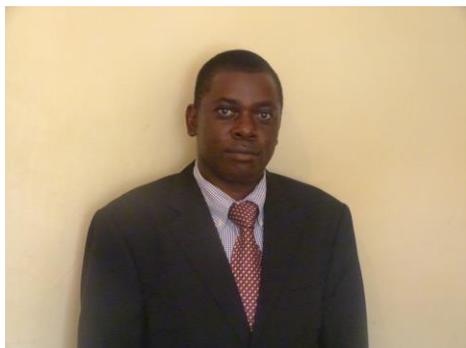


**Dr Lilechi , Danstone Baraza**



### **Job Title and Responsibilities**

#### **Senior Lecturer Organic Chemistry/Coordinator-AIDS control Unit**

Teach undergraduate and graduate students Analytical Chemistry, Environmental Chemistry, Chemistry of Biomolecules, Bioinorganic Natural Products Chemistry, and general Organic Chemistry; Carry out research and supervise postgraduate and undergraduate students in research areas: Mushroom natural products, heavy metal analysis, waste water management.

Other Dept responsibilities- Acting Chairman of Department (several occasions), Departmental Examination coordinator (2009-2012), Curriculum Review committee (2009-2010), Chairperson, Departmental Graduate School (2013 to date), member of HP catalyst project (2011 to date); Faculty Examination board member, Acting Director of Research and Extension (2013).

### **About Me**

I am a Kenyan citizen, currently working for Masinde Muliro University of Science and Technology. I have published

### **Qualifications**

**Post -Doc Fellow:** Institute of Plant Biochemistry, Germany (Investigations for Antifungal metabolites from Kenyan plants; *Sarcopharyngia stapfiana* syn. *Tabernaemontana stapfiana* Britten (Apocynaceae))

**Ph.D.** (2006): Chemistry, **M.Sc.** Chemistry, University of Dar es salaam, Dar es Salaam, Tanzania. **B.Sc.** Chemistry, University of Nairobi, Nairobi, Kenya.

### **Professional Memberships and Activities**

- Consultant; Equipment specification for TIVET institutions in Applied Sciences, 2010-2011

## Expertise

Skills in instrumental methods, project formulation, theories in chemistry, practical chemistry, Structure elucidation of natural products and mushroom Chemistry

## Enterprise and Commercial Activities

Production of mushroom products and value addition

## Research Interests

### Medicinal Plants

My research interests are on medicinal plants used in East Africa to treat various ailments. My group concentrates on identifying suitable plants for investigation, collecting these plants, extracting them and separating out the various chemical constituents. Once separated, these compounds are identified by using spectroscopic methods. Once the structures of these compounds are known, suitable biological screens are chosen to test these compounds and determine whether or not they can be used as lead compounds for drugs, *i.e.* antifungal, antibacterial and antimalarial.

### Use of analytical methods in Natural products analysis

Our group provides chromatographic methodologies employed for Natural products (NP) purification, and the role of spectroscopy in NP characterization.

We focus on the applications of hyphenated analytical techniques for isolation of natural products, use of known library of known compounds for identification of isolated compounds, chemotaxonomic studies, chemical finger-printing, quality control of herbal products.

### Mushroom and Algae research

Mushrooms and *spirulina* (an algae) are analyzed for components using separation and spectroscopic techniques. Once the structures of these compounds are known, suitable biological screens are chosen to establish existence of any pharmacological properties. Nutritional chemical analysis is also done.

GC-MS analyses of mushroom species for volatiles are also done. Fresh mushrooms are prepared and subjected to steam distillation and eventually run on GC-MS and co-injection processes. These are mainly to characterize the volatiles that are common in mushrooms and algae.

### Environmental Organic Chemistry

Waste water management, Environmental Organic Chemistry, Biofuel generation from natural products material, ecologically friendly cultivation of mushroom species.

## Selected Publications

1. Rahab W. Kamau <sup>1</sup>; Benard F. Juma <sup>1\*</sup> and **Lilechi D. Baraza** <sup>1</sup> Antimicrobial Compounds from Root, Stem Bark and Seeds of *Melia Volkensii* . Journal of Natural Products Research. Accepted for publication, 2015.
2. Stability and kinetics studies using an RP- HPLC-UV method developed for assays of Salvianolic Acid A degradation as a therapeutic Were L.L. Munyendo, Lilechi D. Baraza and George Sowayi . [International Research Journal of Pure and Applied Chemistry](#). 2015 - Volume 7 [Issue 3]
3. **Lilechi, D. Baraza**, Wekesa Nesor, Sigot Asenath, Kisiangani Paul. Volatile and Non-polar Chemical Constituents of cultivated Kenyan Algae *Spirulina platensis*. Journal of Current research, 2014. Accepted for publication.
4. Were L. L. Munyendo, Zhenhai Zhang, Sarra Abbad, Ayman Y. Waddad, Huxia Lv, **Lilechi D. Baraza**, and Jianping Zhou. Micelles of TPGS Modified Apigenin Phospholipid Complex for Oral Administration: Preparation, *In-Vitro* and *In-Vivo* Evaluation. J. B Journal Biomedical *Nanotechnol.* 9, 2034-2047 (2013). Impact factor 7.57.
5. [Were LL Munyendo](#), [Huixia Lv](#), [Habiba Benza-Ingoula](#), [Lilechi D. Baraza](#) and [Jianping Zhou](#) . Penetrating Peptides in the Delivery of Biopharmaceuticals. *Journal of Biomolecules* 2012, 2(2), 187-202; Review paper. Impact factor 4.
6. [Lilechi D. Baraza](#), Cosam C. Joseph, Joan J.E. Munissi, Mayunga H.H. Nkunya, Norbert Arnold, Andrea Porzel and Ludger Wessjohann· Antifungal rosane diterpenes and other constituents of *Hugonia castaneifolia*. *Phytochemistry*, 2008, 69, 200-205.
7. **Lilechi D. Baraza**, C C Joseph, MJ Moshi and MHH Nkunya. Chemical constituents and biological activity of three wild Tanzanian mushroom species (2007). [Tanzania Journal of Science](#), 33(2), 1-7.

### Current Teaching

Undergraduate courses, Chemistry of Biomolecules, Bioinorganic, Natural Products Chemistry, Analytical Chemistry I and II, Environmental Chemistry and Organic Chemistry, and Organic spectroscopy.

MSc courses –Analytical Chemistry I and II, Advanced Natural Products Chemistry, Advanced Separation Methods, Phytochemical Analysis, Stereochemistry and Advanced Organic Spectroscopy.

### Contact Details

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