

## Dr. Shital Mahindra Maru.

### CONTACT INFORMATION

---

Dept. of Pharmaceutics and Pharmacy Practice, School of Pharmacy, University of Nairobi, P.O. Box 19676-00202, Nairobi, Kenya. Email: [shital.maru@uonbi.ac.ke](mailto:shital.maru@uonbi.ac.ke) or [smaruspecial@uonbi.ac.ke](mailto:smaruspecial@uonbi.ac.ke), LinkedIn: Shital Maru, Twitter: @DrShitalIMMaru

Current position

Date: 2014 – present

Position: Senior Lecturer (2014-present); Senior Lecturer, Pharmaceutics and Pharmacy Practice, School of Pharmacy, University of Nairobi

### PROFILE AND AREAS OF EXPERTISE

---

I am a registered Pharmacist in Kenya with registration no 1861. Member of Pharmaceutical Society of Kenya.

**Research Areas:** Process analytical technology (PAT), bioequivalence studies, *In-vitro In-vivo* correlation studies (IVIVC), In-silico studies, Quality by Design (QbD) concept in formulation development, Good manufacturing practices (GMP), Pharmaceutical Quality management System (PQMS), Paediatric formulations, nano particulate systems, transdermal delivery, hot melt extrusion technology, Solid dispersion formulations, and Poor soluble drugs, Health commodities and Vaccines supply chain management and related technologies, leadership and management, antimicrobial resistance (AMR). Has conducted research and consultancy in the above areas.

### EDUCATION

---

2008-2013	PhD in Pharmaceutics, University of Nairobi, Kenya
2008-2010	PhD Commonwealth Scholarship, University of Bradford, UK
2006-2008	M.B.A. University of Liverpool, UK
1997-1999	M.Pharm (Pharmaceutics) Rajiv Gandhi University of Health Sciences, India.
1993-1997	B.Pharm, Karnataka University, Dharwad, India

### SELECTED RESEARCH GRANTS AND PROFESSIONAL EXPERIENCE

---

Principal Investigator - UNFPA-UON project on establishment and needs assessment for Capacity training for e- learning short course on supply chain management of reproductive health and health commodities in Kenyan counties. Funding of USD50000 for year 2017/2018. Principal Investigator. Dr Shital Maru, Co PI Dr Kefa Bosire. Funded project successfully launched an e-learning program on UoN e-learning platform on Supply chain management of Reproductive health commodities and medicines.

World Bank Funded Project: African Centre of Excellence on Materials, product development and Nanotechnology (ACE MAPRONANO) at University of Makerere. Five year project from 2017-2021. Funding of USD 350,000. Principal Investigator: Dr. Shital Maru and Co PI Dr. Kennedy Abuga. Funded project has supported University of Nairobi postgraduate research projects: 8 Masters Students and 4 PhD students in 2018/19, 6 Masters Students research 2019/2020, 15 MSc Students for research capacity in STEM with emphasis on Women in Science and research for 2020/2021.

University of Nairobi and the University of Rwanda (UR), EAC Regional Centre of Excellence for Vaccines, Immunization and Health Supply Chain Management (EAC RCE-VIHSCM), Short-course module on "Access to Medicines Supply Chain Re-design. This Short-course was taught to Ministry of Health Staff across the EAC Region involved in Vaccines Supply Chain Management related activities. October 2017. Funding of USD 70,000. Principal Investigators: Dr. Kefa Bosire and Dr. Shital Maru

UNFPA-UON project on Capacity training for e- learning short course on supply chain management of reproductive health and health commodities in Kenyan counties. Funding of USD45000 for year 2018. Principal Investigator. Dr. Shital Maru and Kefa Bosire

Formulation development, evaluation and Production of oral morphine solution for National use. Department of Pharmaceutics and Pharmacy Practice In collaboration with Kenyatta National Hospital. Co ordinator, Dr. Lucy Tirop, Consultant: Dr. Shital Maru

### **SELECTED PUBLICATIONS (2014 TO DATE)**

---

1. Atal AS Gill, Sima Singh, Zondi Nate, Ruchika Chauhan, Neeta B Thapliyal, Rajshekhar Karpoormath, **Shital M Maru**, TM Reddy. A novel copper-based 3D porous nanocomposite for electrochemical detection and inactivation of pathogenic bacteria. *Sensors and Actuators B Chemicals*. Vol 322, no 1, 12844, 2020. Impact factor 7.9
2. J.Kiuri, **SM.Maru**, S.N.Ndwigah *Invitro – Invivo* correlation (IVIVC) as a predictive tool for bioequivalence studies for carbamazepine extended release tablets. *East and Central African Journal of Pharmaceutical Sciences*. Vol 23, no 2, 2020
3. Ganatra N., Karimi P.N., **Shital M.**, Kayumba C. Factors that affect the availability of medicines in public health facilities in Kenya: A case study of Nairobi City County. *Pharmaceutical Journal of Kenya* Vol. 24, No 3, 2020.
4. **S.M. Maru**, D.N. Ogorora and R.W. Wambui. Formulation and evaluation of Metronidazole oral gel for dental use, *East and Central African Journal of Pharmaceutical Sciences*, Vol.20, no 2, pg. 52-56, 2019.
5. Review article: Sunscreen products: Rational for use, formulation development and regulatory considerations. *Saudi Pharmaceutical Journal*, G.Kibue Kiiriri, Alex Mwangi and **Shital Maru** Vol 27, Issue 7, Nov 2019, pg. 1009-1018. ISSN 1319-0 164 Impact factor 3.114
6. R. Cheregony, **S.M. Maru** and S.N.Ndwigah. Pre-formulation study to enhance solubility of albendazole for purposes of developing a formulation. (2018) Vol 20 (1-3).
7. E. Kithinji, **S.Mar**u and L.Tirop, The binder effect of povidone on the mechanical properties of paracetamol, *East and Central African Journal of Pharmaceutical Sciences*,(2018) Vol 20 (1-3)
8. R. Atebe, **S. M.Mar**u and L.Tirop, Application of In Vitro – In Vivo Correlation as a Predictive Tool for Bioequivalence of Generic Paracetamol Immediate Release Oral Tablets. *East and Central African Journal of Pharmaceutical Sciences*. (2017) Vol 20 (1-3).
9. Ayan A Magot, Peter N Karimi, Eric M Guantai, **Shital M Maru**, David G Nyamu. Identification and characterization of potential drug interactions in hypertensive patients in Kenyan tertiary hospital. Vol 7, no 1 (2018). P 40-46.
10. Venkata Narayana Palakollu. Tirivashe E.Chiwunze, Atal A.S.Gill, Neeta Thapliyal, **Shital M.Mar**u, Rajshekhar Karpoormath. Electrochemical sensitive determination of isoprenaline at  $\beta$ -cyclodextrin functionalized graphene oxide and electrochemically generated acid yellow 9 polymer modified electrode. *Journal of Molecular Liquids*, Vol 248, Vol Dec. 2018 P 253-262. <https://doi.org/10.1016/j.molliq.2017.10.092>
11. Nyamu D.G. , Juma R , Mwangangi E.M , **Maru S.M** , Tele A. K , Gitonga I. Knowledge on Diabetes Mellitus and its Management Strategies among Diabetic Outpatients in a Tertiary Referral Hospital in Kenya. *The Pharmaceutical Journal of Kenya*, (2017) Vol 23, No 2
12. Aisha Mongi, David Nyamu, Peter Karimi, **Shital Maru**, Evaluation of the management among diabetic and non-diabetic adult out patients at referral hospital in Kenya. (2016). Vol 5, No 2
13. Francis M Malwal, Gichuru Muriuki, **Shital Maru**, Evans M Mwangangi. Prevalance of Opportunistic Infections in HIV-infected adult patients at Kenyatta National Hospital, Kenya. *African Journal of Pharmacology and Therapeutics*, (2016) Vol 5, No 3.
14. **Shital.M.Mar**u, A.O.Okaru, F.N.Kamau, K.A.M. Kuria, B.N.Ng'an'ga, L.Gathu, A.Mathenge. Formulation and Evaluation of Ibuprofen Gel using a Natural Polymer *East and Central African Journal of Pharmaceutical Science*. Vol 18 (1) (2015). P18-22.
15. Kerama SK, Okalebo F, Nyamu DG, Guantai E, Ndwigah SN, **Maru SM**. Risk factors and management of stress ulcers in the critical care unit in a Kenyan referral hospital.; *African Journal of Pharmacology and Therapeutics*. Vol 14(3) 2014. P 51-61.

## **PATENTS AND INTELLECTUAL PROPERTIES REGISTERED**

---

1. Ronald Wandera Ososo, K.A.M Kuria, **Shital M.Mar**u, Lucy Tirop. Formulation Development of Generic Rufinamide Uncoated Tablets. Submitted to KIPI through UoN IP office. File no KE/P/2016/002504 Filed on 15th June 2015
2. Bob Keacy Ndegeh, **Shital M.Mar**u, Lucy Tirop. Formulation development of 2% erythromycin and 0.75% metronidazole topical gel. Submitted to KIPI through UoN IP office. Year: 2018
3. Titus I Omwenga, **Shital M. Mar**u, Dennis B Ongarora. Formulation of Floxetine Buccal films. Submitted to KIPI through UoN IP office. KE/P/2018/2956 Year: 2018.
4. UNISAN Hand sanitizer gel formulation with 70%v/v Alcohol suspended in carbopol gel matrix. Trademarked (2020)
5. UNISURF 70% v/v Alcohol surface disinfectant spray solution. Trademarked product (2020)

## **POSTGRADUATE STUDENTS SUPERVISED (2014-DATE)**

---

1. **Dr. Silas Mwangi**. (2014) Pharmaceutical Formulation Excipients as Corrosion Inhibitors for Lacquered Plated steel. Supervisors: **Dr. Shital Maru** and Dr. Nasser Nyamweya.
2. **Dr. Ndegeh Bob K.** (2015).Formulation development of 2% erythromycin and 0.75% metronidazole topical gel. Supervisors: **Dr. Shital Maru**, Dr. Lucy Tirop and Dr. J.M. Bururia
3. **Dr. Eric Kithinji** (2015). The binder effect of povidone on the mechanical properties of paracetamol containing tablets. Supervisors: **Dr. Shital Maru** and Dr. Lucy Tirop
4. **Dr. Mureithi Aruja** (2015) Evaluation of the management of acute gastroenteritis in children admitted under five years at Mbagathi district hospital. Supervisors: Dr. D.G.Nyamu, Dr. P.N.Karimi and **Dr. Shital Maru**
5. **Dr. Ososo Ronald Wandera** (2015) Formulation development of generic rufinamide uncoated tables. Supervisors: Prof KAM Kuria, **Dr. Shital Maru**, Dr. Lucy Tirop.
6. **Dr. Rogers Atebe** (2016) Application of *Invitro – Invivo* correlation (IVIVC) as a predictive tool for bioequivalence studies for generic paracetamol immediate release tablets. Supervisors: **Dr. Shital Maru** and Dr Lucy Tirop.
7. **Dr. Cherogony Robert Kiplagat** (2017). Preformulation studies to enhance solubility of Albendazole. Supervisors: **Dr. Shital Maru** and Dr Stanley Ndwigah
8. **Dr. Omwenga Titus Isoe** (2017). Formulation characterization and *In-vitro* testing of mucoadhesive films of fluoxetine hydrochloride. Supervisors: **Dr. Shital Maru** and Dr. Denis Ongorora.
9. **Dr. Julius Kiuri M.Pharm** (2018). M.Pharm Industrial Pharmacy *Invitro – Invivo* correlation (IVIVC) as a predictive tool for bioequivalence studies for carbamazepine extended release tablets. Supervisors: **Dr. Shital Maru** and Dr. S.N. Ndwigah.
10. **Dr. Nicole Maina** (2019) M.Pharm Industrial Pharmacy: Formulation and evaluation of micronized ketoconazole nail lacquer for the treatment of onychomycosis. **Dr. Shital Maru**, Dennis Ongorora
11. **Dr. Alex Mwangi** (2019). M.Pharm Industrial Pharmacy: Formulation and evaluation of Meloxicam emulgels. **Dr. Shital Maru** and Dr. Peter Njogu.
12. **Dr. Geoffrey Kiiri** (2019). M.Pharm Industrial Pharmacy. Formulation development and *Invitro* characterization of gastroretentive floating acyclovir tablets. Dr. Lucy Tirop, **Dr. Shital Maru** and Dr. Peter Njogu
13. **Dr. Erick O.Ogindo** (2019) M.Pharm Industrial Pharmacy. Formulation and Characterization of Griseofluvin Dispersible Tablets for paediatric use. Dr. N. Nyamweya, Dr. D.Ongorora, Dr. **Shital Maru**
14. **Dr. Johnson Anyona MSc.** (2019) Vaccines and health Supply chain management and Technology (2019) University of Rwanda. Inventory management practices and supply chain performance of antiretroviral medicines in public hospitals in Nyamira County, Kenya. **Dr. Shital Maru** and Dr P.N.Karimi.
15. **Sr. Lucy Kanja MSc.** (2019) Vaccines and health Supply chain management and Technology. University of Rwanda. Factors that affect vaccine availability in Public Health facilities in Nairobi City County. Dr. P.N.Karimi and **Dr. Shital Maru**
16. **Dr. Nazila Ganatra MSc.** (2019) Vaccines and health Supply chain management and Technology. University of Rwnada. Factors That Affect the Availability of Medicines in Public

- Health Facilities in Kenya: A Case Study of Nairobi City County. Dr. P.N.Karimi and **Dr. Shital Maru**
17. **Dr. Sultani Matendehero** (2019). M.Pharm Clinical Pharmacy. Outcomes of Mass administration of Praziquantel in controlling Urinary Schistosomiasis among primary school pupils in Lunga Lunga, Kwale County. Dr. D.G.Nyamu and **Dr. Shital Maru**.
  18. **Chimwemwe Chunga MSc.** (2019) Vaccines and health Supply chain management and Technology. University of Rwanda. The Challenges to storage temperature adherence at District Vaccine stores in Malawi. Dr. Save Kumwenda and **Dr. Shital Maru**
  19. **Dr. George Walukana MSc.** (2020) Vaccines and health Supply chain management and Technology. University of Rwanda. The Effect of Universal Health Coverage on the availability of medicines in Public Health facilities in Kisumu County, Kenya. Dr. Shital Maru and Dr. P.N.Karimi.

### **PHD. STUDENTS SUPERVISED (TO COMPLETION)**

---

1. **Atal Anudeep Singh Gill.** Student Reg. no. 216076933 Title: Synthesis of novel Nano-composite material (singled walled carbon nano-tubes containing metal ions) for their application in drug delivery and biosensors". University of Kwa Zulu Natal, Durban South Africa. Completed and Graduated in April 2020.
2. **Akua Owusua Amartey** a Ph.D candidate who is researching on "In vitro diagnostics in health facilities in the Greater Accra Region of Ghana; Quality, Safety and Disposal of Malaria and HIV Rapid Diagnostic Tests". Kwame Nkurumah University of Science and technology, Kumasi, Ghana. Registered in 2017. Expected to graduate in December 2020.

### **PHD. STUDENTS SUPERVISION ON GOING**

---

1. Co Supervising **Chebon Sammy Kiplagat.** Reg No. I80/52332/2017. Registered at University of Nairobi. Enzymatic Extraction, Characterization, and Evaluation of Industrial Applications of Valuable Products from Animal Wastes. **PhD Chemistry.** Prof Onyari, Prof, Mulaa, Dr Wanyonyi, **Dr Shital Maru** (Research stage year 3, expected to graduate in December 2020)
2. Currently supervising **Stany Banzimana PhD (2018)** Assessing vaccines supply chain system design in EAC Region. Challenges and Opportunities. Case Study: Rwanda and Kenya. University of Rwanda. Expected to graduate in 2021. Prof. Nico (KU-Leuven), Prof. P. Kayumba(UoR) and Dr Shital Maru (UoN).
3. Currently Supervising **Dr. Veronica Abowa Vugutsa PhD (2019).** Development of fixed dose combination dosage forms for improved bioavailability of albendazole and ivermectin, with diethylcarbamazine PhD Pharmaceutics (Proposal stage)
4. Co Supervising **Hashim Ibrahim** Reg No.I80/54101/2019. Phytochemical studies, elemental analysis and application of selected Kenyan medicinal plants. **PhD Chemistry (2019)** University of Nairobi. Prof. M.Onyari, Dr L.O.Kerubo and **Dr Shital Maru** (Research stage year 2)
5. Currently supervising **Dr. Ronald Wandera Ososo PhD (2019)** U80/55431/2019 Registered at Department of Pharmaceutics and Pharmacy Practice, University of Nairobi Title: Solubility enhancement of poorly water soluble APIs by nanotechnology approach. Supervisors: **Shital M.Marua**, K.O Abuga and L.Tirop. This is under the ACE -MAPRONANO Project with University of Makerere and World Bank. (Research stage year 1)
6. Currently Supervising **Dr. Robert Chergony PhD (2019)** U80/55064/2019 Registered at Department of Pharmaceutics and Pharmacy Practice, University of Nairobi. Title: Development of High Density Lipoprotein HDL Albendazole nanoparticles as an anticancer agent in ovarian cancer. **Shital Maru**, S.Ndwigah and L.Tirop. This is under the ACE -MAPRONANO Project WITH University of Makerere and World Bank. (Research stage year 1)