

Medicinal and Aromatic Plants (MAPs) are vital natural resources that significantly support the livelihoods of local people and rural communities: Sources of Income, Healthcare and Ecological Stability

Presented by:

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# Presentation Layout

- Introduction
- Medicinal and Aromatic Plants (MAPs)
- Support the livelihoods of local people and rural communities:
  - (a) Sources of Income,
  - (b) Healthcare
  - (c) Ecological Stability.

**Case studies in pictorials**

**Recommendations**

**Appreciations**

# Introduction

- TM and complementary medicine Act of 2019 vs Witchcraft Act of 1957
- Interventions: Emyooga, OWC, MSC, Local Government structures
- Wildlife in Uganda and protected Areas
- Nature and its gifts (God Created for mankind and rule and harnessing)

# Traditional Medicine

*Traditional medicine* is defined loosely as a **set of products, practices, and theories** that are believed or perceived to have **therapeutic effects**.

Such practices and products are developed and transformed from one generation to another through transfer of indigenous knowledge through indigenous systems of ill-health management

# Introduction /Background

- **Aromatic crops** are crops grown for their aromatic and active compounds forming the essential oils.
- There has been rapid growth of the **industrial sector in Uganda**
- **This has resulted into high demand for essential oils use in the beverage industry, pharmaceuticals, food, cosmetics and aromatherapy** (steam bath, massage and sauna) and in apiary.
- Yet there is **less production of aromatic crops and value addition to essential oils to meet the growing demand**
- *There is inadequate knowledge and technology transfer (KTT) on the production, processing, application and rational use of essential oils*

# What are Medicinal and Aromatic Plants?

Medicinal plants are botanical species containing chemical compounds in their roots, leaves, stems, or flowers that can prevent, alleviate, or cure diseases. These plants are God-given from Genesis (Revelation 22:2; 2Kings 20:7)

MAPs Used for thousands of years in traditional medicine, these plants are essential for primary healthcare for ~80% of people in developing nations.

Aromatic plants (Jeremiah 8:22; Song of Songs 4:14; Matthew 2:11; John 19:39; exodus 16:31; Numbers 11:7; Luke 10:34; Leviticus 14:3-4; Ezekiel 47:12; psalm 51:7] i.e Aloes, myrrh, coriander, ficus, frankincense, oliveoil, lavender, commiphora organum. used for all human diseases, rituals, food, medicines, cleansing. etc.

# AROMATIC PLANTS

**Aromatic plants (Essence plants).** Aromatic plants are species that produce, store, and release volatile essential oils in their leaves, flowers, roots, or bark, characterized by distinct fragrances.

Used in Medicines, scent and flavor of plants used vastly used in aromatherapy, perfumery, cosmetics, and for therapeutic purposes.

Aromatherapy & Wellness: Used for relaxation, sleep improvement, and stress reduction (e.g., lavender), as well as to boost mood or enhance cognitive function.

MAPS They serve as the foundation for both traditional remedies and modern pharmaceutical drugs.

# Some Categories of MAPs

- a. Herbal medicine
- b. Aromatherapy
- c. Religion and healing
- d. Supernatural energies
- e. Culinary herbs
- f. Traditional ethnic systems (marriages, deaths)

## **Nomenclature**

- African Traditional Medicine (ATM)
- Traditional Chinese Medicine (TCM)
- Ayurvedic Medicine
- Complementary & Alternative Medicine (CAM)
- **Several names exist worldwide.**

# Policy Briefs on Essential Oils by UNCST

The Essential Oils Commercialization for Public Health Products Development and Rational Promotion (EOCCPHP) project, supported by the Uganda National Council for Science and Technology (UNCST), aims to boost local production of essential oils to meet rising demand, replacing toxic imports. Key policy initiatives focus on sustainable farming through out-grower schemes, developing value-added products (e.g., at Bishop Stuart University), and establishing market linkages to reduce reliance on synthetic alternatives.

## Key Policy & Commercialization Aspects (UNCST Framework)

Target Crops & Value Chain, Infrastructure & Processing: Employment & Gender - 70% women. Quality Control & Standards:

Future Directions: IPT , product development and integration.

Identified Challenges: Infrastructure & Logistics, Market & Regulatory, Technical Knowledge: Gaps in knowledge for high-quality, consistent, GAP, Ensuring environmental sustainability.

EOCCPHP project, Lead researcher, Prof. Kamatenesi Mugisha

# Drivers of National Development Agenda (NDP4), SDGs, Vision 2040, Africa Agenda 2063



# 1. Livelihoods & Economic Income

1. **Household Incomes and Revenues support systems:** MAPs, PA  
Multiple use zones *Prunus africana*, *Warburgia ugandensis*, Nyakibazi-mother of drugs, *Citropsis articulata*- omuboro, *erythrina abyssinica*-omuko, *Halea* sp (Omuziko). %over 60 % revenue base.
2. **Cultivation of MAPS in Uganda and Africa** . big business and successful cultivation of MAPs serves as a lucrative alternative to traditional food crops (Kenya farms).
3. **NDP 4 for Uganda.** a big enhancer. Reducing poverty and increasing household savings and national incomes .
4. **Employment creation.** Market vendors, processors, collectors, transporters, formulators, healers and herbalists, pharmacists (EO for Covidex and other products).
5. The global market businesses in MAPs and plant-derived drugs (BUSINESS SENSE-global markets (Hibiscus, Moringa)

## 2. Healthcare and Traditional Medicine

1. Primary Healthcare provision to populations in developing countries 60-80% (ref)
2. Affordability and Accessibility of MAPs in real life. emergencies, chronic ailments. mode of administration (food, teas, health drinks, energy drinks, health protection, huge consumption growing. Health facilities lack necessary drugs. drugs most expensive. treatment procedures are far from reach.
3. Treatment Versatility: A wide diversity of species is used to treat ailments ranging from common illnesses (cough, malaria, diarrhea) to chronic conditions (cancers, cardiovascular disorders).

# Dr. John Baptist Asiimwe (PhD): Cancer case study in Uganda

## a. **Most cancer patients use TMs**

WHO generally estimates 80% in developing countries use TMs (specific figure per region for use of herbal medicine in cancer is unknown). ***>35% of patients with cancer in the USA and >50% in developing countries use herbal medicine during chemotherapy. (bagcchi, 2015).***

b. >60% of the anticancer agents are from plants & plants still have an enormous potential for newer drugs.

c. 75% of these ethnomedicines are folk claims

# 3. Ecological Stability and Conservation

- a) **Ethnostematics and Biodiversity Conservation:** MAPs cultivation and rich cultural heritage.
- b) **Cultural diversity is key in protection.** E.g. cattle keepers in W. Uganda vs Zebra, buffalo- promote game hunting, leisure and hospitality industry, graze animals from PA - L.Mburo NP. Banyaruguru Eat Hippo and key for wedding ceremonies, traditions. Eating of Monkeys and cats- treasured in Kasese, Batwa. poisoned. Nyakibazi - BINP.
- c) **Mitigate of pollution and Resilience:** Agric, breeding, forestry, key medicines respected from Natural Habitats. in challenging environmental conditions vs Climate change mitigation measures.
- d) **Natural catastrophic diseases???**. Covid 19 lesson, Beauty of Nature.  
**PROMOTION**
- e) **Domestication and Cultivation of MAPs (SOR4D):** MAPs far from TMPs. Relying on Nature no longer sustainable.
- f) **Value Addition and Product Development.** drivers to conservation. (Swiss Model). Land in Uganda, Kenya, etc. Sugarcane, tea, etc. **New Paradain in Conservation. (Use and Plant Debate)**
- g) **Certification, advanced research, tissue culture, geneting engineering, Biotechnology all will follow suit, Technologies.**

# Why Ethnosytematics

1. Africa is indeed rich in ethno systematics of natural remedies.
2. Hippocrates the Father of Medicine based his medical practice on observations and study of the human body. He believed in natural healing processes such as rest, good diet, fresh air, cleanliness.
- 3. Prof. Annokkobonggo classified TM in three categories**
  - a. Traditional to Western Medicine-EU, USA
  - b. Traditional developed along Ayurvedic-India, TCM
  - c. TM dropped it as “**Witchcraft**” to WM and never developed both.

# MAPs Cultivation in Western UGANDA



Products Development is the key to farmers aspirations to environmental conservation and poverty reduction.

Certification and Registration in local settings for recognition

# Custodians of MAPs

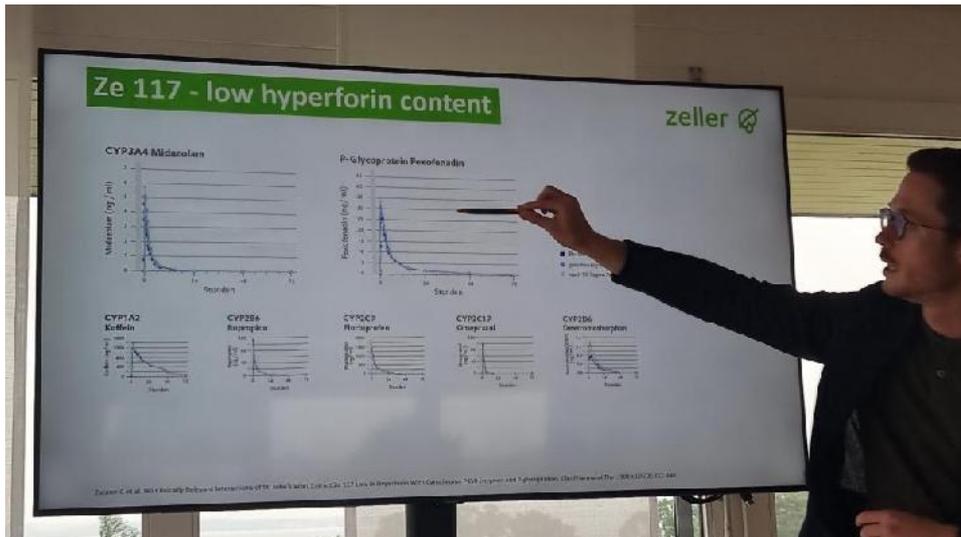


# Custodians of MAPs



# Herbals Manufacturing and Product Development

Zeller Company in Switzerland manufacturing herbal drugs with plants are grown in Africa, Kenya and Uganda



# Main issue in our research in TM in Transition in Uganda, Storage and labeling of raw materials was very visible



# Taxonomy Key



# MAMITA ARBORETUM & LAB

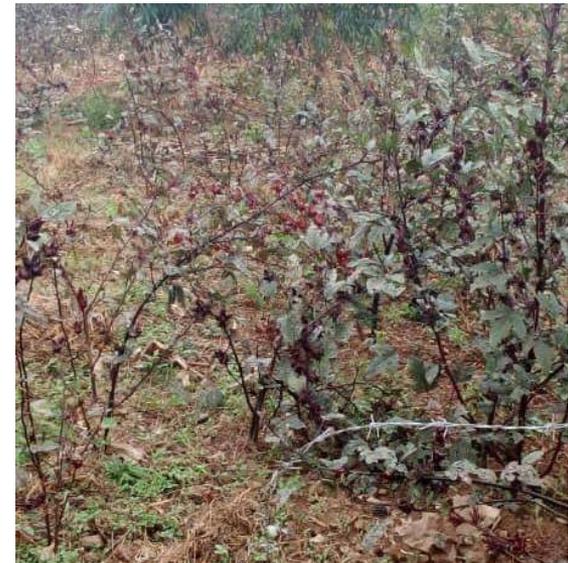


Processing of MAPs The gap remains in processing of raw materials for home made products to meet the standards and for sale in markets vs contamination and poor grade products



# Growing herbal Herbal medicine in south western Uganda

- Emerging Herbal drug industries like Kazaire health products, Frevesema (Prof. Bazirake),
- Establishment of stronger farmers` groups producing medicinal plants like aloe, Rosemary, lemon grass, hibiscus, for the industries and home-based remedies and formulations.



# VALUE ADDED PRODUCTS



Cosmetic product



Oils for body massage & steaming



Cough syrup formulating from *Eucalyptus* oil

# IK HARNESSING

- a) Harnessing Local Knowledge (role of Medicinal plants in nutrition and healthcare. Covid-19 case of steaming and home made remedies.
- b) **The green Pharmacy** -Rational Use and Recognition.  
(opportunities from Africa)
- c) Vulnerable persons (women, girl-child, rural youths, refugees, disabled persons empowerment. **Gender divide**
- d) Climate Change controls and mitigation (**shared space**)

# Commercial gardens

- BSU has 10 acres of herbal gardens with aromatic crops on addition to the mother gardens at BSU
- MAMITA Agro Ecotourism Arboretum of 7 acres also has been established for medicinal trees, tourism, education and edemonstration in agriskills and product development in Ruti, Mbarara City.

*Cymbopogon citratus* D.C Stapf (**Lemon grass**),

*Ocimum bacilicum* L. (**Basil**)

*Salvia rosmarinus* Spenn (**Rosemary**),

*Eucalyptus citriodora* Hook (**Lemon eucalyptus**)

*Mentha piperata* L. (**Pepper mint**)



# Innovations for collaborations

1. Training of Traditional Health Practitioners & TBAs and CHEWs by Dr. Torunn Norway support from Norway.
2. Collaboration with Mbarara City- Rwakishakizi HCII - MOU.
3. TBAs Escorting pregnant women to HCs and Hospitals with branded uniforms
4. Mother and Child Mobile Clinic on Non Communicable diseases (A model being studied for Adoption), Dr. Balaam Mugisha, NGO registered in Uganda.

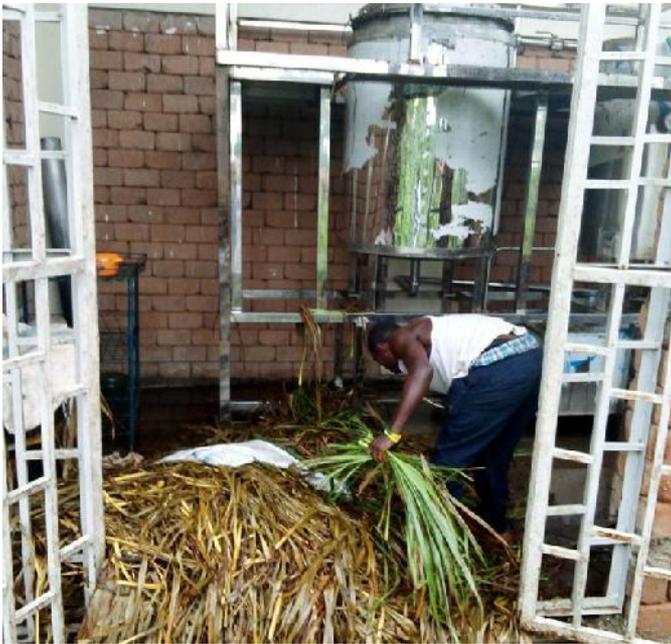
## **THE FUTURE of EOs**

- 1. Regional farmers` groups and out-growers schemes**
- 2. Mobile distillation units and packaging**
- 3. 50% import substitution (flavorings & perfumes)**
- 4. Patents of Essential oil based products for wider usage**
- 5. Incubation Hub (Natural product development) and business in Eos.  
Prof. Ogwang, Prof. Bazirake – FLEVSEMA**
- 6. Growing Leisure and Hospitality Industry- Sauna, steams, massage**
- 7. Regional EOs producer cooperative for farmers. **Kenyan Spices imports Vs Ugandan Maize exports!****
- 8. Museums and exhibitions of Eos crops. Igongo, UNMs, **University of Zurich, Switzerland, Research on Traditional Medicine in Transition.****

# Essential oil extraction Unit at BSU



# EO EXTRACTION



Essential oil distillation plant at BSU



Rosemary & *Eucalyptus* garden



Lemon grass garden

# Essential oil production Process

Lemon Grass Gardens

Lemon grass harvested for processing in this EO distillation Unit at BSU



# Role of Exhibitions in MAPs



Exhibitions &  
VA



## UNCST Involvement



# VISIT HERBAL OUT GROWERS



UNCST Involvement and farmer challenges of storage and packaging

# Promote Private Public Partnerships flevasema for herbal drugs development

## Product certifications of Partner Prof. Bazirake

**PHYTOSANITARY CERTIFICATE**  
 FROM: Plant Protection Organization of Uganda  
 TO: Plant Protection Organization(s) of United States of America (USA) (Transit Country: QATAR)  
 No. PC-08MWSN77V0V0

**I. DESCRIPTION OF CONSIGNMENT**

Name and Address of Exporter ARTIBANANA UGANDA HERBAL RESEARCH INSTITUTE KAMPALA LAMUKIA KAMPALA Uganda, UG	Declared Name and Address of Consignor MUSIBISI INVESTMENTS LLC 2333 ARLINGTON TERRACE AL EXHIBITION VA 23009 United States of America (USA)
Declared Means of Conveyance Air Transport - QATAR	Declared Point of Entry United States of America (USA)
Distinguishing Marks ARTIBANANA	

**II. COMMODITIES**

Name of Produce and Quantity	Place of origin
General Name (Common Name, Mate, Botanical), Description of the Commodity, UGANDA HERBAL RESEARCH INSTITUTE KAMPALA, Plant Part, Route Intended Use, consumption, Condition, Fresh	Uganda

Number and Description of Packages  
115 BOXES OF 100 GRS EACH ARTIBANANA 1000G

Distinguishing Marks  
ARTIBANANA

Additional Information  
Importer Permit Number: Date of Inspection: 01-05-2020

This is to certify that the plants, plant products or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests, specified by the importing contracting party and to conform with the phytosanitary requirements of the importing contracting party including those for regulated non-quarantine pests.

Place of issue: Entebbe  
 Date: 01-09-2020  
 Name of authorized officer: Joseph Benjamin Makumbizi  
 Signature: \_\_\_\_\_  
 www.ugda.gov.ug  
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**UGANDA NATIONAL BUREAU OF STANDARDS**  
 Permit to use the Uganda Standard Certification Mark

PERMIT NO.: P1475/2019

In accordance with the UNBS Act No. 1 of 1983 and the Certification Regulations  
 Permit is here by granted to FREVASEMA LIMITED  
 of P.O. Box 7181 Kampala Located at Biharwe T.C. 1km off Mbarara-Masaka Road, Mbarara  
 to use the Uganda Standards Certification Mark for its Fortified Wine - FREVA WINE  
 Based on Uganda Standard US EAS 139:2014  
 This permit is valid from 10th December 2019 to 09th December 2020  
 Certification Decision made on 19th DAY of November 2019  
 at UNBS HEADQUARTERS

**UGANDA NATIONAL BUREAU OF STANDARDS**  
 Plot 2-12, By-pass Link, Bweyogerere Industrial & Business Park,  
 P.O. Box 6329, Kampala, Tel: +256417333250, Toll Free: 0800 133 133

# Beverage production and storage facility at FREVASEMA Factory (Biharwe- Mbarara)



# Recommendations: What is needed?

## Enhancement & Harnessing

- Partnerships, networking and MOUs (Local & International)
- Internships' and mind-set change, e.g. Switzerland)
- **Scholarships- target specific in natural medicines**
- Funding for research and networking.
- NR **Conservation, Value Addition, Commercialization & Market Access**
- **Creation of TM Incubation hubs & centres; Technology Transfer even at Community level.**
- Tailor-made trainings (Fit For Purpose- FFP Model WB;  
needed in TM Industry to professionalize the practices
- Shared systems and Technologies in TM is urgent
- Review curriculum Development in the Education Value chain from Primary to University.

# Recommendations

- **Health Insurance for All.** herbs will be part of the health systems at all costs. Health Insurance will provide sanity and we develop our own medical systems. (Developed world model. Herbal and traditional practices are now part of insurance cover.
  - Home providers are not supposed to sell or advertise and operate within their home areas only (Switzerland Model).
  - Formalize VHT System countrywide and register all practitioners. (real in operations, know own people, not politically motivated. GOOD GOVT Intervention in HC, TBAs integrate them in VHTs.
1. **Demonstration gardens** established countrywide and **targeted upscaling**
  2. **Support gender-based innovation MAPs (70% women in value chain )**
  3. **Exhibitions, Presentations (stimulate innovations Kakie Herbals); Igongo Mobile Museum, UNM exhibitions, etc**
  4. **Publications and policy briefs.**

# Recommendations ctd ...

**New health products like COVIDEX** significant role in transforming the herbal sector of Uganda to fight **epidemics like Covid-19** while saving billions of shillings.

**Ugandans are managing some emerging diseases** using herbals available on streets and in villages

**MAPs priority list needed for** cash crops. revenue generation.

**Commercialization of MAPs** could provide an alternative source of income to the rural poor by producing raw materials for the emerging Herbal medicine industries

**Herbal medicine industry potential impact** on GDP with employment opportunities (youth and women ) & Novel public health products.

**NEED FOR UGANDAN BASED INDUSTRIES AND CURRICULAR**

**ENGAGE, NETWORK, PROFILE & ADOPT GOOD PRACTICES. GROW**

# Appreciations

All participating Researchers and communities,  
Traditional medicine in Transition Team (Uganda &  
University of Zurich Switzerland) NARO,  
PHARMBIOTRAC,  
UNM, PROMETRA, MAMITA Foundation, IGONGO,  
Makerere University, University of Zurich  
Appreciate Herbalists, TMPs, owners of IK  
Confrence organisers for inviting me

Thank you for listening to me  
God Bless You