FROM EAST TO WEST, NORTH TO SOUTH: CONFRONTING THE "RELUCTANT KILLER" THROUGH ONE HEALTH, SCIENCE, AND FAITH

An Inaugural Lecture by
Prof. Pwaveno Huladeino Bamaiyi
Professor of Veterinary Public Health and Preventive Medicine (Bacterial Zoonoses)
University of Jos, Nigeria

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DEDICATION

To my darling daughter, Blessing Divine Pwaveno Bamaiyi, who left us on the 10th June, 2021 at the age of 11 in a motor accident and who is watching this inaugural lecture from Heaven.

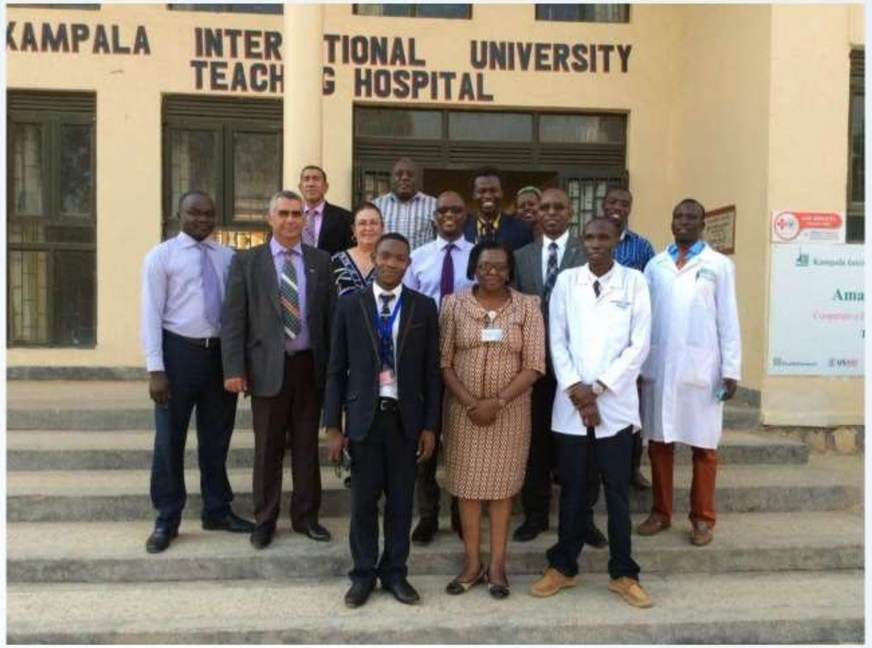
The Academic Debt

An inaugural lecture represents intellectual accountability, a summation of research, and a projection of future contributions. Promoted to Professor after years of dedication across Malaysia, Uganda, and Nigeria, this lecture fulfills an academic obligation and integrates the pillars of Teaching, Research, and Community Service within the One Health paradigm.

Teaching and Mentorship

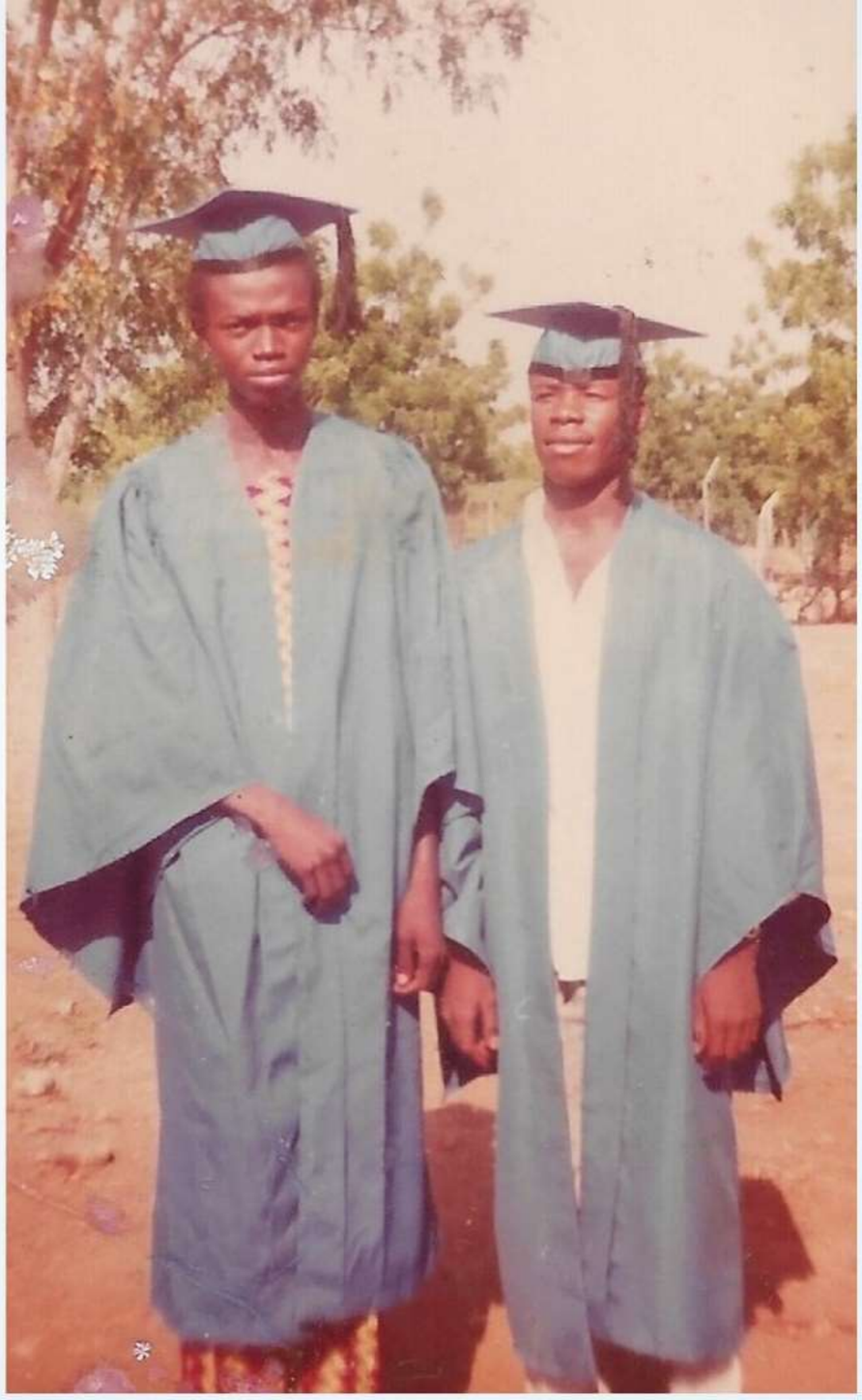
Extensive undergraduate and postgraduate teaching in Veterinary Medicine and Public Health across institutions in Nigeria, Uganda, and Malaysia.

Supervision of numerous Postgraduate and Undergraduate students on diverse research topics, fostering the next generation of scientists.

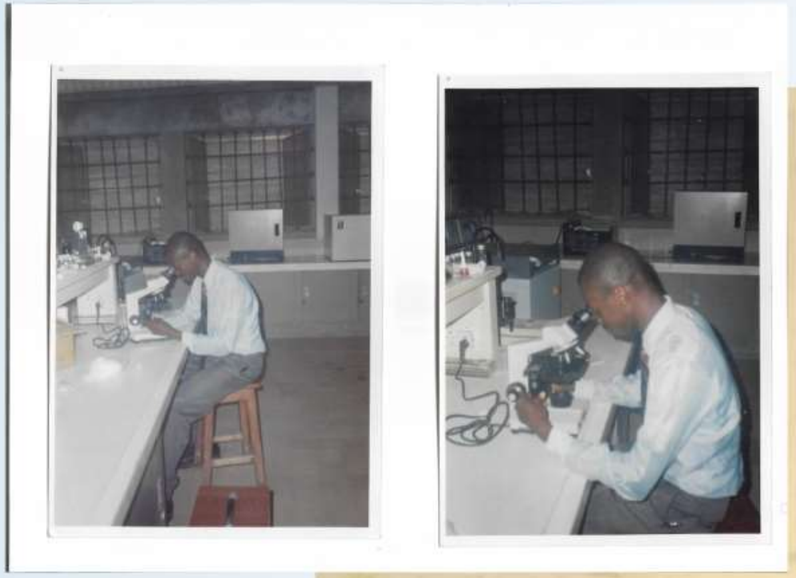


Research Focus: Key Areas

- Brucellosis and Zoonotic Diseases: Epidemiology, impact, and molecular characterization of pathogens.
- Parasitology and Veterinary Epidemiology: Prevalence of parasitic infections in livestock and wildlife, and their zoonotic implications.
- Public Health, Nutrition, and Food Safety: Nutritional health, food/water safety analysis, and healthcare service evaluation.
- Environmental Microbiology and Disaster Management: Bacterial biodiversity in floodwaters and biosecurity modeling for public health crises.



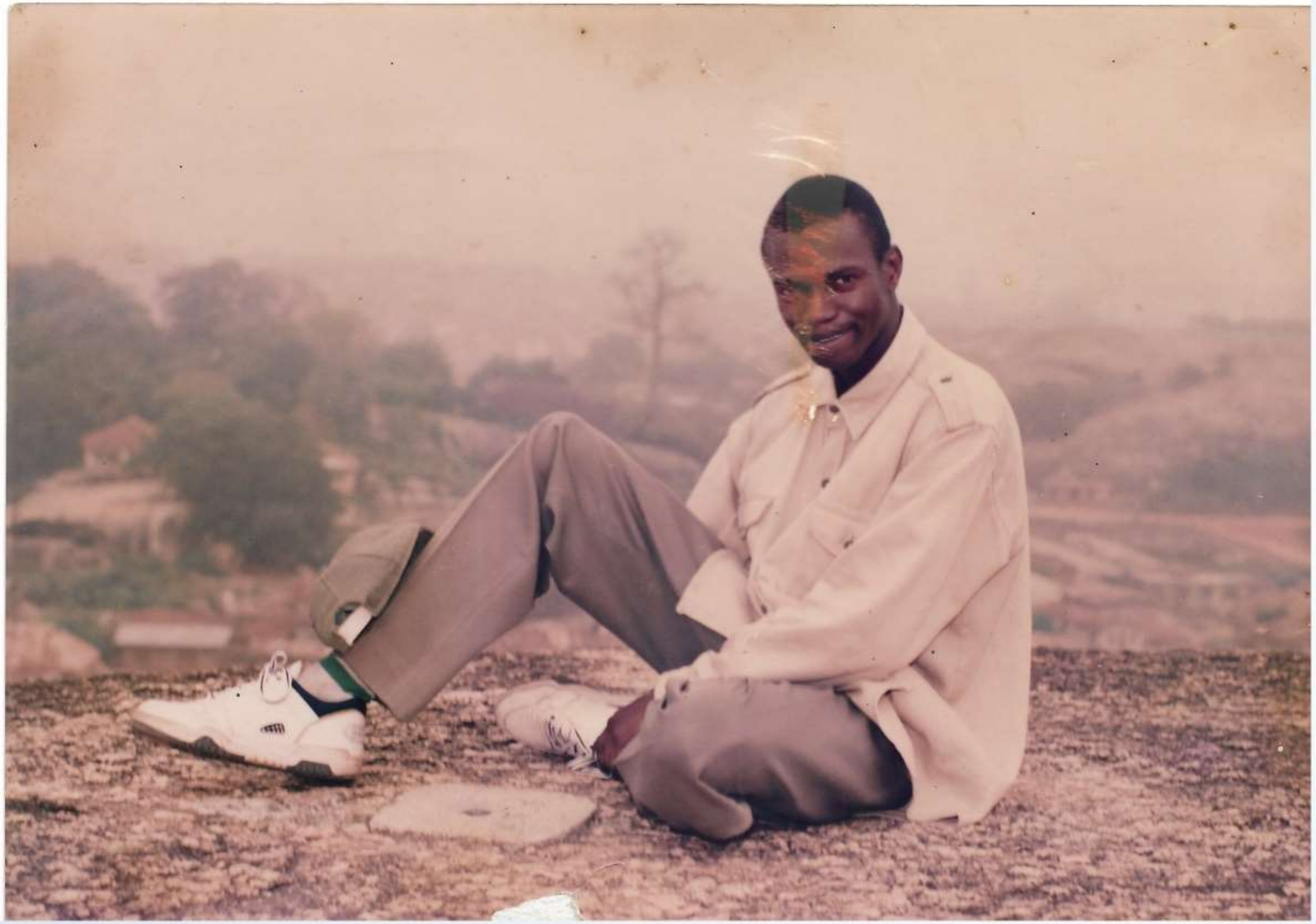
The Trade Camel



overall Prevalence of GIT Parasites=92.4%
(Common species: Trichuris,Strongyloides, Coccidia, Ciliates, Ascaris, Moniezia, Amphistome, Balantidium
Haemoparasites:Anaplasma=3.8% and Theileria=1.9%

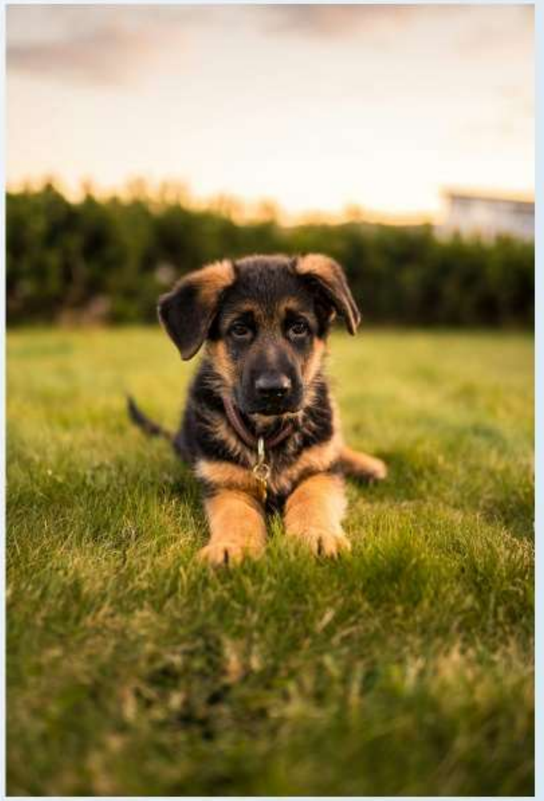
Bamaiyi, P. H., & Kalu, A. U. (2011). Gastrointestinal Parasites Infection in One-Humped Camels (*Camelus dromedarius*) of Nigeria. *Veterinary Research Forum, 2*(4), 278-281.

Bamaiyi, P. H., Kalu, A. U., & Ali, M. (2011). Haemoparasites of the Trade Camel (*Camelus dromedarius*) Slaughtered in Maiduguri, Borno State, Nigeria. *Continental Journal of Veterinary Sciences, 5*(1), 18-21.



Proverbs 12:10

"Good people take care of their animals, but wicked people are cruel to theirs". GNT



Local Birds=9.5%
Exotic Birds=6.6%
Wild Birds=5.3%

THE PREVALENCE OF *CRYPTOSPORIDIUM* OOCYSTS IN WILD BIRDS IN ZARIA, NIGERIA




Crypto. Prev. in Children=42.9%

BAMAIYI, P.H.[1*], UMOH, J.U.[2], ABDU, P.A.[3], LAWAL, I.A.[4]

[4]Department of Veterinary

Bamaiyi, P. H., Umoh, J. U., Abdu, P. A., & Lawal, I. A. (2013). The Prevalence of *Cryptosporidium* Oocysts in Birds in Zaria, Nigeria. *Borneo Journal of Resource Science and Technology, 2*(2), 52-59.

Aniesona, A.T. &**Bamaiyi, P.H.** (2014). Retrospective study of cryptosporidiosis among diarrhoeic children in the arid region of north-eastern Nigeria. *Zoonoses and Public Health, 61(6), 420-426.*

Oct 5, 2010 12:52

GenBank sequences for *Brucella melitensis* submitted in 2011:

S/No.	Accession numbers	Species of bacteria	Species of Animal for isolation
1	JN561153	*Brucella melitensis*	Caprine
2	JN561154	*Brucella melitensis*	Caprine
3	JN561155	*Brucella melitensis*	Caprine
4	JN561156	*Brucella melitensis*	Caprine
5	JN561157	*Brucella melitensis*	Caprine
6	JN561158	*Brucella melitensis*	Caprine
7	JN561159	*Brucella melitensis*	Caprine

Bacteria Biodiversity

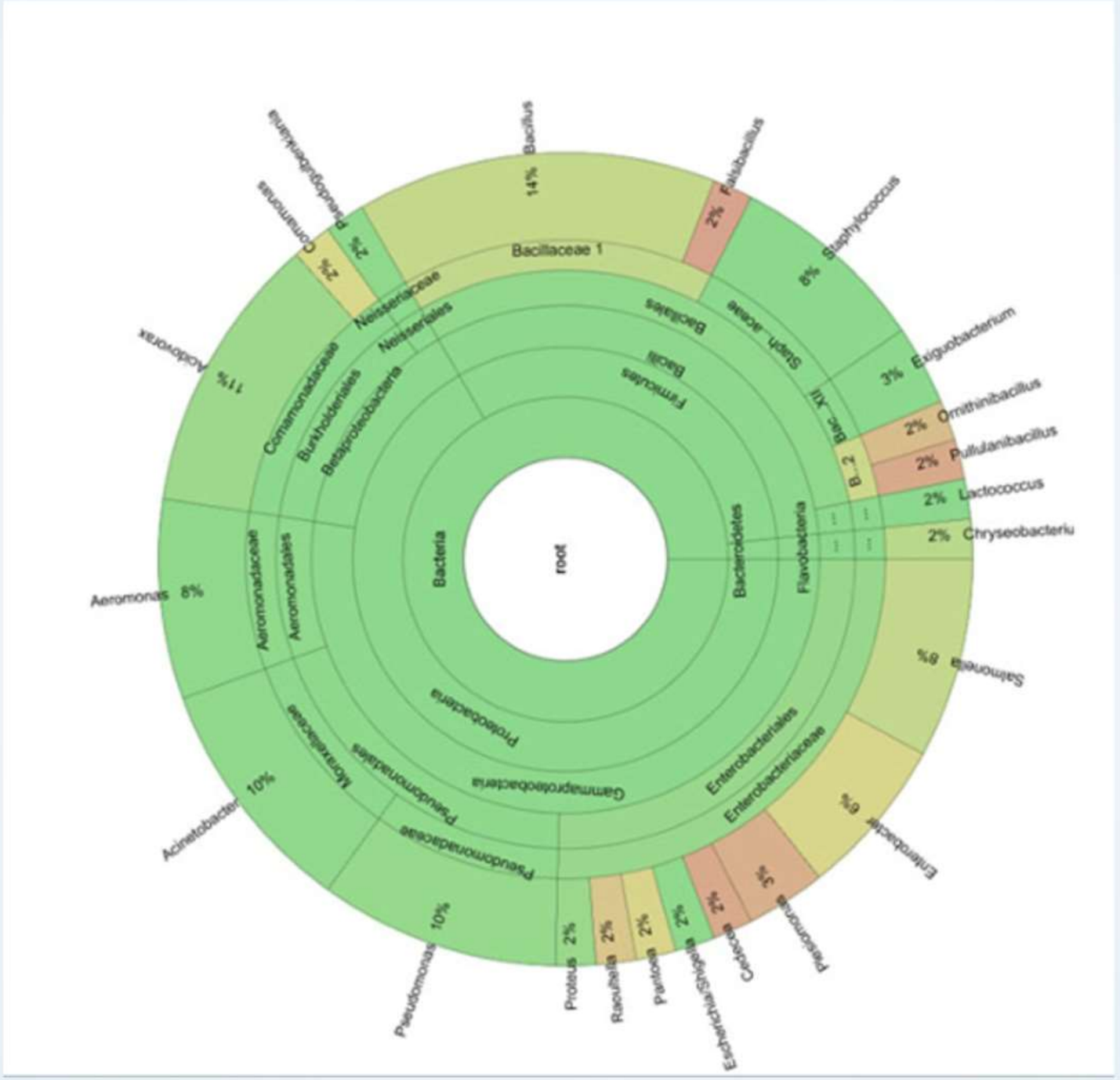


Table 1. Bacteria Identified to species level from the flood and deposited at the GenBank

S/No.	Submission ID	Accession Number	Bacteria Identified
1	SUB882316 UMK1a1	KR027927	*Staphylococcus xylosus*
2	SUB882316 UMK1a2	KR027928	*Acinetobacter ursingii*
3	SUB882316 UMK1b1	KR027929	*Aeromonas aquariorum (A. dhakensis)*
4	SUB882316 UMK1b2	KR027930	*Bacillus pseudofirmus*
5	SUB882316 UMK1b3	KR027931	*Bacillus altitudinis*
6	SUB882316 UMK1c2	KR027932	*Acinetobacter radioresistens*
7	SUB882316 UMK1d1	KR027933	*Acinetobacter radioresistens*
8	SUB882316 UMK1d2	KR027934	*Lactococcus lactis subsp. Lactis*
9	SUB1092331 UMK1e1	KT731961	*Acidovorax caeni*
10	SUB1092331 UMK1e2	KT731962	*Acidovorax caeni*
11	SUB882316 UMK2a1	KR027935	*Staphylococcus xylosus*
12	SUB1092331 UMK2a2	KT731963	*Acidovorax caeni*
13	SUB882316 UMK2a3	KR027936	*Aeromonas veronii*
14	SUB1092331 UMK2d1	KT731964	*Chromobacterium violaceum*
15	SUB882316 UMK2e1	KR027937	*Staphylococcus xylosus*
16	SUB882316 UMK2e2	KR027938	*Aeromonas veronii*
17	SUB882316 UMK3a1	KR027939	*Acinetobacter junii*
18	SUB882316 UMK3a2	KR027940	*Klebsiella pneumoniae subsp. Rhinoscleromatis*
19	SUB882316 UMK3a3	KR027941	*Raoultella terrigena*
20	SUB882316 UMK3b1	KR027942	*Pseudomonas trivialis*
21	SUB1092331 UMK3b2	KT731965	*Curvibacter gracilis*

```
  AUTHORS   Bamaiyi,P.H., Nani Izreen,M.S., Khatijah,M., Nur Eizzati,B.H.,
            Siti-Bainum,C.R., Norsyamimi Farhana,M.K., Mohd Norfaizul,M.N.,
            Kadkhodaei,S. and Mohd Azam Khan,G.K.
  TITLE     Isolation and polymerase chain reaction identification of bacteria
            from the 2014-2015 flood of Kota Bharu, Kelantan, Malaysiaa
  JOURNAL   Asian Biomed (Res Rev News) 10 (6), 549-565 (2016)
REFERENCE   2  (bases 1 to 447)
  AUTHORS   Bamaiyi,P.H., Mohd Norfaizul,M.N., Nani Izreen,M.S., Khatijah,M.,
            Nur Eizzati,B.H., Siti-Bainum,C.R., Norsyamimi Farhana,M.K. and
            Mohd Azam Khan,G.K.
  TITLE     Direct Submission
  JOURNAL   Submitted (10-SEP-2015) Clinical Studies, Faculty of Veterinary
            Medicine, Universiti Malaysia Kelantan, Padang Tembak, Kota Bharu,
            Kelantan 16100, Malaysia
COMMENT     ##Assembly-Data-START##
            Sequencing Technology :: Sanger dideoxy sequencing
            ##Assembly-Data-END##
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      301 agaaaaccga tcgtagtccg gatcgcactc tgcaactcga gtgcgtgaag tcggaatcgc
      361 tag   tcgc agat cagcat gctgcggtga atacgttccc gggtcttgta cacaccgccc
```

LinkOut to external resources

SILVA SSU Database

[SILVA]

Recent activity

Turn Off Clear

Chromobacterium violaceum strain cvkb2014a 16S ribosomal RNA gene Nucleotide

Paenacidovorax caeni strain ackb2014g 16S ribosomal RNA gene, partial sequen Nucleotide

Bamaiyi (62)

Nucleotide

See more...

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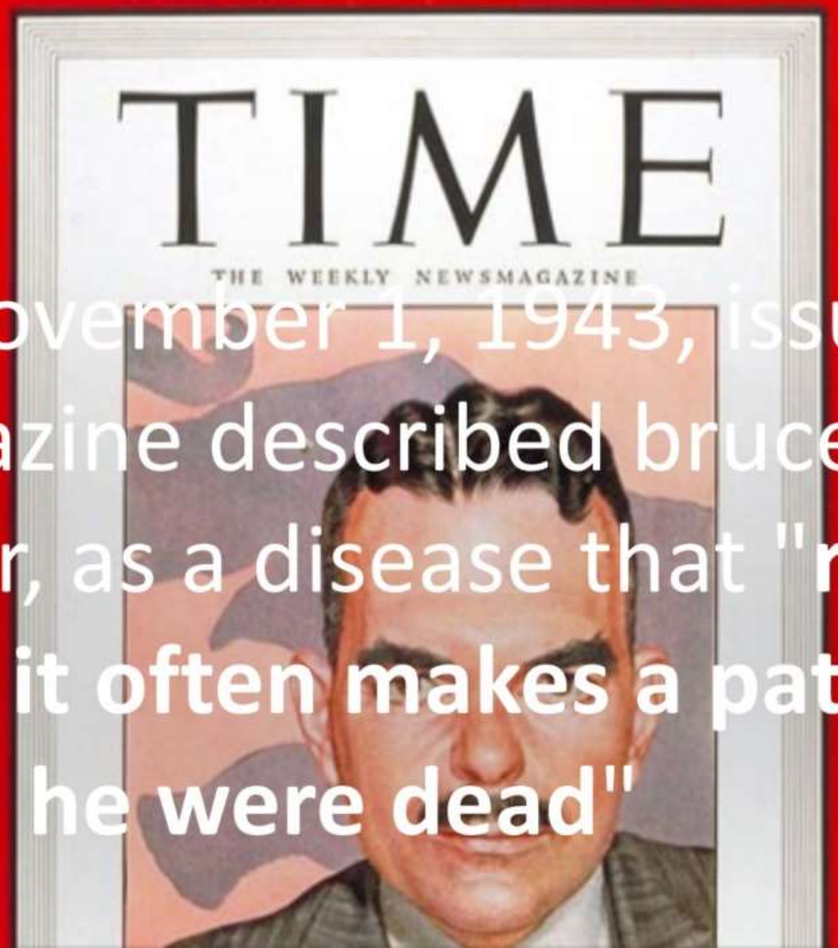
S/No.	Submission ID	Accession Number	Bacteria Identified
22	SUB882316 UMK3b3	KR027943	*Pseudomonas veronii*
23	SUB1092331 UMK3c3	KT731966	*Rhodococcus equi*
24	SUB1092331 UMK3d2	KT731967	*Chromobacterium violaceum*
25	SUB882316 UMK3d3	KR027944	*Bacillus megaterium*
26	SUB1092331 UMK3d4	KT731968	*Aquitalea magnusonii*
27	SUB1092331 UMK3d5	KT731969	*Wautersia numazuensis (Cupriavidus numazuensis)*
28	SUB882316 UMK3e1	KR027945	*Exiguobacterium acetylicum*
29	SUB882316 UMK3e2	KR027946	*Chryseobacterium gambrini*
30	SUB883111 UMK4a1w	KR048048	*Salmonella enterica subsp. Diarizonae*
31	SUB883111 UMK4a1y	KR048049	*Bacillus idriensis*
32	SUB883111 UMK4a2	KR048050	*Staphylococcus xylosus*
33	SUB882316 UMK4b1	KR027947	*Aeromonas aquariorum (A dhakensis)*
34	SUB882316 UMK4b2	KR027948	*Pectobacterium cypripedii (Pantoea cypripedii)*
35	SUB882316 UMK4b3	KR027949	*Pseudomonas trivialis*
36	SUB882316 UMK4c2	KR027950	*Bacillus luciferensis*
37	SUB882316 UMK4c3	KR027951	*Enterobacter asburiae*
38	SUB882316 UMK4d2	KR027952	*Bacillus luciferensis*
39	SUB882316 UMK4d3	KR027953	*Aeromonas aquariorum (A dhakensis)*
40	SUB882316 UMK4e1	KR027954	*Acinetobacter calcoaceticus*
41	SUB882316 UMK4e2	KR027955	*Bacillus pseudofirmus*
42	SUB882316 UMK5a1	KR027956	*Proteus mirabilis*
43	SUB882316 UMK5a2	KR027957	*Escherichia coli*
44	SUB882316 UMK5b1	KR027958	*Exiguobacterium mexicanum*
45	SUB882316 UMK5d1	KR027959	*Bacillus luciferensis*
46	SUB883111 UMK6a1w	KR048051	*Staphylococcus xylosus*
47	SUB883111 UMK6a1y	KR048052	*Bacillus pseudofirmus*
48	SUB1092331 UMK6a2	KT731970	*Acinetobacter calcoaceticus*
49	SUB1092331 UMK6b1	KT731971	*Rubrivivax gelatinosus*
50	SUB1092331 UMK6b2	KT731972	*Acidovorax caeni*
51	SUB1092331 UMK6c	KT731973	*Acidovorax caeni*
52	SUB882316 UMK6d	KR027960	*Raoultella terrigena*
53	SUB882316 UMK6e	KR027961	*Pseudomonas vranovensis*
54	SUB1092331 UMK6x1	KT731974	*Acidovorax caeni*
55	SUB1092331 UMK6x2	KT731975	*Acidovorax caeni*

TIME

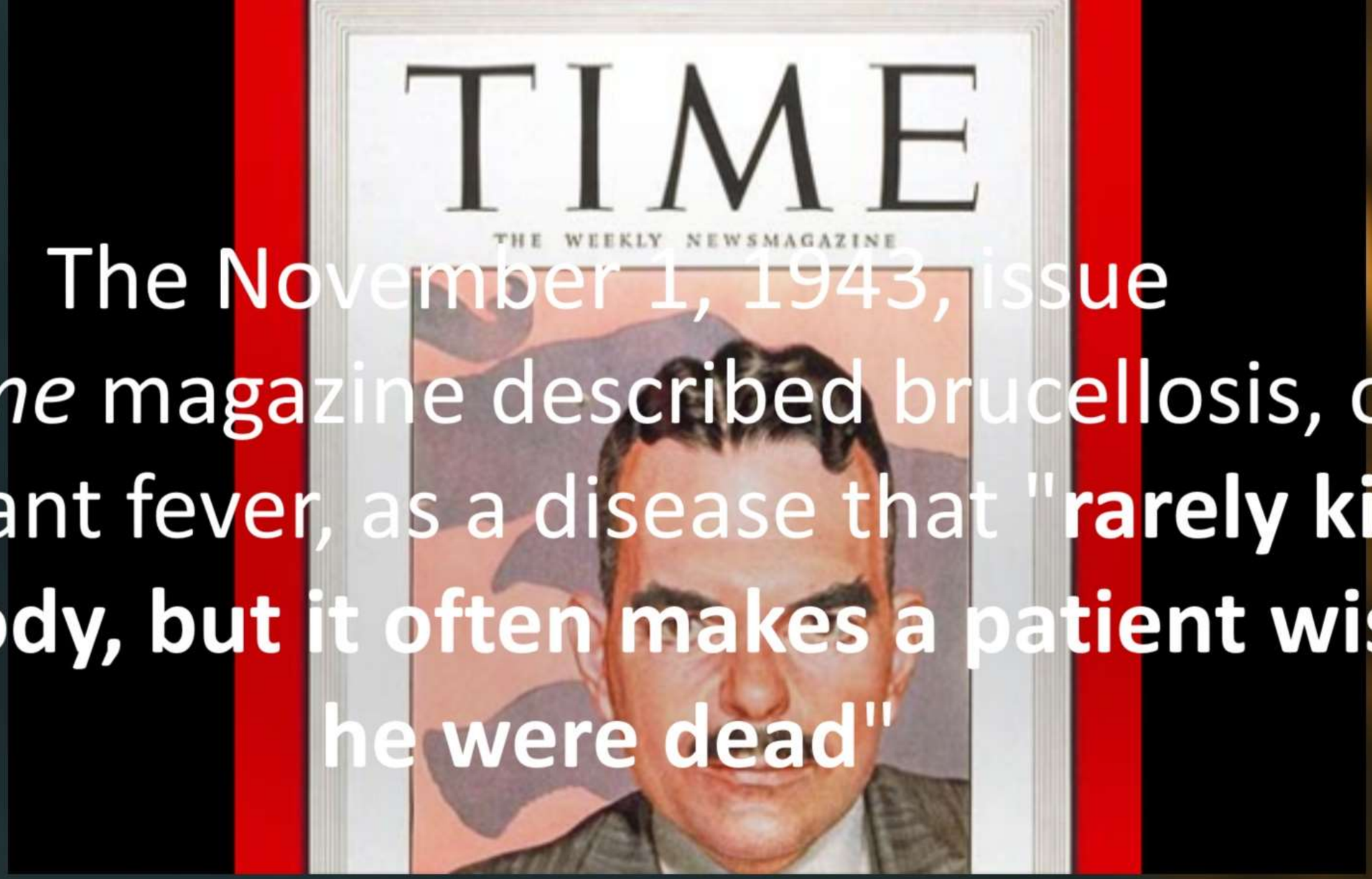
Gov. Thomas E. Dewey | **Nov. 1, 1943**

PREVIOUS WEEK'S COVER

FOLLOWING WEEK'S COVER



The November 1, 1943, issue of *Time* magazine described brucellosis, or undulant fever, as a disease that "**rarely kills anybody, but it often makes a patient wish he were dead**"



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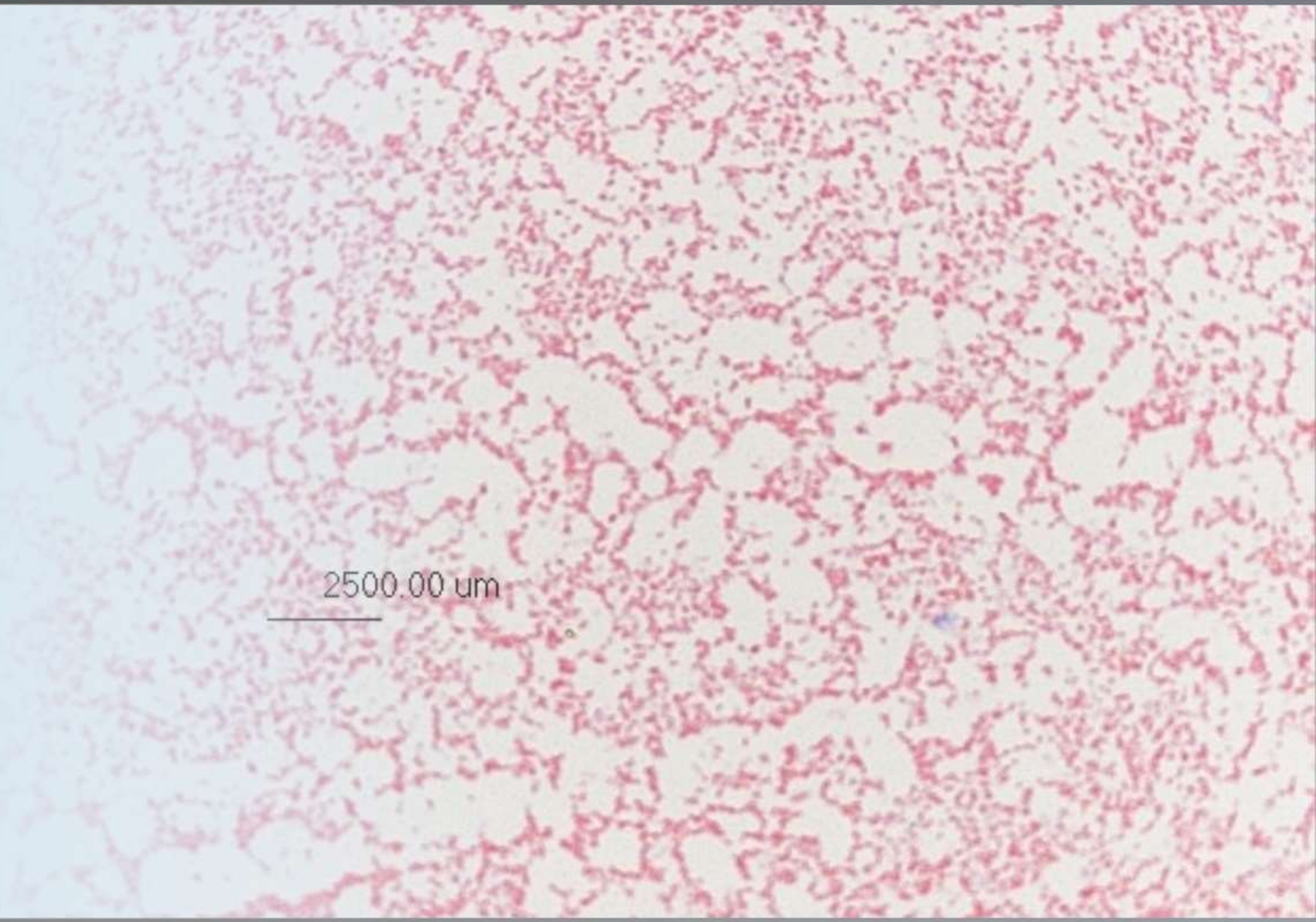
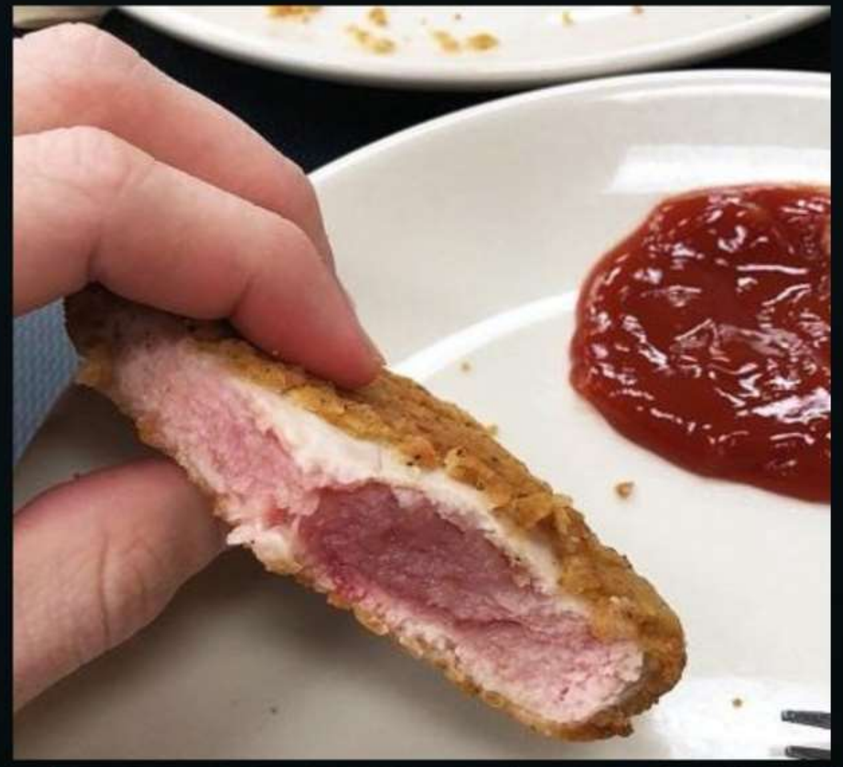
The 'Reluctant Killer': Understanding Brucellosis

Brucellosis, caused by Brucella bacteria, is a master of stealth. Unlike other pathogens, it rarely kills but significantly affects quality of life and causes massive economic losses globally, particularly in developing regions. It is the most widespread zoonosis, affecting animals and humans across continents.





Brucellosis Research in Malaysia

Epidemiological Patterns and Risk Factors

0.91%
Overall caprine seroprevalence at animal level

7.09%
Farm-level caprine seroprevalence

1.35%
Human seroprevalence (farmers/vet staff)

7.19x
Higher odds for farmers (vs. non-farmers)

4.45x
Higher odds for unpasteurized milk consumers

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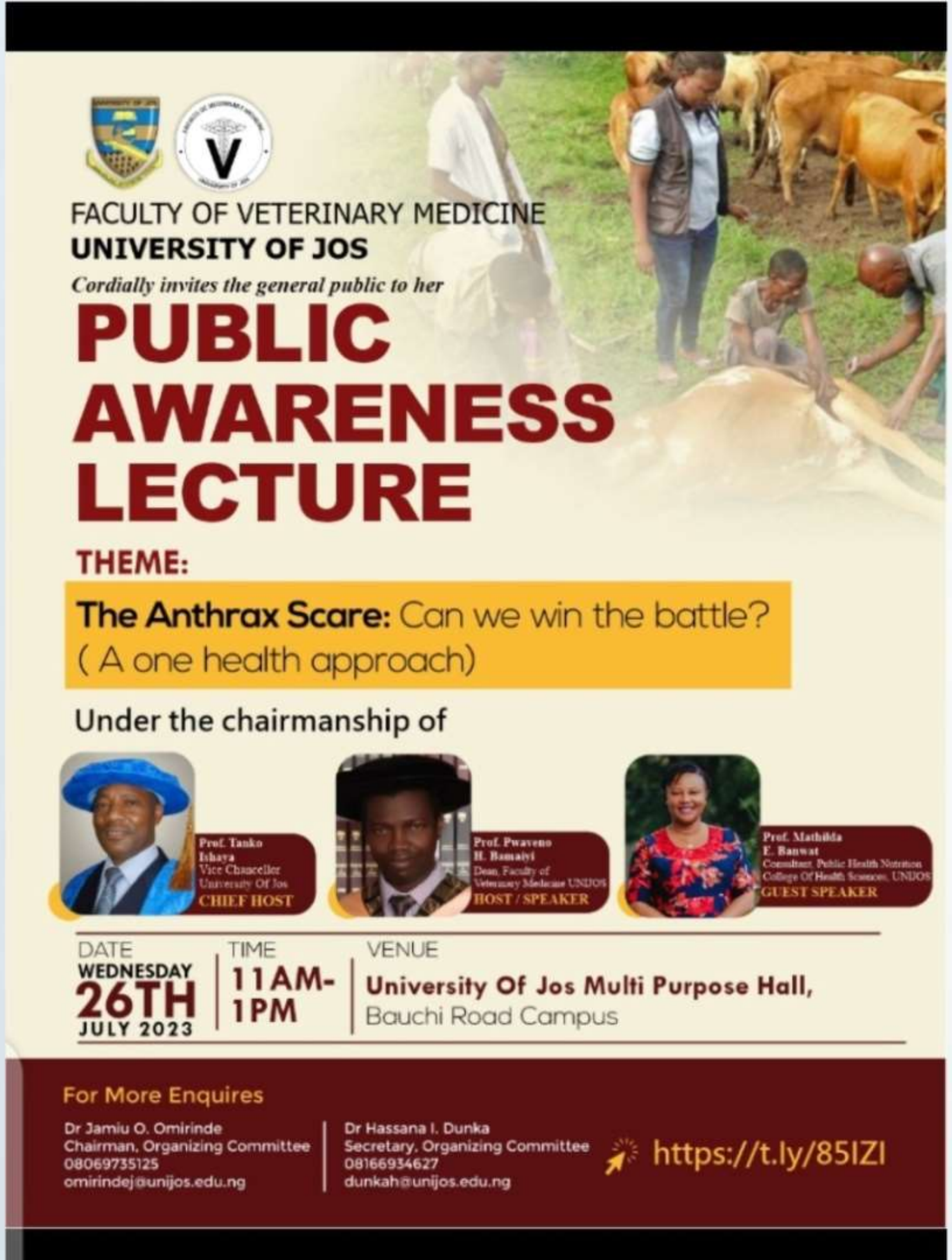
The Critical Need for One Health

The tragic case of Birdling, a colleague misdiagnosed with malaria and typhoid instead of brucellosis, underscores the vital importance of the One Health approach. Pathogens do not discriminate, and effective control requires integrated efforts across human, animal, and environmental health sectors to prevent misdiagnosis and severe outcomes.



FACULTY OF VETERINARY MEDICINE
UNIVERSITY OF JOS

Cordially invites the general public to her

PUBLIC AWARENESS LECTURE

THEME:

The Anthrax Scare: Can we win the battle?
(A one health approach)

Under the chairmanship of

Prof. Tanko Ishaya
Vice Chancellor
University Of Jos
CHIEF HOST

Prof. Pwaveno H. Bamaiyi
Dean, Faculty of Veterinary Medicine UNIJOS
HOST / SPEAKER

Prof. Mathilda E. Banwat
Consultant, Public Health Nutrition
College Of Health Sciences, UNIJOS
GUEST SPEAKER

DATE
WEDNESDAY 26TH JULY 2023

TIME
11AM-1PM

VENUE
University Of Jos Multi Purpose Hall,
Bauchi Road Campus

For More Enquires

Dr Jamiu O. Omirinde
Chairman, Organizing Committee
08069735125
omirindej@unijos.edu.ng

Dr Hassana I. Dunka
Secretary, Organizing Committee
08166934627
dunkah@unijos.edu.ng

https://t.ly/85IZI

Brucellosis Endemicity in Nigeria

Regional Prevalence Studies

Brucellosis Endemicity in Nigeria

Regional Prevalence Studies

7.9%

Small ruminant prevalence in Bauchi State

Brucellosis Endemicity in Nigeria

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4.0%

Overall prevalence in Plateau State farms

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19%

Prevalence in Abuja FCT (5x Plateau)

Brucellosis Endemicity in Nigeria

Regional Prevalence Studies

7.9%

Small ruminant prevalence in Bauchi State

4.0%

Overall prevalence in Plateau State farms

19%

Prevalence in Abuja FCT (5x Plateau)

8.4%

Overall prevalence in Mubi, Adamawa State

Expanding Frontiers: The Uganda Experience

During my time at Kampala International University, I expanded research into food safety, malnutrition among HIV patients, and healthcare service evaluation. These studies strengthened interdisciplinary collaboration, practically demonstrating the One Health paradigm. This period also reinforced my belief in diligence and purpose beyond academia.

Nigerian Research: Key Contributions

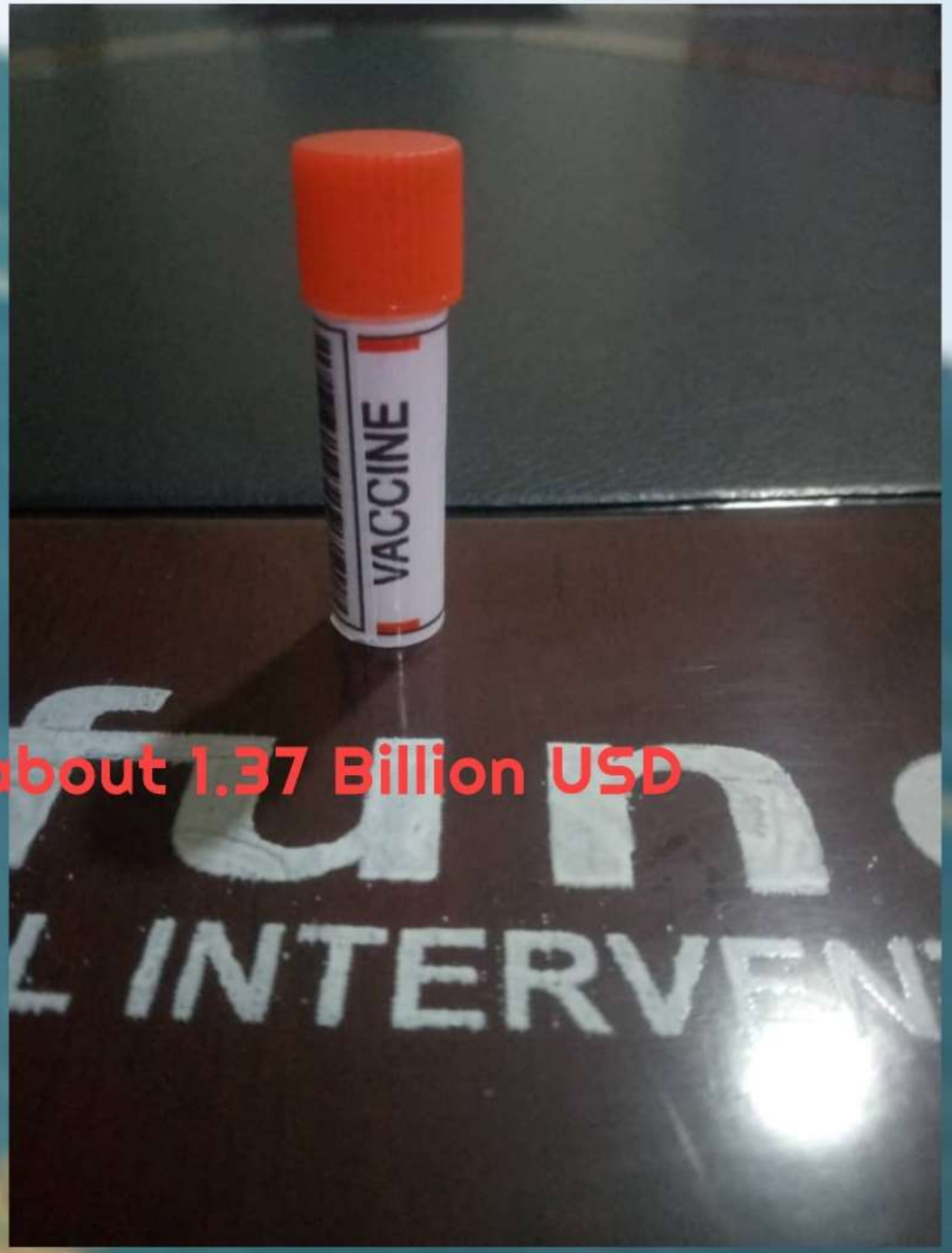
First Report of Rabies in a Lioness and the Implication on Public health in Jos Zoological Garden, Plateau State, Nigeria

[1]Rimfa, A.G*.,[1]Tekki, A., [2]Bamaiyi, P.H, [1]Ogbe, D., [1]Barde, I., [1]Hambolu, E., [1]Konzing, L., [1]Mada, A., [1]Zhakom, P., Tobias, C., [1]Gyang M., [1]Logyang, L., [1]Maurice, N., [2]Mary, O., Gumbias, A., [1]Ngulukun, S.S., [1]Luka, P.D., [1]Meseko, C.A.,

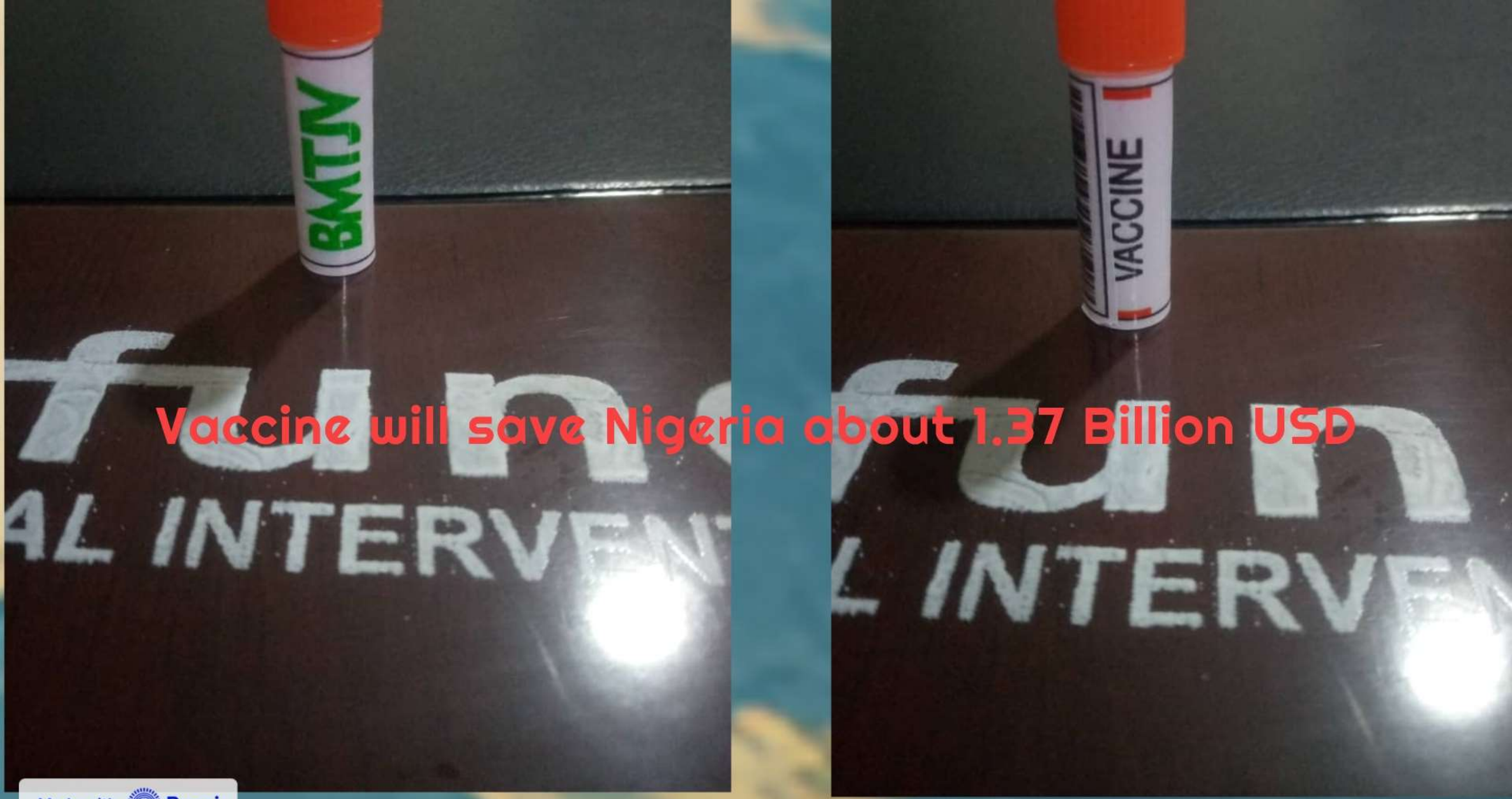
- Clinicopathological studies of leptospirosis in dogs and multidrug-resistant E. coli in poultry.
- First report of rabies in a Lioness in Jos Zoo, alongside brucellosis prevalence studies across multiple states.
- Isolation and molecular characterization of Brucella melitensis, identifying vaccine candidates.

The TETFund NRF DNA Vaccine Project

This flagship project aims to develop a DNA-based vaccine against small ruminant brucellosis, transitioning from surveillance to product development. Our goal is to create stable, affordable, and effective Nigerian solutions to a global scourge, moving Nigeria from a consumer to a reliable producer of scientific innovations.



Vaccine will save Nigeria about 1.37 Billion USD



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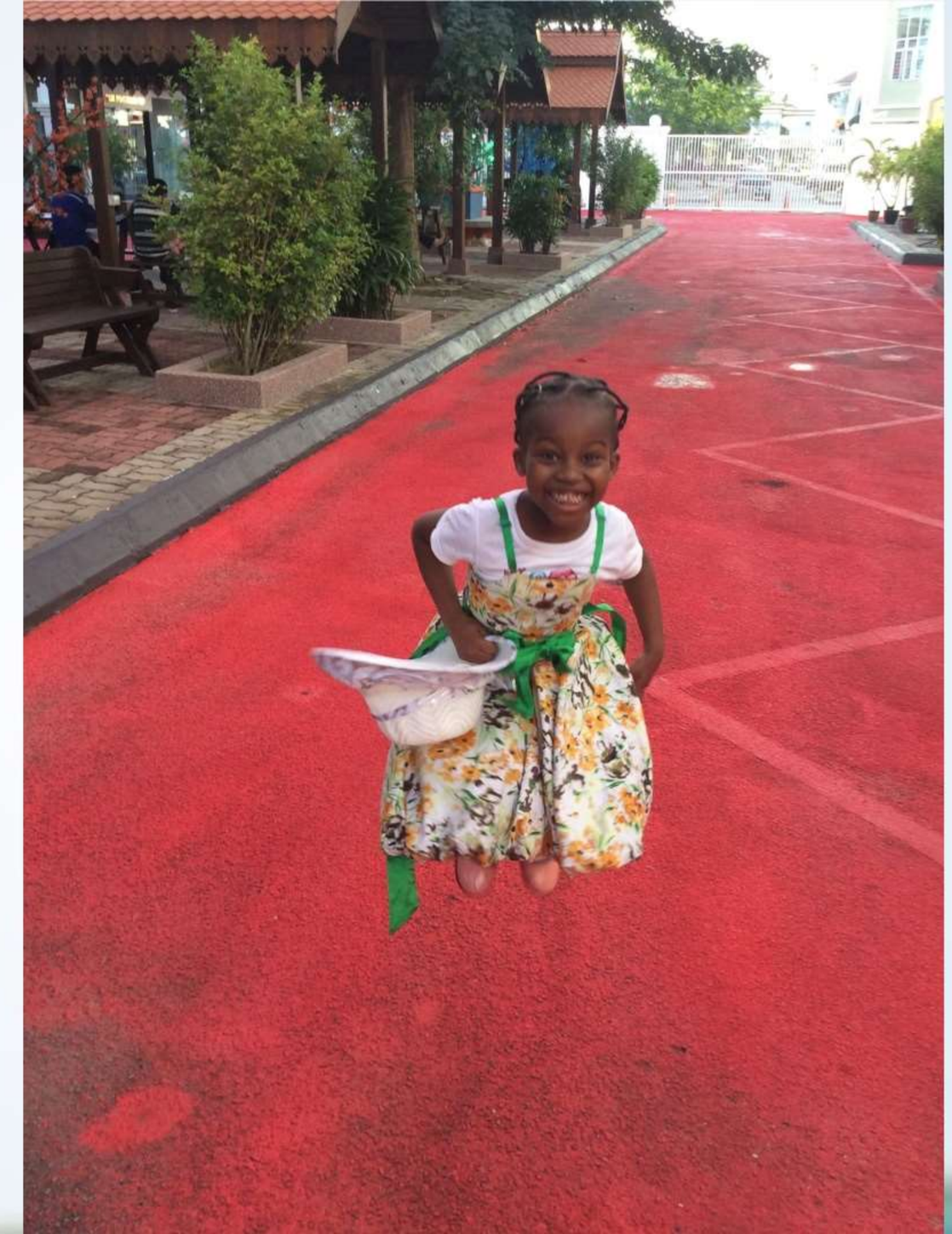
Faith, Family, and Purpose

Faith, Family, and Purpose

Life's deepest challenges have reinforced the philosophy that 'All things are possible.' Dedicated to my daughter, Blessing Divine, whose memory fuels my purpose, this journey is supported by my wife, children, and mother, whose sacrifices allowed me to pursue academic excellence. Faith has been crucial, even guiding research breakthroughs.



Future Directions: Science with Purpose

Reaching for the Stars in Zoonoses Research

Science Meets Culture

Engage communities to understand behaviors and implement sustainable, context-specific prevention strategies for zoonotic diseases.

Next-Gen Vaccine Innovation

Develop precise, safe, and transformative DIVA-compatible vaccines using genomics and immunoinformatics to eradicate diseases.

Protecting Humanity

Develop safe human vaccines for brucellosis through recombinant and nanoparticle platforms, enhancing intracellular immunity.

One Health Mandate

Integrate human, animal, and environmental health using Communication, Coordination, Collaboration, and Capacity Building.

Economic & Policy Commitment

Advocate for public-private partnerships and sustained funding for evidence-based policies in livestock and public health.

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The Way Forward: A Five-Point Strategy for Nigeria

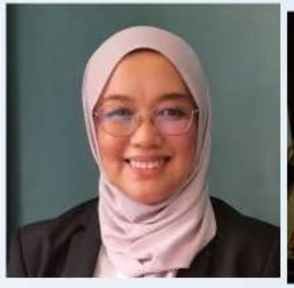
- Establish a National Brucellosis Eradication Scheme.
- Integrate Veterinary Public Health into the Primary Healthcare system.
- Expand funding for molecular and translational vaccine research.
- Promote ethical Artificial Intelligence and digital tools for One Health innovation.
- Institutionalize structured mentorship for future One Health leaders.

Conclusion: A Call to Action

Pathogens know no borders, and neither should science. My journey underscores that excellence is transferable and impact is intentional. I challenge academics to pay their debt, publish rigorously, mentor faithfully, and serve passionately. Let us confront the reluctant killer together through science, One Health, faith, and unwavering commitment.




Acknowledgements







- To my Lord and Saviour Jesus Christ, the infinitely greatest Scientist.





- To my beloved family: wife Gyihya Miriam, children Precious-Anni, Blessing Divine (in Heaven), and Increase Praise; my parents and siblings.


- To my supervisors and mentors who paved the way for my academic journey and growth.


- To the University of Jos leadership, colleagues, staff, and students, especially TETFund for research sponsorship.




- To my spiritual leaders, friends, professional associations (NVMA, ACVN), and media partners for their unwavering support.

- And finally, to all the animals that gave up their lives for science to make the world better.

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