

PHD PUBLIC DEFENSE: CHRISTOPHER MWANKUNA (10th MAY 2023 AT 9.00 AM)



Public Defence: PhD

Candidate: Christopher Mwankuna

Christopher registered in June 2018 at Sokoine University of Agriculture (SUA) to pursue PhD studies in the Department of Chemistry and Physics (DCP), College of Natural and Applied Sciences (CoNAS). He holds an MSc. Chemistry from the University of Dar es Salaam and works at Sokoine University of Agriculture as a Lecturer in the Department of Chemistry and Physics.

Thesis Title: Development of Analytical Methods for Screening and Determination of Conventional Drugs Adulterated in Herbal Products

Supervisors: Prof. Faith P. Mabiki, Dr. Eliapenda E. Mariki, Prof. Hamisi M. Malebo, & Prof. Bjarne Styrishave

Date and Time: 10th May 2023 Time: 9.00 AM

Venue: Conference room (SLGB-2), Block G at the College of Natural and Applied Sciences (CoNAS) –Mazimbu

Mode: Face to Face and Online

Join Zoom Meeting

<https://zoom.us/j/98091735971?pwd=R0cxa0dmL2RZM21aSnFkNG4yWEcwQT09>

Meeting ID: 980 9173 5971

Passcode: 893568

Panel Members:

S/N	Name of Panelist Member	Status of Appointment	Remarks
1.	Prof. Yasinta Muzanila	Chairperson	Professor, Biosciences, SUA
2.	Dr. Offoro Kimambo	Appointee of the Principal	Lecturer, DGES, SUA
3.	Prof. Stelyus Mkoma	Internal Examiner	Not Supervisor
4.	Dr. Jilisa Mwalilino	Internal Examiner	Not Supervisor
5.	Dr. Alinanuswe Mwakalesi	Head of Department (DCP)	Recorder

Summary of major findings

Methods for simultaneous detection and determination of adulterants in herbal products are highly required to battle with adulteration. In this study, TLC methods were developed and used to detect conventional drugs adulterated in herbal products. Chromatographic separations were highly reproducible and more than 10 samples could be analysed in one run. Herbal products were screened for the presence of metronidazole, trimethoprim, sulfamethoxazole, sildenafil, paracetamol, pyrimethamine, sulfadoxine, acetyl salicylic acid, ibuprofen, diclofenac, quinine, and lumefantrine. The developed TLC methods can be used for preliminary screening of samples before using confirmatory techniques.

Confirmation and quantitation of adulterants require highly selective and sensitive methods. For cost effectiveness, multi-analyte methods are desired. Therefore, two HPLC-MS/MS methods for simultaneous determination of analytes were developed, validated and tested. One method focused on the antibiotic adulterants (amoxicillin, ampicillin, metronidazole, trimethoprim, ciprofloxacin and sulfamethoxazole) while the other on antimalarial adulterants (chloroquine, quinine, sulfadoxine, pyrimethamine, mefloquine, lumefantrine, amodiaquine, artemisinin, dihydroartemisinin, artesunate and artemether). Both methods showed high sensitivity, accuracy, and precision. We recommend these methods for use by herbal product regulatory organs.