

SABRAO JOURNAL OF BREEDING AND GENETICS

Volume 54 Number 3 | September 2022



SEARCA

ISSN: 1029-7073; eISSN: 2224-8978

<https://doi.org/10.54910/sabrao2022.54.3>

EDITOR-IN-CHIEF

Prof. Dr. Naqib Ullah Khan

University of Agriculture, Peshawar, Khyber Pakhtunkhwa, PAKISTAN

DEPUTY EDITOR-IN-CHIEF

Dr. Sanun Jogloy

Khon Kaen University, Khon Kaen, THAILAND

ASSOCIATE EDITORS

Dr. Ramakrishnan M. Nair

World Vegetable Center, Andhra Pradesh, INDIA

Dr. Arbind K. Choudhary

ICAR Research Complex for Eastern Region, Patna, INDIA

Dr. Sambasivam (Sam) Periyannan

CSIRO, Canberra, AUSTRALIA

Dr. Desta Wirnas

Bogor Agricultural University, Bogor, INDONESIA

Dr. Akshaya K. Biswal

CIMMYT, MEXICO

Dr. Samrin Gul

University of Sargodha, Sargodha – Punjab, PAKISTAN

Dr. Himmah Rustiami

Indonesian Institute of Sciences, Bogor, INDONESIA

Prof. Dr. Bambang Sapta Purwoko

Bogor Agricultural University, Bogor, INDONESIA

Prof. Dr. Kwon, Soon-Wook

Pusan National University, Busan, KOREA

Prof. D.P.S.T.G. Attanayaka

Wayamba University, Makandura, Gonawila, SRI LANKA

Dr. Prakrit Somta

Kasetsart University, Nakhon Pathom, THAILAND

Dr. Aris Hairmansis

BRIN, Bogor, West Java, INDONESIA

Dr. Gwen Iris Descalsota-Empleo

University of Southern Mindanao, North Cotabato, PHILIPPINES

Dr. Kamile Ulukapi

Akdeniz University, Konyaalti-Antalya, TURKEY

Dr. B.P. Mallikarjuna Swamy

International Rice Research Institute (IRRI), Los Baños, Laguna, PHILIPPINES

Prof. Dr. P.I. Prasanthi Perera

Wayamba University of Sri Lanka, Makandura, Gonawila (NWP), SRI LANKA

Prof. Dr. Clara R. Azzam

Department of Cell Research, FCRI, Agricultural Research Center, Giza, EGYPT

Dr. Tonette P. Laude

University of the Philippines Los Banos, Laguna, PHILIPPINES

Dr. Quaid Hussain

Zhejiang A & F University, Hangzhou, CHINA

Dr. Osama Osman Atallah

Zagazig University, Zagazig, EGYPT

Dr. A.N. Farhood

University of Kerbala, Kerbala, IRAQ

Prof. Dr. Zahoor Ahmad Soomro

Sindh Agricultural University, Tandojam Sindh, PAKISTAN

Dr. Khundej Suriharn

Khon Kaen University, Khon Kaen, THAILAND

Mr. Benedict Juliano

Advisory Editor, SEARCA, College, Laguna, PHILIPPINES

SABRAO Publishing Team

Ms. Maria Rowena M. Baltazar

SABRAO Editor, Laguna, PHILIPPINES

Mr. Joseph "Otep" Vicente

SABRAO Editor, Laguna, PHILIPPINES



S E A M E O
SEARCA



SABRAO

Society for the Advancement
of Breeding Research in Asia
and Oceania

<http://sabraojournal.org>

ISSN 1029-7073 | eISSN 2224-8978

Images on the front cover: Research work on breeding of rice F₄ populations (Silesio × Ciherang) was carried out at the Faculty of Agriculture, Samudra University, Langsa, Indonesia. Full details of the research can be found in the article published by Syahril *et al.* (2022) titled "[Genetic analysis of upland rice F₄ populations \(Silesio × Ciherang\) for phenological and yield related traits.](#)" *SABRAO J. Breed. Genet.* 54(3): 483-491. <http://doi.org/10.54910/sabrao2022.54.3.2>. © SABRAO

**New articles should be submitted directly to the Editor-in-Chief
(Prof. Dr. Naqib Ullah Khan) by email: nukmarwat@yahoo.com**



SABRAO JOURNAL of BREEDING and GENETICS

pISSN 1029-7073; eISSN 2224-8978

Volume 54 Number 3 SEPTEMBER 2022

<http://doi.org/10.54910/sabrao2022.54.3>

CONTENTS

- Guevarra PR, Paril JF, Gardoce RR, Salazar AM, Canama-Salinas AO (2022). Genetic diversity among the Philippine traditional maize (*Zea mays* L.) populations based on SSR markers. *SABRAO J. Breed. Genet.* 54(3): 469-482. <http://doi.org/10.54910/sabrao2022.54.3.1>
- Syahril M, Syukri, Siregar DS, Murdiani (2022). Genetic analysis of upland rice F4 populations (Silesa × Ciherang) for phenological and yield related traits. *SABRAO J. Breed. Genet.* 54(3): 483-491 <http://doi.org/10.54910/sabrao2022.54.3.2>
- Javed A, Nawab NN, Gohar S, Akram A, Javed K, Sarwar M, Tabassum MI, Ahmad N, Mallhi AR (2022). Genetic analysis and heterotic studies in tomato (*Solanum lycopersicum* L.) hybrids for fruit yield and its related traits. *SABRAO J. Breed. Genet.* 54(3): 492-501. <http://doi.org/10.54910/sabrao2022.54.3.3>
- Saudah, Zumaidar, Darusman, Fitmawati, Roslim DI, Juliantari E, Ernilasari, Walil K (2022). Genetic diversity of Bak-kala (*Etilingera elatior* (Jack) R.M. SM.) in Aceh Province, Indonesia. *SABRAO J. Breed. Genet.* 54(3): 502-511. <http://doi.org/10.54910/sabrao2022.54.3.4>
- Farhood AN, Merhij MY, Al-Fatlwi ZH (2022). Drought stress effects on resistant gene expression, growth, and yield traits of wheat (*Triticum Aestivum* L.). *SABRAO J. Breed. Genet.* 54(3): 512-523. <http://doi.org/10.54910/sabrao2022.54.3.5>

- Shavkiev J, Nabiev S, Azimov A, Chorshanbiev N, Nurmetov KH (2022). Pima cotton (*Gossypium barbadense*. L) lines assessment for drought tolerance in Uzbekistan. *SABRAO J. Breed. Genet.* 54(3): 524-536. <http://doi.org/10.54910/sabrao2022.54.3.6>
- Jamil S, Ilyas M, Khan MZ, Awan SI, Rehman S, Shafique S, Hafeez S, Riaz M, Ahmad HM, Tamkeen A, Ghaffar MA, Khan MM (2022). Heritability, genetic gain, and path coefficient analyses in black gram at Poonch Rawalakot, Azad Jammu and Kashmir. *SABRAO J. Breed. Genet.* 54(3): 537-548. <http://doi.org/10.54910/sabrao2022.54.3.7>
- Al-Khayri JM, Abdel Latef AAH, Taha HSA, Eldomiaty AS, Abd-Elfattah MA, Rezk AA, Shehata WF, Almaghasla MI, Shalaby TA, Sattar MN, Awad MF, Hassanin AA (2022). *In silico* profiling of proline biosynthesis and degradation related genes during fruit development of tomato. *SABRAO J. Breed. Genet.* 54(3): 549-564. <http://doi.org/10.54910/sabrao2022.54.3.8>
- Ali S, Ahmad R, Hassan MF, Ibrar D, Iqbal MS, Naveed MS, Arsalan M, Rehman A, Hussain T (2022). Groundnut genotypes' diversity assessment for yield and oil quality traits through multivariate analysis. *SABRAO J. Breed. Genet.* 54(3): 565-573. <http://doi.org/10.54910/sabrao2022.54.3.9>
- Juliano LM, Caguiat XGI, Evangelista EV, Martin EC, Ramirez AHM (2022). Genetic variability in weedy rice biotypes found in direct-seeded rice areas in the Philippines. *SABRAO J. Breed. Genet.* 54(3): 574-588. <http://doi.org/10.54910/sabrao2022.54.3.10>
- Al-Naggar AMM, Soliman AM, Hussien MH, Mohamed AMH (2022). Genetic diversity of maize inbred lines based on morphological traits and its association with heterosis. *SABRAO J. Breed. Genet.* 54(3): 589-597. <http://doi.org/10.54910/sabrao2022.54.3.11>
- Ismail MH, El-Zanaty AM, Abdel-Lateif KS (2022). Molecular and morphological identification of *Trichoderma* isolates from Egyptian agriculture wastes-rich soil. *SABRAO J. Breed. Genet.* 54(3): 598-607. <http://doi.org/10.54910/sabrao2022.54.3.12>
- Almukhtar SA, Bajlan SGSh (2022). Irradiation and polyamines impact on growth traits of grecian foxglove (*Digitalis lanata* L.) Cultivated in vitro rooting. *SABRAO J. Breed. Genet.* 54(3): 608-616. <http://doi.org/10.54910/sabrao2022.54.3.13>
- Martanti D, Poerba YS, Witjaksono, Herlina, Ahmad F (2022). Male flower characteristics of induced tetraploid, mixoploid, and diploid banana *Musa acuminata* (aa) cv. "Pisang Rejang". *SABRAO J. Breed. Genet.* 54(3): 617-626. <http://doi.org/10.54910/sabrao2022.54.3.14>

- Rosmaina, Zulfahmi, Jannah M, Sobir (2022). Temperature critical threshold for yield in chili pepper (*Capsicum annuum* L.). *SABRAO J. Breed. Genet.* 54(3): 627-637. <http://doi.org/10.54910/sabrao2022.54.3.15>
- Gins EM (2022). Seed priming effects on seed quality and antioxidant system in the seedlings of *Amaranthus tricolor* L. *SABRAO J. Breed. Genet.* 54(3): 638-648. <http://doi.org/10.54910/sabrao2022.54.3.16>
- Feng J, Gins MS, Gins VC (2022). Seed priming effects on morphological traits of *Amaranthus hypochondriacus* under optimal and low temperatures. *SABRAO J. Breed. Genet.* 54(3): 649-658. <http://doi.org/10.54910/sabrao2022.54.3.17>
- Nemtinov VI, Kostanchuk YN, Motyleva SM, Pekhova OA, Timasheva LA, Pashtetskiy VS, Katskaya AG (2022). Morphometric and biochemical assessment of *Nigella* L. genotypes of European-Asian origin. *SABRAO J. Breed. Genet.* 54(3): 659-670. <http://doi.org/10.54910/sabrao2022.54.3.18>
- Ismailova GH, Azizov IV (2022). Effect of Fe₂O₃ and Al₂O₃ nanoparticles on the antioxidant enzymes in seedlings of *Triticum aestivum* L. *SABRAO J. Breed. Genet.* 54(3): 671-677. <http://doi.org/10.54910/sabrao2022.54.3.19>
- Al-Yasari MNH (2022). Potassium and nano-copper fertilization effects on morphological and production traits of oat (*Avena sativa* L.). *SABRAO J. Breed. Genet.* 54(3): 678-685. <http://doi.org/10.54910/sabrao2022.54.3.20>

SABRAO
THE SOCIETY FOR THE ADVANCEMENT OF BREEDING
RESEARCH IN ASIA AND OCEANIA

Visit our new website at:

<http://sabraojournal.org/>

SABRAO JOURNAL OF BREEDING AND GENETICS

pISSN 1029-7073; eISSN 2224-8978

SABRAO Journal of Breeding and Genetics is an international journal of plant breeding and genetics research and is the official publication of the Society for the Advancement of Breeding Research in Asia and Oceania (SABRAO). The journal was first published in 1969. Its objective is to promote the international exchange of research information on plant breeding and genetics by describing new research findings or ideas of a basic or practical nature. It also provides a medium for the exchange of ideas and news regarding members of the Society.

Priority is given to articles that are of direct relevance to plant breeders with an emphasis on the Asian region. Research articles, short communications, methods, reviews, commentaries, and opinion articles will be accepted or invited for publication. Scientific contributions will be refereed and edited to international standards.

The journal mainly publishes articles for SABRAO members, and it is strongly preferred that at least one author should be a current member of the society. However, SABRAO non-members may also publish in the journal. In 2016, the journal became an electronic journal with open access. Although a publication fee is charged for all articles, the journal operates on a not-for-profit basis.

SABRAO WEBSITE

<http://sabraojournal.org/>

This website contains the most recent and past articles of the *SABRAO Journal of Breeding and Genetics* in addition to the details of the Editorial Board and publishing team. The website also contains up-to-date information about the Society, information about current officers and regional secretaries, upcoming congresses, and general matters concerning the society.

SABRAO - Executive members 2020

Elected at the 2019 Korean Society of Breeding Science/14th International SABRAO Conference held in Korea (July 2–5, 2019)

President: Prof. Glenn B. Gregorio (SEARCA/UPLB, PHILIPPINES)
Email: gbg@searca.org

First Vice President: Prof. Chen Xin (Institute of Industrial Crops, Jiangsu Academy of Agricultural Sciences, CHINA)
Email: cx@jaas.ac.cn; jaascx@sohu.com

Second Vice President: Dr. Young-Chan Cho (KOREA)

Third Vice President: Dr. Malikarjuna Swamy (IRRI, PHILIPPINES)
Email: m.swamy@irri.org

Secretary General: Dr. Desta Wirnas (Bogor Agricultural University, INDONESIA)
Email: dwirnas@gmail.com

Treasurer: Dr. Tonette Laude (University of the Philippines Los Baños, PHILIPPINES)
Email: tplaude@up.edu.ph

Editor-in-Chief: Prof. Naqib Ullah Khan (PAKISTAN)

Deputy Editor-in-Chief: Dr. Sanun Jogloy (THAILAND)

Ex-Officio Members:

Dr. Peerasak Srinives (THAILAND)
Dr. Sang-Nag Ahn (KOREA)
Dr. Bertrand (Bert) Collard (AUSTRALIA)

Member: Dr. B.C. Viraktamath (INDIA)

REGIONAL SECRETARIES

Regional Secretaries are elected by the members in each country. They play an indispensable role in the operations of the Society by

- notifying members of Society announcements;
- recruiting new members;
- organizing other activities, such as local meetings;
- keeping books of account and sending an audited statement to the Treasurer annually;
- providing the Secretary-General with a list of financial members in their region each year.

In 2021, the Regional Secretaries are as follows:

AUSTRALIA

Dr. Bertrand (Bert) Collard
NSW Department of Primary Industries
AUSTRALIA
Email: sabraojournal.editingteam@gmail.com

BANGLADESH

Dr. Abul Kashem Chowdhury
Professor
Department of Genetics and Plant Breeding
Patuakhali Science and Technology University
Patuakhali-8602, Bangladesh
Email: kashempstu@yahoo.com

CHINA (PEOPLES' REPUBLIC OF)

Prof. Cheng Xuzhen
Institute of Crop Sciences
Chinese Academy of Agricultural Sciences
30 Bai Shi Qiao Road, Beijing 100081, China
Email: chengxuzhen@caas.cn

INDIA

Dr. Ramakrishnan M. Nair
Global Plant Breeder - Legumes
World Vegetable Center-South Asia/Central Asia
ICRISAT Campus, Patancheru 502 324
Hyderabad, Andhra Pradesh, India
Email: ramakrishnan.nair@worldveg.org

INDONESIA

Dr. Desta Wirnas
Plant Genetics and Breeding Division
Dept. Agronomy and Horticulture
Faculty of Agriculture, Bogor Agricultural University
Bogor, 16680, Indonesia
Email: dwirnas@gmail.com

KOREA

Dr. Joong-Hyoun Chin
Sejong University, South Korea
Email: Joonghyoun.chin@gmail.com

MALAYSIA

Dr. Abdul Rahim Bin Harun
Malaysian Nuclear Agency
Bangi 43000, Kajang, Selangor, Malaysia
Email: rahim6313@yahoo.com

PAKISTAN

Prof. Naqib Ullah Khan
Department of Plant Breeding and Genetics
University of Agriculture, Peshawar
Khyber Pakhtunkhwa, Pakistan
Email: nukmarwat@yahoo.com, nukmarwat@aup.edu.pk

PHILIPPINES

Prof. Teresita H. Borromeo
Crop Science Cluster
College of Agriculture
University of the Philippines Los Baños
College, Laguna, Philippines
Email: thborromeo@yahoo.com

SRI LANKA

Prof. D.P.S.T.G. (Thilak) Attanayaka
Faculty of Agriculture and Plantation Management
Wayamba University of Sri Lanka
Makandura, Gonawila (NWP), Sri Lanka
Email: dpstga@yahoo.com

TAIWAN, REPUBLIC OF CHINA

Dr. Hsun Tu
Rural Development Foundation,
5F, 7, Section 1, 4 Roosevelt Road, Taipei 100, Taiwan
Email: rdf@ms4.hinet.net

THAILAND

Dr. Suchila Techawongstien
Section of Horticulture, Department of Plant Science and Agricultural Resources
Faculty of Agriculture, Khon Kaen University
KhonKaen, 40002, Thailand
Email: suctec.kku@gmail.com

TURKEY

Dr. Kamile Ulukapi
Department of Plant and Animal Production
Vocational School of Technical Sciences
Akdeniz University, Konyaalti-Antalya, TURKEY
Email: kamileonal@akdeniz.edu.tr

USA/NORTH & SOUTH AMERICA

Dr. Thomas H. Tai
USDA, UC Davis, USA
Email: Thomas.Tai@ars.usda.gov

SABRAO EDITORIAL BOARD

EDITOR-IN-CHIEF

Prof. Dr. Naqib Ullah Khan

Department of Plant Breeding and Genetics
University of Agriculture, Peshawar, Khyber Pakhtunkhwa
PAKISTAN
Email: nukmarwat@yahoo.com, nukmarwat@aup.edu.pk
Area of expertise: Breeding Fiber and Cereal Crops, Quantitative Genetics

DEPUTY EDITOR-IN-CHIEF

Dr. Sanun Jogloy

Department of Plant Science and Agricultural Resources
Faculty of Agriculture, Khon Kaen University, Khon Kaen 40002
THAILAND
Email: sjogloy@gmail.com
Area of expertise: Plant Breeding, Quantitative Genetics, Physiological Traits

ASSOCIATE EDITORS

Dr. Ramakrishnan M. Nair

AVRDC-The World Vegetable Center ICRISAT Campus
Patancheru 502 324, Hyderabad, Andhra Pradesh
INDIA
Email: ramakrishnan.nair@worldveg.org
Area of expertise: Plant Breeding and Genetics Research on Pulses
and Pasture Legumes

Dr. Arbind K. Choudhary

ICAR Research Complex for Eastern Region
Patna 800 014 (Bihar)
INDIA
Email: akicar1968@gmail.com; akiipr23@yahoo.com
Area of expertise: Genetics and Breeding of Legumes

Dr. Sambasivam (Sam) Periyannan

Agriculture and Food CSIRO, Canberra, ACT 2601
AUSTRALIA
Email: sambasivam.periyannan@csiro.au
Area of expertise: Molecular Breeding, Disease Resistance,
Gene Cloning, Transgenics

Dr. Desta Wirnas

Department of Agronomy and Horticulture
Bogor Agricultural University, Bogor 16680
INDONESIA
Email: dwirnas@gmail.com; desta@ipb.ac.id
Area of expertise: Plant Breeding and Genetics, Quantitative Genetics,
Rice, Soybean, and Sorghum

Dr. Akshaya K. Biswal

Biotechnology for Agricultural Development Laboratory
International Maize and Wheat Improvement Center
Carretera México-Veracruz Km. 45, El Batán, Texcoco, C.P. 56237
MEXICO

Email: akbiswal@hotmail.com; a.k.biswal@cgiar.org

Area of expertise: Plant Molecular Genetics and Biology

Dr. Samrin Gul

Department of Plant Breeding and Genetics
College of Agriculture, University of Sargodha, Sargodha - Punjab
PAKISTAN

E-mail: samringulpbg@gmail.com; samringul@yahoo.com

Area of expertise: Breeding Oilseed Crops, Quantitative Genetics

Dr. Himmah Rustiami

Research Center for Biology, Indonesian Institute of Sciences,
Cibinong Science Center, Jin Raya Jakarta Bogor, Cibinong, Bogor
INDONESIA

Email: hrustiami@gmail.com

Area of expertise: Plant Systematics, Ethno-Botany

Prof. Dr. Bambang Sapta Purwoko

Department of Agronomy and Horticulture, Faculty of Agriculture,
Bogor Agricultural University
INDONESIA

Email: bspurwoko@apps.ipb.ac.id

Area of expertise: Breeding for Abiotic Stress, Plant Tissue Culture

Prof. Dr. Kwon, Soon-Wook

Department of Plant Bioscience
College of Natural Resource and Life Sciences
Pusan National University, Miryang 50463
KOREA

Email: swkwon@pusan.ac.kr

Area of expertise: Rice Genetics

Prof. D.P.S.T.G. (Thilak) Attanayaka

Faculty of Agriculture and Plantation Management
Wayamba University of Sri Lanka
Makandura, Gonawila (NWP)
SRI LANKA

Email: dpstga@yahoo.com

Area of expertise: Marker-Assisted Breeding of Rubber, Rice and Cashew,
Production of Industrial Enzymes from Microorganisms

Dr. Prakrit Somta

Department of Agronomy,
Faculty of Agriculture at Kamphaeng Saen,
Kasetsart University, Kamphaeng Saen Campus, Nakhon Pathom
THAILAND

Email: agrpks@ku.ac.th

Area of Expertise: Genetics and (Conventional and Molecular),
Breeding of Legume Crops

Dr. Aris Hairmansis

Research Center for Food Crops, Research Organization for Agriculture and Food National Research and Innovation Agency (BRIN), Bogor, West Java
INDONESIA

Email: aris.hairmansis@brin.go.id, a.hairmansis@gmail.com

Area of Expertise: Plant Breeding, Genetics, Molecular Breeding

Dr. Gwen Iris Descalsota-Empleo

Plant Breeding and Genetics Division, College of Agriculture
University of Southern Mindanao, Kabacan, North Cotabato
PHILIPPINES

Email: gidescalsota@gmail.com; gidempleo@usm.edu.ph

Area of expertise: Rice and Cacao Breeding and Genetics, QTL Mapping

Dr. Kamile Ulukapi

Department of Plant and Animal Production
Vocational School of Technical Sciences
Akdeniz University, Konyaalti-Antalya
TURKEY

Email: kamileonal@akdeniz.edu.tr

Area of expertise: Vegetable Production and Breeding, Common Bean

Dr. B.P. Mallikarjuna Swamy

International Rice Research Institute (IRRI), Los Baños, Laguna
PHILIPPINES

Email: m.swamy@irri.org

Area of expertise: Rice Molecular Breeding, Genetics, and Genomics

Prof. Dr. P.I. Prasanthi Perera

Department of Horticulture and Landscape Gardening
Faculty of Agriculture and Plantation Management
Wayamba University of Sri Lanka, Makandura, Gonawila (NWP)
SRI LANKA

Email: panawalageindra@gmail.com, prasanthi@wyb.ac.lk

Area of expertise: Plant Breeding, Plant Tissue Culture, Reproductive Biology

Prof. Dr. Clara R. Azzam

Department of Cell Research
Field Crops Research Institute, Agricultural Research Center, Giza
EGYPT

Email: clara.azzam@arc.sci.eg

Area of expertise: Plant Breeding, Mutation and Molecular Breeding,
Plant Tissue Culture

Dr. Tonette P. Laude

University of the Philippines Los Banos, Laguna
PHILIPPINES

Email: tplaude@up.edu.ph

Area of expertise: Applied Plant Breeding and Genetics, Maize

Dr. Quaid Hussain

Zhejiang A & F University
666 Wusu St, Hangzhou 311300
CHINA

Email: quaid_hussain@yahoo.com

Area of expertise: Crop Genetics and Breeding, Genome-wide association and Identification analysis, Transcriptomic analysis, Abiotic stresses, Wheat, Rapeseed, Chickpea, *Liriodendron chinense*, *Torreya grandis*

Dr. Osama Osman Atallah

Assistant Professor

Department of Plant Pathology, Faculty of Agriculture

Zagazig University, Zagazig

EGYPT

E-mail address: osamaoatall1h@ufl.edu

Area of expertise: Plant Pathology, Mycology, Virology, Molecular Plant-Microbe Interactions, Bioinformatics, Molecular technology

Dr. A.N. Farhood

Department of Field Crops

College of Agriculture, University of Kerbala, Kerbala

IRAQ

E-mail: ali.nazem@uokerbala.edu.iq, ali.nazem1987@gmail.com

Area of expertise: Plant production, Genetics, Breeding, and Biotechnology

Prof. Dr. Zahoor Ahmad Soomro

Department of Plant Breeding and Genetics

Sindh Agricultural University, Tandojam Sindh

PAKISTAN

E-mail: zasoomro@sau.edu.pk, zasoomro_cap@hotmail.com

Area of expertise: Crops Breeding, Quantitative Genetics, Stress Physiology

Dr. Khundej Suriharn

Department of Agronomy

Faculty of Agriculture, Khon Kaen University, Khon Kaen

THAILAND

E-mail: sphala@kku.ac.th, bsuriharn@gmail.com

Area of expertise: Corn Breeding

Mr. Benedict Juliano

Advisory Editor

SEARCA, College, Laguna, PHILIPPINES

E-mail: baj@searca.org

Area of expertise: Knowledge Management Operations and Service Delivery

SABRAO PUBLISHING TEAM

Ms. Maria Rowena M. Baltazar

SABRAO Editor

Laguna, PHILIPPINES

Email: rbaltazar929@gmail.com

Mr. Joseph "Otep" Vicente

SABRAO Editor

Laguna, PHILIPPINES

Email: sabraojournal.editingteam2@gmail.com

WEB MANAGER

Ms. Ella "Kaye" Domingo

Email: ekdd14@yahoo.com

PUBLICATION FEE STRUCTURE

Please note that there is a publication fee FOR ALL ARTICLES—including articles from SABRAO members—which must be paid after publication of the article. This requirement covers journal processing costs and website maintenance. Payment can be made to the Regional Secretary (details available above or on SABRAO website) in the local currency equivalent or by contacting the Editor-in-Chief.

In 2022 and onwards, the fee structure will be as follows:

Category	Amount
SABRAO Life Member*	US\$ 150
SABRAO Non-Member	US\$ 200

***At least one author should be a 'LIFE' SABRAO Member.**

The official language of the Journal is English. Manuscripts may be written in British or US English provided the style is consistent throughout the article. Authors are requested to ensure a high standard of English and use professional editing services if necessary.

At first submission of the manuscript, if the standard of English is not satisfactory, SABRAO will use its own editing service before sending for review **and will charge a minimum mandatory fee of USD 200**. This additional fee is required because manuscripts are sent to external English editing services.

The philosophy of the journal is that publication fees will be kept minimal to ensure publication is available to scientists in developing countries. Therefore, journal publication fees are reviewed annually.

ACKNOWLEDGEMENTS

The Editor-in-Chief would sincerely like to thank the many reviewers for their time and efforts. An updated list of reviewers is maintained on the website.

Thanks to the publishing team for their countless hours of work for this issue.