

Planta Tropika



0 2 1 6 4 9 9 X
E-ISSN: 2528-7079

Vol. 11 No. 1
February 2023



Genetic Diversity and Relationship of Durian (*Durio* spp.) Germplasm Based on the Internal Transcribed Spacer (ITS) Region: In Silico Analysis

DINDIN HIDAYATUL MURSYIDIN, MUHAMMAD IRFAN MAKRUF, MUHAMMAD FITRI, NICO ALIANNUR

Physiological Response, Growth, and Yield of Edamame Soybean (*Glycine Max* L. Merr.) Under Foliar Application of Nano Cattle Bone Ash in Entisol

SITI MAULIDAYANTI, DIDIK INDRADEWA, EKO HANUDIN

Measuring Instant Light-Response Curve of Chlorophyll Fluorescence in Sago Palm (*Metroxylon sagu* Rottb.) Leaves: Different Time Measurements on Dark and Light-Adapted Leaf

AIDIL AZHAR, KOKI ASANO, HIROSHI EHARA

Arbuscular Mycorrhizal Fungi as Seed Coat of Soybean Grown on Ultisol Applied with Various Doses of Lime

ARSUKMAN EDI, JAMILAH, MILDA ERNITA

The Improvement of Oil Palm Seedling through Shade, Manure and Organic Liquid Fertilizer in Ultisol Media

MUHIMMATUL HUSNA, UMI SALAMAH, WELLY HERMAN, WINALIA AGWIL

Effects of Abscisic Acid on Bioactive Compounds and Postharvest Quality of Climacteric and Non-Climacteric Fruit

NAFI ANANDA UTAMA, PRAWIDYA TYAS UTAMI, MUHAMMAD GALANG AKBAR YULANSYAH DARYANTO, SUKURIYATI SUSILO DEWI

Growth and Yield Performance of Upland and Lowland Rice Varieties Under Narrow-Wide Row Planting Systems in East Nusa Tenggara, Indonesia

OKY DWI PURWANTO, YULIA PUJIHARTI, RIZKY PRAYOGO RAMADHAN

Qualitative Characteristics and Genetic Parameters of F3 Purple Corn Lines from Open Pollination Hybridization

RIMA MELATI, ERIES DYAH MUSTIKARINI, GIGIH IBNU PRAYOGA



Planta Tropika

Planta Tropika focuses and emphasized on the exploration and development of the tropical plant biodiversity related to various themes, topics, and aspects as follows: Agro-Biotechnology, Plant Protection, Soil Science, Post-Harvest Science and Technology, Plant Production. The subscriptions for one year : IDR 350.000.

Editor in Chief

DINA WAHYU TRISNAWATI, S.P., M.AGR., PH.D.
Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia

Main Handling Editor

PROF. DR. IR. Y. ARIS PURWANTO, M.SC.
Department Mechanical Engineering and Biosystems, Faculty Of Agricultural Technology, IPB University, Bogor, Indonesia

CHANDRA KURNIA SETIAWAN, S.P., M.SC.
Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia

Editorial Board Regional America

MUHAMMAD HASEEB, PH.D.
College of Agriculture and Food Sciences, Center for Biological Control, Florida Agriculture and Mechanical University, Tallahassee, United States

Editorial Board Regional Europe

PROF. MARIA ROSA MOSQUERA-LOSADA
Department of Crop Production and Engineering Projects, University of Santiago de Compostela, Lugo, Spain

Editorial Board Regional Africa

HAYETTE BOUZERAA
Larbi Tebessi University, Constantine Road, Tebessa, Algeria

Editorial Board Regional Australia and Oceania

PROF. IR. TRIWIBOWO YUWONO, PH.D.
Agricultural Microbiology Department, Faculty of Agriculture, Universitas Gadjah Mada, Yogyakarta, Indonesia

DR. ABEER ABURUMMAN
National Agricultural Research Center–NARC, Amman, Jordan

DR. DANNER SAGALA
Agrotechnology Department, Faculty of Agriculture, Universitas Prof. Dr. Hazairin SH. Bengkulu, Indonesia

PROF. DR. IR. DEDIK BUDIANTA
Department of Soil Science, Sriwijaya University, Indralaya Indah, Indonesia

ASSIST. PROF. ANOMA DONGSANSUK, PH.D.

Department of Plant Science and Agricultural Resources, Faculty of Agriculture, Khon Kaen University, Khon Kaen, Thailand

PROF. DR. IR. EDHI MARTONO, M.P.

Plant Protection Department, Universitas Gadjah Mada, Yogyakarta, Indonesia

PROF. HIRONORI YASUDA

Faculty of Agriculture, Yamagata University, Tsuruoka, Yamagata, Japan

DR. IHSAN NURKOMAR, S.P.

Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Yogyakarta, Indonesia

ASSOC. PROF. KIETSUDA LUENGWILAI, PH.D.

Department of Horticulture, Faculty of Agriculture, Kasetsart University, Kamphaeng Saen Campus and Department of Plant Sciences, University of California, One Shields Avenue, Davis, Thailand

RIZA ARIEF PUTRANTO, PH.D.

Indonesian Research Institute for Biotechnology and Bioindustry, Bogor, Indonesia

DR. IR. RUSDI EVIZAL, M.S.

Department of Agronomy and Horticulture, Faculty of Agriculture, Universitas Lampung, Bandar Lampung, Indonesia

PROF. SATORU SATO

Faculty of Agriculture, Yamagata University, Tsuruoka, Japan

DR. SITI NUR AISYAH, S.P.

Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia

PROF. TOTOK AGUNG DWI HARYANTO, M.P., PH.D.

Agrotechnology Department, Faculty of Agriculture, Universitas Jenderal Soedirman, Purwokerto, Indonesia

RADIX SUHARJO, S.P., M.AGR., PH.D.

Department of Plant Protection, Faculty of Agriculture, University of Lampung, Bandar Lampung, Indonesia

Editorial Manager

HERDA PRATIWI, S.P.

Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, Bantul, Indonesia

List of Contents

Vol. 11 No. 1 / February 2023



- 1 - 10 Genetic Diversity and Relationship of Durian (*Durio* spp.) Germplasm Based on the Internal Transcribed Spacer (ITS) Region: In Silico Analysis
Dindin Hidayatul Mursyidin*, **Muhammad Irfan Makruf**, **Muhammad Fitri**, **Nico Aliannur**
Laboratory of Genetics and Molecular Biology, Faculty of Mathematics and Natural Sciences, University of Lambung Mangkurat
- 11 - 18 Physiological Response, Growth, and Yield of Edamame Soybean (*Glycine Max* L. Merr.) Under Foliar Application of Nano Cattle Bone Ash in Entisol
Siti Maulidayanti, **Didik Indradewa**, **Eko Hanudin***
Department of Agronomy, Faculty of Agriculture, Universitas Gadjah Mada
- 19 - 24 Measuring Instant Light-Response Curve of Chlorophyll Fluorescence in Sago Palm (*Metroxylon sagu* Rottb.) Leaves: Different Time Measurements on Dark and Light-Adapted Leaf
Aidil Azhar^{1*}, **Koki Asano²**, **Hiroshi Ehara^{3*}**
¹School of Vocational Studies, IPB University
²Graduate School of Bioagricultural Sciences, Nagoya University
³International Center for Research and Education in Agriculture, Nagoya University
- 25 - 32 Arbuscular Mycorrhizal Fungi as Seed Coat of Soybean Grown on Ultisol Applied with Various Doses of Lime
Arsukman Edi, **Jamilah***, **Milda Ernita**
Master Program of Agrotechnology, Faculty of Agriculture, Universitas Taman siswa
- 33 - 40 The Improvement of Oil Palm Seedling through Shade, Manure and Organic Liquid Fertilizer in Ultisol Media
Muhimmatul Husna^{1*}, **Umi Salamah¹**, **Welly Herman²**, **Winalia Agwil³**
¹Agroecotechnology Study Program, Faculty of Agriculture, Bengkulu University
²Soil Science Study Program, Faculty of Agriculture, Bengkulu University
³Statistic Science Study Program, Faculty of Mathematics and Science, Bengkulu University
- 41 - 49 Effects of Abscisic Acid on Bioactive Compounds and Postharvest Quality of Climacteric and Non-Climacteric Fruit
Nafi Ananda Utama*, **Prawidya Tyas Utami**, **Muhammad Galang Akbar Yulansyah Daryanto**, **Sukuriyati Susilo Dewi**
Department of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta
- 50 - 60 Growth and Yield Performance of Upland and Lowland Rice Varieties Under Narrow-Wide Row Planting Systems in East Nusa Tenggara, Indonesia
Okky Dwi Purwanto^{1*}, **Yulia Pujiharti²**, **Rizky Prayogo Ramadhan³**
¹Research Center for Food Crops, National Research and Innovation Agency (BRIN)
²Research Center for Macroeconomics and Finance, National Research and Innovation Agency (BRIN)
³Research Center for Cooperative, Corporation, and People's Economy, National Research and Innovation Agency (BRIN)
- 61 - 69 Qualitative Characteristics and Genetic Parameters of F3 Purple Corn Lines from Open Pollination Hybridization
Rima Melati, **Eries Dyah Mustikarini***, **Gigih Ibnu Prayoga**
Study Program Agricultural Science, Faculty of Agriculture, Universitas Bangka Belitung

Editorial

Journal of Planta Tropika ISSN 0216-499X published by Study Program of Agrotechnology, Faculty of Agriculture, Universitas Muhammadiyah Yogyakarta, is journal presenting scientific articles of agricultural science (Journal of Agro Science). With full sense of gratitude to the Almighty Allah, Volume 11 Number 1 for the year of 2023 has been published.

In this edition, Journal of Planta Tropika presents eight research articles in the field of Plant breeding, Soil and Plant Nutrition, Plant Physiology, Postharvest Technology, Plant Production, Agrobiotechnology. The scientific articles discuss about:

(1) Genetic Diversity and Relationship of Durian (*Durio* spp.) Germplasm Based on the Internal Transcribed Spacer (ITS) Region: In Silico Analysis, (2) Physiological Response, Growth, and Yield of Edamame Soybean (*Glycine Max* L. Merr.) Under Foliar Application of Nano Cattle Bone Ash in Entisol), (3) Measuring Instant Light-Response Curve of Chlorophyll Fluorescence in Sago Palm (*Metroxylon sagu* Rottb.) Leaves: Different Time Measurements on Dark and Light-Adapted Leaf, (4) Arbuscular Mycorrhizal Fungi as Seed Coat of Soybean Grown on Ultisol Applied with Various Doses of Lime, (5) The Improvement of Oil Palm Seedling through Shade, Manure and Organic Liquid Fertilizer in Ultisol Media, (6) Effects of Abscisic Acid on Bioactive Compounds and Postharvest Quality of Climacteric and Non-Climacteric Fruit, (7) Growth and Yield Performance of Upland and Lowland Rice Varieties Under Narrow-Wide Row Planting Systems in East Nusa Tenggara, Indonesia, (8) Qualitative Characteristics and Genetic Parameters of F3 Purple Corn Lines from Open Pollination Hybridization.

The editors would like to thank the authors, reviewers, executive editors, leaders and LRI UMY for their participation and cooperation. Our hope, this journal can be useful for readers or be a reference for other researchers and useful for the advancement of the agriculture.

Editors

GUIDE FOR AUTHORS

TYPE OF PAPERS

PLANTA TROPIKA receives manuscripts in the form of research papers in Bahasa Indonesia or English. The manuscript submitted is a research paper that has never been published in a journal or other publication.

SUBMISSION

The submission of the manuscript is done through our journal website <http://journal.umy.ac.id/index.php/pt/index>. If you need information regarding the process and procedure for sending the manuscript, you can send it via email at plantatropika@umy.ac.id. Editor's address: Program Studi Agroteknologi, Fakultas Pertanian, Universitas Muhammadiyah Yogyakarta, Jl. Brawijaya, Tamantirto, Kasihan, Bantul, Telp (0274) 387646 psw 224, ISSN: 2528-7079.

ARTICLE STRUCTURE

The submitted manuscripts should consist of 15-20 pages of A4 size paper with 12-point Times New Roman fonts, 1.5 spacing with left-right margin and top-bottom of the paper is 2.5 cm each. All manuscript pages including images, tables and references should be page-numbered. Each table or picture should be numbered and titled.

The systematic of the manuscript writing is as follows:

TITLE : The title should be brief and informative and written bold. Only the first letter of the words is written in uppercase. Maximum length should be 14 words.

AUTHOR NAMES : The author names should be written in lowercase letters (only the first letter of the words is written in uppercase) and should be written from the first author and followed by the others along with the marker of each author's affiliation.

AUTHOR AFFILIATIONS : The author affiliation should be written in lowercase letters (only the first letter of the words is written in uppercase) and it is written according to the order of the number marker of each author's affiliation.

EMAIL : Please list one of authors' email address used for paper's correspondence.

ABSTRAK : Abstrak is written in Bahasa Indonesia using single space in a paragraph with maximum length of 200 words. It should contain background, objective, method, results, and conclusion followed by keywords containing maximum of 5 words.

ABSTRACT : Abstract is written in English using single space in a paragraph with maximum length of 200 words. It should contain background, objective, method, results, and conclusion followed by keywords containing maximum of 5 words.

INTRODUCTION : Introduction contains background, hypothesis or problem outline, and the objective of the research.

MATERIALS AND METHOD : Explaining in detail about materials and method used in the research as well as the data collection and analysis.

RESULT AND DISCUSSION : The results of the research should be clear. State the results collected according to analyzed data. Discussion should include the significance of the results.

CONCLUSION : Authors are expected to give brief conclusion and to answer the objective of the research.

ACKNOWLEDGEMENT : If necessary.

REFERENCES : Single space, according to the authors' guide of *Planta Tropika*.

EXAMPLES ON HOW TO WRITE REFERENCES

References are written in alphabetical order according to the rules below:

REFERENCE TO A BOOK

Gardner, F.P., R.B. Pearce, and R.L. Mitchell. 1991. *Fisiologi Tanaman Budidaya* (Translated by Herawati Susilo). UI Press. Jakarta.

REFERENCE TO A JOURNAL PUBLICATION

Parwata, I.G.M.A., D. Indradewa, P.Yudono dan B.Dj. Kertonegoro. 2010. Pengelompokan genotipe jarak pagar berdasarkan ketahanannya terhadap kekeringan pada fase pembibitan di lahan pasir pantai. *J. Agron. Indonesia* 38:156-162.

REFERENCE TO A THESIS/DISSERTATION

Churiah. 2006. Protein bioaktif dari bagian tanaman dan akar transgenic Cucurbitaceae serta aktivitas antiproliferasi galur sel kanker *in vitro*. Disertasi. Sekolah Pascasarjana. Institut Pertanian Bogor. Bogor.

REFERENCE TO AN ARTICLE IN PROCEEDING

Widaryanto dan Damanhuri. 1990. Pengaruh cara pengendalian gulma dan pemberian mulsa jerami terhadap pertumbuhan dan produksi bawang putih (*Allium sativum* L.). *Prosiding Konferensi Nasional X HIGI* hal. 376-384.

FIGURE FORMATTING

Title should be given **below each figure**. Additional information (notes) should be written in lowercase letters except the first letter in each sentence. All figures need to be numbered respectively. Figures should be placed close to explanation/discussion about the figure.

Examples :

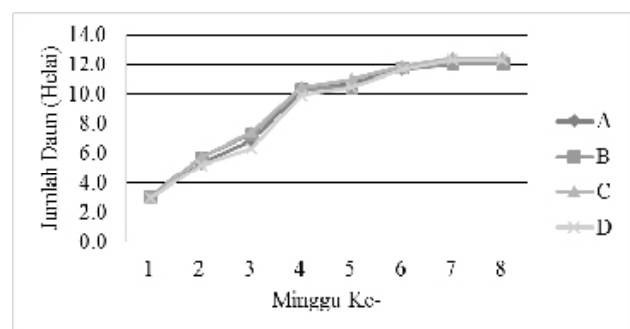


Figure 1. Number of leaves of corn plant

Notes:

A = 250 kg KCl/ha + 0 kg KJP/ha

B = 125 kg KCl/ha + 273,89 kg KJP/ha

C = 62,5 kg KCl/ha + 410,84 kg KJP/ha

D = 0 kg KCl/ha + 547,79 kg KJP/ha

Fig. 1., Fig. 2., and so on. The title of the figure is written with lowercase letters (use uppercase letter at the beginning of the title only) and without full stop (.). Additional information (notes) is placed below the figure.

TABLE FORMATTING

The **title** of the table should be written **above the table** started from the left (left alignment). Additional information related to the table (notes) is placed below the table. The information is written in uppercase letters at the beginning only as well as the titles inside the table. Table is placed close to the discussion of the table.

Examples :

Table 1. Fruit compost analysis

Variable	Jatropha before composted	Jatropha after composted	SNI (National standard) for compost	Category
Water content	22,49 %	45,79 %	≤ 50 %	Qualified
pH	7,05	8,02	4-8	Qualified
C-Organic content	10,01	5,11	9,8-32 %	Not qualified
Organic matter	17,42 %	8,81 %	27-58	Not qualified
N-Total	0,97 %	2,69 %	< 6 %	Qualified
C/N Ratio	10,44	1.90	≤ 20	Qualified
Potassium	-	9,06 %	< 6 %**	Qualified

Notes: **) Certain materials originated from natural organic matters are allowed to contain P_2O_5 dan K_2O level > 6% (proved with the results of laboratory analysis).