

Heliyon



e³ CellPress



Food Science and Nutrition

Heliyon Food Science and Nutrition is a section of *Heliyon*, a broad scope, open access journal, that is fully dedicated to publishing accurate and valuable research in the field of food science. *Heliyon Food Science and Nutrition* joins key Elsevier food science titles *Food Research International* and *LWT - Food Science and Technology* to provide a streamlined publishing option for your food science research, and is committed to offering the same excellent editorial service that you have come to enjoy from Elsevier's other food science journals.

[Read the food science and nutrition research published in *Heliyon*.](#)

Section Editor



Dr. Lilian Mariutti, PhD

[School of Food Engineering, University of Campinas](#), Campinas, São Paulo, Brazil

Dr. Lilian R. B. Mariutti received her Master and Doctorate degrees in Food Science from the School of Food Engineering - University of Campinas, Brazil, where she currently has a position as Assistant Professor. She was a Researcher Fellow in the Laboratory of Veterinary Drug Residues of the Brazilian Ministry of Agriculture, Livestock and Food Supply. Her research focuses on the identification and bioaccessibility of bioactive compounds and lipids and design of food ingredients from non-conventional sources.

Associate Editors



Prof. Cinthia Baú Betim Cazarin, PhD

Nutrition
UNICAMP - University of Campinas, Campinas,
Brazil



Dr. Hari Prasad Devkota

Functional foods, Nutraceuticals, Bioactive
compounds
Kumamoto University, Kumamoto, Japan



Prof. Nour Eddine Es-Safi, PhD

Food Composition & Analysis
Mohammed V University in Rabat, Rabat,
Morocco



Assoc. Prof. Ana Luisa Fernando, PhD

Food Packaging & Safety
Universidade NOVA de Lisboa, Caparica,
Portugal



Dr. Juliana Gamboa-Santos

Food Drying
Centro de Investigación y Desarrollo en
Criotecnología de Alimentos (CONICET-UNLP-
CIC), Buenos Aires, Argentina



Assoc. Prof. Efsthathios Giaouris, PhD

Food Microbiology
University of the Aegean, Lemnos, Greece



Prof. Dr. Andrea Gomez-Zavaglia, PhD

Food Science and Technology, Spectroscopy,
Circular Economy
Center for Research and Development in Food
Cryotechnology (CIDCA-CONICET), Buenos
Aires, Argentina



Prof. Ana Rita Henriques, PhD

Food Safety and Hygiene
Faculty of Veterinary Medicine, University of
Lisbon, Lisbon, Portugal



Dr. Wuyang Huang

Food Science
Institute of Agro-Product Processing, Jiangsu
Academy of Agricultural Sciences, Nanjing, China



Dr. Wing-Fu Lai

Food materials science, Food
microencapsulation, Food packaging
The Hong Kong Polytechnic University, Hong
Kong, China



Prof. Jun Lu, PhD

Nutraceuticals
Auckland University of Technology, Auckland,
New Zealand



Prof. Maria Angela Meireles, PhD

Food Engineering
University of Campinas, Campinas, São Paulo,
Brazil



Prof. Donatella Restuccia, PhD

Food Safety
University of Calabria, Arcavacata di Rende, Italy



Prof. Dr. Serkan Selli

Flavour Chemistry, Food Science and Nutrition
Cukurova University, Adana, Turkey



Dr. Dejan Stojkovic

Food pharmacology
Institute for Biological Research "Sinisa
Stankovic", National Institute of Republic of
Serbia, University of Belgrade, Belgrade, Serbia



Prof. Juscelino Tovar, PhD

Applied Nutrition
Department of Food Technology, Engineering &
Nutrition, Lund University, Sweden



Prof. Apollinaire Tsopmo, PhD

Food Chemistry
Carleton University, Ottawa, Canada



Dr. Ding-Tao Wu

Functional Food & Food Nutrition
Institute for Advanced Study, Chengdu University,
Chengdu, China



Assoc. Prof. Jian Zhong, PhD

Marine foods, Functional foods
Shanghai Jiao Tong University School of
Medicine, Shanghai, China

Advisory Board

Dr. Jasim Ahmed
Food Processing
Kuwait Institute for Scientific Research, Kuwait

Prof. Donato Angelino
Food Composition & Analysis
[University of Teramo](#), Italy

Assoc. Prof. Marija Banovic
Consumer Behaviour
MAPP Centre, Aarhus University, Denmark

Dr. Oluwafemi James Caleb
Food Technology
[Agricultural Research Council \(ARC\) Infruitec-Nietvoorbij](#), South Africa

Dr. Renan Campos Chisté
Food Composition & Analysis
[Federal University of Pará \(UFPA\)](#), Brazil

Prof. Maurizio Ciani
Food Microbiology
[Polytechnic University of Marche](#), Italy

Dr. Rui Cruz
Food Processing, Food Packaging
University of Algarve, Faro, Portugal

Dr. Carmen Gomes
Food Technology
Texas A&M University, USA

Prof. Hajo Haase
Food Safety
Technische Universität Berlin, Germany

Dr. Jean-Christophe Jacquier
Food Composition & Analysis
[University College Dublin](#), Ireland

Prof. Dong Sun Lee
Food Technology
Kyungnam University, South Korea

Dr. Herbert L. Meiselman
Sensory Science
No affiliation, USA

Prof. Salina Parveen
Food Safety
[University of Maryland Eastern Shore](#), USA

Dr. Sebastiano Porretta
Sensory Science
Experimental Station for the Food Preserving Industry, Italy

Prof. Jose Alvarez-Ramirez
Food Technology
Universidad Autónoma Metropolitana - Iztapalapa, Mexico

Prof. Keizo Arihara
Food Microbiology
Kitasato University, Japan

Dr. Mirko Betti
Food Chemistry
University of Alberta, Canada

Dr. Susana Casal
Food Composition & Analysis
Oporto University, Portugal

Prof. Fook Yee Chye
Food Safety
[Universiti Malaysia Sabah](#), Malaysia

Prof. Alejandro Cifuentes
Sensory Science
[CIAL; CSIC; Madrid](#), Spain

Dr. Justyna Cybulska
Food Technology
Polish Academy of Sciences, Poland

Prof. Guillermo Cristian Guadalupe Martínez Ávila
Food Composition & Analysis
Autonomous University of Nuevo Leon, Mexico

Dr. Blanca Hernández-Ledesma
Food Technology
Instituto de Investigación en Ciencias de la Alimentación, Spain

Dr. Georgios Katsaros
Food Technology
[Hellenic Agricultural Organisation-DEMETER](#), Greece

Dr. Muhammad Faisal Manzoor
Food processing, Food Preservation, Product development
South China University of Technology, Guangzhou, China
Foshan University, Foshan, China

Dr. Constantina Nasopoulou
Food Technology and Quality
University of the Aegean, Greece

Prof. Fernando Perez-Rodriguez
Food Safety
[Department of Food Science and Technology, University of Cordoba](#), Spain

Prof. Kalliopi Rantsiou
Food Microbiology
University of Turin, Italy

Dr. Cristina Restuccia
Food Microbiology
University of Catania, Italy

Prof. Denis Roy
Food Microbiology
Université Laval, Canada

Prof. Harjinder Singh
Food Processing
Massey University, New Zealand

Dr. Thierry Thomas-Danguin
Sensory Science
Centre for Taste and Feeding Behavior (CSGA),
France

Dr. Quan Van Vuong
Food Processing
[University of Newcastle](#), Australia

Dr. Manuela Zude-Sasse
Food Composition & Analysis
[Leibniz Institute for Agricultural Engineering and
Bioeconomy \(ATB\)](#), Germany

Dr. David Rodríguez-Lázaro
Food Safety
University of Burgos, Spain

Prof. Anderson Sant'Ana
Food Microbiology
UNICAMP - University of Campinas, Brazil

Dr. Victor Souza
Food Processing
[International Iberian Nanotechnology Laboratory
\(INL\)](#), Portugal

Prof. Fidel Toldrá
Food Chemistry
[Instituto de Agroquímica y Tecnología de Alimentos
\(CSIC\)](#), Spain

Dr. Nur Hanani Zainal Abedin
Food Technology
Universiti Putra Malaysia, Malaysia

ADVERTISEMENT



RESEARCH JOURNALS

Cell

Cancer Cell

Cell Chemical Biology

Cell Genomics

Cell Host & Microbe

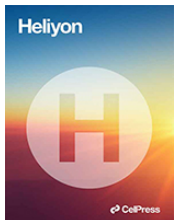
Cell Metabolism



Jul 01, 2021

Volume 7, Issue 7

Open Access



Current issue Online Now ●●●

Select all

Export citations

Email a colleague

Add to reading list

Register for eTOC alerts

Research article

Microbial contamination in palm oil selected from markets in major cities in Ghana



[Full-Text HTML](#) | [PDF](#)

How does organizational leadership contribute to the firm performance through social responsibility strategies?

Parvaneh Saeidi, Lorenzo Adalid Armijos Robles, Sayedah Parastoo Saeidi, María Isabel Vera Zamora

e07672

[Full-Text HTML](#) | [PDF](#)

Regulatory effects of quercetin on testicular histopathology induced by cyanide in Wistar rats

Adeoye O. Oyewopo, Opeyemi Adeleke, Olawumi Johnson, Adebajji Akingbade, Kehinde S. Olaniyi, Emmanuel D. Areola, Olorunfemi Tokunbo

e07662

[Full-Text HTML](#) | [PDF](#)

Getting into the details: structural effects of economic growth on environmental pollution in Ethiopia

Dagmawe Tenaw

e07688

[Full-Text HTML](#) | [PDF](#)

Patients' understanding, management practices, and challenges regarding hypertension: A qualitative study among hypertensive women in a rural Bangladesh

Anika Bushra Boitchi, Shabnam Naher, Sabbir Pervez, Md. Mujibul Anam

e07679

[Full-Text HTML](#) | [PDF](#)

An empirical study of leadership, organizational culture, conflict, and work ethic in determining work performance in Indonesia's education authority

Kiki Farida Ferine, Reza Aditia, Muhammad Fitri Rahmadana, Indri

e07698

[Full-Text HTML](#) | [PDF](#)

High school training outcome and academic performance of first-year tertiary institution learners - Taking 'Input-Environment-Outcomes model' into account

Bianca Ifeoma Chigbu, Fhulu.H. Nekhwevha

e07700



Modelling the effect of desert locust infestation on crop production with intervention measures

Dejen Ketema Mamo, Dejene Shewakena Bedane
e07685

[Full-Text HTML](#) | [PDF](#)

Predicting changes in land use/land cover and seasonal land surface temperature using multi-temporal landsat images in the northwest region of Bangladesh

Abdulla - Al Kafy, Abdullah-Al- Faisal, Abdullah Al Rakib, Sumita Roy, Jannatul Ferdousi, Vinay Raikwar, Marium Akter Kona, S.M. Abdullah Al Fatin
e07623

[Full-Text HTML](#) | [PDF](#)

Optimal placement of Phasor Measurement Unit considering System Observability Redundancy Index: case study of the Kenya power transmission network

Edwin Otieno Okendo, Cyrus Wabuge Wekesa, Michael Juma Saulo
e07670

[Full-Text HTML](#) | [PDF](#)

A dialect geography in Yogyakarta-Surakarta isolect in Wedi District: An examination of permutation and phonological dialectometry as an endeavor to preserve Javanese language in Indonesia

Kundharu Saddhono, Wido Hartanto
e07660

[Full-Text HTML](#) | [PDF](#)

Safety studies of Nexrutine, bark extract of *Phellodendron amurense* through repeated oral exposure to rats for 28 days

Shamshad Alam, Payal Mandal, Pankaj Ramji Jagdale, Anjaneya Ayanur, Kausar Mahmood Ansari
e07654

[Full-Text HTML](#) | [PDF](#)

Development model for palm processing industries with emphasis on total innovation management (TIM) in Kerman province

Neda Bani Assadi, Davoud Samari, Seyyed Jamal Farajollah Hosseini, Maryam Omid Najafabadi
e07587

Retention of heavy metals from mine tailings using Technosols prepared with native soils and nanoparticles

Darío Bolaños Guerrón, Jacqueline Capa, Luis Cumbal Flores
e07631

[Full-Text HTML](#) | [PDF](#)

Dynamics of flow in trapezoidal enclosure having a heated inner circular cylinder containing Casson nanofluid

Mohammed Hirpho, Wubshet Ibrahim
e07683

[Full-Text HTML](#) | [PDF](#)

A phenomenon in urban disruption: the emergence of Coworking Spaces in Bandung

Ridwan Sutriadi, Dimas Muhammad Fachryza
e07663

[Full-Text HTML](#) | [PDF](#)

Evaluation of 50 Ω driver circuits for digital signals based on oscilloscope measurements

Tilman Küpper
e07674

[Full-Text HTML](#) | [PDF](#)

Comparative study on the effect of different copper loading on catalytic behaviors and activity of Cu/ZnO/Al₂O₃ catalysts toward CO and CO₂ hydrogenation

Tanutporn Kamsuwan, Chadaporn Krutpijit, Supareak Praserttham, Suphot Phatanasri, Bunjerd Jongsomjit, Piyasan Praserttham
e07682

[Full-Text HTML](#) | [PDF](#)

Insights of the formation mechanism of nanostructured titanium oxide polymorphs from different macromolecular metal-complex precursors

Patricio Allende, Alodia Orera, Miguel Á. Laguna-Bercero, María Luisa Valenzuela, Carlos Díaz, Lorena Barrientos
e07684

[Full-Text HTML](#) | [PDF](#)



Experiences of citizenship in precarization: An ethnography from northern Colombia in the time of COVID-19

Wilhelm Londoño Díaz, Anghie Prado Mejía

e07659

[Full-Text HTML](#) | [PDF](#)

Intraspecific crossability and compatibility within *Solanum aethiopicum*

Ruth Buteme, Mary Nakajiri, Newton Kucel, Pamela Nahamya Kabod, Godfrey Sseremba, Elizabeth Balyejusa Kizito

e07645

[Full-Text HTML](#) | [PDF](#)

Assessment of the linkages between ecosystem service provision and land use/land cover change in Fincha watershed, North-Western Ethiopia

Terefe Tolessa, Moges Kidane, Alemu Bezie

e07673

[Full-Text HTML](#) | [PDF](#)

Mineralogy and geochemistry of clay fractions in soils developed from different parent rocks in Limpopo Province, South Africa

O.O. Oyebanjo, G.E. Ekosse, J.O. Odiyo

e07664

[Full-Text HTML](#) | [PDF](#)

Deep learning for the standardized classification of Ki-67 in vulva carcinoma: A feasibility study

Matthias Choschzick, Mariam Alyahiaoui, Alexander Ciritisis, Cristina Rossi, André Gut, Patryk Hejduk, Andreas Boss

e07577

[Full-Text HTML](#) | [PDF](#)

Grammaticalization of discourse markers: views from Jordanian Arabic

Abdulazeez Jaradat

e07632

[Full-Text HTML](#) | [PDF](#)

Multi-distribution activation energy model on slow pyrolysis of cellulose and lignin in TGA/DSC

Jonas Kristanto, Muhammad Mufti Azis, Suryo Purwono

e07669

[Full-Text HTML](#) | [PDF](#)



Deposition of low-density thick silica films from burning sol-gel derived alcogels

Martin Timusk, Triin Kangur, Meeri Visnapuu, Siim Pikker, Andris Šutka, Martin Järvekülg
e07675

[Full-Text HTML](#) | [PDF](#)

An empirical investigation of acceptance, adoption and the use of E-agriculture in Nigeria

Ibukun Eweoya, Senanu R. Okuboyejo, Oluwole A. Odetunmibi, Babafemi O. Oduote
e07588

[Full-Text HTML](#) | [PDF](#)

Organochlorine pesticide residues in tea and their potential risks to consumers in Ethiopia

Jafer Siraj, Seblework Mekonen, Higemengist Astatkie, Abera Gure
e07667

[Full-Text HTML](#) | [PDF](#)

Effect of exercise on depression and fatigue in breast cancer women undergoing chemotherapy: A randomized controlled trial

Fatemeh Mostafaei, Mohammad Azizi, Amir Jalali, Nader Salari, Parvin Abbasi
e07657

[Full-Text HTML](#) | [PDF](#)

Use of a neuron-glia genome-scale metabolic reconstruction to model the metabolic consequences of the Arylsulphatase a deficiency through a systems biology approach

Olga Y. Echeverri-Peña, Diego A. Salazar-Barreto, Alexander Rodríguez-Lopez, Janneth González, Carlos J. Alméciga-Díaz, Cristian H. Verano-Guevara, Luis A. Barrera
e07671

[Full-Text HTML](#) | [PDF](#)

Applying of SP, DC-Resistivity, DC-TDIP and TDEM soundings in high saline coastal aquifer

A.I. Ammar, M. Gomaa, K.A. Kamal
e07617

[Full-Text HTML](#) | [PDF](#)

***In vitro* removal of paraquat and diquat from aqueous media using raw and calcined basil seed**

Yugo Uematsu, Fumihiko Ogata, Noriaki Nagai, Chalermpong Saenjum, Takehiro Nakamura, Naohito Kawasaki



[Full-Text HTML](#) | [PDF](#)

Ethnoveterinary knowledge of sheep and goat farmers in Benin (West Africa): effect of socioeconomic and environmental factors

Esaïe Tchetan, Abiodoun Pascal Olounlade, Thierry Dehouegnon Houehanou, Erick Virgile Bertrand Azando, Josette Afiavi Kaneho, Marcel Romuald Benjamin Houinato, Sylvie Mawule Hounzangbe-Adote, Joëlle Quetin-Leclercq, Fernand Ahokannou Gbaguidi

e07656

[Full-Text HTML](#) | [PDF](#)

Morphological diversity in purple nutsedge from four agro-ecological zones in Ghana

J.W. Tachie-Menson, J.N. Buah, M.O. Adu, E. Afutu

e07661

[Full-Text HTML](#) | [PDF](#)

A quantitative decision theory of animal conflict

Shuang Wu, Libo Jiang, Xiaoqing He, Yi Jin, Christopher H. Griffin, Rongling Wu

e07621

[Full-Text HTML](#) | [PDF](#)

Quantum chemical calculation, performance of selective antimicrobial activity using molecular docking analysis, RDG and experimental (FT-IR, FT-Raman) investigation of 4-[[2-[3-(4-chlorophenyl)-5-(4-propan-2-yl)phenyl]-4, 5-dihydro-1H-pyrazol-1-yl]-4-oxo-1, 3-thiazol-5(4H)-ylidene]methyl] benzonitrile

N. Shanmugapriya, V. Balachandran, B. Revathi, B. Narayana, Vinutha V. Salian, K. Vanasundari, C. Sivakumar

e07634

[Full-Text HTML](#) | [PDF](#)

Copolymerization of L-Lactide and ϵ -Caprolactone promoted by zinc complexes with phosphorus based ligands

Ilaria D'Auria, Marina Lamberti, Raffaella Rescigno, Vincenzo Venditto, Mina Mazzeo

e07630

[Full-Text HTML](#) | [PDF](#)

Investigation of the effects of auditory and visual stimuli on attention

Kerem Ersin, Ogulcan Gundogdu, Sultan Nur Kaya, Dilsad Aykiri, M.Bulent Serbetcioglu

e07567

Control strategies to improve the low water quality of Souk-Ahras city

Dhaouadi Mellahi, Ridha Zerdoumi, Assia Chaib

e07606

[Full-Text HTML](#) | [PDF](#)

In death there is life: perceptions of the university community regarding body donation for educational purposes in the United Arab Emirates

Nerissa Naidoo, Ghadah A. Al-Sharif, Raeesa Khan, Aida Azar, Amar Omer

e07650

[Full-Text HTML](#) | [PDF](#)

Water hyacinth plant extract mediated green synthesis of Cr₂O₃/ZnO composite photocatalyst for the degradation of organic dye

Osman Ahmed Zelekew, Paulos Asefa Fufa, Fedlu Kedir Sabir, Alemayehu Dubale Duma

e07652

[Full-Text HTML](#) | [PDF](#)

Corrosion assessment of metals in bioethanol-gasoline blends using electrochemical impedance spectroscopy

Libia M. Baena, Ferley A. Vásquez, Jorge A. Calderón

e07585

[Full-Text HTML](#) | [PDF](#)

Understanding the nexus between public risk perception of COVID-19 and evacuation behavior during cyclone Amphan in Bangladesh

Md. Shaharier Alam, Torit Chakraborty

e07655

[Full-Text HTML](#) | [PDF](#)

Level of nurses' knowledge on pressure ulcer prevention: A systematic review and meta-analysis study in Ethiopia

Haileyesus Gedamu, Teshager Abate, Emiru Ayalew, Abebu Tegenaw, Minyichil Birhanu, Yilkal Tafere

e07648

[Full-Text HTML](#) | [PDF](#)

Factors related to students' satisfaction with holding e-learning during the Covid-19 pandemic based on the dimensions of e-learning

Leili Yekefallah, Peyman Namdar, Rahman Panahi, Leila Dehghankar

[Full-Text HTML](#) | [PDF](#)

Assessing the hydrodynamic properties of the fissured layer of granitoid aquifers in the Tchologo Region (Northern Côte d'Ivoire)

Innocent Kouassi Kouamé, Aristide Gountôh Douagui, Désiré Kouassi Bouatrin, Sylvestre Kouakou Assoué Kouadio, Issiaka Savané

e07620

[Full-Text HTML](#) | [PDF](#)

Adsorption of neutral red dye by chitosan and activated carbon composite films

Fabiana Paiva de Freitas, Ana Márcia Macedo Ladeira Carvalho, Angélica de Cássia Oliveira Carneiro, Mateus Alves de Magalhães, Mariana Fonseca Xisto, Wagner Davel Canal

e07629

[Full-Text HTML](#) | [PDF](#)

Feasibility of bone marrow mesenchymal stem cells harvesting from forearm bone

Tulyapruerk Tawonsawatruk, Thepparat Kanchanathepsak, Thitinat Duangchan, Kuneerat Aswamenakul, Aungkura Supokawej

e07639

[Full-Text HTML](#) | [PDF](#)

Bispecific antibodies: A guide to model informed drug discovery and development

Irina Kareva, Anup Zutshi, Pawan Gupta, Senthil Kabilan

e07649

[Full-Text HTML](#) | [PDF](#)

Contrasting effects of three breathing techniques on pulmonary function, functional capacity and daily life functional tasks in patients following valve replacement surgery- A pilot randomized clinical trial

Gopala Krishna Alaparathi, Revati Amin, Aishwarya Gatty, Harish Raghavan, Kalyana Chakravarthy Bairapareddy, K. Vaishali, Audrey Borghi-Silva, Fatma A. Hegazy

e07643

[Full-Text HTML](#) | [PDF](#)

Evaluation of the sustainability of existing rainwater harvesting ponds: A case study of Lay Gayint District, South Gondar zone, Ethiopia

Girum Getachew Demeke, Tesfa Gebrie Andualem, Mulatu Kassa

e07647

Mapping and assessment of vegetation cover change and species variation in Medan, North Sumatra

Anita Zaitunah, Samsuri, Fauziah Sahara

e07637

[Full-Text HTML](#) | [PDF](#)

A novel knockout mouse model of the noncoding antisense *Brain-Derived Neurotrophic Factor (Bdnf)* gene displays increased endogenous Bdnf protein and improved memory function following exercise

Farzaneh Modarresi, Roya Pedram Fatemi, Seyedeh Fatemeh Razavipour, Natalie Ricciardi, Madina Makhmutova, Nathalie Khoury, Marco Magistri, Claude-Henry Volmar, Claes Wahlestedt, Mohammad Ali Faghihi

e07570

[Full-Text HTML](#) | [PDF](#)

Class and landscape level habitat fragmentation analysis in the Bale mountains national park, southeastern Ethiopia

Annissa Muhammed, Eyasu Elias

e07642

[Full-Text HTML](#) | [PDF](#)

Lifestyle segmentation of tourists: the role of personality

Elena Parra Vargas, Carla de-Juan-Ripoll, Marta Bueno Panadero, Mariano Alcañiz

e07579

[Full-Text HTML](#) | [PDF](#)

Graphene-based THz absorber: adjustability via multiple gate biasing

Sindokht Cyrus, Sadegh Biabanifard

e07633

[Full-Text HTML](#) | [PDF](#)

Dynamic entrepreneurship, planned innovation, and firm profitability: evidence from a Southeast Asian country

Thi Thu Tra Pham, Kien Son Nguyen, Hieu Hoang Nguyen, Liem Thanh Nguyen, Vinh Xuan Vo

e07599

[Full-Text HTML](#) | [PDF](#)

The food safety knowledge of street food vendors and the sanitary conditions of their street food vending environment in the Zululand District, South Africa

[Full-Text HTML](#) | [PDF](#)

Stopping implementation of administrative decisions in Saudi regulation

Noor Issa Alhendi

e07638

[Full-Text HTML](#) | [PDF](#)

The Islamic principle of *hifz al-nafs* (protection of life) and COVID-19 in Indonesia: A case study of nurul iman mosque of Bengkulu city

Moh Dahlan, Mohammad Reevany Bustami, Makmur, Siti Mas'ulah

e07541

[Full-Text HTML](#) | [PDF](#)

Destination image's mediating role between perceived risks, perceived constraints, and behavioral intention

Muhammad Umair Nazir, Ida Yasin, Huam Hon Tat

e07613

[Full-Text HTML](#) | [PDF](#)

Effect of maternal zinc supplementation or zinc status on pregnancy complications and perinatal outcomes: An umbrella review of meta-analyses

Sehar Iqbal, Inayat Ali

e07540

[Full-Text HTML](#) | [PDF](#)

Development of narratives in Tamil-speaking preschool children: A task comparison study

Krupa Venkatraman, V. Thiruvalluvan

e07641

[Full-Text HTML](#) | [PDF](#)

Neutrophil-lymphocyte ratio and platelet-lymphocyte ratio as novel risk markers for diabetic nephropathy in patients with type 2 diabetes

Marwa Jaaban, Almoutassem Billah Zetoune, Sondos Hesenow, Razan Hesenow

e07564

[Full-Text HTML](#) | [PDF](#)

Teaching profession and educational accountability in Tanzania



- Assessment of eye-tracking scanpath outliers using fractal geometry**
Robert Ahadizad Newport, Carlo Russo, Abdulla Al Suman, Antonio Di Ieva
e07616
[Full-Text HTML](#) | [PDF](#)

- Women outweighed men at life expectancy in Bangladesh: does it mean a better quality of life?**
Md. Zakiul Alam
e07618
[Full-Text HTML](#) | [PDF](#)

- Composition of tropical agricultural landscape alters the structure of host-parasitoid food webs**
Tazkiyatul Syahidah, Akhmad Rizali, Lilik Budi Prasetyo, Pudjianto, Damayanti Buchori
e07625
[Full-Text HTML](#) | [PDF](#)

- Simultaneous detection of SARS-CoV-2 and pandemic (H1N1) 2009 virus with real-time isothermal platform**
Lin Yu, Jingyao Wang, Xuelong Li, Lingling Mao, Yi Sui, Weihua Chen, Vicent Pelechano, Xing Guo, Xiushan Yin
e07584
[Full-Text HTML](#) | [PDF](#)

- Utilization of cellulose in tobacco (*Nicotiana tabacum*) stalks for nitrocellulose production**
Ralph Muvhiwa, Emmanuel Mawere, Langa Bright Moyo, Lawrencia Tshuma
e07598
[Full-Text HTML](#) | [PDF](#)

- Sensitivity analysis of cultivar parameters to simulate wheat crop growth and yield under moisture and temperature stress conditions**
P. Krishnan, Pragati Pramanik Maity, Monika Kundu
e07602
[Full-Text HTML](#) | [PDF](#)



Analyzing the impact of social capital on US based Kickstarter projects outcome

Joseph Ochieng Onginjo, Dong Mei Zhou, Tesema Fiseha Berhanu, Sime Welde Gebrile Belihu e07425

[Full-Text HTML](#) | [PDF](#)

N-acetyl cysteine administration affects cerebral blood flow as measured by arterial spin labeling MRI in patients with multiple sclerosis

Shiva Shahrapour, Justin Heholt, Andrew Wang, Faezeh Vedaei, Feroze B. Mohamed, Mahdi Alizadeh, Ze Wang, George Zabrecky, Nancy Wintering, Anthony J. Bazzan, Thomas P. Leist, Daniel A. Monti, Andrew B. Newberg e07615

[Full-Text HTML](#) | [PDF](#)

Nurses' cleaning practice of non-critical medical equipment in the era of COVID 19: A cross-sectional study in Debre-Tabor comprehensive specialized hospital

Tekalign Amara Birlie, Abraham Tsedalu Amare, Sheganew Fetene Tassew, Tigabu Desie Emiru, Dejen Getaneh Feleke, Ermias Sisay Chanie e07626

[Full-Text HTML](#) | [PDF](#)

Evaluation of D-loop hypervariable region I variations, haplogroups and copy number of mitochondrial DNA in Bangladeshi population with type 2 diabetes

Sajoy Kanti Saha, Abdullah Al Saba, Md. Hasib, Razoan Al Rimon, Imrul Hasan, Md. Sohrab Alam, Ishtiaq Mahmud, A.H.M. Nurun Nabi e07573

[Full-Text HTML](#) | [PDF](#)

Numerical computing approach for solving Hunter-Saxton equation arising in liquid crystal model through sinc collocation method

Iftikhar Ahmad, Hira Ilyas, Kadir Kutlu, Vizda Anam, Syed Ibrar Hussain, Juan Luis García Guirao e07600

[Full-Text HTML](#) | [PDF](#)

The role of parameters in Bayesian Online Change-point Detection: detecting early warning of mount Merapi eruptions

Seli Siti Sholihat, Sapto Wahyu Indratno, Utriweni Mukhaiyar e07482

[Full-Text HTML](#) | [PDF](#)



Obstacles along the path of women enterprises in Africa: A case study of Ogotun women in Ekiti state, Nigeria

Emmanuel F. Jaiyeola, Mercy Modupe Adeyeye

e07593

[Full-Text HTML](#) | [PDF](#)

TeachBot: Towards teaching robotics fundamentals for human-robot collaboration at work

Nicholas Stearns Selby, Jerry Ng, Glenda S. Stump, George Westerman, Claire Traweek, H. Harry Asada

e07583

[Full-Text HTML](#) | [PDF](#)

Household attributes associated with peak period domestic appliance loads

John Curtis

e07559

[Full-Text HTML](#) | [PDF](#)

Factors influencing adoption of integrated soil fertility management technologies by smallholder farmers in Ghana

Moses Kwadzo, Emmanuel Quayson

e07589

[Full-Text HTML](#) | [PDF](#)

Value chain analysis of wheat in Duna district, Hadiya zone, Southern Ethiopia

Assefa Ayele, Tessema Erchafo, Alemayehu Bashe, Seyfu Tesfayohannes

e07597

[Full-Text HTML](#) | [PDF](#)

Optimal body mass-length ratio during hibernation for *Emys orbicularis* (Linnaeus, 1758) – European Pond Turtle

Ziegler Carina, Mărginean George-Ioan, Vitan Dragoş

e07607

[Full-Text HTML](#) | [PDF](#)

Broccoli (*Brassica oleracea* L. var. *italica*) cultivars, *Palam Samridhi* and *Palam Vichitra* affect the growth of *Spodoptera litura* (Fabricius) (Lepidoptera: Noctuidae)

Shallina Gupta, Ashun Chaudhary, Sumit Singh, Saroj Arora, Satwinder Kaur Sohal



[Full-Text HTML](#) | [PDF](#)

***Portulaca oleracea* methanolic extract attenuate bile duct ligation-induced acute liver injury through hepatoprotective and anti-inflammatory effects**

Zahra Moslemi, Mina Bahrami, Ebrahim Hosseini, Mahboubeh Mansourian, Zahra Daneshyar, Mahdieh Eftekhari, Nasrin Shakerinasab, Arash Asfaram, Esmaeel Panahi kokhdan, Zahra Barmoudeh, Amir Hossein Doustimotlagh

e07604

[Full-Text HTML](#) | [PDF](#)

Religious schema and tolerance towards alienated groups in Indonesia

Rahkman Ardi, David Hizkia Tobing, Gita Nuraini Agustina, Ahmad Fauzan Iswahyudi, Diah Budiarti

e07603

[Full-Text HTML](#) | [PDF](#)

Place attachment and agricultural land conversion for sustainable agriculture in Indonesia

Gunawan Prayitno, Dian Dinanti, Izzatul Ihsansi Hidayana, Achmad Tjachja Nugraha

e07546

[Full-Text HTML](#) | [PDF](#)

Mineralogical, physico-chemical and ceramic properties of clay materials from Sekandé and Gashiga (North, Cameroon) and their suitability in earthenware production

B.P. Kagonbé, D. Tsozué, A.N. Nzeukou, S. Ngos III

e07608

[Full-Text HTML](#) | [PDF](#)

Encapsulation of bioactive compounds from byproducts of two species of passionflowers: evaluation of the physicochemical properties and controlled release in a gastrointestinal model

Jorge Andrés Victoria Taborda, Walter Murillo Arango, Jonh Jairo Méndez Arteaga, Carlos Martín Guerra Almonacid

e07627

[Full-Text HTML](#) | [PDF](#)

Design, synthesis, characterization, and antioxidant activity studies of novel thienyl-pyrazoles

Karthik Kumara, Malledevarapura Gurumurthy Prabhudeva, Channa Basappa Vagish, H:
Kameshwar Vivek, Kuriya Madavu Lokanatha Rai, Neratur Krishnappagowda



[Full-Text HTML](#) | [PDF](#)

- Frequency of virulence-associated genotypes of *Helicobacter pylori* and their correlation with clinical outcome and histological parameters in infected patients**

Milad Shahini Shams Abadi, Korosh Ashrafi-Dehkordi, Reza Ahmadi, Ghorbanali Rahimian, Yousef Mirzaei, Rana Fereidani, Mojtaba Shohan, Fatemeh Azadegan-Dehkordi
e07610

[Full-Text HTML](#) | [PDF](#)

- Impact of the phytochemicals cocktail “breast safeguard” in regulating the interplay between redox signalling and murine adenocarcinoma cell proliferation, survival and angiogenesis**

Mohamed E. Abdraboh, Daw S. Daw, Ali M. AbouEl-ezz, Wafaa M. El-Kholy
e07562

[Full-Text HTML](#) | [PDF](#)

- Thymoquinone protects against cardiac mitochondrial DNA loss, oxidative stress, inflammation and apoptosis in isoproterenol-induced myocardial infarction in rats**

Asmaa A. Khalifa, Radwa M. Rashad, Wessam F. El-Hadidy
e07561

[Full-Text HTML](#) | [PDF](#)

- Microwave-assisted catalysis of water-glycerol solutions for hydrogen production over NiO/zeolite catalyst**

Husni Husin, Mahidin Mahidin, Komala Pontas, Ahmadi Ahmadi, Muhammad Ridho, Erdiwansyah Erdiwansyah, Fahrizal Nasution, Fikri Hasfita, M. Hazwan Hussin
e07557

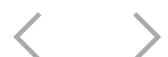
[Full-Text HTML](#) | [PDF](#)

- Pattern and determinants of COVID-19 infection and mortality across countries: An ecological study**

Noha Asem, Ahmed Ramadan, Mohamed Hassany, Ramy Mohamed Ghazy, Mohamed Abdallah, Mohamed Ibrahim, Eman M. Gamal, Shaimaa Hassan, Nehal Kamal, Hala Zaid
e07504

[Full-Text HTML](#) | [PDF](#)

- Assessing the effect of working conditions on routine medical checkups among artisanal goldminers in Ghana**



[Full-Text HTML](#) | [PDF](#)

Irish and Turkish pre-service teachers understanding and perceptions of enterprise education

Peter Tiernan, İsa Deveci

e07591

[Full-Text HTML](#) | [PDF](#)

3D digital analysis of tooth movement with magnets and elastics in vitro

Yoshiki Ishida, Yukinori Kuwajima, Kaho Ogawa, Cliff Lee, John Da Silva, Jacob Emge, Shigemi Ishikawa-Nagai

e07507

[Full-Text HTML](#) | [PDF](#)

Proportion and predictors of SMBG use among type 2 diabetic subjects in three tertiary care hospitals in Dhaka City

Jannatul Nayeem, Hasina Akhter Chowdhury, Nowrin Afroze, Umme Sadia Mili, Liaquat Ali

e07619

[Full-Text HTML](#) | [PDF](#)

Modeling of lattice parameters of cubic perovskite oxides and halides

Yun Zhang, Xiaojie Xu

e07601

[Full-Text HTML](#) | [PDF](#)

The effect of sand quality on the bending strength and thermal distortion of chemically bonded sand cores

Gábor Gyarmati, Imre Budavári, György Fegyverneki, László Varga

e07624

[Full-Text HTML](#) | [PDF](#)

Food, fields and forage: A socio-ecological account of cultural transitions among the Gaddis of Himachal Pradesh in India

Aayushi Malhotra, Sailaja Nandigama, Kumar Sankar Bhattacharya

e07569

[Full-Text HTML](#) | [PDF](#)

Valorization of crude olive stone in the removing of polyphenols from crude olive mill wastewater: kinetic, isotherm and mechanism study



[Full-Text HTML](#) | [PDF](#)

Generalization of minimax and maximin criteria in a game against nature for the case of a partial a priori uncertainty

V. Ulansky, A. Raza

e07498

[Full-Text HTML](#) | [PDF](#)

Halotolerant and metalotolerant bacteria strains with heavy metals bioremediation possibilities isolated from Uburu Salt Lake, Southeastern, Nigeria

O.U. Orji, J.N. Awoke, P.M. Aja, C. Aloke, O.D. Obasi, E.U. Alum, O.E. Udu-Ibiam, G.O. Oka

e07512

[Full-Text HTML](#) | [PDF](#)

Inclusion complexation of the anticancer drug pomalidomide with cyclodextrins: fast dissolution and improved solubility

Zoltán-István Szabó, György Orbán, Enikő Borbás, Dóra Csicsák, Szabina Kádár, Béla Fiser, Máté Dobó, Péter Horváth, Eszter Kiss, Lívia Budai, Judit Dobos, Tamás Pálka, László Órfi, Gergely Völgyi, Gergő Tóth

e07581

[Full-Text HTML](#) | [PDF](#)

Self-efficacy in physical activity and glycemic control among older adults with diabetes in Jagir Subdistrict, Surabaya, Indonesia

Trias Mahmudiono, Stefania W. Setyaningtyas, Qonita Rachmah, Triska S. Nindya, Hario Megatsari, Diah Indriani, Mahmud A. Rifqi, Wantanee Kriengsinyos

e07578

[Full-Text HTML](#) | [PDF](#)

Utility of *Moringa oleifera* waste as a coagulant in goat soft cheese production

El-Sayed M.M. Abdeen, Osama A. Ibrahim, Adel M.M. Kholif

e07536

[Full-Text HTML](#) | [PDF](#)

Investigation on electronic structure, vibrational spectra, NBO analysis, and molecular docking studies of aflatoxins and selected emerging mycotoxins against wild-type androgen receptor



[Full-Text HTML](#) | [PDF](#)

A short-and long-term analysis of the nexus between Bitcoin, social media and Covid-19 outbreak

Azza Béjaoui, Nidhal Mgadmi, Wajdi Moussa, Tarek Sadraoui e07539

[Full-Text HTML](#) | [PDF](#)

Mental health and well-being of indigenous people during the COVID-19 pandemic in Bangladesh

Md. Omar Faruk, Umay Ching, Kamal Uddin Ahmed Chowdhury e07582

[Full-Text HTML](#) | [PDF](#)

Determination of O⁶-Methylguanine in dried blood spot of breast cancer patients after cyclophosphamide administration

Yahdiana Harahap, Athalia Theda Tanujaya, Farhan Nurahman, Aurelia Maria Vianney, Denni Joko Purwanto e07558

[Full-Text HTML](#) | [PDF](#)

Sildenafil ameliorates leptin resistance and normalizes lipid handling in the hypothalamic and adipose tissues of testosterone-exposed pregnant rats

Emmanuel Damilare Areola, Isaiah Woru Sabinari, Taofeek Olumayowa Usman, Faith Ifeoluwa Abayomi, Onyeka Onyezia, Bisola Onaolapo, Phebe Oluwaseun Adetokunbo, Olympus Oyewole Adebajo, Funmilayo Rebecca Oladipupo, Lawrence Aderemi Olatunji e07574

[Full-Text HTML](#) | [PDF](#)

The inappropriate use of proton pump inhibitors and its associated factors among community-dwelling older adults

Mohammad Rababa, Abeer Rababa'h e07595

[Full-Text HTML](#) | [PDF](#)

Evaluation of circulating levels of Interleukin-10 and Interleukin-16 and dietary inflammatory index in Lebanese knee osteoarthritis patients

Zeina El-Ali, Germine El- Kassas, Fouad M. Ziade, Nitin Shivappa, James R. Hébert, Ha: Zmerly, Nisrine Bissar



[Full-Text HTML](#) | [PDF](#)

- Leachate treatment: comparison of a bio-coagulant (*Opuntia ficus* mucilage) and conventional coagulants using multi-criteria decision analysis**

Alfredo Martínez-Cruz, María Neftalí Rojas Valencia, Juan A. Araiza-Aguilar, Hugo A. Nájera-Aguilar, Rubén F. Gutiérrez-Hernández

e07510

[Full-Text HTML](#) | [PDF](#)

- Terpenoids enriched ethanol extracts of aerial roots of *Ceriops decandra* (Griff.) and *Ceriops tagal* (Perr.) promote diuresis in mice**

Biswajit Biswas, Mimi Golder, Md. Ahsan Abid, Kishor Mazumder, Samir Kumar Sadhu

e07580

[Full-Text HTML](#) | [PDF](#)

- Gambling and self-reported changes in gambling during COVID-19 in web survey respondents in Denmark**

Anders Håkansson

e07506

[Full-Text HTML](#) | [PDF](#)

- Porosity and permeability of karst carbonate rocks along an unconformity outcrop: A case study from the Upper Dammam Formation exposure in Kuwait, Arabian Gulf**

Fowzia H. Abdullah

e07444

[Full-Text HTML](#) | [PDF](#)

- Novel approach to determine unbalanced current circuit on Nigerian 330kV transmission grid for reliability and security enhancement**

Ademola Abdulkareem, A. Adesanya, A.F. Agbetuyi, A.S. Alayande

e07563

[Full-Text HTML](#) | [PDF](#)

- Investigation of the *Rv3065*, *Rv2942*, *Rv1258c*, *Rv1410c*, and *Rv2459* efflux pump genes expression among multidrug-resistant *Mycobacterium tuberculosis* clinical isolates**

Fatemeh Shahi, Azar Dokht Khosravi, Mohammad Reza Tabandeh, Shokrollah Salmanzadeh

e07566



- Voltammetric determination of uric acid using multiwall carbon nanotubes coated-poly(4-amino-3-hydroxy naphthalene sulfonic acid) modified glassy carbon electrode**

Molla Tefera, Merid Tessema, Shimelis Admassie, Walelign Wubet

e07575

[Full-Text HTML](#) | [PDF](#)

- Assessing pollution profiles along Little Akaki River receiving municipal and industrial wastewaters, Central Ethiopia: implications for environmental and public health safety**

Deshu Mamo Mekuria, Alemnew Berhanu Kassegne, Seyoum Leta Asfaw

e07526

[Full-Text HTML](#) | [PDF](#)

- Media and interpersonal channels uses and preferences during the COVID-19 pandemic: the case of the United States, Thailand, and Croatia**

Pavica Sheldon, Mary Grace Antony, Piyawan Charoensap-Kelly, Sarah Morgan, Laina Weldon

e07555

[Full-Text HTML](#) | [PDF](#)

- Phonological aspects of al-Issa Arabic, a Bedouin dialect in the north of Jordan**

Anas al Huneety, Bassil Mashaqba, Riyad abu Hula, Baraah Khalid Thnaibat

e07405

[Full-Text HTML](#) | [PDF](#)

- Vibrational spectroscopy, quantum computational and molecular docking studies on 2-chloroquinoline-3-carboxaldehyde**

A. Saral, P. Sudha, S. Muthu, S. Sevvanthi, P. Sangeetha, S. Selvakumari

e07529

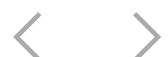
[Full-Text HTML](#) | [PDF](#)

- Sexually transmitted infection associated syndromes among pregnant women attending antenatal care clinics in southwest Ethiopia**

Tewodros Yosef

e07576

[Full-Text HTML](#) | [PDF](#)



Compliance on existing WASH facilities in community clinics of Bangladesh: A comparative study

Nasrin Akter, Bilkis Banu, Sarder Mahmud Hossain, Shaminul Hoque Shakib, A.S.Nurullah Awal

e07549

[Full-Text HTML](#) | [PDF](#)

Judgement of valence of musical sounds by hand and by heart, a machine learning paradigm for reading the heart

Ennio Idrobo-Ávila, Humberto Loaiza-Correa, Flavio Muñoz-Bolaños, Leon van Noorden, Rubiel Vargas-Cañas

e07565

[Full-Text HTML](#) | [PDF](#)

Efficacy of 0.2% hyaluronic acid in the healing of skin abrasions in rats

Marcel Nani Leite, Marco Andrey Cipriani Frade

e07572

[Full-Text HTML](#) | [PDF](#)

In silico prediction of secretory proteins of *Opisthorchis viverrini*, *Clonorchis sinensis* and *Fasciola hepatica* that target the host cell nucleus

Claudia Machicado, Maria Pia Soto, Luis Felipe La Chira, Joel Torres, Carlos Mendoza, Luis A. Marcos

e07204

[Full-Text HTML](#) | [PDF](#)

The intricacies of voicing over documentaries from English into Arabic: implications for translator training

Mohammad Ahmad Thawabteh, Amer Al-Adwan

e07302

[Full-Text HTML](#) | [PDF](#)

Humanized virus-suppressing factor inhibits hepatitis B virus infection by targeting viral cell entry

Yu Miyakawa, Motoyuki Otsuka, Kazuma Sekiba, Kazuyoshi Funato, Kazuhiko Koike

e07586

[Full-Text HTML](#) | [PDF](#)

Developing and feasibility testing of the Indonesian computer-based game prototype for children with attention deficit/hyperactivity disorder

Tjhin Wiguna, Raden Irawati Ismail, Fransiska Kaligis, Kusuma Minayati, Belinda Julivia Murtani, Ngurah Agung Wigantara, Kent Pradana, Raymond Bahana, Bayu Prakoso



[Full-Text HTML](#) | [PDF](#)

- Chemotactic factor inducing Interleukin-8 (IL8) gene is transcriptionally elevated in experimental enterotoxaemia in goats caused by *Clostridium perfringens* type D

N.K. Gangwar, R.V.S. Pawaiya, K. Gururaj, D.D. Singh, D. Andani, A. Kumar, D.K. Sharma, A.R. Rao, A. Rai

e07568

[Full-Text HTML](#) | [PDF](#)

- Oral corrective feedback in English as a foreign language classrooms: A teaching and learning perspective

Xuan Van Ha, Loc Tan Nguyen, Bui Phu Hung

e07550

[Full-Text HTML](#) | [PDF](#)

- Morphological diversity of northeastern fat-tailed and northwestern thin-tailed indigenous sheep breeds of Ethiopia

Belay Deribe, Dereje Beyene, Kifle Dagne, Tesfaye Getachew, Solomon Gizaw, Ayele Abebe

e07472

[Full-Text HTML](#) | [PDF](#)

- Knowledge of neonatal danger signs and associated factors among mothers attending pediatric immunization clinics in Gidan District Health Centers, North Wollo, Ethiopia

Yibeltal Asmamaw Yitayew, Anteneh Shumet Tadele, Zemen Mengesha Yalew, Shiferaw Abeway Mamuye, Desalegn Abebaw Jember

e07553

[Full-Text HTML](#) | [PDF](#)

- Nanoencapsulation of basil essential oil alleviates the oxidative stress, genotoxicity and DNA damage in rats exposed to biosynthesized iron nanoparticles

Aziza A. El-Nekeety, Marwa E. Hassan, Rasha R. Hassan, Ola I. Elshafey, Zeinab K. Hamza, Sekena H. Abdel-Aziem, Nabila S. Hassan, Mosaad A. Abdel-Wahhab

e07537

[Full-Text HTML](#) | [PDF](#)

- Improved real-time quantitative reverse transcription PCR detection of norovirus following removal of inhibitors



[Full-Text HTML](#) | [PDF](#)

Breast cancer awareness and screening practice amongst health personnel and general population of the littoral region of Cameroon

Mohamadou Halmata, Richard Tagne Simo, Grace Nganwa Kembaou, Erika Myriam Baiguere, Lydiane C.C. Ndopwang, Armel Herve Nwabo Kamdje, Phelix Bruno Telefo, Charlette Nangue, Elias Nchiwan Nukenine

e07534

[Full-Text HTML](#) | [PDF](#)

Changing your body changes your eating attitudes: embodiment of a slim virtual avatar induces avoidance of high-calorie food

Riccardo Tambone, Giulia Poggio, Maria Pyasik, Dalila Burin, Olga Dal Monte, Selene Schintu, Tommaso Ciorli, Laura Lucà, Maria Vittoria Semino, Fabrizio Doricchi, Lorenzo Pia

e07515

[Full-Text HTML](#) | [PDF](#)

Alternative structured spectral gradient algorithms for solving nonlinear least-squares problems

Mahmoud Muhammad Yahaya, Poom Kumam, Aliyu Muhammed Awwal, Sani Aji

e07499

[Full-Text HTML](#) | [PDF](#)

Mumbai's business landscape: A spatial analytical approach to urbanisation

Eric Vaz, Bruno Damásio, Fernando Bação, Mahender Kotha, Elissa Penfound, Shailendra Kumar Rai

e07522

[Full-Text HTML](#) | [PDF](#)

Seasonal effect on *Salmonella*, Shiga toxin-producing *E. coli* O157:H7 and non-O157 in the beef industry in Colombia, South America

Alexandra Calle, Ana Karina Carrascal, Carlos Patiño, Carlos Carpio, Alejandro Echeverry, Mindy Brashears

e07547

[Full-Text HTML](#) | [PDF](#)

Geographically weighted bivariate zero inflated generalized Poisson regression model and its application

Purhadi, Dewi Novita Sari, Qurotul Aini, Irhamah

e07491

[Full-Text HTML](#) | [PDF](#)

A survey and optical microscopy in pilot comparative analysis of generic and original nimesulide granules

Pavlo Leonenko, Natalia Ostanina, Yuliia Kokoieva, Mykhaylo Levin, Halyna Leonenko, Oleksii Gumeniuk, Olena Doroshenko, Yana Nikolaieva

e07490

[Full-Text HTML](#) | [PDF](#)

Post award arbitral tribunal's mandate under the UNCITRAL Model Law and national laws based thereon

Omar Hisham Al Hyari, Abdullah Rabee Al Ani

e07556

[Full-Text HTML](#) | [PDF](#)

Subtitling strategies of swear words and taboo expressions in the movie "*Training Day*"

Noureldin Mohamed Abdelaal, Amani Al Sarhani

e07351

[Full-Text HTML](#) | [PDF](#)

A new approach to expert reviewer detection and product rating derivation from online experiential product reviews

Atiquer Rahman Sarkar, Shamim Ahmad

e07409

[Full-Text HTML](#) | [PDF](#)

Agricultural land resource allocation to develop food crop commodities: lesson from Indonesia

Nasikh, Mahirah Kamaludin, Bagus Shandy Narmaditya, Agus Wibowo, Indra Febrianto

e07520

[Full-Text HTML](#) | [PDF](#)

ICT multimedia learning affordances: role and impact on ESL learners' writing accuracy development

Azzam Alobaid

e07517

[Full-Text HTML](#) | [PDF](#)



The use of YouTube in developing the speaking skills of Jordanian EFL university students

Hadeel A. Saed, Ahmad S. Haider, Saleh Al-Salman, Riyad F. Hussein

e07543

[Full-Text HTML](#) | [PDF](#)

Mature trichome is the earliest sequestration site of Cd ions in *Arabidopsis thaliana* leaves

Wenqiang Gao, Chao Guo, Jingjing Hu, Jingao Dong, Li Hong Zhou

e07501

[Full-Text HTML](#) | [PDF](#)

Performance evaluation of FAO Penman-Monteith and best alternative models for estimating reference evapotranspiration in Bangladesh

Shakibul Islam, A.K.M. Rashidul Alam

e07487

[Full-Text HTML](#) | [PDF](#)

Self-learning on COVID-19 among medical students in Bhutan: A cross-sectional study

Thinley Dorji, Saran Tenzin Tamang, T.V.S.V.G.K. Tilak

e07533

[Full-Text HTML](#) | [PDF](#)

Ameliorating effect of melatonin on mercuric chloride-induced neurotoxicity in rats

Eman S. Said, Radwa M. Ahmed, Rehab A. Mohammed, Enas M. Morsi, Mohamed H.

Elmahdi, Hassan S. Elsayed, Rania H. Mahmoud, Eman H. Nadwa

e07485

[Full-Text HTML](#) | [PDF](#)

Children and female labor market outcomes in Vietnam

Linh Hoang Vu, Tuyen Quang Tran, Tung Duc Phung

e07508

[Full-Text HTML](#) | [PDF](#)

Students' experiences with remote learning during the COVID-19 school closure: implications for mathematics education

Angel Mukuka, Overson Shumba, Henry M. Mulenga

e07523

[Full-Text HTML](#) | [PDF](#)



Differential phosphoprotein signaling in the cortex in mouse models of Gulf War Illness using corticosterone and acetylcholinesterase inhibitors

Julia A. Penatzer, Julie V. Miller, Nicole Prince, Misa Shaw, Cayla Lynch, Mackenzie Newman, Gerald R. Hobbs, Jonathan W. Boyd

e07552

[Full-Text HTML](#) | [PDF](#)

A simple platform for the electro-catalytic detection of the dimetridazole using an electrochemical sensor fabricated by electro-deposition of Ag on carbon graphite: application: orange juice, tomato juice and tap water

Jallal Zoubir, Idriss Bakas, Ali Assabbane

e07542

[Full-Text HTML](#) | [PDF](#)

An optimisation study of a solar tower receiver: the influence of geometry and material, heat flux, and heat transfer fluid on thermal and mechanical performance

Hashem Shatnawi, Chin Wai Lim, Firas Basim Ismail, Abdulrahman Aldossary

e07489

[Full-Text HTML](#) | [PDF](#)

Harnessing the sustainable competitive advantage of social motivation in the informal market: A West African society insight

Adebanji William Ayeni, Olaleke Ogunnaike, Edidiong Ayeni, Oluwole Iyiola

e07538

[Full-Text HTML](#) | [PDF](#)

Automotive suspension component behaviors driven on flat and rough road surfaces

T.E. Putra, Husaini, M. Ikbal

e07528

[Full-Text HTML](#) | [PDF](#)

Undiagnosed hypertension in Peru: analysis of associated factors and socioeconomic inequalities, 2019

Delia Vanessa Guerrero-Díaz, Akram Hernández-Vásquez, Wency Cecilia Montoya-Rivera, Carlos Rojas-Roque, Manuel Alberto Chacón Díaz, Guido Bendezu-Quispe

e07516

[Full-Text HTML](#) | [PDF](#)



Understanding the aqueous chemistry of quinoline and the diazanaphthalenes: insight from DFT study

Obieze C. Enudi, Hitler Louis, Moses M. Edim, John A. Agwupuye, Francis O. Ekpen, Emmanuel A. Bisong, Patrick M. Utsu

e07531

[Full-Text HTML](#) | [PDF](#)

Ab initio investigation of nonlinear optical, electronic, and thermodynamic properties of BEDT-TTF molecule: doping with boron

G.F. Olinga Mbala, M.T. Ottou Abe, Z. Ntieche, G.W. Ejuh, J.M.B. Ndjaka

e07461

[Full-Text HTML](#) | [PDF](#)

Machine learning for prediction of diabetes risk in middle-aged Swedish people

Lara Lama, Oskar Wilhelmsson, Erik Norlander, Lars Gustafsson, Anton Lager, Per Tynelius, Lars Wärvik, Claes-Göran Östenson

e07419

[Full-Text HTML](#) | [PDF](#)

Determinant factors of poor adherence to iron supplementation among pregnant women in Ethiopia: A large population-based study

Enyew Getaneh Mekonen, Samrawit Abebe Alemu

e07530

[Full-Text HTML](#) | [PDF](#)

The effect of alkyl chain and electronegative atoms in anion on biological activity of anilinium carboxylate bioactive ionic liquids and computational approaches by DFT functional and molecular docking

Ajoy Kumer, Md. Wahab Khan

e07509

[Full-Text HTML](#) | [PDF](#)

Accumulation and bioconcentration of heavy metals in two phases from agricultural soil to plants in Usangu agroecosystem-Tanzania

Marco Mng'ong'o, Linus K. Munishi, Patrick A. Ndakidemi, William Blake, Sean Comber, Thomas H. Hutchinson

e07514

[Full-Text HTML](#) | [PDF](#)



Determinants of sorghum crop commercialization the case of Southwest Ethiopia

Engida Gebre, Agegnehu Workiye, Kusse Haile

e07453

[Full-Text HTML](#) | [PDF](#)

- QSAR, molecular docking and ADMET properties in silico studies of novel 4,5,6,7-tetrahydrobenzo[D]-thiazol-2-Yl derivatives derived from dimedone as potent anti-tumor agents through inhibition of C-Met receptor tyrosine kinase**

Ossama Daoui, Souad Elkhatabi, Samir Chtita, Rachida Elkhalabi, Hsaine Zgou, Adil Touimi Benjelloun

e07463

[Full-Text HTML](#) | [PDF](#)

- Optimising the impact of a multi-intervention outreach programme on progression to higher education: recommendations for future practice and research**

Adrian P. Burgess, Matthew S. Horton, Elisabeth Moores

e07518

[Full-Text HTML](#) | [PDF](#)

- Subcutaneous infusion of neurosecretory protein GL promotes fat accumulation in mice**

Yuki Narimatsu, Keisuke Fukumura, Eiko Iwakoshi-Ukena, Ayaka Mimura, Megumi Furumitsu, Kazuyoshi Ukena

e07502

[Full-Text HTML](#) | [PDF](#)

- Theoretical analysis and finite element simulation of pipeline structure in liquefied soil**

Chunsheng Yang, Shanqing Li

e07480

[Full-Text HTML](#) | [PDF](#)

- Reliable determination of the growth and hydrogen production parameters of the photosynthetic bacterium *Rhodobacter capsulatus* in fed batch culture using a combination of the Gompertz function and the Luedeking-Piret model**

Jonathan Deseure, Jamila Obeid, John C. Willison, Jean-Pierre Magnin

e07394



Breaking the barriers of animosity: innovation in business models as a positioning strategy

Jose Andres Areiza-Padilla, Mihaela Simona Moise, Mario Andres Manzi Puertas
e07545

[Full-Text HTML](#) | [PDF](#)

Doxorubicin induces dysregulation of AMPA receptor and impairs hippocampal synaptic plasticity leading to learning and memory deficits

Ahmad H. Alhowail, Priyanka D. Pinky, Matthew Eggert, Jenna Bloemer, Lauren N. Woodie, Manal A. Buabeid, Subhrajit Bhattacharya, Shanese L. Jasper, Dwipayana Bhattacharya, Muralikrishnan Dhanasekaran, Martha Escobar, Robert D. Arnold, Vishnu Suppiramaniam
e07456

[Full-Text HTML](#) | [PDF](#)

Simultaneous determination of first-line anti-tuberculosis drugs and one metabolite of isoniazid by liquid chromatography/tandem mass spectrometry in patients with human immunodeficiency virus-tuberculosis coinfection

Yaru Xing, Lin Yin, Xiaoqin Le, Jun Chen, Lin Zhang, Yingying Li, Hongzhou Lu, Lijun Zhang
e07532

[Full-Text HTML](#) | [PDF](#)

Individual and community-level determinants of Iron-Folic Acid Intake for the recommended period among pregnant women in Ethiopia: A multilevel analysis

Abay Woday Tadesse, Setognal Birara Aychiluhm, Kusse Urmale Mare
e07521

[Full-Text HTML](#) | [PDF](#)

African particularities of sudden adult death in Togo on autopsy cases

Tchin Darre, Toukilnan Djiwa, Mazamaesso Tchaou, Aboudoulatif Diallo, Gado Napo-Koura
e07535

[Full-Text HTML](#) | [PDF](#)

"I just became like a log of wood ... I was paralyzed all over my body": women's lived experiences of tonic immobility following rape

Dooshima Dorothy Gbahabo, Sinegugu Evidence Duma
e07471

[Full-Text HTML](#) | [PDF](#)

- Environmental sustainability disclosures in annual reports of mining companies listed on the Australian Stock Exchange (ASX)**
Andrej Miklosik, Nina Evans
e07505
[Full-Text HTML](#) | [PDF](#)

- Intimate partner violence against reproductive-age women and associated factors in Peru: evidence from national surveys, 2015–2017**
Ruth M. Burgos-Muñoz, Anderson N. Soriano-Moreno, Guido Bendezu-Quispe, Diego Urrunaga-Pastor, Carlos J. Toro-Huamanchumo, Vicente A. Benites-Zapata
e07478
[Full-Text HTML](#) | [PDF](#)

- Self-reported syndromes of sexually transmitted infections and its associated factors among reproductive (15–49 years) age women in Ethiopia**
Binyam Minuye Birhane, Amare Simegn, Wubet Alebachew Bayih, Ermias Sisay Chanie, Biruk Demissie, Zemen Mengesha Yalew, Hunegnaw Alemaw, Demeke Mesfin Belay
e07524
[Full-Text HTML](#) | [PDF](#)

- Evaluating learning of medical students through recorded lectures in clinical courses**
Carlos Orellano, Cesar Carcamo
e07473
[Full-Text HTML](#) | [PDF](#)

- Prevalence and factors associated with depression among the mothers of school-going children in Dhaka city, Bangladesh: A multi stage sampling-based study**
Sharmin Sultana, Sanjana Zaman, ABM Alauddin Chowdhury, Istiaque Hasan, Md. Imdadul Haque, Md. Kamrul Hossain, Kazi Rumana Ahmed, Promit Ananyo Chakraborty, Mohammad Delwer Hossain Hawlader
e07493
[Full-Text HTML](#) | [PDF](#)

- Analysis of developmental trends in physical activity, BMI and muscles in children and adolescents with mild-to-moderate intellectual disability**
Jitka Kampasová, Hana Válková
e07457
[Full-Text HTML](#) | [PDF](#)

Gentamicin-induced hearing loss: A retrospective study using the Food and Drug Administration Adverse Event Reporting System and a toxicological study using drug-gene network analysis

Mizuki Tanaka, Kiyoka Matsumoto, Riko Satake, Yu Yoshida, Misaki Inoue, Shiori Hasegawa, Takaaki Suzuki, Mari Iwata, Kazuhiro Iguchi, Mitsuhiro Nakamura

e07429

[Full-Text HTML](#) | [PDF](#)

VISTA facilitates phagocytic clearance of HIV infected CEM-SS T cells

Xuequn Xu, Sean Petersen, Cynthia Rodriguez, Guohua Yi

e07496

[Full-Text HTML](#) | [PDF](#)

Coeloglossum viride var. *bracteatum* extract attenuates staurosporine induced neurotoxicity by restoring the FGF2-PI3K/Akt signaling axis and Dnmt3

Zhe-Ping Cai, Chang Cao, Zhe Guo, Yun Yu, Si-Jia Zhong, Rui-Yuan Pan, Haowen Liang, Rongfeng Lan, Xiao-Yan Qin

e07503

[Full-Text HTML](#) | [PDF](#)

Teachers' perceptions of digital competence at the lifelong learning stage

Esther Garzón-Artacho, Tomás Sola-Martínez, José-María Romero-Rodríguez, Gerardo Gómez-García

e07513

[Full-Text HTML](#) | [PDF](#)

Protective effect of *Vernonia amygdalina* Delile against doxorubicin-induced cardiotoxicity

R.A. Syahputra, U. Harahap, A. Dalimunthe, M. Pandapotan, D. Satria

e07434

[Full-Text HTML](#) | [PDF](#)

Comparative response of rice cultivars to elevated air temperature in Bhabar region of Indian Himalaya: status on yield attributes

Narendra Kumar, Neha Jeena, Amit Kumar, Rowndel Khwairakpam, Hukum Singh

e07474

[Full-Text HTML](#) | [PDF](#)

Dependent conditional value-at-risk for aggregate risk models

Bony Parulian Josaphat, Khreshna Syuhada

e07492



- Barriers and facilitators for clinical trial participation of underrepresented and non-underrepresented fibromyalgia patients: A cross-sectional internet survey**

Alejandra Cardenas-Rojas, Kevin Pacheco-Barrios, Luis Castelo-Branco, Stefano Giannoni-Luza, Ana Balbuena-Pareja, Maria Alejandra Luna-Cuadros, Luna Vasconcelos Felipe, Elif Uygur-Kucukseymen, Paola Gonzalez-Mego, Muhammed Enes Gunduz, Emad Salman Shaikh, Anna Carolyna Lepesteur Gianlorenco, Felipe Fregni

e07475

[Full-Text HTML](#) | [PDF](#)

- Integrating river restoration goals with urban planning practices: the case of Kebena river, Addis Ababa**

Kalkidan Asnake, Hailu Worku, Mekuria Argaw

e07446

[Full-Text HTML](#) | [PDF](#)

- Apoptotic inducement of neuronal cells by codeine: possible role of disrupted redox state and caspase 3 signaling**

A.F. Ajayi, R.E. Akhigbe

e07481

[Full-Text HTML](#) | [PDF](#)

- Mathematical modeling and stochastic simulations suggest that low-affinity peptides can bisect MHC1-mediated export of high-affinity peptides into “early”- and “late”-phases**

Siddhartha Kundu

e07466

[Full-Text HTML](#) | [PDF](#)

- New recommender system evaluation approaches based on user selections factor**

M. Kshour, M. Ebrahimi, S. Goliaee, R. Tawil

e07397

[Full-Text HTML](#) | [PDF](#)

- Identification of serum microRNA signatures associated with autism spectrum disorder as promising candidate biomarkers**

Tatyana Kichukova, Veselin Petrov, Nikolay Popov, Danail Minchev, Samir Naimov, Ivan Minkov, Tihomir Vachev

e07462

Refinement of the spinal cord injury rat model and validation of its applicability as a model for memory loss and chronic pain

V.S. Harikrishnan, Hamza Palekkodan, Ansar Fasaludeen, Lissy K. Krishnan, Klas S.P. Abelson
e07500

[Full-Text HTML](#) | [PDF](#)

Improvement of capacitive performance of polyaniline based hybrid supercapacitor

Md. Mostafizur Rahman, Prova Mehedi Joy, Md. Nasir Uddin, M. Zobayer Bin Mukhlsh, Mohammad Mizanur Rahman Khan
e07407

[Full-Text HTML](#) | [PDF](#)

Effect of novel sequential soaking treatments on Maillard reaction products in potato and alternative vegetable crisps

Moira Ledbetter, Slim Blidi, Stefania Ackon, Francesca Bruno, Keith Sturrock, Nicoletta Pellegrini, Alberto Fiore
e07441

[Full-Text HTML](#) | [PDF](#)

Erectile dysfunction among testicular cancer survivors: A systematic review and meta-analysis

Sitotaw Kerie, Yinager Workineh, Ayele Semachew Kasa, Emiru Ayalew, Melak Menberu
e07479

[Full-Text HTML](#) | [PDF](#)

Liver biomarkers response of the neotropical fish *Aequidens metae* to environmental stressors associated with the oil industry

Wilson Corredor-Santamaría, Diego A. Mora-Solarte, Ziv Arbeli, José M. Navas, Yohana M. Velasco-Santamaría
e07458

[Full-Text HTML](#) | [PDF](#)

Solitary and periodic wave solutions to the family of new 3D fractional WBBM equations in mathematical physics

Abdulla - Al Mamun, Nur Hasan Mahmud Shahen, Samsun Nahar Ananna, Md. Asaduzzaman, Foyjonnese
e07483

[Full-Text HTML](#) | [PDF](#)

Synthesis, antibacterial, anti-oxidant and molecular docking studies of imidazoquinolines

K. Velmurugan, Derin Don, Rajesh Kannan, C. Selvaraj, S. VishnuPriya, G. Selvaraj, S.K. Singh, R. Nandhakumar

e07484

[Full-Text HTML](#) | [PDF](#)

Integration of heterogeneous photocatalysis and persulfate based oxidation using TiO₂-reduced graphene oxide for water decontamination and disinfection

Deepthi John, Jiya Jose, Sarita G. Bhat, V. Sivanandan Achari

e07451

[Full-Text HTML](#) | [PDF](#)

Novel approach to solve singularly perturbed boundary value problems with negative shift parameter

Gemechis File Duressa

e07497

[Full-Text HTML](#) | [PDF](#)

Phytochemical screening, total polyphenol, flavonoid content, *in vitro* antioxidant and antibacterial activities of Sri Lankan varieties of *Murraya koenigii* and *Micromelum minutum* leaves

D.T. Abeysinghe, K.A.H. Kumara, K.A.D. Kaushalya, U.G. Chandrika, D.D.D.H. Alwis

e07449

[Full-Text HTML](#) | [PDF](#)

Age-dependent variations in haematological and serum biochemical parameters of domestic pigeons (*Columba livia domestica*)

Ochuko Orakpoghenor, Talatu Patience Markus, Ngozi Ejum Ogbuagu, Samson James Enam, Sunday Blessing Oladele, Paul Ayuba Abdu, King Akpofure Nelson Esievo

e07486

[Full-Text HTML](#) | [PDF](#)

Parasitaemia estimation and prediction of hepatocellular dysfunction among Ghanaian children with acute malaria using haemoglobin levels

Raymond Charles Ehiem, Fareed Arthur Kow Nanse, Michael Adu-Frimpong, Felix Charles Mills-Robertson

e07445

[Full-Text HTML](#) | [PDF](#)



Fear and depressive symptoms amid COVID-19: A cross-sectional pilot study among adult population in Bangladesh

Md. Raisul Islam, Mst. Sadia Sultana, Abid Hasan Khan, Sahadat Hossain, Md. Tajuddin Sikder, M. Tasdik Hasan, Zezhi Li

e07395

[Full-Text HTML](#) | [PDF](#)

Sustaining COVID-19 pandemic lockdown era air pollution impact through utilization of more renewable energy resources

Eyisi Rita, Esonye Chizoo, Ume Sunday Cyril

e07455

[Full-Text HTML](#) | [PDF](#)

Stable isotopes and community surveys reveal differential use of artificial and natural reefs by South Florida fishes

Christopher A. Blonar, Joseph R. Hornbeck, David W. Kerstetter, Amy C. Hirons

e07413

[Full-Text HTML](#) | [PDF](#)

An investigation of the language learning strategies used by Brazilian students learning Chinese as a foreign language

Xiaobin Yang, Liangjing Zeng, Zhou Xu

e07476

[Full-Text HTML](#) | [PDF](#)

Quality of life of patients with 3D-printed arm prostheses in a rural area of Sierra Leone

A.J. Sterkenburg, M. Van der Stelt, A.R. Koroma, M.D. Van Gaalen, M.J. Van der Pols, M.P. Grobusch, C.H. Slump, T.J.J. Maal, L. Brouwers

e07447

[Full-Text HTML](#) | [PDF](#)

Children with hearing impairment and early cochlear implant: A pragmatic assessment

D. Hilviu, A. Parola, S. Vivaldo, D. Di Lisi, P. Consolino, F.M. Bosco

e07428

[Full-Text HTML](#) | [PDF](#)

Gestational diabetes in rural central India: low prevalence but absence of typical risk factors

Puja Chebrolu, Ravi Kurbude, Manju Thakur, Naman Shah, Rachna Jain



[Full-Text HTML](#) | [PDF](#)

Human health risk assessments of organochlorine pesticides in some food crops from Esa-Oke farm settlement, Osun State, Nigeria

J.A. Oyinloye, J.A.O. Oyekunle, A.O. Ogunfowokan, T. Msagati, A.S. Adekunle, S.S. Nety
e07470

[Full-Text HTML](#) | [PDF](#)

Modeling the optimal mitigation of potential impact of climate change on coastal ecosystems

Sajib Mandal, Md. Sirajul Islam, Md. Haider Ali Biswas, Sonia Akter
e07401

[Full-Text HTML](#) | [PDF](#)

Developing the amazing photocatalyst of $ZnAg_2GeSe_4$, $ZnAg_2Ge_{0.93}Fe_{0.07}Se_4$ and $ZnAg_2Ge_{0.86}Fe_{0.14}Se_4$ through the computational explorations by four DFT functionals

Ajoy Kumer, Unesco Chakma
e07467

[Full-Text HTML](#) | [PDF](#)

Improving the phishing website detection using empirical analysis of Function Tree and its variants

Abdullateef O. Balogun, Kayode S. Adewole, Muiz O. Raheem, Oluwatobi N. Akande, Fatima E. Usman-Hamza, Modinat A. Mabayoje, Abimbola G. Akintola, Ayisat W. Asaju-Gbolagade, Muhammed K. Jimoh, Rasheed G. Jimoh, Victor E. Adeyemo
e07437

[Full-Text HTML](#) | [PDF](#)

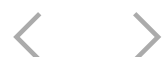
Modified specific gravity method for estimation of starch content and dry matter in cassava

Kanvisit Maraphum, Khwantri Saengprachatanarug, Seree Wongpichet, Arthit Phuphuphud, Panmanas Sirisomboon, Jetsada Posom
e07450

[Full-Text HTML](#) | [PDF](#)

Bio-inspired gelatin/single-walled carbon nanotube nanocomposite for transient electrochemical energy storage: An approach towards eco-friendly and sustainable energy system

Rabeya Binta Alam, Md. Hasive Ahmad, Muhammad Rakibul Islam
e07468



- A MODIS-based scalable remote sensing method to estimate sowing and harvest dates of soybean crops in Mato Grosso, Brazil**

Minghui Zhang, Gabriel Abrahao, Avery Cohn, Jake Campolo, Sally Thompson
e07436

[Full-Text HTML](#) | [PDF](#)

- Cinnamic acid ameliorate gentamicin-induced liver dysfunctions and nephrotoxicity in rats through induction of antioxidant activities**

Esmaeel Babaeenezhad, Negar Nouryazdan, Maryam Nasri, Hassan Ahmadvand, Mostafa Moradi Sarabi
e07465

[Full-Text HTML](#) | [PDF](#)

- Bounds for metric dimensions of generalized neighborhood corona graphs**

Rinurwati, S.E. Setiawan, Slamin
e07433

[Full-Text HTML](#) | [PDF](#)

- Nutrient uptake and pharmaceutical compounds of *Aloe vera* as influenced by integration of inorganic fertilizer and poultry manure in soil**

Tanzin Chowdhury, Md. Akhter Hossain Chowdhury, Wang Qingyue, Christian Ebere Enyoh, Weiqian Wang, Md. Sirajul Islam Khan
e07464

[Full-Text HTML](#) | [PDF](#)

- Defects, diffusion and dopants in Li_8SnO_6**

Navaratnarajah Kuganathan, Andrei L. Solovjov, Ruslan V. Vovk, Alexander ChronEOS
e07460

[Full-Text HTML](#) | [PDF](#)

- Assessing the effectiveness of ground truth data to capture landscape variability from an agricultural region using Gaussian simulation and geostatistical techniques**

Eric Ariel L. Salas, Sakthi Kumaran Subburayalu, Brian Slater, Rucha Dave, Parshva Parekh, Kaiguang Zhao, Bimal Bhattacharya
e07439

[Full-Text HTML](#) | [PDF](#)

- Amotivation and influence of teacher support dimensions: A self-determination theory approach**

[Full-Text HTML](#) | [PDF](#)

Effectiveness of different alpha lattice designs in the evaluation of maize (*Zea mays* L.) genotypes in a rainforest agro-ecology

Richard Olutayo Akinwale, Love Kayode Odunlami, Chinedu Emmanuel Eze, Atanda Samuel Oladejo

e07414

[Full-Text HTML](#) | [PDF](#)

Agro–ecosystem sensitivity to climate change over the Ethiopian highlands in a watershed of Lake Tana sub–basin

Mintesinot Azene Taye

e07454

[Full-Text HTML](#) | [PDF](#)

Alkaloidal extract from *Zanthoxylum zanthoxyloides* stimulates insulin secretion in normoglycemic and nicotinamide/streptozotocin-induced diabetic rats

Isaac Kyei-Barffour, Roselind Kyei Baah Kwarkoh, Ophelia Duke Arthur, Samuel Addo Akwetey, Desmond Omane Acheampong, Benjamin Aboagye, Augustine Suurinobah Brah, Isaac Kingsley Amponsah, Christian Kweku Adokoh

e07452

[Full-Text HTML](#) | [PDF](#)

Socio-economic and cultural factors that influence the labor insertion of University Graduates, Peru

Pedro Jesús Maquera-Luque, José Luis Morales-Rocha, Cynthia Milagros Apaza-Panca

e07420

[Full-Text HTML](#) | [PDF](#)

Spatio-temporal analysis of the hydrological response to land cover changes in the sub-basin of the Chicú river, Colombia

Cindy Barreto-Martin, Ronal Sierra-Parada, Dayam Calderón-Rivera, Angela Jaramillo-Londono, Duvan Mesa-Fernández

e07358

[Full-Text HTML](#) | [PDF](#)

Prediction model for the spread of the COVID-19 outbreak in the global environment

Ron S. Hirschprung, Chen Hajaj



[Full-Text HTML](#) | [PDF](#)

- The use of pumice amended with sand media for domestic wastewater treatment in vertical flow constructed wetlands planted with lemongrass (*Cymbopogon citratus*)**

Philiphi de Rozari, Denik Sri Krisnayanti, Refli, Krispianus V. Yordanis, Maria Ratu Rosari Atie
e07423

[Full-Text HTML](#) | [PDF](#)

- Darker deals? Male dark tetrad preferences for female sex worker services**

Sara Hughes, Joanna Adhikari, Katharine Goulding
e07389

[Full-Text HTML](#) | [PDF](#)

- Irrationality and economic morality of SMEs' behavior during the Covid-19 pandemic: lesson from Indonesia**

Hari Wahyono, Bagus Shandy Narmaditya, Agus Wibowo, Januar Kustiandi
e07400

[Full-Text HTML](#) | [PDF](#)

- Determinants of allocative and economic efficiency in crop-livestock integration in western part of Ethiopia evidence from Horro district: data envelopment approach**

Tolesa Tesema
e07390

[Full-Text HTML](#) | [PDF](#)

- Adaptive relay selection based on channel gain and link distance for cooperative out-band device-to-device networks**

Isyatur Raziah, Yunida Yunida, Yuwaldi Away, Rusdha Muharar, Nasaruddin Nasaruddin
e07430

[Full-Text HTML](#) | [PDF](#)

- Optimal manpower recruitment and promotion policies for the finitely graded systems using dynamic programming**

Peter Nga Assi, Effanga Okon Effanga
e07424

[Full-Text HTML](#) | [PDF](#)



Predictive modelling of hypoxic ischaemic encephalopathy risk following perinatal asphyxia

Catherine Mooney, Daragh O'Boyle, Mikael Finder, Boubou Hallberg, Brian H. Walsh, David C. Henshall, Geraldine B. Boylan, Deirdre M. Murray

e07411

[Full-Text HTML](#) | [PDF](#)

ICT, energy consumption, financial development, and environmental degradation in South Africa

Francis Atsu, Samuel Adams, Joseph Adjei

e07328

[Full-Text HTML](#) | [PDF](#)

Integrated multiplex network based approach for hub gene identification in oral cancer

S. Mahapatra, R. Bhuyan, J. Das, T. Swarnkar

e07418

[Full-Text HTML](#) | [PDF](#)

Field efficacy of ethnomedicinal plant smoke repellency against *Anopheles arabiensis* and *Aedes aegypti*

Abenezer Wendimu, Wondimagegnehu Tekalign

e07373

[Full-Text HTML](#) | [PDF](#)

Review article

Ground improvement using chemical methods: A review

Harshal Verma, Arunava Ray, Rajesh Rai, Tushar Gupta, Neeraj Mehta

e07678

[Full-Text HTML](#) | [PDF](#)

No need to beat around the bushmeat—The role of wildlife trade and conservation initiatives in the emergence of zoonotic diseases

M.H. Hilderink, I.I. de Winter

e07692

[Full-Text HTML](#) | [PDF](#)

Bracing NK cell based therapy to relegate pulmonary inflammation in COVID-19



Madhan Jeyaraman, Sathish Muthu, Asawari Bapat, Rashmi Jain, E.S. Sushmitha, Arun Gulati, Talagavadi Channaiah Anudeep, Shirodkar Jaswandi Dilip, Niraj Kumar Jha, Dhruv Kumar, Kavindra Kumar Kesari, Shreesh Ojha, Sunny Dholpuria, Gaurav Gupta, Harish Dureja, Dinesh Kumar Chellappan, Sachin Kumar Singh, Kamal Dua, Saurabh Kumar Jha
e07635

[Full-Text HTML](#) | [PDF](#)

Experimental and computational advances on the study of Viscous Fingering: An umbrella review

Andrés Pinilla, Miguel Asuaje, Nicolás Ratkovich

e07614

[Full-Text HTML](#) | [PDF](#)

Decommissioning of oil and gas assets: industrial and environmental security management, international experience and Russian practice

Ibragim Khalidov, Konstantin Milovidov, Anzor Soltakhanov

e07646

[Full-Text HTML](#) | [PDF](#)

The phenomenon of clasmatodendrosis

Denis Balaban, Edison K. Miyawaki, Shamik Bhattacharyya, Matthew Torre

e07605

[Full-Text HTML](#) | [PDF](#)

Understanding gender issues in Nigeria: the imperative for sustainable development

Olawale Y. Olonade, Blessing O. Oyibode, Bashiru Olalekan Idowu, Tayo O. George, Oluwakemi S. Iwelumor, Mercy I. Ozoya, Matthew E. Egharevba, Christiana O. Adetunde

e07622

[Full-Text HTML](#) | [PDF](#)

Water, electricity and ion exchange; how Hamish Small sustained the evolution of ion chromatography

John M. Riviello

e07495

[Full-Text HTML](#) | [PDF](#)

Assessing the relationship among service quality, student satisfaction and loyalty: the NIGERIAN higher education experience

Taiye T. Borishade, Olaleke O. Ogunnaike, Odunayo Salau, Bolanle D. Motilewa, Joy I. D'...

e07590



- Phycoremediation mechanisms of heavy metals using living green microalgae: physicochemical and molecular approaches for enhancing selectivity and removal capacity**

Mohammed Danouche, Naïma El Ghachtouli, Hicham El Arroussi

e07609

[Full-Text HTML](#) | [PDF](#)

- The effects of some components on the electrodeposition process used for solar cell applications**

Nour Mohammad-Sadik Ali, Ayman Karam, Indrajit Mukhopadhyay

e07554

[Full-Text HTML](#) | [PDF](#)

- Why is the world not yet ready to use alternative fuel vehicles?**

Meisam Ahmadi Ghadikolaei, Pak Kin Wong, Chun Shun Cheung, Jing Zhao, Zhi Ning, Ka-Fu Yung, Hang Cheong Wong, Nirmal Kumar Gali

e07527

[Full-Text HTML](#) | [PDF](#)

- Recent advance of ACE2 and microbiota dysfunction in COVID-19 pathogenesis**

Zhidan Yu, Zhaojie Yang, Yuesheng Wang, Fang Zhou, Suli Li, Chan Li, Lifeng Li, Wancun Zhang, Xiaoqin Li

e07548

[Full-Text HTML](#) | [PDF](#)

- Community radio-based blended learning model: A promising learning model in remote area during pandemic era**

Rully Charitas Indra Prahmana, Dody Hartanto, Dian Artha Kusumaningtyas, Raden Muhammad Ali, Muchlas

e07511

[Full-Text HTML](#) | [PDF](#)

- Evolution of anodised titanium for implant applications**

J. Alipal, T.C. Lee, P. Koshy, H.Z. Abdullah, M.I. Idris

e07408

[Full-Text HTML](#) | [PDF](#)

- Sealing ability and microbial leakage of root-end filling materials: MTA versus epoxy resin: A systematic review and meta-analysis**

[Full-Text HTML](#) | [PDF](#)

Variables related to the quality of life of families that have a child with severe to profound intellectual disabilities: A systematic review

N. Luitwieler, J. Luijckx, M. Salavati, C.P. Van der Schans, A.J. Van der Putten, A. Waninge
e07372

[Full-Text HTML](#) | [PDF](#)

A review of treatment methods for insensitive high explosive contaminated wastewater

William Fawcett-Hirst, Tracey J. Temple, Melissa K. Ladyman, Frederic Coulon
e07438

[Full-Text HTML](#) | [PDF](#)

Advanced and feasible pulses processing technologies for Ethiopia to achieve better economic and nutritional goals: A review

Tadesse Fikre Teferra
e07459

[Full-Text HTML](#) | [PDF](#)

Mechanistic aspects of plant-based silver nanoparticles against multi-drug resistant bacteria

Shahid Wahab, Tariq Khan, Muhammad Adil, Ajmal Khan
e07448

[Full-Text HTML](#) | [PDF](#)

The neurophysiological basis of bruxism

Andrisani Giovanni, Andrisani Giorgia
e07477

[Full-Text HTML](#) | [PDF](#)

The global prevalence of depression, anxiety, stress, and, insomnia and its changes among health professionals during COVID-19 pandemic: A rapid systematic review and meta-analysis

Sultan Mahmud, Sorif Hossain, Abdul Mueeed, Md Mynul Islam, Md. Mohsin
e07393

[Full-Text HTML](#) | [PDF](#)

Corrigendum

- [Corrigendum to “Media governance: managing online games seen from the perspective of the state in Vietnam” \[Heliyon 7 \(1\) \(January 2021\) e06045\]](#)
Phan Quang Anh
e07668
[Full-Text HTML](#) | [PDF](#)

- [Corrigendum to “Prediction of methane diffusion coefficient in water using molecular dynamics simulation” \[Heliyon 6 \(11\) \(November 2020\) e05385\]](#)
Hojatollah Moradi, Hedayat Azizpour, Hossein Bahmanyar, Mohammad Mohammadi, Mahdi Akbari
e07488
[Full-Text HTML](#) | [PDF](#)

- [Corrigendum to “Ultra-trace determination of oxyhalides in ozonated aquacultural marine waters by direct injection ion chromatography coupled with triple-quadrupole mass spectrometry” \[Heliyon 7 \(4\) \(April 2021\) e06885\]](#)
Estrella Sanz Rodriguez, Shing Lam, Gregory G. Smith, Paul R. Haddad, Brett Paull
e07426
[Full-Text HTML](#) | [PDF](#)

Case report

- [Large cemento-ossifying fibroma of the mandible involving the infratemporal and parapharyngeal spaces](#)
Shrihari Guddadarangiah, Shishir Ram Shetty, Saad Al-Bayatti, Sangeetha Narasimhan
e07594
[Full-Text HTML](#) | [PDF](#)

- [Clinical and genetic profile in index patients with spinocerebellar ataxia type 3 in Indonesia: case report](#)
Siti Aminah, Fathul Huda, Uni Gamayani, Iin Pusparini, Mochammad Faisal Afif Mochyadin, Yunia Sribudiani, Norlinah Mohamed Ibrahim, Tri Hanggono Achmad
e07519
[Full-Text HTML](#) | [PDF](#)

- [Atypical pantothenate kinase-associated neurodegeneration with vari](#) < >
[phenotypes in an Egyptian family](#)

Ali S. Shalash, Thomas W. Rösler, Ibrahim Y. Abdelrahman, Hatem S. Abulmakarem, Stefanie H. Müller, Franziska Hopfner, Gregor Kuhlenbäumer, Günter U. Höglinger, Mohamed Salama e07469

[Full-Text HTML](#) | [PDF](#)

Use of local perforator flaps for closure of a thoraco-omphalopagus conjoined twin defect after separation during the COVID-19 pandemic

Nandita Melati Putri, Prasetyanugraheni Kreshanti, Indri Aulia, Akhmad Noviandi Syarif, Narottama Tunjung, Chaula Luthfia Sukasah e07443

[Full-Text HTML](#) | [PDF](#)

ADVERTISEMENT



RESEARCH JOURNALS

Cell

Cancer Cell

Cell Chemical Biology

Cell Genomics

Cell Host & Microbe

Cell Metabolism

Cell Reports

Cell Reports Medicine

Cell Reports Methods

Cell Reports Physical Science

Cell Stem Cell





Research article

Self-efficacy in physical activity and glycemic control among older adults with diabetes in Jagir Subdistrict, Surabaya, Indonesia

Trias Mahmudiono^{a,*}, Stefania W. Setyaningtyas^a, Qonita Rachmah^a, Triska S. Nindya^a, Hario Megatsari^b, Diah Indriani^c, Mahmud A. Rifqi^a, Wantanee Kriengsinoyos^d^a Department of Nutrition, Faculty of Public Health, Universitas Airlangga, Surabaya 60115, Indonesia^b Department of Health Promotion and Behavioral Science, Faculty of Public Health, Universitas Airlangga, Surabaya 60115, Indonesia^c Department of Biostatistic and Population, Faculty of Public Health, Universitas Airlangga, Surabaya 60115, Indonesia^d Institute of Nutrition, Mahidol University, Nakhon Pathom 73170, Thailand

ARTICLE INFO

Keywords:

Glycemic control

HbA1c

Self-efficacy

Physical activity

Health and wellbeing

ABSTRACT

Diabetes in older adults has shown an increase in prevalence, especially in urban areas of Indonesia. This study aimed to assess the relationship between self-efficacy in physical activity and glycemic control in older adults' population with diabetes mellitus in Indonesia. This research used cross sectional design that involved 52 adults with diabetes, aged between 55-90 years old who regularly attended the older adult's health post (Posyandu Lansia) at Jagir Sub-district, Surabaya. Those who had physical disabilities were excluded from the study. Questionnaires were used to measure the physical activity and two types of self-efficacy whilst the glycemic control was measured using HbA1c in basal condition. The relationship between the variables was tested using Pearson and partial correlation test. Results show that the level of physical activity was insufficient (216.4 ± 343.5 MET) with only 32.7% ($N = 17$) of the participants was categorized as being physically active. The mean of the HbA1c indicated poor glycaemic control ($8.63 \pm 2.34\%$) with majority of them (76.9%, $N = 40$) was in the poor glycaemic control group ($HbA1c \geq 6.5\%$). Their self-efficacy was at the average level (Against the barriers: 52.65 ± 13.23 ; Engage in physical activity: 59.06 ± 26.2). The self-efficacy in performing the physical activity was found significantly related to the duration of physical activity ($r = 0.278$, $p = 0.046$). Other relationships, however, were not significant ($p > 0.05$). In conclusion, self-efficacy to engage in physical activity is paramount to increase the physical activity among the older adults. Nevertheless, further longitudinal research on self-efficacy in physical activity management is needed.

1. Introduction

Diabetes mellitus is a degenerative disease whose prevalence continues to increase yearly. Data from the International Diabetes Federation showed that the prevalence of diabetes worldwide in 2017 was 8.7% (Cho et al., 2018). This number has risen significantly relative to the prevalence rate of diabetes in 2013, which was 8.3% (Guariguata et al., 2014). Generally, the prevalence is rising more severely in lower-middle-income countries (Cho et al., 2018; World Health Organization [WHO], 2016b); indeed, the WHO predicted in 2016 that the prevalence of diabetes mellitus in lower-middle-income countries would experience the most rapid increase from that point on as compared within other countries (WHO, 2016b).

As the prevalence of diabetes in the world increases, the percentage of diabetes mellitus in Indonesia is also showing a similar trend. In 2013, it

was found that the prevalence of diabetes in Indonesia was 1.5% (Ministry of Health Republic of Indonesia, 2013), while that in 2007 was 1.1% (Ministry of Health Republic of Indonesia, 2007).

As people age, their risk of developing diabetes mellitus grows. The proportion of diabetics 50 years of age and older is larger than that of those younger than 50 years of age (Cho et al., 2018). This trend occurs because, as the age increases, the functions of almost all body cells—including the ability of pancreatic cells to produce insulin and the insulin receptor sensitivity of cells that play a role in capturing insulin—decrease. In addition, lifestyle factors such as obesity, a lack of physical activity, and the consumption of saturated fats can also contribute to an increased risk of diabetes mellitus in older adults (Kirkman et al., 2012; Meneilly and Tessier, 2001). Several studies have suggested to date that the factors most associated with aging-related

* Corresponding author.

E-mail address: trias-m@fkm.unair.ac.id (T. Mahmudiono).

insulin resistance are obesity and physical inactivity (Amati, 2009; Mayer-Davis et al., 1998).

The onset of aging-related insulin resistance is attributed specifically to an increase in intramyocellular fatty acid metabolites that leads to mitochondrial dysfunction (Kim et al., 2008; Petersen et al., 2003). One of the hallmarks in the aging process is body composition changes; during aging, the fat oxidation rate tends to slow down, which results in a gradual accumulation of body fat in the cells. These changes might lead to a decrease in the mitochondrial oxidative capacity (Phielix et al., 2011). Some studies have suggested that aging-related insulin resistance can be managed by physical activity (Kim et al., 2008; Kubota et al., 2006; Taylor et al., 2004); to date, several studies have shown that aerobic exercise led to a beneficial effect on glucose metabolism in older adults (Chodzko-Zajko et al., 2009; Ryan, 2010; Short et al., 2003).

Indonesia is a developing country with a high prevalence of physical inactivity. It is known that 22.8% of Indonesia's population is classified as showing low levels of physical activity (WHO, 2016a). In addition, the American College for Sports Medicine stated that older populations do not exhibit sufficient levels of both the frequency and intensity of physical activity due to a decrease in exercise tolerance (Chodzko-Zajko et al., 2009). Many factors can lead to physical inactivity among elders, including psychosocial and environmental factors (Bauman et al., 2012; Chaudhury et al., 2016). Low levels of physical activity are thought to occur due to urbanization and modernization (Popkin et al., 2013).

Several studies have mentioned that self-efficacy induces better medical adherence, thus potentially improving glycemic control in individuals with type 2 diabetes (Gao et al., 2013; Shao et al., 2017; Wicht et al., 2017). As such, one study involving Omani adults revealed that patients with type 2 diabetes and poor glycemic control were more likely to also exhibit poor self-efficacy and self-care behaviors (D'Souza et al., 2017).

Self-efficacy is a theoretical approach used to measure a person's belief in their capabilities to successfully execute a necessary course of action based on situational conditions (Bandura and Ramachandran, 1994). The self-efficacy questionnaire did not require a long recall period so it was not believed to place an inappropriate burden on older adults. In addition, a study did mention that reducing the burden on aging individuals can be achieved by asking shorter and simpler questions (Knäuper et al., 2016); thus, we simplified the self-efficacy questionnaire to shorten the recall time and lower the burden. Some of studies have also suggested that self-efficacy is a significant predictor of exercise adherence and compliance (King et al., 2010; McAuley and Blissmer, 2000). Self-efficacy can influence someone's choice regarding the frequency, type, and duration of exercise they adopt (McAuley and Blissmer, 2000). This study aimed to assess the relationship of self-efficacy in physical activity and glycemic control indicated by the glycated hemoglobin (HbA1c) level among older adults in Jagir Subdistrict, Surabaya, Indonesia.

2. Results

2.1. Characteristics of participants

The total number of eligible individuals was 325 and, ultimately, 60 older adults who met the study criteria participated in this study. However, eight of these participants did not complete the questionnaire, so the final sample size was 52 participants. The participants' characteristics are shown in Table 1.

2.2. Physical activity

To measure the mediating variable between self-efficacy toward physical activity and glycaemic control, a physical activity level measurement was performed and the resultant value was expressed as min/week. As shown in Table 1, the average duration of daily moderate and heavy physical activity was 216.4 ± 343.5 min/week, indicating an

Table 1. Characteristics, glycaemic control, physical activity, and self-efficacy in physical activity of study participants.

Variable	Mean \pm SD or Frequency, n (%)
Sex	
Male	16 (30.8)
Female	36 (69.2)
Age (years)	66.8 \pm 5.39
Occupation	
Employed	9 (17.3)
Unemployed	43 (82.7)
HbA1c (%)	8.63 \pm 2.34
<6.5%	12 (23.1)
\geq 6.5%	40 (76.9)
Self-efficacy	
Against the barrier	52.65 \pm 13.23
Engage with physical activity	59.06 \pm 26.2
Physical activity (min/week)	216.4 \pm 343.5
Physically active	17 (32.7)
Physically inactive	35 (67.3)

insufficient level of activity. Only 32.7% (n = 17) of the study participants were physically active, in that they performed moderate aerobic physical activity for than 300 min/week.

2.3. Self-efficacy in physical activity

This study assessed the self-efficacy in physical activity through several questions concerning a participant's ability to overcome barriers to and engage in physical activity. The mean \pm standard deviation values of self-efficacy against barriers and self-efficacy to engage in physical activity were 52.65 ± 13.23 and 59.06 ± 26.2 , respectively (Table 1). This study found that self-efficacy to engage in physical activity was significantly positively related to the mean of physical activity ($r = 0.278$; $p = 0.046$). However, there was no correlation between self-efficacy against the barriers to physical activity and the duration of physical activity per day ($p = 0.426$).

2.4. Glycaemic control

Glycaemic control, the main dependent variable of this study, was assessed according to HbA1c level and it was revealed that the HbA1c level was $8.63\% \pm 2.34\%$, suggesting a high rate of poor glycaemic control. Findings concerning glycaemic control based on two categories of HbA1c level (<6.5% vs. $\geq 6.5\%$) further revealed that majority of participants (n = 40; 76.9%) had high HbA1c levels ($\geq 6.5\%$) (Table 1). The HbA1c level was found to have a negative correlation with age among the study participants ($r = 0.285$; $p = 0.04$). On the other hand, there was no significant correlation between physical activity and the HbA1c level ($p = 0.293$). There was also no significant correlation found between the two types of self-efficacy and the HbA1c level ($p = 0.1974$, self-efficacy against barriers to physical activity; $p = 0.545$, self-efficacy to pursue physical activity).

2.5. Adjusted correlation

Table 2 shows the results pertaining to the relationship between both types of self-efficacy and HbA1c while controlling for age and physical activity. The partial correlation was done twice. The first partial correlation was performed by controlling the age, whereas the physical activity was added in the second partial correlation. Both models of correlation indicated that there was no significant correlation between either type of self-efficacy or the HbA1c level ($p > 0.05$).

Table 2. Correlation between self-efficacy and HbA1c.

Independent Variable	R	p-value
Model 1^a		
Self-efficacy against barriers	-0.171	0.194
Self-efficacy to pursue physical activity	0.086	0.545
Model 2^b		
Self-efficacy against barriers	-0.150	0.293
Self-efficacy to pursue physical activity	0.018	0.899
Model 3^c		
Self-efficacy against barriers	-0.132	0.361
Self-efficacy to perform physical activity	0.033	0.820

^a Bivariate correlation.

^b Partial analysis by controlling the age variable.

^c Partial analysis by controlling the age and duration of physical activity variables.

3. Discussion

This study aimed to assess the relationship between self-efficacy in physical activity and glycaemic control among older adults with diabetes at five health posts in Jagir Subdistrict, Surabaya, Indonesia. Findings indicate that the older adults in this study had insufficient level of physical activity with the majority of them being physically inactive. Their glycaemic control was also poor of which many of them had the poor control. Their self-efficacy in against the barriers toward physical activity and self-efficacy in their ability to perform the activity were both at the average level only. Whilst self-efficacy against barriers had no influence on their physical activity, the other self-efficacy did play a role on physical activity. In particular, engagement in the physical activity was higher as that particular self-efficacy increased. For the glycaemic control, it was found that it increased as the participants' age was younger. The glycaemic control, nevertheless, did not have a relationship with physical activity and both types of self-efficacy.

The finding for the physical activity in this study is not surprising since the participants lived in an urban area. According to Popkin et al. (2013), urbanization makes the transportation access easier which this leads people in the urban area often become physically inactive and have more sedentary lifestyle. In addition, the participants' houses were located in dense settlement with no recreational or sport facilities around the housing.

Bandura's Social Cognitive Theory (Bandura and Ramachandran, 1994) has suggested that a person's behaviours would increase if the self-efficacy increases. Many studies have tested this suggestion and found that the increase in the physical activity in older adults with diabetes had relationship with the increase in the self-efficacy of the physical activity (King et al., 2010; Taylor et al., 2004). This result, however, is consistent to the finding of the present study for the self-efficacy in performing physical activity only. The self-efficacy on barriers, on the other hand, is contrary to the previous study (King et al., 2010). The contradicting result could be explained by an interrelation of various factors that we did not focus on in this study, such as the balance between food intake, physical activity, and the rate of aging, which can influence glycaemic control of the participants.

Physical activity has long been known to have beneficial effect on the glycaemic control (Ekelund et al., 2009; Mayer-Davis et al., 1998; Taylor et al., 2004). However, the physical activity must be done at the recommended level with minimum 3 days per week for adult and older adults (WHO, 2010b). Although physical activity and glycaemic control was not found related in this study, the poor glycaemic control as indicated by the high level of HbA1c could reflect the insufficient physical activity level.

HbA1c is often used as the objective measurement of diabetes self-management (e.g., physical activity, diet and medication adherence).

Many studies that have examined the relationship between self-efficacy and HbA1c reported a significant relationship between these two variables (Al-Khawaldeh et al., 2012; Gao et al., 2013; O'Hea et al., 2009). Nevertheless, the current study did not find similar relationship. This could be due to various factors such as the balance between food intake, physical activity, as well as the rate of aging process can influence glycaemic control of the participants.

However, the use of the cross-sectional design in this study hinders the inference of causality relationships between the study variables. Another limitation is the possibility of measurement bias related to the interview. In particular, the interview could be interrupted by other older adult members. In order to minimize this kind of bias, the interview process was held in separated rooms but in the same location of *Posyandu Lansia*. In addition, recall bias could arise from the ability of the participants to remember things related to the answers since we used older adults as the participants. We minimized this recall bias by shortening the retrospective time period of the questions and crosschecking the answers with family members living in the same house with the participants. The strength of the study includes the use of HbA1c as standard measure for diabetes mellitus which rarely used in the Indonesian setting due to its relatively expensive test. It is believed that this study is among the few, if not the first to report the outcome of diabetes mellitus in a community setting in Indonesia using HbA1c.

Future research using direct measurement tools such as pedometer or accelerometer is recommended. Furthermore, assessing the use of diabetes medication among the participants should be considered. All of the participants were previously registered as a member of the Older Adult Health Post (*Posyandu Lansia*). Hence, it is indicated that participants' access to health facilities and medication was high. Longitudinal or experimental study that assess the relationship between self-efficacy toward physical activity and glycaemic control in older adults is needed for stronger evidence.

4. Conclusion

There was no significant correlation between self-efficacy in physical activity and the HbA1c level among the participants of this study. It has been known that HbA1c level may be affected by other care practices such as diet or medication, yet these variables were not included in this research. Future research assessing the self-efficacy toward other diabetes management behaviors could provide further perspectives about the role of self-efficacy in glycaemic control. The use of direct physical activity measurement tools is also recommended. Moreover, a longitudinal design to assess the relationship of self-efficacy toward physical activity and glycaemic control in the older adults over time is also needed.

5. Materials and methods

5.1. Design and setting

This study involved secondary analysis of data previously collected for the purpose of measuring self-efficacy and overcome barriers to engage in physical activity, sedentary behavior, and their relation to body mass index among elderly Indonesians with diabetes (Rachmah et al., 2019). This study expanded the analysis of previously published study (Rachmah et al., 2019) and focused its analysis on the association between self-efficacy in physical activity and glycaemic control among older adults with diabetes in Jagir Subdistrict, Surabaya, Indonesia. This study used quantitative approach with cross sectional study design. The study was held in Surabaya City, the second largest city of Indonesia. Research took place at the Jagir Sub-district, located in the heart of the city. This involved five different health posts for older adults (*Posyandu Lansia*). The health posts were chosen as all the older adults registered under them lived in a similar type of housing area which belongs to dense settlement and had comparable public recreational facilities.

5.2. Study samples

There were 1020 older adults in Jagir Sub-districts registered under the five health posts. Of this, 325 people suffered from diabetes. Samples for this study were selected from this population using the simple random sampling method. Inclusion criteria were fluent in conventional Bahasa Indonesia, was a permanent resident and planning to stay in Surabaya City for at least six months and aged between 55-90 years old. However, they were excluded if they had physical disability. Sample size calculation was determined using several considerations. Assuming that diabetes prevalence in Indonesia was 2.5% (Ministry of Health Republic of Indonesia, 2013), the minimum sample size calculated based on Charan and Biswas equation (Charan and Biswas, 2013) was 38 persons. While using sample size calculation for difference in 2 independent proportions, and the minimum sample size required was 50 (Rachmah et al., 2019). A larger sample size ($N = 60$) was recruited in order to achieve study power of 1.0. Among the initial samples recruited, 56 participants completed anthropometric measurement as well as all questionnaires on self efficacy and physical activity, however only 52 older adults complete HbA1C measurement. Hence, the final sample to be analyzed in this study was 52 because some of the older adults did not complete HbA1C measurement.

5.3. Variable measurement

5.3.1. Self-efficacy in physical activity

Based on the Bandura's Social Cognitive Theory (Bandura and Ramachandran, 1994), a questionnaire was developed to measure the self-efficacy in physical activity for this study. The questionnaire measured two domains of self-efficacy in physical activity; self-efficacy against barriers to physical activity (10 questions) and self-efficacy to do physical activity (8 questions). Participants were asked to rate their self-efficacy against 10 scenarios of barriers towards engaging in physical activity. The scenarios were: (1) tired, (2) bad weather, (3) facing personal problems, (4) depression, (5) anxious, (6) injuries or illness, (7) feeling uncomfortable walking, (8) holidays, (9) too much work, and (10) having other interesting agendas. The self-efficacy to do physical activity rated participants' confidence to engage in walking which divided into: (1) 1,000 step/day, (2) 2,000 step/day, (3) 3,000 step/day, (4) 4,000 step/day, (5) 6,000 step/day, (6) 8,000 step/day, (7) 10,000 step/day, and (8) 12,000 step/day. Participants rated their confidence in overcoming barrier or engaging in a specific amount of physical activity on a scale from 0 to 100. The mean scores of each self-efficacy domain were calculated for further analysis with higher score indicating higher self-efficacy. Using the Cronbach Alpha, we assessed those measures of self-efficacy used were reliable ($\alpha = 0.682$ for self-efficacy against barriers to physical activity and $\alpha = 0.576$ for self-efficacy to do physical activity). The questionnaire was written in Bahasa. To minimize the misleading interpretations of the questions, the trained enumerators interviewed the participants to fill the answer in the questionnaire.

5.3.2. Glycemic control

Glycaemic control was measured using a glycated hemoglobin (HbA1c) test administered by certified health analysts. The blood-drawing process for all participants was completed in the morning, where as much as 2 cc of blood was drawn from the median cubital vein using a vacuum syringe. The HbA1c was analyzed using an ion-exchange HPLC method using the Variant™ system. Blood samples were not stored for future analysis. The average duration between the day of the last HbA1c measurement and the day of survey completion was less than one month, with HbA1c measurements performed after completion of the survey.

5.3.3. Physical activity level

The other variable measured in this study was physical activity level that was included as a controlled variable. This variable was assessed using the Global Physical Activity Questionnaire (GPAQ) (WHO, 2010a)

in order to gain the information about frequency, type, and duration of physical activity which have been done by the participants over the past month. It consisted of four sections namely working, travelling, recreational, and sedentary activity. The result was then transformed into minute per week (MET) unit to describe physical activity level of the participants. Total physical activity MET was calculated by summarizing the minutes unit of activities multiplied by certain constants, i.e., 4 for moderate work, transportation activity, and moderate recreation, and 8 for vigorous work and recreational activities (WHO, 2010a). In the original GPAQ which targeted the general population, the cut-off point of 600 MET was usually referred to as the "active" category. However, since the participants of this study were older adults, we used cut-off points of minimum 300 MET to define whether the participants had sufficient physical activity (WHO, 2010b). The questionnaire was translated to Bahasa, and one on one interview was done to collect the data by trained enumerator.

5.4. Procedures of data collection

Data collection was conducted from August to September 2017. Eligible participants were identified through the health post database and given an explanation about this study. Those who agreed to participate were asked to sign an informed consent form. The research interview process was conducted in a separate room for each participant to avoid the possibility of interruption by other older adults. To minimize recall bias, participants' answers were crosschecked with family members who lived in the same house.

5.5. Statistical analysis

To assess the correlation between variables, Pearson's correlation with $\alpha = 0.05$ was performed using the Statistical Package for the Social Sciences version 21 software program (IBM Corporation, Armonk, NY, USA). In addition, partial correlation was also done to measure the degree of control held by potentially mediating or confounding variables over the main variable. In this case, the control variables were age and physical activity.

5.6. Ethics

This research complied with the standard Committee on Publication Ethics ethical guidelines and received approval from the institutional review board of the Faculty of Public Health, Universitas Airlangga on July 25, 2017 (reference or proposal no. 414-KEPK). This study was also approved by the Surabaya City Review Board (Bakesbangpol no:070/6275/436.8.5/2017). The dataset of the study will be made publicly available once this manuscript is published in the repository of Universitas Airlangga found on the following website: <http://repository.una.ac.id/>.

Declarations

Author contribution statement

Trias Mahmudiono: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Triska Susila Nindya: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

Wantanee Kriengsinoyos: Conceived and designed the experiments; Wrote the paper.

Stefania Setyaningtyas and Qonita Rachmah: Performed the experiments; Analyzed and interpreted the data; Wrote the paper.

Mahmud Aditya Rifki and Hario Megatsari: Performed the experiments.

Diah Indriani: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data.

Funding statement

This work was supported by Universitas Airlangga (RisetKolaborasi 2017).

Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

References

- Al-Khawaldeh, O.A., Al-Hassan, M.A., Froelicher, E.S., 2012. Self-efficacy, self-management, and glycemic control in adults with type 2 diabetes mellitus. *J. Diabet. Complicat.* 26 (1), 10–16.
- Amati, F., 2009. Do obesity and physical inactivity underlie the insulin resistance of aging? (Doctoral dissertation). ProQuest Dissertations and Theses Diabetes Care 32 (8), 156.
- Bandura, A., 1994. Self-efficacy. In: Ramachandran, V.S. (Ed.), *Encyclopedia of Human Behavior*, 4. Academic Press, New York, pp. 71–81. H. Friedman (Ed.), *Encyclopedia of mental health*. San Diego: Academic Press.
- Bauman, A.E., Reis, R.S., Sallis, J.F., Wells, J.C., Loos, R.J.F., Martin, B.W., Sarmiento, O.L., 2012. Correlates of physical activity: why are some people physically active and others not? *Lancet* 380 (9838), 258–271.
- Charan, J., Biswas, T., 2013. Review article how to calculate sample size for different study designs in medical research? *Indian J. Psychol. Med.* 35 (2), 121–126.
- Chaudhury, H., Campo, M., Michael, Y., Mahmood, A., 2016. Neighbourhood environment and physical activity in older adults. *Soc. Sci. Med.* 149 (1), 104–113.
- Cho, N.H., Shaw, J.E., Karuranga, S., Huang, Y., da Rocha Fernandes, J.D., Ohlrogge, A.W., Malanda, B., 2018. IDF Diabetes Atlas: global estimates of diabetes prevalence for 2017 and projections for 2045. *Diabetes Res. Clin. Pract.* 138, 271–281.
- Chodzko-Zajko, W.J., Proctor, D.N., Fiatarone Singh, M.A., Minson, C.T., Nigg, C.R., Salem, G.J., Skinner, J.S., 2009. American College of Sports Medicine position stand. Exercise and physical activity for older adults. *Med. Sci. Sports Exerc.* 41 (7), 1510–1530.
- D'Souza, M.S., Karkada, S.N., Parahoo, K., Venkatesaperumal, R., Achora, S., Cayaban, A.R.R., 2017. Self-efficacy and self-care behaviours among adults with type 2 diabetes. *Appl. Nurs. Res.* 36, 25–32.
- Ekelund, U., Brage, S., Griffin, S.J., Wareham, N.J., ProActive UK Research Group, 2009. Objectively measured moderate- and vigorous-intensity physical activity but not sedentary time predicts insulin resistance in high-risk individuals. *Diabetes Care* 32 (6), 1081–1086.
- Gao, J., Wang, J., Zheng, P., Haardörfer, R., Kegler, M.C., Zhu, Y., Fu, H., 2013. Effects of self-care, self-efficacy, social support on glycemic control in adults with type 2 diabetes. *BMC Fam. Pract.* 14 (1), 1090–1101.
- Guariguata, L., Whiting, D.R., Hambleton, I., Beagley, J., Linnenkamp, U., Shaw, J.E., 2014. Global estimates of diabetes prevalence for 2013 and projections for 2035. *Diabetes Res. Clin. Pract.* 103 (2), 137–149.
- Kim, J.A., Wei, Y., Sowers, J.R., 2008. Role of mitochondrial dysfunction in insulin resistance. *Circ. Res.* 102 (4), 401–414.
- King, D.K., Glasgow, R.E., Toobert, D.J., Strycker, L.A., Estabrooks, P.A., Osuna, D., Faber, A.J., 2010. Self-efficacy, problem solving, and social-environmental support are associated with diabetes self-management behaviors. *Diabetes Care* 33 (4), 751–753.
- Kirkman, M.S., Briscoe, V.J., Clark, N., Florez, H., Haas, L.B., Halter, J.B., Swift, C.S., 2012. Diabetes in older adults. *Diabetes Care* 35 (12), 2650–2664.
- Knäuper, B., Carrière, K., Chamandy, M., Xu, Z., Schwarz, N., Rosen, N.O., 2016. How aging affects self-reports. *Eur. J. Ageing* 13 (2), 185–193.
- Kubota, M., Nagasaki, M., Tokudome, M., Shinomiya, Y., Ozawa, T., Sato, Y., 2006. Mechanical horseback riding improves insulin sensitivity in elder diabetic patients. *Diabetes Res. Clin. Pract.* 71 (2), 124–130.
- Mayer-Davis, E.J., D'Agostino, R., Karter, A.J., Haffner, S.M., Rewers, M.J., Saad, M., Bergman, R.N., 1998. Intensity and amount of physical activity in relation to insulin sensitivity: the Insulin Resistance Atherosclerosis Study. *J. Am. Med. Assoc.* 279 (9), 669–674.
- McAuley, E., Blissmer, B., 2000. Self-efficacy determinants and consequences of physical activity. *Exerc. Sport Sci. Rev.* 28 (2), 85–88.
- Meneilly, G.S., Tessier, D., 2001. Diabetes in older adults. *J. Gerontol.* 56 (1), M5–M13.
- Ministry of Health Republic of Indonesia, 2007. Riset Kesehatan Dasar (RISKESDAS) 2007. Kementerian Kesehatan Republik Indonesia, Jakarta.
- Ministry of Health Republic of Indonesia, 2013. Riset Kesehatan Dasar (RISKESDAS) 2013. Kementerian Kesehatan Republik Indonesia, Jakarta.
- O'Hea, E.L., Moon, S., Grothe, K.B., Boudreaux, E., Bodenlos, J.S., Wallston, K., Brantley, P.J., 2009. The interaction of locus of control, self-efficacy, and outcome expectancy in relation to HbA1c in medically underserved individuals with type 2 diabetes. *J. Behav. Med.* 32 (1), 106–117.
- Petersen, K.F., Befroy, D., Dufour, S., Dziura, J., Ariyan, C., Rothman, D.L., Shulman, G.I., 2003. Mitochondrial dysfunction in the older adults: possible role in insulin. *Science* 300 (May), 1140–1143.
- Phielix, E., Szendroedi, J., Roden, M., 2011. Mitochondrial function and insulin resistance during aging-A mini-review. *Gerontology* 57 (5), 387–396.
- Popkin, B.M., Adair, L.S., Ng, S.W., 2013. Global nutrition transition and pandemic of obesity in developing countries. *Nutrition* 70 (1), 3–21.
- Rachmah, Q., Setyaningtyas, S.W., Rifiq, M.A., Indriani, D., Nindya, T.S., Megatsari, M., Mahmudiono, T., Kriengsinoy, W., 2019. Self-efficacy to engage in physical activity and overcome barriers, sedentary behavior, and their relation to body mass index among elderly Indonesians with diabetes. *J. Prev. Med. Publ. Health* 52 (4), 242–249.
- Ryan, A.S., 2010. Exercise in aging: its important role in mortality, obesity, and insulin resistance. *Aging Health* 6 (5), 551–563.
- Shao, Y., Liang, L., Shi, L., Wan, C., Yu, S., 2017. The effect of social support on glycemic control in patients with type 2 diabetes mellitus: the mediating roles of self-efficacy and adherence. *J. Diabetes Res.* 1–8.
- Short, K.R., Vittone, J.L., Bigelow, M.L., Proctor, D.N., Rizza, R.A., Coenen-Schimke, J.M., Nair, K.S., 2003. Impact of aerobic exercise training on age-related changes in insulin sensitivity and muscle oxidative capacity. *Diabetes* 52 (8), 1888–1896.
- Taylor, A., Cable, N., Faulkner, G., Hillsdon, M., Narici, M., Van Der Bij, A., 2004. Physical activity and older adults: a review of health benefits and the effectiveness of interventions. *J. Sports Sci.* 22 (8), 703–725.
- Wichit, N., Mnatzaganian, G., Courtney, M., Schulz, P., Johnson, M., 2017. Randomized controlled trial of a family-oriented self-management program to improve self-efficacy, glycemic control and quality of life among Thai individuals with Type 2 diabetes. *Diabetes Res. Clin. Pract.* 123, 37–48.
- World Health Organization, 2010a. Global Physical Activity Questionnaire. World Health Organization, Geneva.
- World Health Organization, 2010b. Global Recommendations on Physical Activity for Health. World Health Organization, Geneva.
- World Health Organization, 2016a. Diabetes Country Profile Indonesia. World Health Organization, Geneva.
- World Health Organization, 2016b. Global Report on Diabetes. World Health Organization, Geneva.