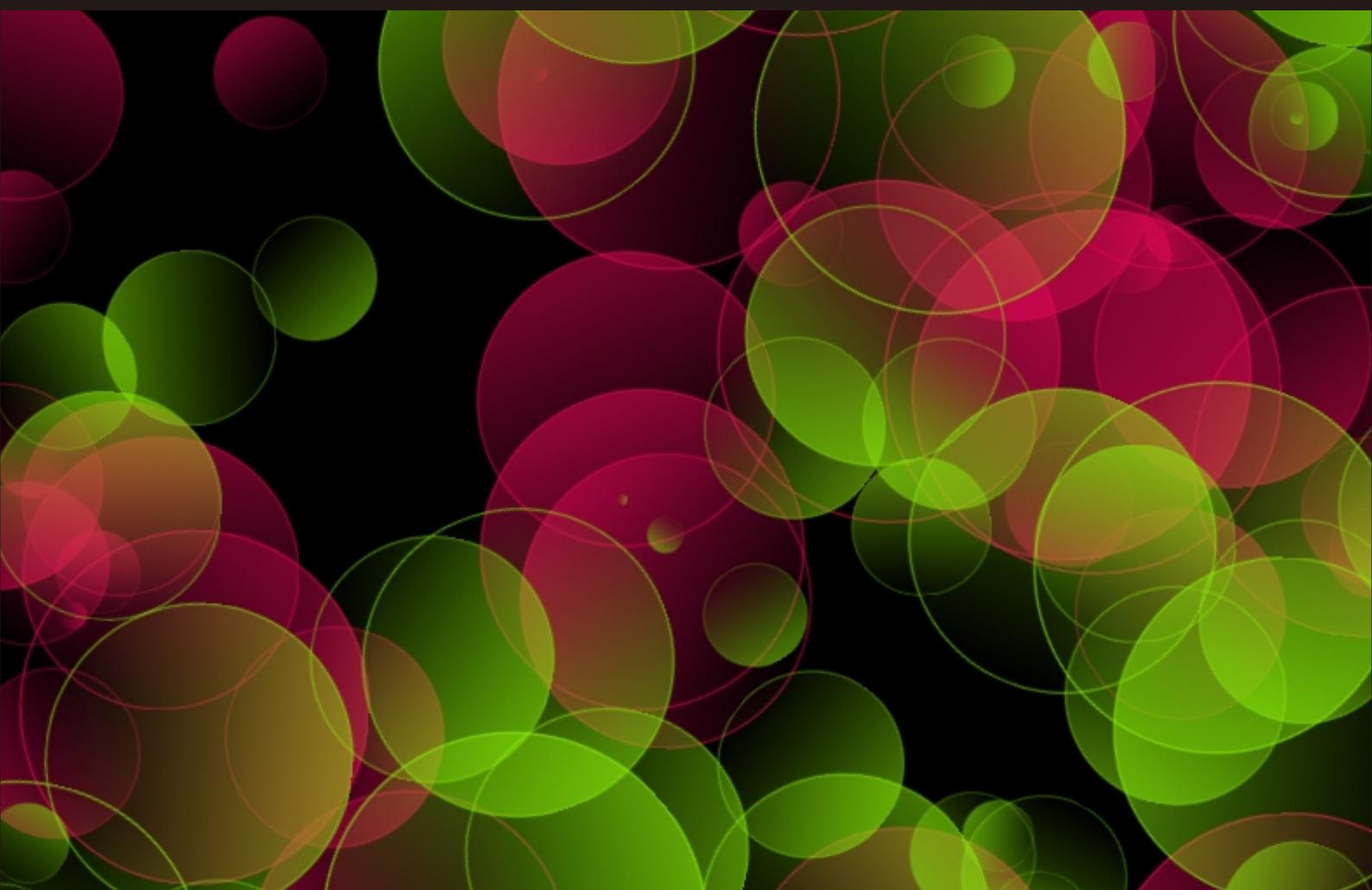


ISSN: 2165-3402 Volume 8, Number 12, December 2018



Advances in Microbiology



ISSN: 2165-3402



9 772165 340000

12

www.scirp.org/journal/aim

Journal Editorial Board

ISSN Print: 2165-3402 ISSN Online: 2165-3410

<http://www.scirp.org/journal/aim>

Associate Editors-in-Chief

- Dr. Thaddeus Chukwuemeka Ezeji** The Ohio State University & OARDC, USA
Dr. Chang-Hui Shen University of New York (CUNY), USA

Editorial Board

- Dr. Kayanush (Kai) J. Aryana** Louisiana State University, USA
Prof. Andrei L. Barkovskii Georgia College & State University, USA
Dr. Payam Behzadi Islamic Azad University, Iran
Prof. Frans J. de Bruijn INRA/CNRS Laboratory of the Interaction Plant-Microorganisms, France
Prof. Sang Ho Choi Seoul National University, South Korea
Dr. Mohamed O. Elasri The University of Southern Mississippi, USA
Prof. Daniel Y. C. Fung Kansas State University, USA
Prof. Gamil Sayed Gamil Zeedan National Research Centre, Egypt
Prof. Elisabeth Grohmann University of Freiburg, Germany
Dr. Kaisa Haukka University of Helsinki, Finland
Prof. Ming-Liang He City University of Hong Kong, China
Prof. Carlos A. Jerez University of Chile, Chile
Dr. Zvi Kelman University of Maryland, USA
Prof. Mohiuddin Md. Taimur Khan University of New Mexico, USA
Prof. Jian Li Monash University, Australia
Prof. Yanbin Li University of Arkansas, USA
Dr. Pamela A. Marshall Arizona State University, USA
Prof. James Gordon Mitchell Flinders University, Australia
Dr. Xiaozhen Mou Kent State University, USA
Prof. Saleh A. Naser University of Central Florida, USA
Prof. Michele K. Nishiguchi New Mexico State University, USA
Prof. Heui-Dong Park Kyungpook National University, South Korea
Prof. Ales Prokop Technical University Ostrava, Czech Republic
Prof. Alexander Rapoport University of Latvia, Latvia
Dr. Jyotisna Saxena The Ohio State University, USA
Dr. Maulin Pramod Shah Industrial Waste Water Research Laboratory, India
Prof. Abdelaal Shamseldin Genetic Engineering and Biotechnology Research Institute, Egypt
Dr. Jun Sun Rush University, USA
Prof. Michael K. Watters Valparaiso University, USA
Dr. Jing Xu Northwestern University, USA
Prof. Zhongtang Yu The Ohio State University, USA
Prof. Olga Zaborina University of Chicago, USA
Dr. Zhe Zhang Zhejiang University, China

Table of Contents

Volume 8 Number 12

December 2018

Control of Enterotoxigenic *Escherichia coli* in Ground Beef by Blends of Essential Oils

A. A. Souza, N. J. Zeneratto, R. H. Piccoli, S. K. V. Bertolucci.....917

Comparative Assessment of Indoor Air of a Tertiary Hospital and a Public Secondary School in Ilorin, Kwara State, Nigeria

O. C. Adekunle, B. K. Abdulkareem, O. A. Adewumi, T. O. Sanusi.....931

Antibacterial Activity of Green Synthesis Silver Nanoparticles Using Some Wild Edible Plants Commonly Used in Al Baha, Saudi Arabia

A. Y. Al-Ghamdi.....938

Lessons from Vibrio Pathogen and the Comparative Study of Vaccines Developed

T. Rahman, M. F. Seraj, S. Buroni.....950

In-Vitro Measurement of pH and Antioxidant Capacity during Colonic Fermentation of Selected Underutilized Wild and Edible Beans

O. A. Awoyinka, T. R. Omodara, F. C. Oladele, O. O. Aina, O. Akinluyi.....965

Gut Microbiota Dysbiosis in Cafeteria Diet Fed Sprague Dawley Rats

K. Varadharajan, M. Shanmugakonar, S. C. Das, H. A. Al-Naemi.....975

Profile of Turbidity and Glucose Formation from Underutilised Wild, Edible Bean during In-Vitro Gastro Intestinal Digestion and Fermentation

T. R. Omodara, O. A. Awoyinka, F. C. Oladele, O. O. Aina, M. E. Olaiya.....994

Isolation, Biochemical Characterization and DNA Identification of Yogurt Starters *Streptococcus thermophilus* & *Lactobacillus delbrueckii ssp. bulgaricus* in Gaza Strip

K. E. M. El Kahlout, I. M. El Quqa, M. W. El Hindi, T. A. El Bashiti.....1005

Inflammatory Tinea Manuum due to *Trichophyton erinacei* from an African Hedgehog

C.-A. Alejandra, P.-O. M. de Lourdes, M.-G. J. Leonardo, M.-R. Jorge, C.-M. Erika, H.-H. Francisca.....1021

Total Petroleum Hydrocarbon Degradation by Endophytic Fungi from the Ecuadorian Amazon

F. Marín, H. Navarrete, A. Narvaez-Trujillo.....1029

Advances in Microbiology (AiM)

Journal Information

SUBSCRIPTIONS

The *Advances in Microbiology* (Online at Scientific Research Publishing, www.SciRP.org) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements

Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:

Copyright © 2018 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

Copyright for individual papers of the journal:

Copyright © 2018 by author(s) and Scientific Research Publishing Inc.

Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

Disclaimer of liability

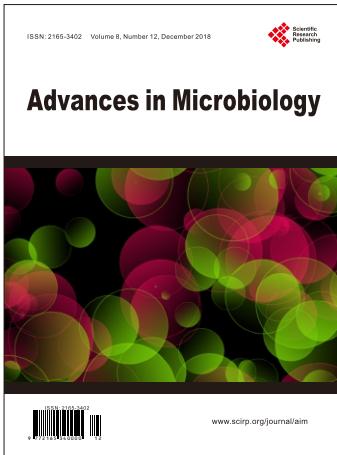
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: aim@scirp.org

Call for Papers



Advances in Microbiology

ISSN Print: 2165-3402 ISSN Online: 2165-3410

<http://www.scirp.org/journal/aim>

Advances in Microbiology (AiM) is an international journal dedicated to the latest advancement of Microbiology. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of Microbiology.

Associate Editors-in-Chief

Dr. Thaddeus Chukwuemeka Ezeji
Dr. Chang-Hui Shen

The Ohio State University & OARDC, USA
University of New York (CUNY), USA

Editorial Board

Dr. Kayanush (Kai) J. Aryana
Prof. Andrei L. Barkovskii
Dr. Payam Behzadi
Prof. Frans J. de Bruijn
Prof. Sang Ho Choi
Dr. Mohamed O. Elasri
Prof. Daniel Y. C. Fung
Prof. Gamil Sayed Gamil Zeedan
Prof. Elisabeth Grohmann
Dr. Kaisa Haukka
Prof. Ming-Liang He
Prof. Carlos A. Jerez

Dr. Zvi Kelman
Prof. Mohiuddin Md. Taimur Khan
Prof. Jian Li
Prof. Yanbin Li
Dr. Pamela A. Marshall
Prof. James Gordon Mitchell
Dr. Xiaozhen Mou
Prof. Saleh A. Naser
Prof. Michele K. Nishiguchi
Prof. Heui-Dong Park
Prof. Ales Prokop
Prof. Alexander Rapoport

Dr. Jyotisna Saxena
Dr. Maulin Pramod Shah
Prof. Abdelaal Shamseldin
Dr. Jun Sun
Prof. Michael K. Watters
Dr. Jing Xu
Prof. Zhongtang Yu
Prof. Olga Zaborina
Dr. Zhe Zhang

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. The journal publishes original papers including but not limited to the following fields:

- Applied and Environmental Microbiology
- Bacteriology
- Microbial Taxonomy
- Microbiology and Biochemistry
- Microbiology and Ecology
- Microbiology and Genetics
- Microbiology and Immunology
- Microbiology and Physiology
- Mycology
- Other Disciplines of Microbiology

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

Website and E-Mail

<http://www.scirp.org/journal/aim>

E-Mail: aim@scirp.org