



# UNIVERSITY OF ZAMBIA

## DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

### SEED MONEY SYMPOSIUM



**CONFUCIUS INSTITUTE, GREAT EAST ROAD CAMPUS**

**12<sup>th</sup> and 13<sup>th</sup> October, 2021**

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## A MESSAGE FROM THE DIRECTOR



Welcome to the 2021 Seed Money Research Symposium. We thank you for coming to this special event at which our successful awardees will be disseminating their research findings arising from the support of the Directorate of Research and Graduate Studies (DRGS) through the 2019/20 and the 2020/21 seed money grants. Due to the Corona Virus (COVID 19) pandemic, we could not hold the symposium for 2019 and 2020 until now.

In line with the University of Zambia's mission regarding research, the Directorate of Research and Graduate Studies has since 1994 been the coordinating unit that has supported Schools, Units and other Directorates of the University of Zambia in the development and implementation of postgraduate training and research activities. In the field of research, DRGS fosters ethics and conduct of research through the enforcement of policies; facilitates researcher affiliation schemes; and provides seed grants for academic members of staff of the University of Zambia. The Seed Money grant is a limited amount of funds set aside each year to promote start-up research or to compliment other funds for existing and continuing research activities. This grant is awarded on a competitive basis to grant applications with novelty, innovativeness, value for money and potential for expansion. In 2019, fourteen (14) applications were received by the directorate out of which eleven (11) were awarded, while in 2020 thirty three (33) applications were received by the directorate out of which 15 were selected and were awarded across the University with fields of research including health, food safety, renewable energy, Artificial Intelligence, Remote Sensing, Gender and Child Health, biotechnology, food production and agriculture, animal health, Data management and construction.

As DRGS, our vision is to be a Centre of Excellence in administering research and contribute to the dissemination of new knowledge in Zambia and globally. We realise that society funds research as such research must contribute to the wellbeing of society, we are pleased to inform you that, we are now in the final phase of our research policy and the intellectual property rights policy review. We are thankful that some of you have participated in their review and validation. We hope that once they are concluded and approved, the university and the nation at large will benefit from the technologies and innovations developed from the research outputs. To achieve our vision, we are striving to enhance our research activities for transformation and national development. Over the next two days, we will have an opportunity to listen to the world class research being carried out by researchers from UNZA using the seed money DRGS has awarded them with.

We once again welcome you to this symposium.

*Mrs Wilma S. Nchito (PhD)*

***Director, Directorate of Research and Graduate Studies. (DRGS)***

## EVENTS PROGRAMME

**VENUE: ROOM 1 CONFUCIUS INSTITUTE**

**DAY ONE. 12<sup>TH</sup> OCTOBER, 2021**

TIME	TITLE / ACTIVITY	RESPONSIBLE
08:00	Arrival of presenters and participants	
08:15 – 08:20	Welcoming Remarks	Director, DRGS
08:20 – 08:40	Official opening	Deputy Vice-Chancellor
09:00 – 13:10	Presentation by Researchers	Researchers
13:10 – 14:00	Lunch	All Participants
14:00 – 17:00	Presentation by Researchers	Researchers
17:00	End of Day One	

**09:00 – 09:30Hrs** **Characterization of cashew nut shell liquid from western province cashew nut shell waste: value chain addition.** *Dr. James Nyirenda, School of Natural Sciences.*



**Dr. James Nyirenda** has over 15 years' experience in chemistry and biochemistry and has a Bachelor of Science degree in Chemistry which he obtained from the University of Zambia and graduated with merit. He also possesses a Master of Science in Biochemistry obtained at Hamdard University-India with first division. His doctoral research at Kyushu University-Japan, focused on protein chemistry, x-ray crystallography, protein disulphide bond engineering, DNA-site directed mutagenesis and enzyme kinetics of an archaeon oligosaccharyltransferase, a pivotal enzyme in protein Asparagine-linked glycosylation in both health and

onset of disease. At the University of Zambia. His work involves exploring plant natural products with respect to finding low cost treatment regimens against zoonoses (corona viruses) and non-communicable diseases; diabetes and hypertension as a cohort. Other research involves the exploitation of conducting polymers and synthesis of nanomaterials in design of biosensing platforms for whole cell organisms and biomarkers for cancer.

09:30– 10:00hrs **Nutritional composition, sensory properties and shelf life of different types of mabisi: towards commercialization.** *Dr. Himoonga B. Moonga. School of Agriculture*



**Dr. Himoonga B. Moonga** is a Lecturer and Researcher at the University of Zambia in the School of Agricultural Sciences, Department of Food Science & Nutrition. He is also the Partnerships & Outreach Coordinator for the School of Agricultural Sciences. His area of expertise include product development and food processing in dairy, food fermentation, postharvest technology, fruit and vegetables as well as quality management systems. He has over 15 years of experience in teaching, research, and consultancy and curriculum development. His recent research has focussed on indigenous foods: optimisation of traditionally fermented foods such as mabisi, chibwantu, munkoyo as well as product development of local foods tailored for specific age groups or communities with a view to reduce food waste and postharvest losses. Other research areas include food quality and safety, consumers preference and perception and shelf life.

10:00 – 10:30hrs

**Human consumption of mice meat (mbeba) and its contribution to the diet of a rural community of eastern province of Zambia. Dr. John Shindano, School of Agricultural Sciences**



**Dr. John Shindano** is a Lecturer and Researcher in the Department of Food Science & Nutrition, School of Agricultural Sciences of the University of Zambia. He holds a B.Sc in Chemistry from University of Zambia, M.Sc and PhD in Food Science & Technology from Gent University, Belgium and MBA jointly offered by ESAMI and Maastricht School of Management, The Netherlands. He worked in the private sector as Quality Assurance Officer prior to joining the academics. His research interests include research into processing of indigenous foods, food composition, food quality, food safety, sensory evaluation of foods and postharvest food loss & waste

**10:30 – 10:40hrs**

**Health Break and Refreshment**

10:40 – 11:10hrs

**Development of a combined anti-diabetic and anti-hypertensive food supplement from common Zambian plants.** *Dr. James Nyirenda, School of Natural Sciences.*



**Dr. James Nyirenda** has over 15 years' experience in chemistry and biochemistry and has a Bachelor of Science degree in Chemistry which he obtained from the University of Zambia and graduated with merit. He also possesses a Master of Science in Biochemistry obtained at Hamdard University-India with first division. His doctoral research at Kyushu University-Japan, focused on protein chemistry, x-ray crystallography, protein disulphide bond engineering, DNA-site directed mutagenesis and enzyme kinetics of an archaeon oligosaccharyltransferase, a pivotal enzyme in protein Asparagine-linked glycosylation in

both health and onset of disease. At the University of Zambia. His work involves exploring plant natural products with respect to finding low cost treatment regimens against zoonoses (corona viruses) and non-communicable diseases; diabetes and hypertension as a cohort. Other research involves the exploitation of conducting polymers and synthesis of nanomaterials in design of biosensing platforms for whole cell organisms and biomarkers for cancer.

11:10 – 11:40hrs

**Culturing of invasive insect pests and beneficial insects: the need for renovation of the insectary.** *Dr. Philemon H. Sohati, School of Agricultural Sciences.*



**Dr. Philemon H. Sohati** has over 37 years' experience in entomology and has a Bachelor of Agricultural Sciences degree which he obtained from the University of Zambia in 1982. He possesses a Master of Science in Entomology obtained at McGill University-Canada. His Masters research was entitled: "Studies on the egg parasitoids of *Lygus lineolaris* (P. de B.) (Hemiptera: Miridae) in southwestern Quebec." He is also holds a degree of Doctor of Philosophy in Agricultural Sciences (Entomology) from the University of Zambia. His doctoral study was on the establishment of *Cotesia vestalis* (Haliday) and *Diadromus collaris* (Grav.)

parasitoids of the diamondback moth, *Plutella xylostella* (L.), and assessment of the effectiveness of *C. vestalis* as a biological control agent in Zambia. He joined the University of Zambia in 2005. His work involves exploring bean and cowpea genotypes resistant to the storage beetles (*Callosobruchus* spp.) and CA 38-38-9-B bean mutation derived mutant was identified to be highly resistant to bean storage bruchid. A programme has already been initiated to introgress the trait into other desirable released bean varieties. Other research involves the search for natural enemies of the Fall Armyworm, *Spodoptera frugiperda* (JE Smith); (Lepidoptera: Noctuidae) and the tomato leafminer, *Tuta absoluta* (Lepidoptera: Gelechiidae).

11:40 – 12:10hrs

**Phytochemical screening and antibacterial activities of ficus sycomorus leaf, stem and bark extract against escherichia coli, salmonella typhi and staphylococcus aureus.** *Mr. Steward Mudenda, School of Health Sciences*



12:10 – 12:40hrs

**Collection of parasitoids and predators for the control of spodoptera frugiperda (J.E. Smith in Zambia).** *Dr. Miyanda Nzala Moonga, School of Natural sciences.*



**Dr. Miyanda N. Moonga** is an entomologist in the Department of Biological Sciences, School of Natural Sciences at the University of Zambia (UNZA). She obtained a Bachelor of Science degree from UNZA with a major in Entomology and Parasitology. She later enrolled for a Master of Science in Entomology at UNZA. Her MSc research focused on the assessment of infestation levels of an invasive stemborer species on the maize crop and the impact of its natural enemies in Zambia. She later studied for a PhD in Entomology at Louisiana State University, Baton Rouge, U.S.A. Her PhD research was focused on the integrated multiple-tactic management of the redbanded stink bug on soybeans in Louisiana. Her research interests include biological control of invasive insect pests, insect-plant interactions and integrated pest management (IPM) of field/post-harvest insect pests.

12:40 – 13:00hrs

Interaction

**13:00 – 13:50hrs**

**Lunch Break**

14:00 – 14:30hrs

**Epidemiology of Protozoan and Helmith Infections in free range chickens in Lusaka Province, Zambia.** *Dr. Joyce Siwila – Saasa, School of Veterinary Medicine.*



**Dr. Joyce S. Saasa** is a veterinarian with over 14 years of experience in parasitology with emphasis on parasitic zoonoses. She obtained her Veterinary degree and MSc in Veterinary Parasitology from the University of Zambia. Her PhD (Parasitology) which she obtained from the University of Copenhagen, Denmark, focused on soil transmitted helminths and zoonotic protozoan parasites in preschool children and domestic animals. Her research interests are in parasitic zoonoses, animal and human health with the aim of improving community health. Dr Siwila-Saasa has mentored several Masters Students and one PhD student from the Schools of Veterinary Medicine, Health Sciences and Public Health. She has held administrative positions in

the School of Veterinary Medicine (Assistant Dean - undergraduate studies - 2014 to 2018; Acting Dean and HOD on several occasions) and is currently the Assistant Director for undergraduate studies at the Institute of Distance Education.

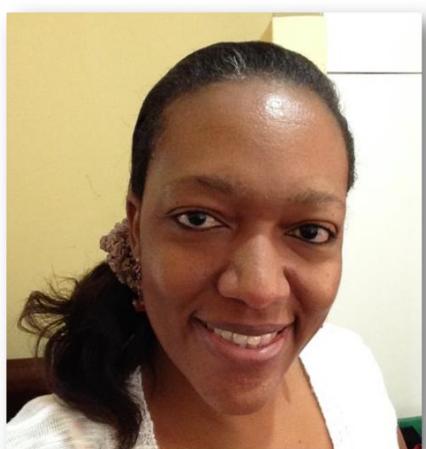
14:30 – 15:00hrs

**Estimation of genetic variability for economic traits of Zambia's indigenous chicken.** *Dr. Wilson N. M. Mwenya, School of Agricultural Sciences.*



15:00 – 15:30hrs

**Evaluation of safety and efficacy of Zambian crocodile fat as an antimicrobial, antifungal and topical ointment agent.** *Dr. Ntombi Mudenda, School of Natural Sciences.*



**Dr. Ntombi Mudenda** graduated from UNZA, School of Veterinary Medicine with a B. Vet. Med. and went on to obtain an MSc in Wild Animal Health at the Royal Veterinary College in London, England. She obtained her PhD from Louisiana State University in 2013, where she concentrated on zoonotic helminth infections. Her research interests include wildlife, zoonotic infections, antimicrobial resistance and parasitic diseases of animals.

15:30 – 16:00hrs

**Purification and Bottling of bio gas cylinders in Zambia.** *Dr. Victor S. Kaluba, School of Engineering.*



16:00 – 16:30hrs

**Psychosocial experiences of children with cerebral palsy.** *Dr. Madalitso K. Banja, School of Education.*



16:30 – 17:00hrs

**Acceptability of biometrics as a tool for child survival health promotion strategies in cross cultural settings in Kalomo and Lusaka Districts.** *Dr. Joseph M. Zulu, School of Public Health.*



**Dr. Joseph M. Zulu** is an Associate Professor of Community Health in the School of Public Health, University of Zambia. He is specialised in Social Work, Social and Medical Anthropology as well as Public Health. Prof Zulu is Assistant Dean -Research for the School of Public Health as well as the Program Manager for the Master's in Public Health with Implementation Research supported by the Tropical Disease Research (TDR). He has more than 10 years of professional and research experience with local and international institutions in the following fields: research ethics, sexual and reproductive health and rights, human resources for health (particularly community-based health workers), health policy and systems, gender, infectious diseases, as well as child protection.

TIME	TITLE / ACTIVITY	RESPONSIBLE
16:30 – 17:00hrs	Remarks	DRGS
17:00hrs	End of Day one	

**DAY TWO WEDNESDAY, 13<sup>TH</sup> OCTOBER, 2021**

Time	Title/Activity	Responsible
08:00hrs	<b>Arrival and Registration of Participants and Presenters</b>	<b>DRGS</b>
08:15hrs	<b>Welcoming Remarks</b>	<b>DRGS</b>
<b>08:30hrs</b>	<b>Presentations</b>	<b>Chairpersons and Researchers</b>

08:30 - 09:00hrs      **Formative research to understand individual and systems level factors influencing cervical cancer screening among HIV positive women in Zambia.** *Dr. Mwansa K. Lubeya, School of Medicine.*



**Dr. Ketty M. Lubeya** is an Obstetrician / Gynecologist (originally from Chitambo), working at the Women and Newborn Hospital, UTH, and lecturer at the Medical School of the University of Zambia. She is currently pursuing her Ph.D. in public health at the University of the Witwatersrand in South Africa, driven by her passion for bettering women's reproductive health. With her track record as a young leader, Dr Lubeya was competitively selected as a 2017 Mandela Washington Fellow for outstanding Young African Leaders Initiative and a 2018 Inaugural Obama Foundation: African Leaders programme. Dr Lubeya has co-founded the first-ever research mentorship not-for-profit organization (Young Emerging Scientists) in Zambia for medical students and early career medical doctors to hone their leadership and research skills from a tender age. Dr Lubeya has experience in conducting research and has been a Principal investigator on local, international and multinational studies on women's reproductive health, such as the World Maternal Antifibrinolytic (WOMAN) Trial on the use of tranexamic acid for the treatment of postpartum hemorrhage, and as team lead for the implementation of a European Union co-funded community project on prevention of non-communicable diseases including cervical cancer in Kafue, Zambia. Dr Lubeya is published in peer-reviewed journals and is currently leading a study on outcomes and experiences of pregnant women diagnosed with COVID-19 in Lusaka, Zambia.

09:00 – 09:30hrs      **Child care and parenting style of incarcerated mothers in Zambia's prisons.** *Dr. Benson Chisanga, School of Humanities and Social Sciences.*



09:30 – 10:00hrs

**Working towards control and Total elimination of Malaria: A case of Pregnant women and their Under –Five Children’s utilisation of long – lasting- insecticide treated- nets in Lusaka Province of Zambia.** *Dr. Dorothy Chanda, School of Nursing Sciences.*

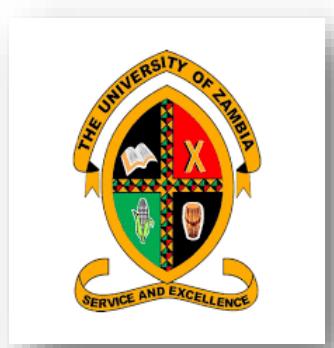


**Dr. Dorothy Chanda** is a Senior Lecturer in Public/ Global Health Nursing at the School of Nursing Sciences, University of Zambia. She is an Infection Prevention Practitioner who has devoted a major part of her professional career in the practice of infection prevention before joining the University of Zambia in the School of Nursing Sciences. She has made numerous paper presentations, including internationally at the Midwest Nursing Research Society Conference in the United States and the Hospital Infection Society in London, England. She has prime-moved the Infection Prevention Programme in the University Teaching Hospital, Lusaka Zambia; the Lusaka Trust Hospital; and the KANDO group of hospitals in the Copperbelt province of Zambia. She is a member of the National Infection Prevention Team and participated in the

production of the National Infection Prevention Guidelines. After being nominated as a Core Trainer in Infection Prevention by the Directorate of Clinical Care and Diagnostic Services of the Central Board of Health, she participated in capacity building of health care providers in Infection Prevention in the 9 Provinces of Zambia. Dr. Chanda is the has authored books on *An Infection Prevention Book for Community and Health Care Institutions in Developing Countries*, published in 2004 and Nursing Management of Cholera Patients in Zambia. She has consulted on HIV/AIDS for Zambia’s Integrated Health Programme (ZIHP) of USAID and most recently with World Health Organization on the production of the 2006-2010 Multi Year Plan using the WHO’s latest innovation framework known as the Global Immunization Vision and Strategy (GIVS). Dr. Dorothy. Chanda received her basic nursing education at the School of Nursing, University Teaching Hospital, Lagos, Nigeria, and holds certificates in Midwifery, Operating Theatre, Infection Control, and Nursing Management of Persons with HIV/AIDS from England. She received her BScN and MPH and PhD from the University of Zambia

10:00 – 10:30hrs

**Determinants of farmers’ willingness to pay for access to weather and Climate Information: Insights from Zambia.** *Dr. Kabwe H. Mubanga, School of Natural Sciences.*



**10:30 – 10:40hrs**

**Health Break and Refreshments**

10:40 – 11:10hrs

**Establishing research data management services at the University of Zambia.** *Mr Abel M'Kuluma, School of Education.*



**Mr. Abel C.M. M'kuluma** is a lecturer in the Department of Library and Information Science at University of Zambia (UNZA). Mr. M'kuluma holds a Master's Degree in Information Management from University of Sheffield in UK. His research interests include: Information Processing, Metadata management, Open Access, Information Governance, Records and Archives Administration and Research Data Management among others.

11:10 – 11:40hrs

**A library model for delivery of library and information services to distance learners at the University of Zambia.** *Mr. Fabian Kakana, University Library.*



Mr. Fabian Kakana is Librarian I in the University of Zambia Library. He holds a Master's degree in Information science from Northeast Normal University, China. He is currently Head- Library and Information Services at the Institute of Distance Education. His research interest is in digital resources and other library services for online and distance education students

11:40 – 12:10hrs      **Modelling maize yield using remotely-sensed weather and biophysical data.** *Ms. Olipa Nyazambe Lungu, School of Agricultural Sciences.*



12:10 – 12:40hrs      **The use of artificial intelligence, remote sensing and GIS in crop yield estimation.** *Dr. Faustin Banda, School of Engineering.*



12:40 – 13:10hrs      **Integration of drone technology solutions for disaster/climate change management.** *Dr. Sam Sichilalu, School of Engineering.*



**13:10 – 13:50hrs      Lunch Break**

14:00 – 14:30hrs

**Development of underground mine monitoring and communication system based on wireless sensor networks and GIS.** *Dr. Emmanuel K. Chanda, School of Mines.*



**Professor Emmanuel K. Chanda** is currently Professor and Head of Mining Engineering at the University of Zambia, School of Mines, Lusaka. He holds a PhD in Mining Engineering from the Technical University of Berlin, Germany, a Master of Engineering (Engineer of Mines) from the Colorado School of Mines, USA and BMinSc in Mining Engineering from the University of Zambia. He has over 37 years' experience in mine operations, academia and consulting in the mining sector. His experiences span over four continents – Africa, Australia, Europe, North & South America. He has previously worked as Lecturer for the University of

Zambia; Mining Engineer for MINDECO Small Mines Ltd, Zambia; Mine Planning Superintendent at Nkana Division of Zambia Consolidated Copper Mines Ltd; Associate Professor and Head of Mining Engineering Department at the Western Australian School of Mines (Curtin University of Technology, Australia); Associate Professor/Mining Program Leader and Chairman of Mining Education Australia Program Leaders Committee at the University of Adelaide, Australia. He is a member of the Engineering Institution of Zambia and the Australasian Institute of Mining and Metallurgy. His research interests are Mine Planning and Optimisation, Mining Technology and Digital Transformation in the minerals industry.

14:30 – 15:00hrs.

**An investigation into the production of high performance concrete using recycled local materials.** *Dr Charles Kahanji, School of Engineering.*



**Dr. Charles Kahanji** holds a PhD in Structural Fire Engineering from Ulster University in United Kingdom. He previously worked as a Post Doc at Stellenbosch University in South Africa. He is a Professional Engineer with the Engineering Institution of Zambia and also a Member of the UK Institution of Fire Engineers. His research interests are in Construction Materials and Fire Engineering.

15:00 – 15:30hrs

**Opportunities for construction and demolition waste utilization in Zambia.** *Dr. Michael N. Mulenga, School of Engineering.*



TIME	TITLE / ACTIVITY	RESPONSIBLE
<b>15:30 – 17:00</b>	<b>Remarks/Discussions</b>	DRGS
<b>17:00</b>	<b>Official Closing</b>	Director, DRGS