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***Landscape of Traditional and Alternative
Medicine" Research in the region: Ethics,
Challenges and Opportunities- Global Overview***

By

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Presentation outline

- Definition of Traditional Medicine
- Definition of Alternative Medicine
- Definition of Complementary Medicine
- Global , Regional and National growth picture
- Global , Regional and National Research landscape—Ethics, challenges, and opportunities

Traditional Medicine

- ▣ It is the sum of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health and the prevention, diagnosis, improvement or treatment of physical and mental illness (WHO 2023)

One of the theories is that if a person is poisoned by a certain plant the antidote is the soils or plants around the poisonous plant

The Doctrine of Signatures (henceforth DoS), or Doctrine of Similitude, claims that plants display characteristics, or “signatures”, such as color, shape, or common name, that are indicative of the disease or body part that they can cure



Anona muricata (Ekitaferi) is now confirmed to have anticancer compounds eg **Annonacin on breast cancer cells**

Alternative Medicine

- ▣ Treatments that are used instead of standard treatments. Standard treatments are ones based on the results of scientific research and are currently accepted and widely used (National Cancer Institute, USA).

Complementary Medicine

- ❑ Complementary medicine refers to additional healthcare practices that are not part of a country's mainstream medicine.
- ❑ Evidence-based complementary medicine has the potential to support mainstream medicine and more comprehensively support people's health and well-being needs (WHO,2023).

Integrative Medicine

- ▣ Integrative medicine is an evidence-based approach to healthcare that combines conventional medical treatments with complementary therapies, viewing the patient as a whole person—body, mind, spirit, and emotions

Global , Regional and National growth picture

- ❑ Globally the use and demand for TCAM is growing exponentially
- ❑ Global market size projected to reach between \$359.37 billion and \$437 billion by 2032
- ❑ Countries in orient have integrated TCAM into their national healthcare eg china, india
- ❑ In Africa Ghana is leading through medical training of TCAM doctors

Global , Regional and National growth picture

- ❑ In Uganda pharmacy schools have course units on TCAM in the curricula
- ❑ Some nursing schools like in Mbarara University of S& T teach some aspects TCAM
- ❑ Albeit the focus is on products not practices

Practices hold more secrets eg some healers tell patients to rub the medicine on chicken thigh roast and eat. Secret is chicken thigh is oily good for extraction of non polar active ingredients

Global , Regional and National growth picture

- ▣ Regulation of products and practices are gaining root

Uganda enacted Traditional and complementary Medicine Act 2019 to regulate practitioners thus repealing the witchcraft Act of 1957 enacted by colonialists

Product regulation is currently under the National Drug Policy and Authority Act 1993 which is being replaced by the National Drug and Health Products Authority bill currently in parliament

Research Landscape-global

- ❑ Globally research in Traditional and Alternative medicine focused on ethnobotanical surveys and search for lead active compounds
- ❑ However countries like China, India and South Korea also focused on practices and applying modern science and technology to develop the practices.
- ❑ Other advanced countries in EU and USA are equally initiating TCAM research efforts

Research landscape in Uganda

- ❑ In Uganda research is largely by academicians for academic purposes
- ❑ Academicians focused on ethnobotanical surveys and ethnopharmacology in search for lead compounds for drug development

Sadly despite over 5 decades of academicians research, Uganda and Africa has not produced any drug molecule to date

Why?..

Most of the molecules are shipped to Europe

Research in Uganda-Changing Landscape

- ❑ Over the last 5 years clinicians and pharmaceutical experts are getting involved in TCAM research
- ❑ Pharmaceutical experts are focusing on product development—Herbal and Phytopharmaceuticals



Powders in
owino market



syrups



Capsules and tablets
in pharmacies

Research in Uganda-Changing Landscape

- ▣ Clinicians are now contributing greatly in clinical evidence generation through clinical trials—Prof Pauline Byakika, Prof Bruce Kirenga, Dr Ocan Moses, Prof Mukonzo Jackson are leading the way

Makerere University Lung Institute

CONAT – MLI - Makerere University Lung Institute

Clinical Trial of Natural Therapeutics shortened as CONAT seeks to study the safety and effectiveness of TazCoV and Vidicine herbal investigational medicinal .

CONAT is funded and guided by STI under Pathogen economy headed by Ms Brenda Nakazibwe

Advances in TCAM & opportunities

- **Extraction:**

- New techniques like ultrasonic-assisted extraction and supercritical fluid extraction increase the yield of active compounds and improve their bioavailability.

- **Encapsulation:**

- Nanotechnology is used to encapsulate herbal extracts, which enhances their stability and allows for targeted delivery within the body.

- **Production:**

- Methods like plant cell and hairy root cultures provide a sustainable way to produce compounds consistently, while metabolic engineering can modify plants to produce higher yields or new therapeutic compounds (Dr Edward Kaziire, doing his PhD in this area at MUST).

Advances in TCAM & opportunities

- **Artificial Intelligence:**
- AI and machine learning are being used to speed up the process of identifying new herbal remedies and optimizing their formulations for effectiveness and safety. Understanding targets and mechanism
- **Scientific Validation:**
- There is a growing emphasis on scientific validation to ensure the efficacy, safety, and consistent quality of herbal products, moving beyond traditional practices to incorporate evidence-based methods.

Advances in TCAM & opportunities

- **Standardized products:**
 - The industrial production of herbal products ensures that the levels of active compounds are monitored and controlled, leading to more consistent results for consumers.
- **Regulatory frameworks:**
 - Updated regulations are being developed to guarantee the quality and safety of herbal products.
- **Addressing contaminants:**
 - New techniques are being used to detect and reduce contaminants, which has been a significant concern in the past.

Advances in TCAM & opportunities

Integration with modern healthcare

- **Bridging the gap:**
- Efforts are underway to integrate traditional healing practices with contemporary scientific methods to improve the effectiveness and accessibility of healthcare solutions.
- **Clinical applications:**
- Herbal medicine is being explored for a wider range of conditions, and research is focused on understanding the mechanisms of action for various therapeutic compounds

Ethics and Challenges

- ▣ These I view from three perspectives
 - Ownership and publication of ethnobotanical and ethnopharmacological data.
 - Commercialisation of a product based on community or herbalist originated formula
 - Use of products not approved by NDA or which have no rigorous clinical data to treat patients

Research Ethics Approvals

- ❑ RECS were put in place to evaluate clinical trials to protect participants-human beings from foreseeable harm
- ❑ At clinical trial stage the drug developers usually have acquired relevant patents



Research Ethics Approvals

- ❑ Introduction of research approval at preclinical stage is inappropriate because exposes ones intellectual property to piracy at early stage.



- ❑ Accreditation of preclinical study facilities is a better option
- ❑ Countries like china, India, even USA are less stringent on animal studies



Regulation
is
important
but it
should
NOT stifle
progress

Thank you