

African Journal of Agricultural Research

Volume 12 Number 13 30 March 2017

ISSN 1991-637X



*Academic
Journals*

ABOUT AJAR

The African Journal of Agricultural Research (AJAR) is published weekly (one volume per year) by Academic Journals.

African Journal of Agricultural Research (AJAR) is an open access journal that publishes high-quality solicited and unsolicited articles, in English, in all areas of agriculture including arid soil research and rehabilitation, agricultural genomics, stored products research, tree fruit production, pesticide science, postharvest biology and technology, seed science research, irrigation, agricultural engineering, water resources management, marine sciences, agronomy, animal science, physiology and morphology, aquaculture, crop science, dairy science, entomology, fish and fisheries, forestry, freshwater science, horticulture, poultry science, soil science, systematic biology, veterinary, virology, viticulture, weed biology, agricultural economics and agribusiness. All articles published in AJAR are peer-reviewed.

Contact Us

Editorial Office: ajar@academicjournals.org

Help Desk: helpdesk@academicjournals.org

Website: <http://www.academicjournals.org/journal/AJAR>

Submit manuscript online <http://ms.academicjournals.me/>

Editors

Prof. N.A. Amusa

Editor, African Journal of Agricultural Research
Academic Journals.

Dr. Panagiota Florou-Paneri

Laboratory of Nutrition,
Faculty of Veterinary Medicine,
Aristotle University of
Thessaloniki, Greece.

Prof. Dr. Abdul Majeed

Department of Botany, University of
Gujrat, India, Director Horticulture,
and
landscaping.
India.

Prof. Suleyman TABAN

Department of Soil Science and Plant
Nutrition, Faculty of Agriculture,
Ankara University,
06100 Ankara-TURKEY.

Prof. Hyo Choi

Graduate School
Gangneung-Wonju National University
Gangneung,
Gangwondo 210-
702, Korea.

Dr. MATIYAR RAHAMAN KHAN

AICRP (Nematode), Directorate of
Research, Bidhan Chandra Krishi
Viswavidyalaya, P.O. Kalyani, Nadia, PIN-
741235, West Bengal.
India.

Prof. Hamid AIT-AMAR

University of Science and Technology,
Houari Bouemdiene, B.P. 32, 16111 EL-Alia,
Algiers,
Algeria.

Prof. Sheikh Raisuddin

Department of Medical Elementology and
Toxicology, Jamia Hamdard (Hamdard University)
New
Delhi,
India.

Prof. Ahmad Arzani

Department of Agronomy and Plant Breeding
College of Agriculture
Isfahan University of Technology
Isfahan-84156, Iran.

Dr. Bampidis Vasileios

National Agricultural Research Foundation
(NAGREF), Animal Research Institute 58100
Giannitsa,
Greece.

Dr. Zhang Yuanzhi

Laboratory of Space Technology,
University of Technology (HUT) Kilonkallio Espoo,
Finland.

Dr. Mboya E. Burudi

International Livestock Research Institute
(ILRI) P.O. Box 30709 Nairobi 00100,
Kenya.

Dr. Andres Cibils

Assistant Professor of Rangeland Science
Dept. of Animal and Range Sciences
Box 30003, MSC 3-I New Mexico State University
Las
Cruces,
NM 88003 (USA).

Dr. MAJID Sattari

Rice Research Institute of
Iran, Amol-Iran.

Dr. Agricola Odoi

University of Tennessee,
TN., USA.

Prof. Horst Kaiser

Department of Ichthyology and Fisheries Science
Rhodes University, PO Box
94, South Africa.

Prof. Xingkai Xu

Institute of Atmospheric Physics,
Chinese Academy of
Sciences, Beijing 100029,
China.

Dr. Agele, Samuel Ohikhena

Department of Crop, Soil and Pest
Management, Federal University of
Technology
PMB 704,
Akure,
Nigeria.

Dr. E.M. Aregheore

The University of the South Pacific,
School of Agriculture and Food Technology
Alafua Campus,
Apia, SAMOA

Editorial Board

Dr. Bradley G Fritz

Research Scientist,
Environmental Technology Division,
Battelle, Pacific Northwest National Laboratory,
902 Battelle Blvd., Richland,
Washington,
USA.

Dr. Almut Gerhardt LimCo

International, University of
Tuebingen, Germany.

Dr. Celin Acharya

Dr. K.S.Krishnan Research Associate (KSKRA),
Molecular Biology Division,
Bhabha Atomic Research Centre (BARC),
Trombay, Mumbai-85,
India.

Dr. Daizy R. Batish Department

of Botany, Panjab University,
Chandigarh,
India.

Dr. Seyed Mohammad Ali Razavi

University of Ferdowsi,
Department of Food Science and Technology,
Mashhad,
Iran.

Dr. Yasemin Kavdir

Canakkale Onsekiz Mart University,
Department of Soil Sciences, Terzioğlu
Campus 17100
Canakkale
Turkey.

Prof. Giovanni Dinelli

Department of Agroenvironmental Science and
Technology
Viale Fanin 44 40100, Bologna
Italy.

Prof. Huanmin Zhou

College of Biotechnology at Inner Mongolia
Agricultural University,
Inner Mongolia Agricultural University, No. 306#
Zhao Wu Da Street,
Hohhot 010018, P. R. China, China.

Dr. Mohamed A. Dawoud

Water Resources Department,
Terrestrial Environment Research Centre,
Environmental Research and Wildlife Development Agency
(ERWDA),
P. O. Box 45553,
Abu Dhabi,
United Arab Emirates.

Dr. Phillip Retief Celliers

Dept. Agriculture and Game Management,
PO BOX 77000, NMMU,
PE, 6031,
South Africa.

Dr. Rodolfo Ungerfeld

Departamento de Fisiología,
Facultad de Veterinaria,
Lasplaces 1550, Montevideo 11600,
Uruguay.

Dr. Timothy Smith

Stable Cottage, Cuttle Lane,
Biddestone, Chippenham,
Wiltshire, SN14 7DF.
UK.

Dr. E. Nicholas Odongo,

27 Cole Road, Guelph,
Ontario. N1G 4S3
Canada.

Dr. D. K. Singh

Scientist Irrigation and Drainage Engineering Division,
Central Institute of Agricultural Engineering
Bhopal- 462038, M.P.
India.

Prof. Hezhong Dong

Professor of Agronomy,
Cotton Research Center,
Shandong Academy of Agricultural Sciences,
Jinan 250100
China.

Dr. Ousmane Youm

Assistant Director of Research & Leader,
Integrated Rice Productions Systems Program
Africa Rice Center (WARDA) 01BP 2031,
Cotonou,
Benin.

ARTICLES

- Vegetable breeding as a strategy of biofortification in carotenoids and prevention of vitamin A deficiency** 1059
Ronaldo Machado Junior, Ronaldo Silva Gomes, Cleverson Freitas de Almeida, Flavia Maria Alves, Fabio Teixeira Delazari, Renata Dias Freitas Laurindo, Rafael Henrique Fernandes and Derly José Henriques da Silva
- Effect of seed-furrow openers on soybean root growth in compacted Oxisol** 1067
Alcir José Modolo, Gabrielli Fiorentin Dedordi, Thiago de Oliveira Vargas, Rivanildo Dallacort, Murilo Mesquita Baesso, José Ricardo da Rocha Campos, Robson Gonçalves Trentin, Gilberto Santos Andrade and Emerson Trogello
- Effect of a biocide treatment on microbes in sweet sorghum juice** 1074
Maureen S. Wright
- Common bean (*Phaseolus vulgaris* L.) cultivars performance grown during offseason in cerrado soils** 1079
Rodrigo Ribeiro Fidelis, Taynar Coelho de Oliveira, Sérgio Alves de Sousa, Roberto Antonio Savelli Martinez, Raphael Campestrini, Danilo Pereira Ramos, Danilo Alves Veloso, Manoel Mota dos Santos and Kleycianne Ribeiro Marques
- Live body weight and linear body measurements of indigenous sheep population in their production system for developing suitable selection criteria in Central Zone of Tigray, Northern Ethiopia** 1087
H. H. Tesfay, A. K. Banerjee and Y. Y. Mammed
- Rice mutants and their responses to suboptimal temperatures in the early stages of development** 1096
Andersom Milech Einhardt, Ariano Martins de Magalhães Júnior, Daiane de Pinho Benemann, Eugenia Jacira Bolacel Braga and José Antonio Peters
- Influence of different soil management practices on soil organisms and maize (*Zea mays* L.) yield in South Eastern Nigeria** 1103
Benwari A. O., Uchunor S. I. and Omovbude S.
- Determination of the soil compaction in real time on field with plate penetrometer and data filtering system** 1112
Joaquim Odilon Pereira, Juliano Rodrigo Lamb, João Cândido Bracarense, Pauline Défossez, Guy Richard, Suedemio de Lima Silva, Roberto Vieira Pordeus and Marineide Jussara Diniz

Distribution and abundance of emerging invasive weeds in central Western part of Ethiopia	1121
Amare Fufa, Taye Tessema and Niguse Hundessa	
Root and shoot growth responses of sorcoll163/07 and sorcoll141/07 sorghum landraces (<i>Sorghum bicolor</i> L.) Moench to different salt concentration levels	1128
Awol Assefa TOIB and Mekbib Fekadu GELAW	
The determinants of small-scale irrigation practice and its contribution on household farm income: The case of Arba Minch Zuria Woreda, Southern Ethiopia	1136
Agidew Abebe	
Threshold aluminium toxicity in finger millet	1144
Haftom Brhane, Edossa Fikru, Teklehaimanot Haileselassie and Kassahun Tesfaye	
Evaluation of a set of near isogenic lines (NILS) for rice yellow mottle virus (RYMV) resistance and farmers' participatory varietal evaluation in Sierra Leone	1149
Taylor D. R. and Jalloh A. B.	
Behavior and water needs of sesame under different irrigation regimes: III. Production and hydric efficiency	1158
José Rodrigues Pereira, Hugo Orlando Carvalho Guerra, João Henrique Zonta, José Renato Cortez Bezerra, Érica Samara Araújo Barbosa de Almeida and Whéllyson Pereira Araújo	
Study of chemical residues from Nemarioc-AL and Nemafric-BL phytonematicides in tomato fruit	1164
Kagiso Given Shadung, Phatu William Mashela, Maboko Samuel Mphosi and Vusimuzi Ludwig Mulaudzi	