



JOURNAL OF THE CAMEROON ACADEMY OF SCIENCES

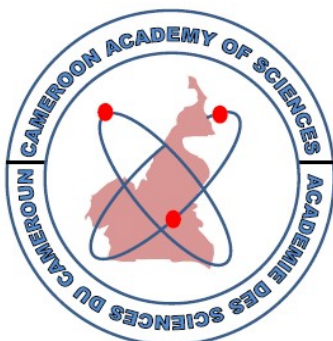
REVUE DE L'ACADEMIE DES SCIENCES DU CAMEROUN



Phenotypic polymorphism of colored cavies bred in the South East of Katanga

Vol. 19.2 pp 107 - 196

ISSN 2617-3948



July 2023

Science-Excellence-Progress

JOURNAL OF THE CAMEROON ACADEMY OF SCIENCES *REVUE DE L'ACADEMIE DES SCIENCES DU CAMEROUN*

© THE AUTHORS. The JCAS is published under the **Creative Commons Attribution 4.0 International License** (<https://creativecommons.org/choose/>)

JCAS is listed by AJOL (African Journals Online) at <http://www.inasp.info/ajol//>

SUBSCRIPTION FOR PRINTED EDITION

The following yearly subscription rates cover the cost of one volume (three issues) plus postage by airmail or first class mail. Please send a Money Order and a completed subscription form to:

Editor-in-Chief
Professor V. P. K. Titanji
Biotechnology Unit, University of Buea
Box 63, S.W. Province
Fax: (237) 332 22 72
vpk.titanji@yahoo.com

Subscription Rates

Cameroon	20,000 FCFA
Africa	50 USD
Europe & Asia	60 USD
The Americas	80 USD

Published by the Cameroon Academy of Sciences with the financial assistance of the Ministry of Higher Education (MINESUP) and the Ministry of Scientific Research and Innovation (MINRESI).

EDITORIAL BOARD

Editor-in-Chief

Professor Vincent P.K. Titanji

Associate Editors

Biological Sciences

Dr. Vincent Ngwang Tanya Agricultural Sciences
Prof. Wilfred Mbacham Molecular Biology

Prof. Remy Mimpfoundi
Prof. Rose G.F. Leke

Animal Biology
Biomedical Sciences

Engineering, Mathematical & Physical Sciences

Prof. Samuel N. Ayonghe Earth Sciences
Prof. Bekole David Mathematics
Prof. Emmanuel Tonye Engineering

Prof. Wofo Paul
Prof. Gideon Akumah Ngwa
Prof. Nkenfack Ephraim Augustin

Physics
Applied Mathematics
Organic Chemistry

Social Sciences

Prof. Yenshu Emmanuel Sociology
Prof. Paul Mbangwana English
Prof. Therese M. Tchombe Education

Prof. Verkijika Fanzo
Prof. Touna Mama

History
Economics

**FELLOWS OF THE CAMEROON ACADEMY OF SCIENCES
A. COLLEGE OF BIOLOGICAL SCIENCES**

Prof. Vincent P. K. Titanji	Biochemistry	Prof. Siméon Pierre Choukem	Internal Medicine
Prof. Veronique Penlap Beng	Biochemistry/Biotechnology	Prof. Fru Angwafor III Fobuzshi	Medicine/Urology
Prof. Thomas Njine	Zoology	Prof. Maguelle-Dicoum nee Biyong	Physiology/Human Reproduction
Prof. Theresa Akenji	Immunology/Parasitology	Prof. Mbanya Dora née Ngum Shu	Medicine/Hematology
Prof. Same Ekobo	Parasitology	Prof. Louis-Albert Tchuem-Tchuente	Parasitology
Prof. Rose G.F Leke	Immunology/Parasitology	Prof. Judith Ndongo Torimiro	Molecular Biology/Biochemistry
Prof. Roger Moyo	Parasitology	Prof. Felicite Mbiapo	Nutritional Biochemistry
Prof. Robert J.I. Leke	Gynecology/Obstetrics	Prof. Carl Mbofung	Nutritional Biochemistry
Prof. Mimpfoundi Remy	Biology/Molecular Parasitology	Prof. Alfred Njamnshi Kongnyu	Medicine/Neurology
Prof. Mbanya Jean Claude	Medicine/Endocrinology	Dr. Vincent Ngwang Tanya*	Virology
Prof. Mbacham Fon Wilfred	Molecular Biology/Biotechnology	Dr. Samuel Nzientchueng*	Plant Breeding
Prof. Manjeli Yacoubou	Genetics	Dr. Mbankah Daniel Achukwi*	Veterinary Medicine
Prof. Kamgno Joseph	Public Health/Epidemiology	Dr. Jacob Ngeve Mbua	Plant Genetics/Pathology
Prof. Julius Eyong Oben	Biochemistry/Nutrition	Dr. Gabriel Agbor*	Biochemistry
Prof. Jeanne Ngogang	Medical Biochemistry	Dr. David Akuro Mbah*	Genetics
Prof. F-X Mbopi Keou	MicroBiology/Virology	Dr. Anthoine Ngalani*	Food Technology
Prof. Eugene Sobngwi	Internal Medicine	Dr. Justine Tantchou*	Clinical Biochemistry
Prof. Etoa Francois-Xavier	Microbiology		
Prof. Elisabeth Ngo Bum	Animal Physiology		

B. COLLEGE OF MATHEMATICS AND PHYSICAL SCIENCES

Prof. Wofo Paul	Physics	Prof. Ngameni Emmanuel	Inorganic Chemistry/Materials Science
Prof. Tonye Emmanuel	Electronics	Prof. Mkankam Kamga François	Geophysics
Prof. Tchinda René	Physics	Prof. Tayou Djamegni Clémentin	Mathematics and Computer Science
Prof. S. Yunkap Kwankam	Electrical Engineering	Prof. Nkenfack Ephraim Augustin	Organic Chemistry
Prof. Peter Teke Ndifon	Coordination Chemistry	Prof. Kolyang	
Prof. Norbert Noutchegeume	Mathematics	Prof. Kofane Timoleon Crepin	Physics
Prof. Njomo Donatien	Physics	Prof. Ekodeck Georges Emmanuel	Geologist
Prof. Ngwa Gideon	Mathematics	Prof. Daniel Njopwouo	Inorganic Chemistry and Material Science
Prof. Ngadjui Bonaventure	Organic Chemistry	Prof. Chrispin Pettang	Civil Engineering
Prof. Maurice Tchuente	Mathematics/ Computer Science	Prof. Chinje Uphie Melo	Inorganic Chemistry and Material Science
Prof. Mathias F. Fonteh	Hydrology	Prof. César Kapseu Chemical	Engineering and Applied Chemistry
Prof. Manguelle-Dicoum E.	Physics	Prof. Ayonghe Samuel Ndonwi	Geophysics
Prof. Luke Sondengam	Chemistry	Dr. Fantong Wilson Yetoh	Hydrologist/ Hydrogeologist
Prof. Kwato Njock Moise	Atomic and Molecular Physics		
Prof. John M. Ngundam	Electrical Engineering		
Prof. Henri Hogbe Nlend	Mathematics		
Prof. Bitjong Ndombol	Mathematics		
Prof. David Bekolle	Mathematics		

C. COLLEGE OF SOCIAL SCIENCES

Prof. Paul Nchoji Nkwi	Anthropology	Prof. Joseph Owona	Law
Prof. Beban Sammy Chumbow	Linguistics	Prof. Oliver Ruppel	Law
Prof. Paul N. Mbangwana	English Literature	Prof. Victor Wacham A. Mbarika	ITC
Prof. Peter Geshiere	Anthropology	Prof. Fonkeng Epah George	Educational administration
Mr. John W. Forje	Science & Tech. Policy	Prof. Rene Joly Assako Assako	Urban Geography and Environ. Sciences
Prof. Verkijika Fanso	History	Dr. Elizabeth V. Tamajong	Educational Policy and Administration
Prof. Wilfred A. Ndongko	Economics		
Prof. Therese Tchombe Mungah Shalo	Science of Education		
Prof. Touna Mama	Economics		
Prof. Ephraim Ngwafor	Law		
Prof. Jean Emmanuel Pondi	International Relations		
Prof. Godfrey B. Tangwa	Philosophy		
Prof. Francis Beng Nyamnjoh	Anthropology		
Prof. Cornelius Mbifung Lambi	Geography		
Prof. Michel Tchotsoua	Geography/ Geometrics		
Prof. Tsafack Nanfosso	Economy		
Prof. Paul G. Pougoue	Law		
Prof. Emmanuel Yenshu Vubo	Anthropology		

Fellows of the Academy may be consulted to review papers in their domains of specialization. Papers submitted by them are subjected to the same review process as those of other contributors.

* Chief Research Officer
+ Senior Research Officer

GUEST REVIEWERS*

A BIOLOGICAL SCIENCES

Prof. Tchoumboue Joseph	Agronomy/Animal Genetics	Prof. Chuyong George	Botany/Agroforestry
Prof. Tobias Apinjo	Biochemistry	Prof. Felix Meutchieye	Animal Biology /Genetics
Prof. Stephen Ghogomu	Biochemistry/Molecular Biology	Prof. Anders Liljas (Sweden)	Structural Biology
Prof. Roland Ndip	Microbiology	Prof. Marita Troye Blomberg (Sweden)	Immunology
Prof. Paul Tan	Animal Physiology	Prof. Amambua Alfred Ngwa(Gambia)	Molecular Genetics/Parasitology
Prof. Nantia Akono Edouard	Biochemistry/Pharmacology	Prof. Albert Kamanyi	Animal Physiology
Prof. Meutchieye Felix	Animal Production	Prof. Aduni Achidi (Mrs)	Nutritional Biochemistry
Prof. Fokam Eric Bertrand	Animal Biology	Prof. Assam Assam Jean Paul	Microbiology/Public Health
Prof. Lars Hviid (Denmark)	Immunology	Prof Paul Moundipa	Biochemistry/ Phyto-pharmacology
Prof. Kenneth Ndamukong	Animal Science	Dr. Nzweundji Justine Germe	Plant Biotechnology
Prof. J.M. Bell	Plant Biology	Dr. Nstomboh Godswill Nstefong*	Plant Science/Agronomy
Prof. Guy Tsala	Plant Physiology/ Biotechnology	Dr Ngaba Junior	Botany/ Agroforestry
Prof Denis Omokolo	Plant Physiology	Dr Hughes C. Nana Djeuga	Molecular Parasitology
Prof. Fokunang Charles	Plant Science/Phyto-Pharmacology	Prof Mary Bih Suh Atanga	Nursing/ Public health
Prof. Eric Achidi	Chemical Pathology		
Prof. Eneke Tambe Bechem	Plant Biotechnology		
Prof. Dieudonne Nwaga	Plant Biology		
Prof. Denis Zofou	Biochemistry		

B MATHEMATICAL, PHYSICAL AND ENGINEERING SCIENCES

Prof. Mbuntum Francis	Mathematics
Prof. Ngenefene Foba Tendo Josepha	Environmental Chemistry
Prof. Genee Mulugeta (Sweden)	Geology
Prof. Tening Suh Aaron	Inorganic Chemistry
Prof. Suh Emmanuel	Geology
Prof. Samuel Kimbu Organic	Chemistry
Prof. Ngounouno Ismaila	Geology
Prof. Laure Pauline Fotso	Computer Science
Prof. Emmanuel Tanyi	Engineering
Prof. Efang Simon Mbua	Medicinal Chemistry/Pharmacology
Prof Jules Roger Kuate	Inorganic Chemistry/Phytochemistry
Dr Mbey Jean Aime Inorganic	Chemistry
Dr Fidele Ntie Kang Medicinal	Chemistry
Dr Elie F.Tagne	Computer Sciences
Dr Alain Moise Dikande	Physics
Prof Lukong Cornelius Fai	Physics/Materials Science

C SOCIAL SCIENCES

Dr Denis Ghislain Mbessa	Philosophy /Bioethics	Dr. Akoko Mbe Robert	Sociology
Prof. Tafah Edokat	Economics	Prof. Nol Alembong	African Literature
Prof. Leke Tambo	Education	Prof. Suzanne Ayonghe	Translation and Intercultural Studies
Prof. Joyce Endeley	Gender Studies	Prof. Akumbu Pius	Linguistics and English Language studies
Prof Moise Moupou	Geography		
Prof. Godfrey Njimanted	Economics		

EDITORIAL ASSISTANTS

Mr. Adolf Sunyin Nubidga
Dr. Magellan Guewo

*All guest reviewers hold the PHD or equivalent degree and have published extensively in their various fields

CONTENTS/SOMMAIRE

JOURNAL OF THE CAMEROON ACADEMY OF SCIENCES Vol. 19.2 (July 2023)
REVUE DE L'ACADEMIE DES SCIENCES DU CAMEROUN Vol. 19.2 (July 2023)

**BIOLOGICAL SCIENCES
SCIENCES BIOLOGIQUES**

- 109 Caracteristiques Phenotypiques des Populations de Cobaye Domestique (*Cavia porcellus*) du Sud-Est du Katanga en RD Congo
MWANGOMB K.D, MEUTCHIEYE F., NTEMUNYI N.C, NGONO E.P.J, NTSOLI J, BILOLWA B.P, DONGMO D.F, AYAGIRWE R, KAMPEMBA M.F, NGOULA F.

- 125 Phytosociological Assessment and Diversity of Woody Species in Omo Biosphere Reserve, Nigeria.
OYELOWO, O.J, OLADOYE, A.O, OJO, E.O., OLUBAYO, O.O., SONDE, B., ADELANI D.O.

- 141 Influence of Arbuscular mycorrhiza on the growth potential of *Terminandus indica*. L seedlings
KAREEM A. A., OGUNWANDE, O. A., OLAITAN, O. A., AND OYELOWO, O. J.

149 **CORRIGENDUM**

Effects of pre-sowing techniques on selected seeds of savanna agroforestry tree species
OYEBAMIJI N.A, OJEKUNLE O.O, OPANIKE O.O AND YISAU, J.A

**PHYSICAL SCIENCES
SCIENCES PHYSIQUES**

- 153 Modeling and Predicting Exchange Rate Volatility: Application of Symmetric GARCH and Asymmetric EGARCH and GJR-GARCH Models
BRUNO DINGA, JIMBO HENRY CLAVER, KUM KWA CLETUS AND SHU FELIX CHE

- 177 Optimal removal of bisphenol A by biosorbent based on groundnut shell: Adsorption mechanism, nonlinear kinetics and isotherm (*Arachis hypogaea* L.) shell.
LARISSA ZITA FOTSO MATUENO, CLIVE NEBA AKONGNWI, TOUNA TOUNA PASCAL, THÉOPHILE KAMGAING, AURELIEN BOPDA, DONALD TCHUIFON, CHRISTOPHER SUH

191 **CORRIGENDUM**

Etat de connaissance des tiques et des maladies transmises dans les systèmes de production de bovins viande au Cameroun, Afrique Centrale
HAYATOU HAMIDOU, AMARIR FATIMA EZZAHRA, BOUSLIKHANE MOHAMMED, RHALEM ABDELKBIR, AWAH-NDUKUM JULIUS, MEUTCHIEYE FÉLIX

