta Village, Payanagan District, Gianyar Regency	Agroecotechnology Studies Program, Faculty of Agriculture, University of Udayana
36	M.S Sumarniasih	Prediction of erosion and planning of conservation using vegetative method in bangli regency bali province	Agroecotechnology Studies Program, Faculty of Agriculture, University of Udayana
37	Regina I.M. Banoet	Isolation and molecular identification of local yeast isolated from the mur red laru used for bread making with cassava flour subtitute	Artha Wacana Christian University, Kupang, Jl.Adi Sucipto, Oesapa Kupang
38	Dharma Fidyansari	The factors that influence consumer behaviour towards processed products purchase decision sago (kapurung) in the town of palopo	Universitas Cokroaminoto Palopo
39	Trisna Agung Phabiola	Insident of yellow disease in yard long bean plants caused by vektor kutu kebul (bemicia tabbaci) in Bali	Faculty of Agriculture Udayana Universty

40	Ratna Komala Dewi	Risk analysis of rice production in subak natak tiyis, kedewatan irrigation area, bali	Agribusiness Departement Faculty of Agriculture, Udayana University
41	Rindang Dwiyani	Callus induction on the explant of banana's flower using 2,4 dichlorophenoxyacetic (2,4-d)	Faculty of Agriculture, Udayana University
42	Ms. Nyoman Putri Sumaryani	Utilizing of banana corm local mikroorganism (MOL) to accelerate composting cow dung	IKIP PGRI BALI
43	I Nengah Suka Widana	Identification of Escherichia coli on Black grass jelly at Abiansemal District Traditional Market	Prodi Pendidikan Biologi FPMIPA IKIP PGRI Bali
44	Made Wirapartha	Quality of eggs duct to store at room temperature	Fakultas Peternakan Universitas Udayana
45	I Kadek Surya Adi Putra	Part of carcass broiler chicken which gave the ration with flour skin dragon fruit (Hylocereus polyrhizus) fermentasion	Fakultas Peternakan Universitas Udayana
46	Daniar Kusumawati	Effect of carotenoid for growth, total caroten, vitality, and plasma lipid in coral trout grouper (Plectropomus leopardus)	Balai Besar Riset Budidaya Laut dan Penyuluhan Perikanan
47	Anak Agung Gede Sugianthara	Identification and morfometri garden cemetery on district ubud	Study Program of Landscape Architecture, Agriculture Fakulty of Udayana University
48	Eko H.A. Juwaningsih,	Substitution of wood powder media with cardboard on the growth and result of white oyster mushroom	Technology of Horticultural Industry Department of Crop and Horticulture

			Politeknik Pertanian Negeri Kupang
49	I Gusti Agung Ayu Rai Asmiwyati	Detection of vegetation density in denpasar using sentinel 2a	Study Program of Landscape Architecture, Agriculture Fakulty of Udayana University
50	Wiraatmaja, I W.	Efforts to produce off season production of guava (psidium guajava cv. kristal) and improvement of fruit quality through fertilization and prunning	Department of Agroecotechnology Faculty of Agriculture, Udayana University;
51	I Made Agus Dharmadiatmika	Planing and design concept of pinge tourism village with the approach to community participation in Tabanan district, Bali province	Study Program of Landscape Architecture, Agriculture Fakulty of Udayana University

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Isolation and Identification of High-Potential Alcohol Producing Yeast in Lau From Karangasem-Bali Using Uv-Visible Spectroscopy

I M. Mahaputra Wijaya*, I W. Wisma P. Putra, Nebay C. Simbolon, and Yeni V. Simatupang

Department of Agro-industrial Technology Udayana University, Jimbaran Campus Complex, Indonesia, 80361
*Corresponding author: mahaputra_wijaya@unud.ac.id

ABSTRACT

The people of Karangasem regency traditionally produces alcoholic Balinese drink called arak using ingredients that come from nature and without the use commercial dry yeast. To produce Balinese arak and to trigger the alcohol fermentation, they add starter called “lau” into the coconut sap because it was thought that it contained microorganisms that could convert sugar into alcohol during fermentation. Lau usually derived from dry coconut fiber or from the bark of the Bayur tree (Pterospermum javanicum). The alcohol content produced when applied to 2-stage distillation could be greater than 90%, which is potentially used as biofuel. The existence of microorganisms in this lau is interesting to be isolated and identified because of its superiority in producing high levels of ethanol at room temperature fermentation. We aimed to isolate and identify one type of micro-organism, namely the potential yeast from the area of the arak industry in Karangasem Bali from the lau. The potential yeasts was selected by the use of anti-bacterial agent, and then the level of alcohol produces by each promising candidates was determined by UV-visible spectroscopy. The most potential isolate was found to be having greater alcohol production level than control experiment from commercial yeast. The morphological and biochemical properties, the optimum alcohol production, and also the species identity was then identified.

Keywords: arak, lau, alcohol, biofuel, uv-visible spectroscopy.

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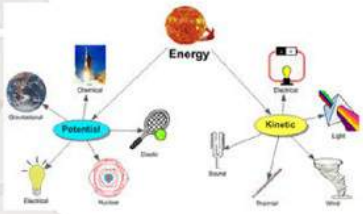
Isolation and Identification of High-Potential Alcohol Producing Yeast in Lau From Karangasem Bali Using UV-Visible Spectroscopy

I M. Mahaputra Wijaya, Nebay C. Simbolon, I W. Wisma P. Putra
Yeni V. Simatupang, I. B. W. Gunam, P. Suwariani

Department of Agro-industrial Technology
Udayana University

PENDAHULUAN (1)



Kebutuhan energi meningkat, tidak sesuai dengan ketersediaan energi

Bioenergi:
- Bioetanol
- Biogas
- Biodiesel

Bioetanol dapat diperoleh dengan fermentasi bahan-bahan yang mengandung glukosa dan dibantu *Saccharomyces*

PENDAHULUAN (2)

Kabupaten Karangasem dikenal menjadi penghasil arak

Karena besarnya kandungan alkohol pada arak yang dihasilkan, kemungkinan besar terdapat species saccharomyces unggul di daerah tersebut.

PENDAHULUAN (3)

Pada saat fermentasi, petani arak menambahkan *lau* sebagai *starter*.

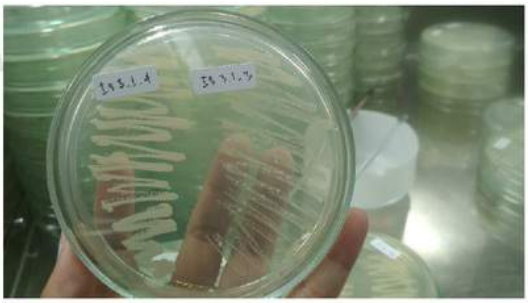
Lau terdiri dari dua jenis yaitu serabut kelapa dan kulit pohon bayur.

Serabut kelapa *(Cocos nucifera)*

Kulit pohon bayur *(Pterospermum javanicum)*

HASIL DAN PEMBAHASAN

Hasil isolasi dan pemurnian isolat



- Dari 95 isolate, yangmemenuhi kriteria khamir sebanyak 71 isolat.
- Ciri-ciri koloni khamir, berwarna putih susu atau putih kekuningan, memiliki spora dan tidak berlendir (Pelczar, 1988).
- Khamir dapat menghasilkan bau tape (alkohol).

HASIL DAN PEMBAHASAN

Screening

1. Produksi gas

Dari 71 isolat yang diuji ada 66 isolat yang menghasilkan gas CO_2 hasil dari proses fermentasi glukosa, selain etanol.

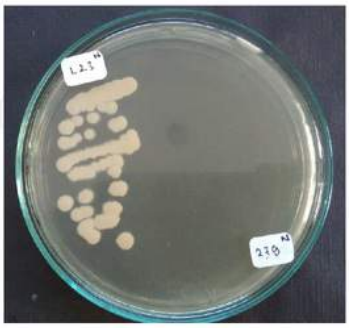
Hasil produksi gas yang diamati selama 3 hari dikelompokkan menjadi 4 yaitu:

- kelompok isolat gas banyak
- kelompok isolat gas sedang
- kelompok isolat gas sedikit
- kelompok isolat gas sangat sedikit

HASIL DAN PEMBAHASAN

Screening

2. Hasil penambahan antibakteri dan pengamatan makrokopis



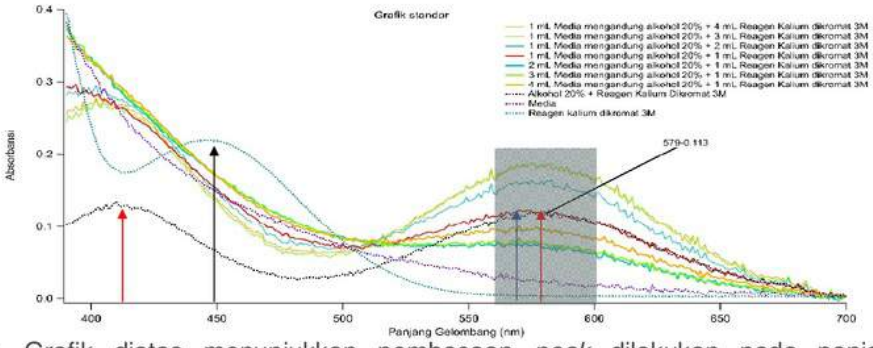
- Pada uji ini, ada 2 isolat yang mati dari 66 isolat yang ditumbuhkan.
- Isolat memiliki bentuk circular (bundar), dengan diameter 1 mm, berwarna putih susu, tepiannya entire (rata atau halus), dan sudut elevasi cembung seperti tetesan air (convex).
- ---> Saccharomyces sp.

HASIL DAN PEMBAHASAN

Screening

3.Hasil uji kuantitatif (1)

Grafik Standar



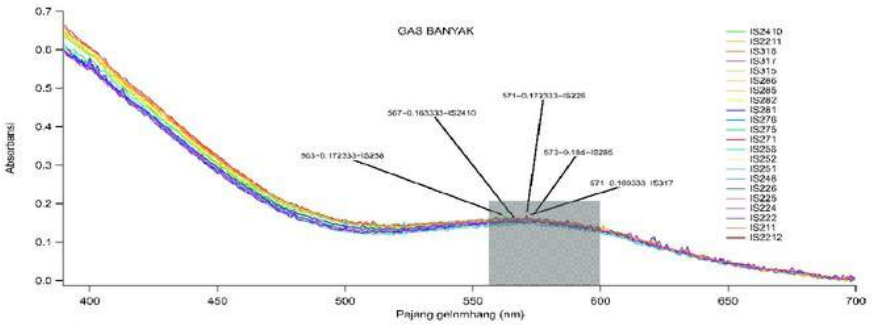
- Grafik diatas menunjukkan pembacaan *peak* dilakukan pada panjang gelombang 560–600 nm.

HASIL DAN PEMBAHASAN

Screening

3.Hasil uji kuantitatif (2)

Grafik Isolat



- Grafik hasil scanning isolat (panjang gelombang-absorbansi-kode isolat)
- IS 285 memiliki peak tertinggi pada panjang gelombang 573 nm dengan nilai absorbansi 0,184.

HASIL DAN PEMBAHASAN

Tabel isolat potensial

Kode Isolat	Panjang gelombang (nm)	Absorbansi	Keterangan
IS2410	567	0.163	Produksi gas banyak
IS317	571	0.169	Produksi gas banyak
IS258	563	0.172	Produksi gas banyak
IS226	571	0.172	Produksi gas banyak
IS285	573	0.184	Produksi gas banyak
IS253	574	0.177	Produksi gas sedang
IS274	574	0.207	Produksi gas sedang
IS123	562	0.179	Produksi gas sangat sedikit
IS244	582	0.192	Produksi gas sangat sedikit

- Hasil produksi gas tidak linier dengan absorbansi yang didapatkan, dimana IS 274 (0,207) dengan absorbansi tertinggi berasal dari kelompok produksi gas sedang.

HASIL DAN PEMBAHASAN

Total etanol

Kode Isolat	Total padatan terlarut awal (%brix)	Total padatan terlarut akhir (%brix)	Δ Total padatan terlarut (% brix)	Total etanol (mL)
IS 258	18.93 ± 0.06	6.53 ± 0.90	12.4	86.85 ± 2.74
Alcotech	18.97 ± 0.06	10.40 ± 0.40	8.57	60.73 ± 4.55
IS 317	18.00 ± 0.35	16.87 ± 0.12	1.13	7.21 ± 1.95
IS 253	17.93 ± 0.23	16.07 ± 1.81	1.86	6.29 ± 0.11
IS 274	18.47 ± 0.12	17.33 ± 0.50	1.14	4.50 ± 0.77
IS 285	19.80 ± 0.10	18.17 ± 0.49	1.63	3.26 ± 0.96
IS 2410	18.33 ± 0.12	17.47 ± 0.31	0.86	2.63 ± 0.99
IS 123	18.47 ± 0.12	16.87 ± 0.12	1.6	2.37 ± 0.95
IS 244	17.90 ± 0.10	17.53 ± 0.42	0.37	1.82 ± 1.58
IS 226	18.13 ± 0.12	17.67 ± 0.23	0.46	0.98 ± 0.19

- Total etanol tertinggi dihasilkan dari isolat IS 258 (86,85/900 mL volume fermentasi). Lebih tinggi dari *control experiment* menggunakan dry yeast Alcotec (60,73/900 mL volume fermentasi).
- IS 285 mengalami penurununan total padatan terlarut cukup tinggi sebesar 12,4% brix hal linier dengan total etanol yang diperoleh.

HASIL DAN PEMBAHASAN

Tabel isolat potensial

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- Isolat potensial IS 258 berasal dari kelompok gas banyak

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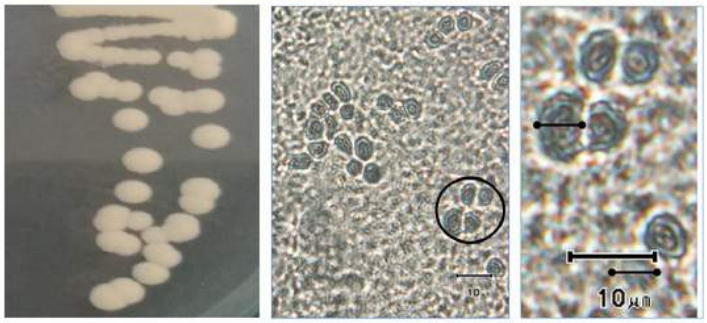
HASIL DAN PEMBAHASAN

Identifikasi Morfologi



(a) Morfologi makroskopis (b) morfologi mikroskopis perbesaran 100x dan 200x

- Secara makroskopis, koloni terbaik IS 258 memiliki bentuk bulat, dengan tepian rata, dan sudut elevasi koloni cembung seperti tetesan air.
- Secara mikroskopis ukuran sel diperkirakan 3-5µm, berbentuk oval, dan tidak memiliki hifa, mirip dengan *Saccharomyces* penelitian Nurhariyati *et al.,* 2004.

KESIMPULAN DAN SARAN

Kesimpulan

1. Isolat yang telah diisolasi dapat memproduksi etanol yang dengan kemppuan berbeda-beda dan diperoleh satu yang paling isolat potensial.
2. Isolat IS 258 menjadi isolat paling potensial dalam memproduksi etanol yaitu 86.85 mL setelah fermentasi 10 hari dari 900 mL volume awal fermentasi.
3. Isolat IS 258 diperkirakan adalah khamir genus Saccharomyces sp.

Saran

1. Perlu dilakukan identifikasi sekuensing DNA isolat IS 258 untuk mengetahui spesies dari khamir potensial penghasil bioetanol.
2. Perlu dilakukan penelitian lebih lanjut untuk mengetahui pH, suhu, dan jumlah starter optimum untuk produksi bioetanol yang lebih optimal menunggakan IS 258.

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