

DR. MAGRATE KAIGONGI CURRICULUM VITAE



RESEARCHER ID:

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POSITION: Senior Research Scientist (Plant Taxonomy and Economic botany)

1. PERSONAL INFORMATION

1.1	NAME	Magrate M. Kaigongi
1.2	ADDRESS	P.O. Box 20412-00200, NAIROBI
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1.4	EMAIL ADDRESS	kaigongim@gmail.com / mkaigongi@kefri.org
1.5	NATIONALITY	Kenyan
1.6	GENDER	Female

2. QUALIFICATIONS

2.1. Academic Qualifications

Year	Qualification	Institution
2017-2020:	Doctor of philosophy in Plant Taxonomy and Economic Botany	University of Nairobi
2012-2014:	Master of Science in Plant Taxonomy and Economic Botany	University of Nairobi
2008-2012:	Bachelor of Science in Biology (First Class Honors)	University of Nairobi
2003-2006:	Kenya Certificate of Secondary Education (A-)	Muguna-aana Secondary School
1995-2002:	Kenya Certificate of Primary Education (313/500)	Kariini Primary School

2.2. Key Competencies

Systematics, Ethnobotany, Phytochemistry, Medicinal Plants, Conservation, Landscape Restoration

2.3. Other Courses

Period	Course	Institution
July 2021	Resource Mobilization (Grant Proposal Writing and Management)	Training Centre in Communication
August 2020:	Restoration Opportunities Assessment Methodology (ROAM)	Food and Agricultural Organization (FAO) and Kenya Forestry Research Institute (KEFRI).
June 2019- July 2019	Metabolomics techniques	Stellenbosch University
April 2019	Ecological restoration by Forest and Landscape Restoration	Brackenhurst
May 2017	Phylogenetic Training	University of Nairobi
Sept 2015- Feb 2016	Herbarium techniques	East African Herbarium, National Museums of Kenya
July 2016	Research Proposal writing	DAAD- Kenya

3. EMPLOYMENT HISTORY

July 2022- Present: Senior research scientist (SRS) and head of Botany Section at Kenya Forestry Research Institute (KEFRI).

Sept 2015- June 2022: Research scientist (RS) and head of plant taxonomy section at Kenya Forestry Research Institute (KEFRI).

Research: Forestry Systems Biodiversity, Phytochemistry, Agroforestry, Medicinal Plants, Wild Fruits, Systematics, Biogeography, Conservation, Restoration, Climate Change, Invasive Plants, Urban forestry.

2019-2020: Part time lecturer in the Department of Biological Sciences, Machakos University

2018-2019: Part time lecturer in the Department of Biological Sciences, Karatina University

2016- 2018: Part time lecturer in the Department of Applied and Technical Biology, Technical University of Kenya (TUK)

2012-2014: Graduate assistant in the Department of Biological Sciences, Masinde Muliro University of Science and Technology (MMUST).

Teaching: Plant Taxonomy, Herbarium Techniques, Ethnobotany, Taxonomy of Higher Plants, Bryophytes and Pteridophytes, Plant Ecology, Botanical Nomenclature and Palynology units.

4. ADMINSTRATIVE RESPONSIBILITY

5. PUBLICATIONS

5.1. Journal papers

1. **Kaigongi, M. M.**, Muturi, G. M., Kigomo, J. N., Gathara, M., & Otuoma, J. (2023). Mixed species natural forest regeneration trajectory in clear-felled monoculture plantation sites in Kenya: A step towards developing a natural forests restoration framework. *African Journal of Ecology*, 00, 1–6. <https://doi.org/10.1111/aje.13102>
2. **Kaigongi, M. M.**, Lukhoba, C. W., Musila, F. M., Taylor, M., Mbugua, R. W., Githiomi, J., ... & Makunga, N. P. (2022). A versatile untargeted metabolomics-driven technology for rapid phytochemical profiling of stem barks of *Zanthoxylum* species with antioxidant and antimicrobial activities. *Advances in Traditional Medicine*, 1-17.
3. Musila, F. M., Gitau, G. W., **Kaigongi, M. M.**, Kinyanyi, D. B., Mulu, J. M., & Nguta, J. M. (2022). In silico exploration of Lycoris alkaloids as potential inhibitors of SARS-CoV-2 main protease (Mpro). *European Journal of Biological Research*, 12(3), 238-261.
4. Chebet, D., Musila, F. M., Kituyi, S. N., Muthike, G. M., & **Kaigongi, M. M.** (2022). Molecular Phylogeny of Selected Kenyan Eucalyptus Species Inferred from MatK, rbcL and TrnL-F Genes and Their Suitability for Power Transmission Poles. *Diversity*, 14(7), 563.
5. Musyoki, J. K., **Kaigongi, M. M.**, Uchi, S. M., Kiama, S. M., Githiomi, J., Muthike, G. M., & Luvanda, A. M. (2022). Distribution and population status of *Adansonia digitata* L. (baobab) and its contribution to livelihood in Makueni County, Kenya. *Trees, Forests and People*, 8, 100270.
6. **Kaigongi, M. M.**, & Lukhoba, C. W. (2021). The chemosystematics of the genus *Zanthoxylum* L. (Rutaceae) in Kenya. *Biochemical Systematics and Ecology*, 98, 104319.
7. Koech, Charles Kiprono, Jane W. Njuguna, Stephen M. Kiama, James O. Maua, **Magrate M. Kaigongi**, Michael M. Muganda, Stanley Nadir, & John N. Kigomo (2021). Community use and product valuation of forest resources in Maasai Mau, Kenya. *Advances in Social Sciences Research Journal* 8, (10).
8. **Kaigongi, M. M.**, Lukhoba, C.W., Ochieng' P.J., Taylor, M., Yenesew, A., Makunga, N.P. (2020). LC-MS-Based Metabolomics for the Chemosystematics of Kenyan *Dodonaea viscosa* Jacq (Sapindaceae) populations. *Molecules*, 25(9), 4130
9. **Kaigongi, M. M.**, Lukhoba, C. W., Yaouba, S., Makunga, N. P., Githiomi, J., & Yenesew, A. (2020). In Vitro Antimicrobial and Antiproliferative Activities of the Root Bark Extract and Isolated Chemical Constituents of *Zanthoxylum paracanthum* Kokwaro (Rutaceae). *Plants*, 9(7), 920.
10. **Kaigongi, M.M.**, & Musila, F. M. (2015). Ethnobotanical study of medicinal plants used by Tharaka people of Kenya. *International Journal of Ethnobiology & Ethnomedicine*, 1(1).1-8.
11. **Kaigongi, M. M.**, Dossaji, S. F., Nguta, J. M., Lukhoba, C. W., & Musila, F. M. (2014). Antimicrobial Activity, Toxicity and Phytochemical Screening of Four Medicinal Plants Traditionally Used in Msambweni District, Kenya. *Journal of Biology, Agriculture and Healthcare*, 4(28), 6-12.

a. Books

b. Book Chapter

c. Technical Notes /Protocols/Guidelines

1. Kiama, S.M., Njuguna, J.W., Maua, J.O., **Kaigongi, M.M.**, Nadir, S., Ngugi J., Koech K.C., & Meso M. (2021). Aerial seeding for rehabilitation of degraded forestlands and landscapes in Kenya: **A technical report** on pilot aerial seeding in Maasai Mau Forest. KEFRI, Muguga, Kenya.
2. Kiama, S.M., Njuguna, J.W., Maua, J.O., Nadir, S., Ngugi J., Koech K.C., Meso M. & **Kaigongi, M.M.** (2021). Aerial seeding for rehabilitation of degraded forestlands and landscapes in Kenya: **A protocol** on aerial seeding in Maasai Mau Forest. KEFRI, Muguga, Kenya.
3. **Magrate M. Kaigongi** and **Eston Mutitu (2021)**. Strategies for conserving threatened plant species: Initiatives by the Kenya Forestry Research Institute (KEFRI). *Miti Magazine*
4. **Kaigongi, M.M.** (2020). Botanical name changes of plants, **technical note**. Kenya Forestry Research Institute (KEFRI).
5. **Kaigongi, M.M.**, Stanley Nadir, Leonida Cherotich, Peter Gachie, Jesse Lugadiru (2016). Growing Eucalyptus trees, **information leaflet** for farmers and tree growers. Kenya Forestry Research Institute (KEFRI).

d. Policy Briefs

3. RESEARCH

a. Completed

1. Genomic-Metabolomic Analysis of Medicinal *Dodonaea* species, funded by South African/Kenya – Research Partnership Programme Bilateral Agreement 2016/2017

b. Ongoing research

1. 10% Forest Cover funded by the Government of Kenya

c. Mentorship and supervision

1. GUNGA GREFFIN WILLYS (I52/41673/2022 University of Nairobi) “**Distribution, Morphological and Chemosystematics of *Cuscuta* Spp. in Kenya.**”

4. INNOVATIONS AND PATENTS (Intellectual Property)

5. CONFERENCES/SEMINARS/WORKSHOPS

a. Presentation of Papers at Academic and Professional Conferences

Glover, C., Kinlyn, W., Karumi, E., Karendi, M., Osano, A., Peng, J., Cheseto, X., Reich, E., Do, T., **Kaigongi M.**, Oluka, M. (2022). An analysis of Aloe vera bioactive compounds through HPTLC, GC-MS and LC-MS. IRES Symposium, University of Nairobi

Kaigongi, M.M. (2019). Forestry and Climate Change. Youth Climate Leaders Conference. Strathmore University, Kenya.

April 2018: Rapporteur - 5th KEFRI scientific conference; Contribution of forestry research to sustainable development. Kenya Forestry Research Institute Headquarters.

Kaigongi, M.M. (2017). Role of Kenya Forestry Research Institute (KEFRI) in agroforestry. Society of Economic Botany (Kenya Chapter) Annual Symposium. University of Nairobi, Kenya.

May 2017: Attendee- XXI AETFAT CONGRESS; Systematics, biogeography and Conservation of African plants and fungi.

July 2015: Attendee- Research Proposal writing by DAAD.

June 2013: Attendee- Society of Economic Botany (Kenya Chapter) 3rd Annual Symposium, Kenya.

b. Participation in Workshops/Conferences

1. **Presenter** on Forestry and Climate Change. Youth Climate Leaders Workshop. Strathmore University, Kenya, 3rd June 2019.

2. **Presenter** on the Role of Kenya Forestry Research Institute (KEFRI) in Agroforestry. Society of Economic Botany (Kenya Chapter) Annual Symposium. University of Nairobi, Kenya, 13th Dec, 2017.

3. **Rapporteur - 5th KEFRI scientific conference;** Contribution of forestry research to sustainable development. Kenya Forestry Research Institute Head quarters, Muguga, Kenya, 17-19th April 2018

4. **Attendee-** Society of Economic Botany (Kenya Chapter) 3rd Annual Symposium, Kenya, June 2013

c. Convening/Coordinating Conferences

6. PROFESSIONAL ENGAGEMENT

a. Training

b. Consultancies

June 2022- December 2022- Consultant with IUCN in identifying options and scenarios of voluntary commitments for biodiversity in the agriculture and forestry sectors in dryland ecosystems in Kenya

August 2022- October 2022- Consultant with Global Network of Civil Societies for Disaster Reduction (GNDR) in localizing climate projections - knowledge exchange in Uganda

February 2021- August 2021- Restoration of arid and semi-arid lands (ASAL) of Kenya through bio-enterprise development and other incentives under The Restoration Initiative under FAO-GEF6 Project.

January- March 2021- Consultant with REDD+ as a Field botanist and sub team leader in the second verification of Chyulu Hills REDD+ Project.

April- August 2020- Technical expert in the biodiversity assessment and restoration activities at John Michuki Memorial Park Project in Nairobi by the Ministry of Environment and Forestry.

January- March 2020- Lead botanist in the site matching for bamboo species in Kenya, a study commissioned by International Network for Bamboo and Rattan and Kenya Forestry Research Institute (INBAR-KEFRI).

July- November 2019- Lead botanist guiding the restoration of Maasai Mau Forest using aerial seeding technology by Ministry of Environment and Forestry

December 2019- Lead scientist in the restoration activities in Kajiado East by the Ministry of Environment and Forestry in conjunction with Kajiado County.

January- March 2019- Lead botanist in the survey of invasive species in Kajiado County by the Ministry of Environment and Forestry

July- October 2018- Lead botanist in the survey of *Eucalyptus* species used for transmission poles in Kenya, a study commissioned by National Commission of Science and Technology and Kenya Forestry Research Institute (NACOSTI-KEFRI).

January- December 2017- Lead botanist in research and restoration of Cherengany and Mt. Elgon Water Towers under the auspices of the Kenya Water Tower Protection and Climate Change Mitigation and Adaptation (WaTER) Program financed by European Union and Kenya Forestry Research Institute (EU-KEFRI).

July- December 2016- Lead plant taxonomist in identification of plants species suitable for restoration work in **Kajiado South**, commissioned by the European Union under the Kenya Climate Change Adaptation Program.

c. Collaboration with external organizations

7. EXTERNAL AND INTERNAL RESEARCH GRANTS

Include research grants won

8. LOCAL, REGIONAL & INTERNATIONAL APPOINTMENTS

- a. Local
- b. Regional
- c. International

9. AWARDS AND RECOGNITION

1. DAAD In-country/In-region MSc Scholarship, 2013-2014

10. CONTRIBUTION TO KEFRIs ADVANCEMENT

11. MEMBERSHIP TO PROFESSIONAL BODIES

1. Assistant secretary, Society for Economic Botany, Kenyan Chapter (Membership No. **015**)
2. Member of Forestry Society of Kenya (Membership No. **FSK/F/0935**)

12. REFEREES

1. Prof. Catherine Lukhoba

Head of Biology department,

University of Nairobi

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2. Dr. Eston Mutitu

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3. Dr. Malombe Itambo

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