

Academic Staff Profile

Personal Profile

Personal Details

Name: Alphonse Wanyonyi Wafula Title/Qualification: PhD Department: CHEMISTRY Designation/Position: SENIOR LECTURER Email: wafula.alphonse@ku.ac.ke Contact Address: Area of Specialization: - Natural products chemistry Applied Analytical chemistry Research Interests: 1) Natural product chemistry and organic chemistry with particular reference to: • Natural product chemistry and organic chemistry with particular reference to Isolation and structure elucidation and metabolite profiles in bioactive extracts of secondary metabolites from medicinal plants used by indigenous people of Kenya • antimicrobials from natural sources-plants • molluscicidal from plants in the endemic areas • biopesticides for control of crop pests as a strategy of improving food security • Value addition research to natural products 2. Analysis and remediation of environmental pollutants Google Scholar: ORCID ID: 0000-0003-4559-786X	
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Academic & Professional Qualifications

- Ph.D (1996-2002) Kenyatta University
Thesis Title: Phytochemical and molluscicidal studies of Kenyan *Solanum* Species
Area of Study: Natural Product Chemistry

- MSc (1989-1993) Kenyatta University, Chemistry
Title of the thesis: Phytochemical and Biological Studies of extracts of flowerheads of *spilanthes mauritiana* DC
- B.Ed (1984-1987) Kenyatta University, 1st Class Honours in Chemistry and Physics (Chemistry Major)
- Kenya Advanced Certificate of Education, "A" Level. (1981-1982). Chemistry, St. Marys High School, Yala, Physics and general paper: Principles - 2, Subsidiaries -1.
- **Kenya Certificate of Education, "O" level**(1977-1980). Rift Valley Technical School, Eldoret, Division two (25 points)
- **Certificate of Primary Education**,(1976 1976) Chongoyi Primary School, Bungoma (A-, 34 points)

Employment History

- - Senior lecturer (Kenyatta University) July 2003 - present
- Lecturer (Kenyatta University) January 1996- July 2003
- Tutorial Fellow (Kenyatta University) 1993-1996
- Graduate Assistant (Kenyatta University) 1991-1993
- Graduate Teacher (Bokoli High School, Bungoma), 1987-1988

Achievements

- Animation, simulation training for module writings-skills= in Partnership for Higher Education in Africa [PHEA 4 Project] 1 week-May 2011- Kenyatta University- BSSC
- Teaching methodology -1 week 2013 –Kenyatta University- BSSC
- Student Mentorship- Training/seminars on Staff Mentors capacity – many times
- Use of Campus Vue-An integrated Examination processing tool -Training on use of Campus Vue-An integrated Examination processing tool -3 days February 2014- BSSC
- Writing CBC curriculum skills by *Strategic Partnerships for Higher Education Innovation and Reform (SPHEIR)* Project year 2018-present
- Writing Blended Modules- training by Digital school
- Teaching on line- Faculty of Science training by Digital school on 5=6th May 2019
- Library Training for all SPAS Academic Staff-Nov 2023
- Results Based Framework Approach to Proposal Development- Oct 2023
- Strategies for Writing a Winning Grant Proposal: Budgetin... @ Tue 1 Aug 2023 10am - 12pm (EAT) [many more earlier]
- A PhD/PG supervision webinar (Writing a research framework - theoretical, conceptual and/or analytical) -September 2023
- Wellness and Rehabilitation Services Training- Aug-many other earlier trainings
- Virtual Training on Digital Skills and Cyber Security- June 2023

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Publications

Referred Journals

-[also in Google Scholar- wanyonyi Alphonse for earlier publications]

1. Thadius Maisa **Alphonse Wanyonyi**, Silvanus Shisia (2022). Physico-Chemical Parameters and Levels of Nutrients during Wet and Dry Seasons Along River Ewaso Narok, Laikipia County, Kenya. *Journal of science and Applied Technomlogy* 1(2)
2. Famau Jamil Mahdy, Jane Irungu Murungi, **Alphonse Wafula Wanyonyi** (2022) Determination Of Benzo[A]Pyrene Levels In Cashew Nut Shells And Kernels Processed Using Different Traditional Methods And Fuel Sources From Kilifi County, Kenya. *International Journal of Advanced Research and Publications*. 10,(5)
3. Murage J.W, **Wanyonyi A. W**, Murungi J. I (2020). Analysis of the levels of Vitamin A in red cactus (*Opuntia ficus-indica*) fruits during ripening. *Journal of Agriculture*, 7(2)2
4. Kihagi RW, Amuka O, Machcho AK, **Wafula AW** (2019). Phytomedicine and Allied Compounds in Both Human and Animal Healthcare. *Biomedical Journal of Scientific and Technical Research* 14(2)
5. Wasike P. W, Nawiri M. P, **Wanyonyi A. W** [2019]. Levels of Heavy Metals in Water from River Kuywa and Adjacent Well. *Environmental and Ecology Research*, 7 (3) 135-138
6. Mwonjoria JKM, Ngeranwa JJN, Githinji CG, **Wanyonyi AW** [2016]. Antinociceptive effects of dichloromethane extract of *Euclea divinorum* Lin. *Journal of Pharmacognosy and Phytochemistry*, 7(6) 1104-1107
7. Leah Nyangasi, Dickson Andala, Charles Onindo, **Alphonse Wanyonyi**, Josephine Chepngetich (2018). Processing parameters for electrospinning poly(methyl methacrylate) (PMMA)/titanium isopropoxide composite in a pump-free setup: AAS Open Research 2018, Accepted: 26 OCT
8. Wambugu N. Enoc, Maina E.N. Daisy, Onyango A. Wilbroda, **Wanyonyi W. Alphonse**, Ngeranwa J.N. Joseph, Mwonjoria J.K. Maina (2018) Antinociceptive and anti-inflammatory effects of flavonoids rich fraction of *Solanum incanum* (Lin) root extracts in mice. *The Journal of Phytopharmacology*, 7(4): 399-403
9. Okwemba R.I, Tarus P. K., Machocho A.K, **Wanyonyi A. W**, Waweru I. M, Onyancha J.M, Onani M. O and Amuka O. (2018). Isolation, characterization and Biological activity of organic extractives from *Calodendrum capense* (L. f) Thunb. (Rutaceae). *Journal of Medicinal Plants Research* 12(13) 139-163
10. Duya CO, Nawiri MP, and **Wafula AW**. (2018). Beta-Carotene Levels Increase with Leaf Maturity of *Amaranthus hybridus* (L) Grown in Different soil-Types of Kwale County. *EC Nutrition* 13.5 299-304
11. Omwancha Priscilla Nyaboke, Jane Igoki Murungi, **Alphonse Wanyonyi Wafula** (2017) Concentration of Selected Nutrients and Heavy Metals in river Nyamasogota, Kisii County-Kenya *Journal of the Kenya Chemical Society* 10-1 (2017), 35-39
12. N. M. Ombuna, A.K Machocho, M. M. Nyanaga, G.K Keru, **A. W Wanyonyi** and O. Amuka (2016). Stem bark extracts of *Erythrina excels* (Baker) and their Activities *Journal of Medicinal Plants Research* 10 (39) 686-694
13. Mwonjoria K, John, Umar Aliyu, Juma K. Kevin, Kahiga M. Titus, Ngugi M. Puero, Mburu David, **Wanyonyi Alphonse**, Githinji G. Charles, Ngeranwa N. Joseph (2016). Anti-inflammatory Activity of *Crateostigma pumilioides* (Hochst) is associated with hyperalgesia. *International Journal of pharmacology and Toxicology*, 4(2), 169-173
14. Stanslaus M. Lusambili. **Alphonse W. Wafula** and Evans C. Ogwagwa (2016). Spectroscopic and Physical characterization of clays from Ileshi area in Kakamega county and their suitability for Pottery. *Journal of Kenya Chemical Society*, 9(1) 1-13

15. Okwemba R. I, Tarus P.K, Machocho A.K, **Wanyonyi A.W**, Waweru I. M, Onyancha J. M, and Amuka O.(2018) Isolation, characterization and Biological activity of organic extractives from *Coldendrum capense* (L.f) Thumb. (Rutaceae). *Journal of Medicinal Plants Research* **12**(3) 139-163
16. O.O. Nandwa, R. manohar and **A.W. Wanyonyi (2013)**. Malted sorghum as a possible alternative to barley in beer industry. *Journal of Kenya Chemical Society* **7 (1)** 1-6
17. Mwangi s. K. E, Keriko M. J, Yarus K. P, Machoco K. A, Chhabra C. S, **Wanyonyi A** (2012). Activity of Extractives from *albizia anthelmintica* BRONGU and *Teclea tricharpa* ENGL. as biorational alternatives to control of the maize weevil. (*Stiphilus zeamais*). *East African Journal of Pure and Applied Sciences* **2** Pp113-130
18. Mwangi, E.S.K., Keriko, J.M., Machocho, A.K., **Wanyonyi, A.W.**, Malebo, H.M., Chhabra, S.C. and Tarus, P.K. (2010). [Antiprotozoal Activity and Cytotoxicity of metabolites from keaves of Tecleatrachocarpa](#). *Journal of Mecinal Plants Research* **4 (9)**: 726-731
19. Peter G. Kirira, Geoffrey M. Rukunga, **Alphonse W. Wanyonyi**, Charles N. Muthaura, Geoffrey M. Mungai, Alex K. Machocho and Isaiah O.Ndiege (2007). Tigalediterpenoids from the stem bark of *Neoboutoniama crocalyx* . *Journal of natural Products* **70 (5)**
20. P. G. Kirira, G.M. Rukunga, **A.W. Wanyonyi**, S.A. Omar, F. Otolu, G.M. Mungai, I. O.Ndiege (2006). Anti-plasmodial activity and toxicity of extracts of plants used in traditional malaria therapy in Meru and Kilifi Districts of Kenya. *Journal of Ethnopharmacology*, 403- 407
21. Paul Tarus, MSc; Sumesh Chander Chhabra, MSc, PhD; **Wanyonyi Alphonse Wafula**, MSc, PhD and Caroline Lang'at1, MSc, PhD (2004). Fermentation and Antimicrobial Activities of Extracts from different species of Fungus belonging to genus, *Trichoderma*., *African Journal of Health Science* **11, (23)**,33-34.

Books and Books Chapters

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Conference/Workshops/Seminar Papers

Conference Papers

- 1 **Wanyonyi A. W.**, Chhabra S. C., Mkoji G., Udo E. Njue W. Be. Mungai (2005). Molluscidal Steroidal Alkaloids from *Solanum* Species. In the Proceedings of 5th International Conference of Kenya Chemical Society, Kenyatta Universty, Nairobi. Kenya, Pp 239-246
- 2 Eratus K. Mwangi, Alex Machocho, Paul K. Tarus, Joseph M. Keriko, Sumesh C. Chhabra. **Alphonse W. Wanyonyi**. And Hamis Malebo (2005). Pytochemical Studies of *Teclea trichocarpa* and *Albiziaaanthemintica*. In the Proceedings of 5th International Conference of Kenya Chemical Society, Kenyatta Universty, Nairobi. Kenya, Pp 261-267
- 3 Wambugu N. Enoc, Maina E.N. Daisy, Onyango A. Wilbroda, **Wanyonyi W. Alphonse**, Ngeranwa J.N. Joseph, Mwonjoria J.K. Maina (2018) Antinociceptive and anti-inflammatory effects of flavonoids rich fraction of *Solanum incanum* (Lin) root extracts in mice. *The Journal of Phytopharmacology* , **7(4)**: 399-403

Workshops Papers

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Seminar Papers

Student Co-authored Publications

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Other Publications

- - Mwonjoria JK, **Wanyonyi AW** et al [2016]. Poster on: Preclinical Evaluation of Antinociceptive and Anti-inflammatory effects of Alkaloid rich fraction of *Solanum Incanum* (L in) roots . IASP 16th World Congress on Pain. Yokohama, Japan
- Lusambili S **Alphonse W. Wafula** et al [2015]:Poster on: Characterization of Clays from Ileshi Area in Kakamega County:The 8th International Conference of the Kenya Chemical Society, 5th -8th May 2015, Nairobi University
- Omwancha P. Nyaboke, Jame Murungi, **Alphonse Wanyonyi** [2017]. Concentration of selected nutrients and heavy metals in river Nyamasogota, Kisii county. Kenya. The 9th International Conference of the Kenya Chemical Society, 9th May 2015, USIU, Nairobi
- Duya C.O, M P. Nawiri and **Wafula AW** [2017]. Variation of levels of Vitamins A and C with maturity of *amaranthus hybridus* leaves grown in different soil types in Kwale county-Kenya. The 9th International Conference of the Kenya Chemical Society, 9th May 2015, USIU, Nairobi

Research

- **BIOSCREENING, ISOLATION AND CHARACTERIZATION OF ANTICANCER AND ANTIMICROBIAL PHYTOCHEMICALS IN SELECTED PLANTS FROM MOUNT KENYA AND ELGON REGIONS OF KENYA [VC grant]**

Funded Projects

- - **VICE CHANCELLOR'S RESEARCH AND INNOVATION GRANT 2019/2020 Ksh1,300,000 {One million and three hundred}-ongoing**
- NACOST –For my MSc students
2013 : Ksh190,000/= Caroline Faith Agola Reg. No. 56/CE/22624/2011 completed
2016: . 190,000/= [Caleb Oduya Reg. No. I56/CE/21450/2012- completed

Conferenced/Workshops/Seminars Attended

Conferences Attended

- Dr. Alphonse Wanyonyi [2012]. Biological investigation of glycosidic metabolites from two kenyan *solanum* specie: The 7th International Conference of the Kenya Chemical Society, 15th -18th October,2012, Maseno University
- 2007: VICRES-2007- Harmonization /Competition workshop 1 week Workshop -Lake Victoria Research Initiative (SIDA/SAREC/IUCEA) .Paper: Strategies for the control and management of Schistosomiasis (Bilharzia) in Lake Victoria Basin Jinja Nile Resort, Uganda

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Workshops Attended

- Dr. Alphonse Wanyonyi [2023]. Role of Deans, Chairpersons and Examination Coordinators in Examination processing, verification of marks and processing of historical examination results: Induction/orientation/ workshop for executive Deans of schools, Chair persons of Departments and examination coordinators. August 2023, KUCC Nairobi, Kenya

Seminars Attended

- - Departmental post graduate seminars- weekly –Thursdays 10-11 am
- Biannual - School of Pure and Applied sciences-KU Post graduate- Graduands- Seminar, Graduate school, Kenyatta University-2019- 2024 [Usually before July and December graduations]

Supervision of Postgraduate Students

Masters-On going

-1 **Nguimbous Simone Pierrette -I56F/20321/2020 : PHYTOCHEMICAL ANALYSIS, *IN-VITRO* INHIBITORY ACTIVITIES, AND *IN-VIVO* ACUTE TOXICOLOGY STUDIES OF SEVEN KENYAN MEDICINAL PLANTS AGAINST SELECTED BACTERIA AND FUNGUS**

2.Shosio Holland Luvembe -I56/20622/2020: **PHYTOCHEMICAL STUDIES AND EVALUATION OF ANTIBACTERIAL AND ANTIFUNGAL ACTIVITIES OF SELECTED MEDICINAL PLANTS FROM MT KENYA AND ELGON REGIONS IN KENYA**

3.**Jerono Janeth -I56/CE/28011/2015: ANALYSIS OF SELECTED PLANT NUTRIENTS AND HEAVY METALS IN SOIL, WATER AND SEDIMENTS ALONG RIVER KUNDOS, NANDI COUNTY, KENYA**

4..Mary Kimuli [I56/CTY/32689/2015]: Mosquito Repellency and Composition of Volatiles of *Ocimum tenuiflorum* Growing on Different **Agroi-Ecological Zones, Kenya**

5..Mutua Loice Mwende [I56/CE/24799/2012]: Evaluation of antimicrobial activity of mangrove leaves and barks from Mida creek against selected human pathogens in coast region, Kenya

6. Naomi Macharia [I56/CE/24069/2012]: : Assessment of quality of gasoline, diesel, and residual fuel oil in Mombasa and the use of a simple method for field work assessment of gasoline

7. Geoffrey Wekesa [I56/CE/25197/2014]:: Home-made Activated Carbon Ceramic Filterbon Quality of Drinking Water in Msambweni, Kwale, Kenya

8.Benard Isaboke Mogaka [I56/29006/2015] :: Assessment of water quality from river Subukia and adjacent boreholes for domestic use in Subukia, Nakuru county, Kenya

9.King'ori Gitahi [i56/ce/28645/2013]: Levels of selected priority polycyclic aromatic hydrocarbons in roasted cow meat, liver and intestines in Nairobi county, Kenya

11. Mukubwa aggrey [i56/CE/26033/2014]: Antplasmodial activity of *Senna occidentalis* from Vihiga

12. Katumo Rosalia Mueke-156/CE/34102/2017:Aassessment of selected nutrients and heavy metals in vegetables, soils, and water along river kaiti, makueni county, kenya.

13. Anne Mukei Kimende -I56/ CE/25345/2014: Nutritional and sensory properties of smoked pork sausages incorporated with dried baobab fruit pulp

Masters-Graduated

1. Maisa, Thadius Nyamweya [I56/CE/28515/2015] Dec 2023
Title: Physico-chemical parameters and levels of selected heavy metals and nutrients during wet and dry seasons along river ewaso narok, laikipia county
2. Famau Jamil Mahdy[i56/37829/2017]-July 2023
Title: Determination of benzo(a)pyrene levels in cashew nuts from Kilifi using different traditional processing methods and fuel sources .
3. Agola Caroline Faith [I56/CE/22624/2011] Dec 2022
Title: Phytochemical, Aniplasmodial and larvicidal Studies of *Stachytarpheta urticifolia* (sims)
4. Daniel Murage [I56/CE/28842/2015] July 2022
Title: Adsorption of selected heavy metals using plant parts of *pennisetum purpureum*; a case study of river ruiro, kiambu county, kenya
- 5 Kihagi Regina Wamuyu [I56/10703/2006] graduated Dec 2016

Title: Antibacterial, Antigungal and Phytochemical Screening of the plant species *Lannea scweinfurthii*
(Engl.,) ENGL

- 6 Lusambili Stanslaus [I56/24068/2012] Graduated in July 2016

Title: Characterisation of Clays from Ilesi Area Kakamega County

- 7 Peter wasike [I56/11203/2007] Graduated in July 2015

Title: Analysis of selected heavy metals in river Kuywa and borehole water in Bungoma County

- 8 Muitha Ndia James [I56/13098/2005] graduated July 2010

Title "Isolation, structure elucidation and antimicrobial activity studies of secondary metabolites from species *Grewia similis* and *Echinops hispidus*".

- 9 Njoroge Waithaka [I56/5134/2003] Graduated 2008

Title: Isolation and structure elucidation of Bioactive antimicrobial agents from selected plants of the genus *Rhus* (Anacardiaceae)

- 10 Peter Kirira Gakio Graduated 2005

Title: Chemical and Biological Studies on Traditional Antimalarials plants From Meru and Kilifi Districts

11. . Omwancha P. Nyaboke [I56/CE/23828/2013]

Title Concentration of fertilizer residues and selected heavy metals in tea farms, adjacent land and river Nyamasogota in Magena division, Kisii county

12. . Otieno Caleb Oduya [I56/CE/21450/2012]

Title: Variation in levels of vitamins a and c with maturity of *amaranthus hybridus* (l) leaves grown in different soil - types in Kwale county, Kenya

- :13.Joice Murage [I56/CE/23807/2012]

Title: Analysis of the levels of lycopene, vitamin a and beta carotene in red cactus (*opuntia streptacantha*) fruit during ripening

Ph. D -on going

1. BIRGEN JAELE CHEPTOO -184/21431/2020: **ANALYSIS OF SELECTED BANANA PSEUDO STEMS, FIBER EXTRACTION OPTIMIZATION, CHARACTERIZATION AND NANOFIBER PREPARATION FOR MAKING SANITARY PADS IN KENYA**

2. OKWEMBA RONALD ING'AHU I84/38351/2016-Phytochemical analysis and *in vitro* antibacterial, antifungal screening and cytotoxic activity of plants used in ethnomedicine by Sabaot community, Bungoma county.

Ph. D -Graduated

1. John Kingori Mwonjoria [I84/25778/2011]

Title Antinociceptive, ant-inflammatory effects of *Solanum incunum*(Linnaeus), *Craterostima pumilum*(Hochst) and *Euclea divinorum*(Hiern) in animal models

2 Leah Nyangasi [I84/25950/2013]

Title: Synthesis, characterization and evaluation of Pd-nanoparticles on titania nanofibres as catalysts In Heck reactions Synthesis, characterization and evaluation of Pd-nanoparticles on titania nanofibres as catalysts In Heck reactions

Professional/ Consultancy (Editor/ Peer review in journals, Networks/ Collaborations, External Examiner, Patents)

Consulting for Organization/institution

- Bachelor of Science (Industrial Chemistry-major) Majors- for Day star University 2006
- Bachelor of education (science) Majors- for Day star University 2006
- MSc and Ph.D examination and in KU and other universities eg JKUAT, UON
- **MSc. IN ANALYTICAL CHEMISTRY** Laikipia University: **2022**

Referee for Professional bodies

- Reviewed for Kenya Chemical Society many times including for July 2014
- Reviewer with National Council of Science technology and Innovation (NACOSTI)/ National Research Fund (NRF) 2018- to present
- Kenyatta University Vice chancellors Research grant
- Reviewer for **African Journal of Pure and Applied Science (AJPAS)**

- External examination

- Jomo Kenyatta University of Agriculture and Technology [organic chemistry and related units] 2015-2017
- Laikipia University [All chemistry units] 2011 to present
- Karatina University [all chemistry and biochemistry unit] 2011 to 2015
- University of Nairobi [Industrial and organic chemistry units] 2010-2012

Community Service and Other Engagements

Church and School boards

- Moderator, Christ the teacher Catholic Church, (Kenyatta University Catholic chaplaincy) March 2023 to present
 - Member of the board of Governors[Chairman BOM)- St. Anthony's Sec, Sirisia 2019- present
 - Member of the board of Management- St. Monica-Bukokholo Girls Sec school 2015 to present
 - Member of the board of Governors- St. Anthony's Sec, Sirisia 1996- 2014
 - Member of the board of Governors- Friends Bisunu Sec. 2005- 2012
 - Member of the board of Governors- Kibabii Boys High school. 2009- 2012
 - Chairman board of Management- St Anthony's Sec, Sirisia 2005- 2014
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Affiliation of Professional Bodies

- Kenyatta University Alumni Association
 - Kenya Chemical Society
 - Kenya DAAD Scholars Association [I am DAAD Scholar]
 - Natural Products Research Network of East and Central Africa (NAPRECA)
 - Associate member of Royal Society of Chemistry (AMRSC)
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National and International awards and Recognitions

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Administrative Positions Held

Recognized university administrative positions

- Head, Academic Data Verification Section [Registrar Academic Division] March 2023 to present
- School of Pure and Applied Sciences Examination coordinator Sept.2009 to July 2022
- Departmental examination coordinator 2004 to Aug.2009
- Warden in the Dean of students section- Ruiru Campus 2006-2010
- Kenyatta University Staff Mentor Sept 2010 to present

Other administrative positions Held

- Acting head of department/Standing for head of academic division- Severally
- Acting deputy dean of students- Ruiru 2009
- Standing for other members of department
- Chief Invigilator DSVOL Examinations –Various Centres