ISSN 2089-6514 (paper) ISSN 2540-9328 (online)

BIOLOGY, MEDICINE, & NATURAL PRODUCT CHEMISTRY

Volume 13 - Number 1 - April 2024



BIOLOGY, MEDICINE, & NATURAL PRODUCT CHEMISTRY

Volume 13 – Number 1 – April 2024

ISSN 2089-6514 (paper) | ISSN 2540-9328 (online)

EDITOR-IN-CHIEF:

Muhammad Jafar Luthfi

Department of Biological Education, Faculty of Tarbiyah and Education, State Islamic University Sunan Kalijaga Yogyakarta, Indonesia

EDITORIAL BOARD:

Geoffrey A. Cordell

Department of Medicinal Chemistry and Pharmacognosy, University of Illinois at Chicago, USA

Mahanem Mat Noor

School of Bioscience & Biotechnology, Faculty of Science & Technology, University Kebangsaan Malaysia

Jalifah Latip

Centre of Chemical Science and Food Technology Studies, University Kebangsaan Malaysia

Wisnu Nurcahyo

Department of Veterinary Parasitology, Gadjah Mada University, Indonesia

Shukor Md. Nor

School of Bioscience & Biotechnology, Faculty of Science & Technology, University Kebangsaan Malaysia

Ahmad Dwi Setyawan

Department of Biology, Sebelas Maret University, Indonesia

Sugiyarto

Department of Biology, Sebelas Maret University, Indonesia

Alfred Pakpahan

Faculty of Dentistry, Trisakti University, Indonesia

Charis Amarantini

Faculty of Biotechnology, Christian University Duta Wacana, Indonesia

Marini Ahmad Marzuki

Malaysian Agricultural Research and Development Institute

Nasser Farid Geraldo

Yummy foodies, Benin

Fahrul Nurkolis

Biological Sciences, State Islamic University Sunan Kalijaga Yogyakarta, Indonesia

DESIGN & LAYOUT:

Riyanto

PUBLISHER:

State Islamic University (UIN) Sunan Kalijaga Yogyakarta

CO-PUBLISHER:

The Society for Indonesian Biodiversity

ONLINE:

www.sciencebiology.org

ADDRESS:

State Islamic University (UIN) Sunan Kalijaga Yogyakarta Jl. Marsda Adisucipto 1 Yogyakarta 55281 Tel. +62-274-519739, Tel. & Fax.: +62-274-540971, Email: jafarluthfi@yahoo.com

BIOLOGY, MEDICINE, & NATURAL PRODUCT CHEMISTRY

Volume 13 – Number 1 – April 2024

ISSN 2089-6514 (paper) | ISSN 2540-9328 (online)

CONTENTS

Isolation and Characterisation of Essential oils of Mango (M. indica) Leave	
Abubakar Auwal, Mohammed Hassan Shagal, Charles Milam	1 - 6
The Neuroprotective and Therapeutic Effects of Medicinal Plants and Natural Products against Aluminium Chloride-Induced Alzheimer's Disease: Recent Update	
Ayodeji Oluwatobi Ojetunde	7 - 33
Potential of Methane (CH ₄), Nitrogen (N ₂), and Carbon Dioxide (CO ₂) from Eco-Enzyme with the Addition of Cow Feces Starter	
Marlina Kamelia, Aulia Ulmillah, Suci Wulan Pawhestri	35 - 42
Therapeutic Azithromycin Mitigated Monosodium Glutamate-Related Dysfunction in Rats' Body Weight and Serum, Liver, Kidney and Heart Antioxidant Defense Bioindicators Anthony Cemaluk Chinedum Egbuonu, Prince Ogochukwu Alaebo, Udumma Nsofor Onuoha, Chinomso Juliet Njoku, Obioma Benedeth Eze, Francisca Ugochi Odoemelam, Michael Eberechukwu Edum, Ojichukwu Boniface Obi, Mmesoma Joy Ukaegbu, Sandra Uchechi Nwaogwugwu, Marvellous Chinonso Orji, Clara Ngozika Ndukwe, Prosper Opara, Chinagorom Oyoyo, Chika Blessing Joe-Eme, Cheluchiaka Jecinta Okwoigwe	43 - 50
Antibacterial Potential of Freshener Water Based on Siwalan Coir Extract (Borassus flabellifer) and Lemongrass (Cymbopogon citratus) Against Airborne Bacteria Hana Dwi Andayani, Salma Auliya Yoviska, Widyastuti Asy Syaffa, Putri Amifalahiya Iqlima, Sriwulan	51 - 55
Effectiveness Analysis of Antidiabetic Property from Dragon Fruit Peel Methanol Extract in Alloxan-Induced Diabetic Rats Sonia Apriani Sumartin, I Nyoman Ehrich Lister, Edy Fachrial	57 - 62

Effects of Processing on the Proximate Composition, Mineral Content and the Phytochemical Analysis of Groundnut Seeds (Arachis hypogeae) Joseph Adaviruku Sanni, Grace Omayoza Sanni, Rufus Ranmilowo Awoniyi, Remi Osanyinlusi, Yvonne Ego Richards, Goodness Inioluwa Adesina, Ore-ofe Oluwatoyin Adenuga, Stella Ayomikun Apata, Oluwafemi Emmanuel Ekun	63 - 71
Ethnobotanical Study of Medicinal Plants in South Sumatera,	
Indonesia	
Angga Puja Asiandu, Widya Sari	73 - 82
Analysis of Heavy Metal Cadmium (Cd) and Lead (Pb) in Eggplant (Solanum melongena L.) in Pontianak City by Using Atomic Absorption Spectrophotometry (AAS) Fajar Nugraha, Syila Malinda Oktaviani, Sri Luliana	83 - 90
Assessment of the Phytochemical Constituents of Methanol Extract of Ereromastax Polysperma Leaves and its Effect on the Hematological Indices in Albino Rats Victor Hogan Idung, Grace Asukwo Okon, Nicholas Asiwe	91 - 98
Physicochemical, Antimicrobial, Lethality and In Vitro Antioxidant Profiles of Johnu Tisane: A Coffee (Coffea Arabica) Leaf Decoction Formula Anthony Cemaluk Chinedum Egbuonu, Prince Ogochukwu Alaebo, Udumma Nsofor Onuoha, Chinomso Juliet Njoku, Chiemeziem Adanma Obike, Susan Ogechi Nlemadim, Blessing Ifeoma Chukwu, Sopuruchi Mary-Augusta Iwejuo, Onyedikachi Glory Amaechi, Victor Ifechukwu Obiefuna, Bessing Nmesomachi Onuoha, DivineTreasure Nzubechukwu Okoli, Precious Chinonso Nwokeoma, Chukwubuikem Eze	99 - 107
Comparative Effects of Ripe and Unripe Lime (Citrus aurantifolia) on Spermatozoa and Gonadosomatic Index in Matured Male Wistar Rats Obioma Ogbonnaya, Azubuike Nwankwo, Daniel Chidi Ifenkwe, Chikera Samuel Ibe, Ekele Ikpegbu, Osah Martins Onwuka	109 - 119
Formulation and Antibacterial Activity Testing of Eco-Soap Based on Sodium Lauryl Sulfate Surfactant Nurhaida Widiani, Aulia Novitasari, Ovi Prasetya Winandari, Dwijowati Asih Saputri	121 - 125
Evaluation and Antibacterial Activity Test of Peel-off Mask Preparation from Combination of <i>Pegagan</i> Leaves (<i>Centella asiatica</i> (L) Urb.) and Charcoal Powder	
Fadhilla Dwi Utari, Najmi Hilaliyati, Tika Afriani	127 - 133

Isolation of Novel 6-methylideneoxecane-3,4,5,7,8,9-hexol from the Leaves of <i>Rauwolfia vomitoria</i> , Apocynaceae	
Azibanasamesa D.C Owaba, Raji O. Rafiu, Arueniobebh Frank, Darlington D. Eboh, Samuel J. Bunu	135 - 139
Phytochemical Profile and Antibacterial Activity of Nigella Sativa against Biofilm-producing Bacteria Uropathogens Abdulazeez Mumsiri Abaka, Mubarak Muhammad Dahiru, Keta Biman Abubakar, Jordana Luka, Aisha Abubakar,	
Tukur Baba Abdullahi, Saminu Hamman Barau	141 - 146
Phenolic, Flavonoid Contents, Antioxidant, and Antibacterial Activity of Selected <i>Eucalyptus</i> Species: Review	
Getaneh Worku Moges, Gizachew Mulugeta Manahelohe, Melese Ababay Asegie	147 - 157
The Diversity of Understory (Shrubs and Herbs) in the Kalikuning Area	
Hikmah Supriyati, Nur Aeni Ariyanti	159 - 163
Physical Characteristics of Immobilized Cells <i>Acetobacter xylinum</i> of Various Concentrations of Na-alginate	
Lathifa Indraningtyas, Maria Erna Kustyawati, Nafiatul Fitriah	165 - 172
Antibacterial Bioactivity Test of Bilimbi Fruit Ethanol Extract (Averrhoa bilimbi Linn). Against Propionibacterium acnes, Staphylococcus epidermidis and Staphylococcus aureus Reza Anindita, Dede Dwi Nathalia, Melania Perwitasari,	152 102
Intan Kurnia Putri, Maya Uzia Beandrade, Nofria Rizki Amalia Harahap	173 - 182
Shrimp Digestive Bacteria Performance for Shrimp Waste Chitin Extraction	
Kristina Novalina Nainggolan, Yudha Perdana Putra, Evi Fitriyani	183 - 191
Isolation of β-Cyclodextrin Gycosyl Transferase (β-CGTase) Producing Bacteria from Potato Plantation Soil	
Helman Kurniadi, Desi Sagita, Barmi Hartesi	193 - 197
The Comparison of Long-term Effect Between Intermittent Fasting and Calorie Restriction on Neurological Parameters of Mice	
Neli Syahida Ni'ma, Kusnandar Anggadiredja	199 - 204
Antimicrobial Potential of Selected Phytochemicals from	
Hygrophila schulli; Computational Insights Pasindu Dilshan Perera, Haritha Lawan	205 - 214

Levels of Oxidative Stress in Rats Treated with Calorie Restrictive Treatment and 50% Sucrose Solution Diniwati Mukhtar, Azha Azzuna Amsaka, Fanny Ratnasari Pd, Aan Royhan, Karina Ajeng Ridwan	215 - 220
Anticancer Potential of Ethanolic Extract Artocarpus heterophyllus Lam. Leaves against Human Colon Cancer WiDr Cell Line Novita Mutiyani, Ardaning Nuriliani	221 - 226
The Protective Effect of Kentut Leaf Extract (<i>Paederia foetida</i> L.) on Gastric Histopathology in <i>Escherichia coli</i> -Infected Sepsis Mice Model <i>Lisa Savitri, Elfred Rinaldo Kasimo</i>	227 - 233
The Study of Biosurfactant Stability and The Effect on Lipase Activity Mieke Alvionita, Rukman Hertadi, Rahmat Rizki Fazli, Andi Alfira Ratna Faradisa Dewi, Tasyang Oktavia Rose	235 - 238
Commercial Incense: Compound Analysis and Its Molecular Docking Studies as Anxiolytic Agents Cintya Nurul Apsari, Navista Sri Octa Ujiantari, Zuliyati Rohmah, Setyowati Triastuti Utami, Artania Adnin Tri Suma, Niar Gusnaniar	239 - 250
The Effect of Use of Local Organic Microorganism Fertilizers on Rice Media, Banana Sticks, And Tongol Fish on The Growth of Arabika Coffee Plants (Coffea arabica L.) in The Gunung Karang Garden, Pandeglang District Suyamto, M. Hujaji, Hadi Susilo, Swastika Oktavia, Mu'jijah	251 - 258
The Effect of Probiotic Starter Culture Variation on the Quality of Yogurt Based on Indonesian National Standard Hariyanto Ih, Bella Cristin, Siti Nani Nurbaeti	259 - 264
Potential of Soursop Leaf Extract as an Antioxidant in MCF-7 Cells Muhammad Samsul Mustofa, Restu Syamsul Hadi, Nunung Ainur Rahmah, Pandrianto	265 - 269
Antiepileptic Potential of Justicia insularis Leaf Extract in Swiss Mice Nancy Elkanah, Michael Chuks Nnumolu, Jude Effiom Okokon, Uduak Peter Ise	271 - 275
Testing Antibacterial Activity of Daun Kentut (<i>Paederia foetida</i> L.) Leaf Extract against <i>Escherichia coli</i> in Vitro Lisa Savitri, Eka Wahyuning Tiyas, Rochmad Krissanjaya	277 - 283
β-Glucan Comparison in the Mushrooms of Medicinal Fungal Species Dicky Kurniawan Tontowiputro, Djanggan Sargowo, Askandar Tjokroprawiro, Muhaimin Rifa'i	285 - 289

Identification of Fingerprint Pattern and Lip Print Pattern in Females of Type 2 Diabetes Mellitus as a Biomarker	
Harem Othman Smail, Renas Hama Ahmad, Eman Ibrahim Jalal	291 - 295
Exploring Allelochemical Compositions in The Roots of	
Two Varieties of Anacardium occidentale (Cashew)	
Nnenna Ejije Okoronkwo, Jude Chibuzor Igwe, Nkemakolam Bright Nwosu,	
Precious Onyinyechi Chukwu, Udoka Ifunnaya Chukwukere,	
Perculiar C. Ihedigbo	297 - 303
In-Ovo Antiviral Activity of Hibiscus sabdariffa against	
Newcastle Disease Virus	
AbdulAzeez Mumsiri Abaka, James Doughari Hamuel,	
Tukur Baba Abdullahi, Keta Biman Abubakar	305 - 310
Potential Effects of Myrmecodia Pendants (Ant Nests) on Healing Bone Injuries	
Adilla Syahsiyatun Najah, Akram La Kilo, Ahmad Kadir	311 - 319

THIS PAGE INTENTIONALLY LEFT BLANK

GUIDANCE FOR AUTHORS

Aims and Scope Biology, Medicine, & Natural Product Chemistry, this journal is published to attract and disseminate innovative and expert findings in the fields of plant, animal, and microorganism secondary metabolite, and also the effect of natural product on biological system as a reference source for researchers in these fields, and with the aim to set international standards in their methodology.

Article types The journal seeks original full-length research papers, reviews, and short communication. Manuscript of original research should be written in no more than 8,000 words (including tables and picture), or proportional with articles in this publication number. Review articles will be accommodated, while, short communication should be written at least 2,000 words, except for pre-study.

Submission The journal accepts online submission, through OJS website system and/ or email to the editors at jafarluthfi@yahoo.com. Submitted manuscripts should be the original works of the author(s). The manuscript must be accompanied by a cover letter containing the article title, the first name and last name of all the authors, a paragraph describing the claimed novelty of the findings versus current knowledge. Submission of a manuscript implies that the submitted work has not been published before (except as part of a thesis or report, or abstract); and is not being considered for publication elsewhere. When a manuscript written by a group, all authors should read and approve the final version of the submitted manuscript and its revision; and agree the submission of manuscripts for this journal. All authors should have made substantial contributions to the concept and design of the research, acquisition of the data and its analysis; drafting of the manuscript and correcting of the revision. All authors must be responsible for the quality, accuracy, and ethics of the work.

Ethics Author(s) must obedient to the law and/or ethics in treating the object of research and pay attention to the legality of material sources and intellectual property rights.

Copyright If and when the manuscript is accepted for publication, the author(s) still hold the copyright and retain publishing rights without restrictions. Authors or others are allowed to multiply article as long as not for commercial purposes. For the new invention, authors are suggested to manage its patent before published.

Open access The journal is committed to free-open access that does not charge readers or their institutions for access. Readers are entitled to read, download, copy, distribute, print, search, or link to the full texts of articles, as long as not for commercial purposes. The license type is CC-BY-NC.

Acceptance The only articles written in English (U.S. English) are accepted for publication. Manuscripts will be reviewed by editors and invited reviewers (peer-review) according to their disciplines. Authors will generally be notified of acceptance, rejection, or need for revision within 1 to 2 months of receipt. The manuscript is rejected if the content does not in line with the journal scope, does not meet the standard quality, inappropriate format, complicated grammar, dishonesty (i.e. plagiarism, duplicate publications, fabrication of data, citations manipulation, etc.), or ignoring correspondence in three months. The primary criteria for publication are scientific quality and biodiversity significance. Uncorrected proofs will be sent to the corresponding author by email as .doc or .docx files for checking and correcting of typographical errors. To avoid delay in publication, corrected proofs should be returned in 7 days. The accepted papers will be published online in a chronological order at any time, but printed in April and October.

A charge Biology, Medicine, & Natural Product Chemistry does not charge APCs, submission charges, or another fee. All processes of article publication are free of charge.

Reprints The sample journal reprint is only available by special request. Additional copies may be purchased when ordering by sending back the uncorrected proofs by email.

Manuscript preparation Manuscript is typed on A4 (210x297 mm²) paper size, in a single column, single space, 10-point (10 pt) Times New Roman font. The margin text is 3 cm from the top, 2 cm from the bottom, and 1.8 cm from the left and right. Smaller lettering size can be applied in presenting table and figure (9 pt). Word processing program or additional software can be used, however, it must be PC compatible and Microsoft Word based (.doc or .rtf or .docx). Scientific names of species (incl. subspecies, variety, etc.) should be written in italic, except for italic sentence. Scientific name (genera, species, author), and cultivar or strain should be mentioned completely for the first time mentioning it in the body text, especially for taxonomic manuscripts. Name of genera can be shortened after first mentioning, except generating confusion. Name of the author can be eliminated after first mentioning. For example, Rhizopus oryzae L. UICC 524, hereinafter can be written as R. oryzae UICC 524. Using trivial name should be avoided, otherwise generating confusion. Biochemical and chemical nomenclature should follow the order of the IUPAC - IUB. For DNA sequence, it is better used Courier New font. Symbols of standard chemical and abbreviation of chemistry name can be applied for common and clear used, for example, completely written butilic hydroxyl toluene (BHT) to be BHT hereinafter. Metric measurement use IS denomination, usage other system should follow the value of equivalent with the denomination of IS first mentioning. Abbreviations set of, like g, mg, mL, etc. do not follow by dot. Minus index (m⁻², L⁻¹, h⁻¹) suggested to be used, except in things like "perplant" or "per-plot". Equation of mathematics does not always can be written down

in one column with text, in that case can be written separately. **Number** one to ten are expressed with words, except if it relates to measurement, while values above them written in number, except in early sentence. The fraction should be expressed in decimal. In the text, it should be used "%" rather than "percent". Avoid expressing ideas with complicated sentence and verbiage, and used efficient and effective sentence.

Title of the article should be written in compact, clear, and informative sentence, preferably not more than 20 words. Name of author(s) should be completely written. Name and institution address should also be completely written with street name and number (location), postal code, telephone number, facsimile number, and email address. Manuscript written by a group, author for correspondence along with address is required. First page of the manuscript is used for writing above information.

Abstract should not be more than 200 words. Keywords is about five words, covering scientific and local name (if any), research theme, and special methods which used; and sorted from A to Z. All important abbreviations must be defined at their first mention. Running title is about five words. Introduction is about 400-600 words, covering the background and aims of the research. Materials and Methods should emphasize on the procedures and data analysis. Results and Discussion should be written as a series of connecting sentences, however, for manuscript with long discussion should be divided into subtitles. Thorough discussion represents the causal effect mainly explains for why and how the results of the research were taken place, and do not only re-express the mentioned results in the form of sentences. Concluding sentence should be given at the end of the discussion. Acknowledgments are expressed in a brief; all sources of institutional, private and corporate financial support for the work must be fully acknowledged, and any potential conflicts of interest are noted.

Figures and Tables of maximum of three pages should be clearly presented. Title of a picture is written down below the picture, while title of a table is written above the table. Colored figures can only be accepted if the information in the manuscript can lose without those images; chart is preferred to use black and white images. Author could consign any picture or photo for the front cover, although it does not print in the manuscript. All images property of others should be mentioned source. There is no appendix, all data or data analysis are incorporated into Results and Discussions. For broad data, it can be displayed on the website as a supplement.

References Author-year citations are required. In the text give the authors name followed by the year of publication and arrange from oldest to newest and from A to Z. In citing an article written by two authors, both of them should be mentioned, however, for three and more authors only the first author is mentioned followed by et al., for example: Saharjo and Nurhayati (2006) or (Boonkerd 2003a, b, c; Sugiyarto 2004; El-Bana and Nijs 2005; Balagadde et al. 2008; Webb et al. 2008). Extent citation as shown with word "cit" should be avoided. Reference to unpublished data and personal communication should not appear in the list but should be cited in the text only (e.g., Rifai MA 2007, pers. com. (personal communication); Setyawan AD 2007, unpublished data). In the reference list, the references should be listed in an alphabetical order (better, if only 20 for research papers). Names of journals should be abbreviated. Always use the standard abbreviation of a journal's name according to the ISSN List of Title Word Abbreviations (www.issn.org/2 22661-LTWA-online.php). The following examples are for guidance.

Journal:

Saharjo BH, Nurhayati AD. 2006. Domination and composition structure change at hemic peat natural regeneration following burning; a case study in Pelalawan, Riau Province. Biodiversitas 7: 154-158.

Book:

Rai MK, Carpinella C. 2006. Naturally Occurring Bioactive Compounds. Elsevier, Amsterdam.

Chapter in book:

Webb CO, Cannon CH, Davies SJ. 2008. Ecological organization, biogeography, and the phylogenetic structure of rainforest tree communities. In: Carson W, Schnitzer S (eds) Tropical Forest Community Ecology. Wiley-Blackwell, New York.

Abstract

Assaeed AM. 2007. Seed production and dispersal of Rhazya stricta. 50 annual symposium of the International Association for Vegetation Science, Swansea, UK, 23-27 July 2007.

Proceeding:

Alikodra HS. 2000. Biodiversity for development of local autonomous government. In: Setyawan AD, Sutarno (eds.) Toward Mount Lawu National Park; Proceeding of National Seminary and Workshop on Biodiversity Conservation to Protect and Save Germplasm in Java Island. Universitas Sebelas Maret, Surakarta, 17-20 July 2000. [Indonesian]

Thesis, Dissertation:

Sugiyarto. 2004. Soil Macro-invertebrates Diversity and Inter-Cropping Plants Productivity in Agroforestry System based on Sengon. [Dissertation]. Universitas Brawijaya, Malang. [Indonesian]

Information from internet:

Balagadde FK, Song H, Ozaki J, Collins CH, Barnet M, Arnold FH, Quake SR, You L. 2008. A synthetic Escherichia coli predator-prey ecosystem. Mol Syst Biol 4: 187. www.molecularsystemsbiology.com

BIOLOGY, MEDICINE, & NATURAL PRODUCT CHEMISTRY

Volume 13 - Number 1 - April 2024

Isolation and Characterisation of Essential oils of Mango (M. indica) Leave Abubakar Auwal, Mohammed Hassan Shagal, Charles Milam	1-6
The Neuroprotective and Therapeutic Effects of Medicinal Plants and Natural Products against Aluminium Chloride-Induced Alzheimer's Disease: Recent Update Ayodeji Oluwatobi Ojetunde	7-33
Potential of Methane (CH4), Nitrogen (N2), and Carbon Dioxide (CO2) from Eco- Enzyme with the Addition of Cow Feces Starter Marlina Kamelia, Aulia Ulmillah, Suci Wulan Pawhestri	35-42
Therapeutic Azithromycin Mitigated Monosodium Glutamate-Related Dysfunction in Rats' Body Weight and Serum, Liver, Kidney and Heart Antioxidant Defense Bioindicators Anthony Cemaluk Chinedum Egbuonu, Prince Ogochukwu Alaebo, Udumma Nsofor Onuoha, Chinomso Juliet Njoku, Obioma Benedeth Eze, Francisca Ugochi Odoemelam, Michael Eberechukwu Edum, Ojichukwu Boniface Obi, Mmesoma Joy Ukaegbu, Sandra Uchechi Nwaogwugwu, Marvellous Chinonso Orji, Clara Ngozika Ndukwe, Prosper Opara, Chinagorom Oyoyo, Chika Blessing Joe-Eme, Cheluchiaka Jecinta Okwoigwe	43-50
Antibacterial Potential of Freshener Water Based on Siwalan Coir Extract (Borassus flabellifer) and Lemongrass (Cymbopogon citratus) Against Airborne Bacteria Hana Dwi Andayani, Salma Auliya Yoviska, Widyastuti Asy Syaffa, Putri Amifalahiya Iqlima, Sriwulan	51-55
Effectiveness Analysis of Antidiabetic Property from Dragon Fruit Peel Methanol Extract in Alloxan-Induced Diabetic Rats Sonia Apriani Sumartin, I Nyoman Ehrich Lister, Edy Fachrial	57-62
Effects of Processing on the Proximate Composition, Mineral Content and the Phytochemical Analysis of Groundnut Seeds (<i>Arachis hypogeae</i>) Joseph Adaviruku Sanni, Grace Omayoza Sanni, Rufus Ranmilowo Awoniyi, Remi Osanyinlusi, Yvonne Ego Richards, Goodness Inioluwa Adesina, Ore-ofe Oluwatoyin Adenuga, Stella Ayomikun Apata, Oluwafemi Emmanuel Ekun	63-71

Front cover: Argyreia mollis (Photograph by Afrizal Setia Budi)

Published twice a year



