NATIONAL MUSEUMS OF KENYA

WHERE HERITAGE LIVES ON

Approaches to Plant Ecology, Mycology and Herbarium Techniques

3rd - 7th June 2026

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Brief Course introduction

The course *"Approaches to Plant Ecology, Mycology and Herbarium Techniques for Biodiversity conservation"* is designed to provide participants with both theoretical knowledge and practical skill crucial for understanding, documenting and conserving plants and fungi diversity. Plants and fungi form the foundation of most terrestrial ecosystems, playing a critical role in maintaining ecological balance and supporting livelihoods. Effective conservation of these resources requires a deep understanding of their diversity, ecological interactions, and the tools used to study and preserve them. This course integrates key disciplines in modern biodiversity science. Participants will learn **herbarium techniques**, including plant and fungal collection, preservation, identification, databasing, and curation. The **plant ecology** component will introduce methods for studying species interactions, community structure, and ecosystem processes in natural habitats. The **mycology** segment will explore fungal diversity, their ecological roles, and their significance in ecosystem health and applied uses in food production.

By the end of the course, participants will have the knowledge and technical capacity to:

- Conduct field surveys and collect high-quality plant and fungal specimens.
- Apply herbarium methods for long-term preservation and research.
- Analyze plant-fungus-environment interactions to inform conservation strategies.
- Contribute to biodiversity databases and conservation planning initiatives.
- Understanding of key ecological drivers (biotic, abiotic and their interaction) influencing plant/fungi diversity and distribution in ecosystem in Kenya
- Knowledgeable in bio-indicators (plant/fungi) and biological indexes in assessing health status of an ecosystem for plant/fungi diversity
- Understanding of ecosystem degradation, and possible mitigation measures
- Knowledge in viable strategies of sustaining an ecological healthy ecosystem for rich plant/fungi diversity.
- Understand mycorrhizal fungi and soil health
- Mushroom cultivation techniques

This course is ideal for early-career scientists, students, conservation practitioners, and community resource managers who are passionate about advancing plant and fungal biodiversity conservation through science-based approaches.

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Course outline

Day 1	Day 2	Day 3	Day 4	Day 5
Introduction to herbarium technique and their importance in botanical research	Identification and Nomenclature	Use of bio-indicators (plant/fungi) and biological indexes in assessing health status of an ecosystem for plant/fungi diversity	Ecology Practical sessions	Mycorrhizal Fungi and Soil Health
Principles of Plant Collection	Specimens processing, mounting and laying in. Herbarium Curation and Management	Introduce to key drivers of ecosystem degradation, and propose possible mitigation measures	Introduction to Fungi and Their Importance	Mushroom Cultivation Techniques
Hands on practice on plant collection techniques	Introduction to key ecological drivers (biotic, abiotic and their interaction) influencing plant/fungi diversity and distribution in ecosystem in Kenya	Viable strategies of sustaining an ecological healthy ecosystem for rich plant/fungi diversity.	Mushroom Biology and Diversity	Fungarium and managment

WHAT TO BRING:

- Lab coats, Walking shoes, Note books

Participants will:

1. Be expected to fill a simple training survey form
2. Do a brief training report at the end

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FACILITATORS PROFILES

Dr. Geoffrey Mwachala

Chief Research Scientist, National Museums of Kenya and Editor in Chief, Flora of Kenya. Formerly Director, National Repository and Research; Head of Botany Department. Seasoned scientist in plant systematics, ecology and conservation.

Dr. Paul Kirika

Head of Botany Department and Senior Research Scientist. Expert in plant and fungal taxonomy, Ecology, Phylogenetics, Lichenology and Conservation.

Dr. Mary Nyawira Muchane

Senior Research Scientist, In-situ conservation and Ecology Laboratory section, Botany Department. Specialist in taxonomy, conservation and management of plant, fungi and soil resources.

Dr. Veronicah Ngumbau

Senior Research Scientist, Head Training Section, Botany department. Specialist in plant taxonomy, biodiversity assessment, species assessment, and conservation.

Ms. Susan Kabacia

Expert in macrofungi, taxonomy of wild mushrooms and conservation. She is a trainer in mushroom cultivation, value addition, spawn production, and mushroom product development, promoting sustainable livelihood options and community-based conservation initiatives.

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Brief Introduction: The National Museums of Kenya

NMK is a State Cooperation established by the Museums and Heritage Act. It is a registered Multidisciplinary Research Institution and a center of excellence in heritage research, conservation and management. The Directorate of National Repository and Research (DNRR) coordinates research at NMK and manages the National Scientific Reference Collections. DNRR collaborates with National and International institutions in implementing its mandate, and has a mission to collect, preserve, study, document and present Kenya's past and present cultural and natural heritage. The vision of DNRR is to be a center of excellence in heritage management and research for posterity. The directorate has various departments whose mandate is research dissemination through publications, exhibitions, industrial attachments and trainings.

The East African Herbarium (EA), a part of Botany department, houses the largest botanical collection in tropical Africa, with over 1 million plant and fungal specimens. EA serves as a critical botanical reference center both regionally and nationally. Its research predominantly centers on the taxonomy, distribution, utilization, and conservation of East African flora. This course will emphasize the principles of plant collection, identification, processing, and preservation, providing practical experience in plant collection techniques and identification. Additionally, the course will highlight the significance of herbaria in botanical research, including planned visits to the Mycology, Ecology, and Botanical Garden Sections.