



**FEDERAL UNIVERSITY OF AGRICULTURE  
ABEOKUTA NIGERIA**

# **7<sup>th</sup> INAUGURAL LECTURE**

## **FOREST: A BOUNDLESS HEALTH AND WEALTH TERRITORY**

by

**Professor Samuel Adeniran Oluwalana**

*(Professor of Forest Resources Management)*

*Department of Forestry and Wildlife Management,  
College of Environmental Resources Management (COLERM)  
Federal University of Agriculture, Abeokuta, Nigeria*

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**FUNAAB INAUGURAL LECTURE  
Series No. 72**

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*(Professor of Forest Resources Management)*

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the Chairmanship**

**of**

**The Acting Vice-Chancellor**

**Professor Olusola Babatunde Kehinde**

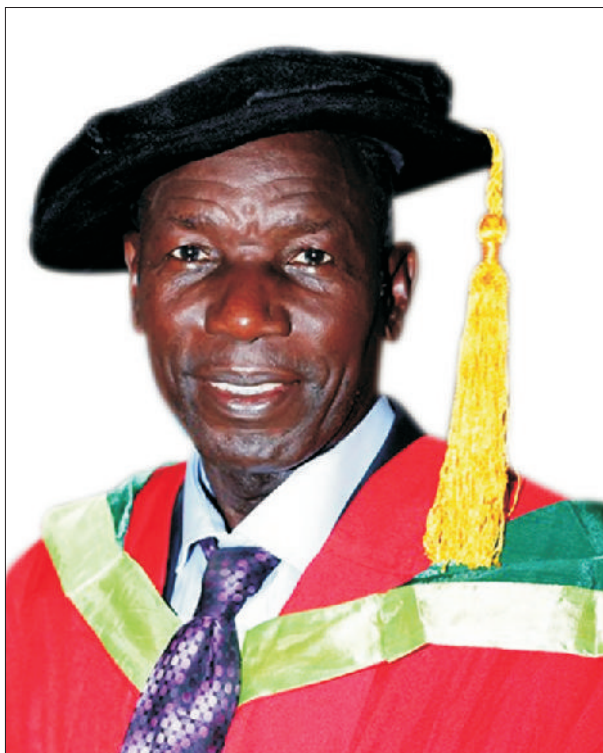
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**FUNAAB INAUGURAL LECTURE SERIES**



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## **FOREST: A BOUNDLESS HEALTH AND WEALTH TERRITORY**

### **PROTOCOLS**

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Head, Department of Forestry and Wildlife Management

Members of the University Senate,

All Academic and Non-Teaching Staff,

All Special Guests and Friends of the University,

Members of my Family and Friends,

Distinguished Fellows and members of the Nigerian Society for  
Plant Protection;

Gentlemen of the Press,

Ladies and Gentlemen,

Great FUNAABITES

**1.0 INTRODUCTION**

Forest is a very complex ecosystem that man needs to exist but does not need man to exist. There are records of ancient prayers by different religions in the world about forests. The plants, animals, microbial life, the soil, land, water, light and sound in the forest teem with unquantifiable health and wealth resources. It is a boundless health and wealth territory.

The question always in my innermost being had always been “Why is Africa wretched in spite of the unlimited resources in the continent?” Why should an enormously blessed nation like Nigeria with the vast forest resources be in apocalyptic poverty? Is it because of the burden of rudderless leadership and followership in Nigeria and the countries of Africa? Is it because of a population burdened with lack of understanding of the potentials of these resources?

In their cerebral book, “Grand Design, God's Ultimate Purpose for Africa”, Vincent Anigbogu and Sunday Adelaja had this, “Archeological evidences have interestingly, long established Africa as the cradle of humankind. Proves abound that birds and amphibians were domiciled in Africa, long before man, in corroborating the Genesis Chapter One account. In spite of having had the longest possible, contact with birds and amphibians than any other human group, typical Africans see these creatures essentially as 'food'. The African worldview or culture has not encouraged much investigation of nature through all-embracing investment in Research and Development (R&D) to try to understand the underlying systems and subsystems that in their natural domain in the fields of aerodynamics and aeronautical engineering in birds and aqua-dynamics in amphibians. Similar research and development in the European nations and other technological advanced regions have produced airships, aircrafts, bomber jets, ocean liners and submarine ships of all sorts.”

**2.0 STEPS INTO MY RESEARCH STUDIES:**

Our educational system could not address my inner longings. There had always been an inner longing in me to be a different person not robotized by what is learnt in school. It was not that the schools were not important but sometimes no system can wholly devote itself to a single individual. It is the responsibility of the individual to seek avenues of attending to his own soul.

In my research work, my major aim had been to seek a very close look at nature, on earth, and beyond the solar system, and take bio and non-biological resources, herbal and natural medicine beyond speculative native protocols.

**2.1 Influencing Factors**

The following steps influenced my research activities:

a. Developing a keen relationship with God, Jesus Christ and the Holy Spirit. This is not about religion. There is no knowing outside of God. Human eyes are not sufficiently equipped at looking into the inner secrets of nature.

b. Enlarging the mind through discipline, meditation and dedication. There are deep secrets in nature. Perseverance and uncommon dedication can lead to entering into the zones of “secrets”. Meditating on nature unravels the treasures hidden in nature itself. This is why I like Joshua 1: 8 and Isaiah 45:1-3.

I have dedicated thousands of hours to study books, publications on peoples, their uses of natural resources, their customs, cultures, folk medicine, scientific and technological applications. However, the more I tend to know, the more I discover that I still do not know. The field of natural resources is an unending vault. There, there are no experts but learners.

c. Listening is an art and science required in the field of natural resource studies. Listening to the greats in the field, they are there in books, in Government ministries, in the Church, in religious

circles, African markets, and elders in the society, youngsters, farmers, bricklayers, mechanics, and gardeners. Indeed, every one matters whatever the level of education. Graciously, I have been led to see the positive sides, often called the redemptive gifts, of different human cultures. Nigeria is awash with wonderful information that can lift the country to become a developed nation.

d. Science and technology. I have invested much into science and technology instruments to assist in a better understanding of natural resources and their profitable uses. For instance, the Periodic Table is a giant step in becoming rich as it provides a platform for understanding the role of minerals in forest resources and in the human body.

e. Learning from the knowledge vaults of other nations, peoples of other races through their books and publications. Humans are practically the same everywhere. The black Indonesians in Timor Province of Indonesia that I saw in their market appeared like our own people at Itoku Market, Abeokuta. There in Indonesia, I learnt from the people through interpreters.

f. The grace of learning and receiving information from noted and unknown herbal medicine practitioners, farmers, Christians, Muslims, “laymen and women”, colleagues in the Federal University of Agriculture and other Universities in Nigeria many whose names will forever remain anonymous. These are “angels” of information. The staff and students of the Federal University of Agriculture, Abeokuta constitute a formidable reservoir of knowledge about plants, animals and other natural resources. Interactions with these colleagues have been fruitful in my drive to understand natural resources.

g. I have been greatly privileged to supervise project students from undergraduate to Ph.D. levels who bought into my unusual vision. Some have gone to having higher degrees from Colleges of



Medicine. They understand that the brain does not enjoy “status quo”. I salute them. Many of them are still in constant touch with me.

h. The Full Gospel Business Men's Fellowship International: This worldwide fellowship of Christian men and ladies has provided me an immense platform of learning from people of diverse walks in life. In addition to training members to be true to Jesus Christ in their daily living, it trains people to be leaders in thought, innovation and entrepreneurship. My global view has been greatly impacted by being a member and indeed a life member of this fellowship.

I. Feedbacks from those who came for herbal treatments and counselling provided a platform for research into many diseases.

j. Practical applications, going into forests, forest meditation, and experimenting are vital tools in my research.

k. My nuclear family (my wife and children) has been a great part of my research outings. It is impossible to go far in the research, judging from the load of books and plant and animal samples in the house.

## **2.2 My Studies in Forestry as a borderless health and wealth territory**

To have a broader understanding of forestry as a boundless health and wealth territory, my studies have included areas such as:

i. Understanding the forests, the language of plants, and influence and effects of forests on human health.

ii. Indigenous knowledge, a veritable source of age-old methods of uses of nature as medicine and wealth.

iii. Herbology, plants from different human cultures in the world.

iv. Medicinal therapies of ancient civilizations such as those of

Egypt, Mesopotamia, Atzec, Chinese Traditional Medicine (TCM), India's Ayurvedic and Unani, Biblical and Talmudic Medicine, Arab and Islamic, Ancient Greece, and Roman, among others.

v. Blood cleansing and anti-helminthic plants.

vi. Plant nutrient (quality) measurement by the use of hand-held refractometer giving measurements in Brix degree values (<sup>0</sup>Brix)

vii Production of sprouts and micro greens.

viii. Earth energy, Ley line and geopathic stress and their effects on plants and human health.

ix. Bare foot walking

x. Reflex zone therapy of the feet

xi. Vagus Nerve

xii. The Lymphatic Systemxiii. The Gut and Brain connection

xiv. The Gut Biome

xv. The Enteric Nervous System (ENS) and nutrition

xvi. Ileo-cecal valve and the possible effects on human health.

xvii. Sarcopenic obesity (Sarcopenia) and nutrition.

xviii. Andropause (Menopause in men).

xix. Japanese acupressurexx. Chinese Acupuncture

xxi. Honeybees, honey and other beehive products.

xxii. Ant medicine

xxiii. Animal medicine

xxiv. Soil medicine

xxv. Soil macro and microbe medicine

xxvi. Cow milk (buttermilk, Ghee), bone medicine (bone broth), and gall stone medicine.

xxvii. Nutrition and hidden hunger

xxviii. Nutraceuticals (functional foods

xxix. Potentials of Absciscic acid (ABA), a plant hormone in human health

xxx. kDa proteins from banana stem juice, fresh dairy milk and human health

xxxi. Neuroplasticity

xxxii. Homeopathy

- xxxiii. Electromagnetic radiation and human health.
- xxxiv. Heliotherapy, Helio-extractions
- xxxv. Moon gazing
- xxxvi. Copper medicine
- xxxvii. The Periodic Table and human health; The Periodic Table as an unusual source of wealth.
- xxxviii. High Performance Agriculture
- xxxviii. Human hair fertilizer
- xl. Activated charcoal production from bamboo, coconut shell, hardwoods, vegetables and fruits.
- xli. Graphene from biomass
- xlii. Nerve Growth Factor (NGF): NGF is a bioprotein that plays a critical role in the maintenance of health. NGF is required by the brain and important sensory neurons located throughout the body to keep regeneration of neurons in the brain and body. A lack of NGF is considered as one of the major causes of Alzheimer's and other degenerative brain diseases.
- xliii. Telomeres (how to regrow telomeres, how to lengthen telomeres naturally, telomere- lengthening herbs, diet to increase telomeres, telomere-lengthening drugs).
- xliv. Biomimicry, nature-inspired solution
- xlvi. Essential oils and Aromatherapy
- xlvi. Liposomal Vitamin C
- xlvi. Supersaturated potassium iodide (SSKI) production
- xlvi. Lugol iodine
- xlix. Aldose reductase and peripheral neuropathy in diabetes; Plants that are Aldose reductase inhibitors.
- l. Cow brain as a food source of phosphatidylserine (Ptd-L-Ser or PS). Phosphatidylserine is a phospholipid that contains both amino acids and fatty acids. It is crucial to cellular function, especially in human brains, which is why it is one of the most popular memory supplements, especially in the elderly. Even though made in the body, phosphatidylserine is obtained mostly from food. Cow brain is the best animal source of PS, while soy lecithin is the best plant source. PS supplementation improves

Alzheimer's disease, dementia, age-related cognitive decline, ADHD, Parkinson's disease, depression and sports performance.

Other benefits include a reduction in stress, anxiety and depression (Price, 2019).

li. Medicinal uses of cow hoof and cow horns

lii. Milk paint

liii. Medicinal uses of goat urine

liv. Pith, the white part of oranges as a powerful medicine for the heart, lymph and circulation in the human body. The pith is loaded with diosmin, a flavonoid, which helps to maintain the structure and function of the human body circulatory system.

lv. Calcium fructoborate (CF), a natural product from plants (but can be chemically synthesized), efficient in the prevention and treatments of osteoporosis and osteoarthritis.

lvi. C60 (Buckminsterfullerene) found in wood charcoal

lvii. Cryoablation, a treatment to kill cancer cells with extreme cold.

lviii. Periodontal disease and high sensitivity C-reactive protein (hs-CRP). High sensitivity C-reactive protein (hs-CRP) is the most clear, quantifiable, and readily accessible marker of the oral-systemic connection. High sensitivity C-reactive protein is an acute phase reactant produced by the liver. It elevates due to infection, inflammation, or trauma and it has been established as an independent predictor for coronary artery disease and a key biomarker of systemic inflammation. High sensitivity C-reactive protein correlates with periodontal disease severity, and decreases after nonsurgical periodontal therapy (Cass Nelson-Dooley MS and Ellie Campbell DO, 2019).

lix. Plasma viscosity and Hyper viscosity Syndrome (a condition that occurs when blood becomes so thick that the body's overall blood flow decreases).

These were all in a bid to scientifically understand the human body system, diseases, and the application of forest resources and other

natural resources and tools of science and technology in the management and cure of diseases.

Since an inaugural lecture is expected to be for one hour, a few of the areas mentioned will be addressed. Some of the remaining items have appeared in our published books and others will appear in books soon to be published.

This inaugural lecture is presented as modules in the following order:

### 3.0 DOCUMENTED INDIGENOUS KNOWLEDGE

Indigenous knowledge with its rich diversity provides a large template for studies into ancient records of different human culture groups. Because of the strategic economic importance of indigenous knowledge, a few collections from indigenous uses of forest and animal resources is presented in this lecture. Indigenous people use plants and animals for many purposes especially for health and commerce. Oluwalana & Akinsanya (2002) documented forest plant exudates used in Ogun State, Oluwalana, *et. al.* (1999) reported forest plants used for traditional water management in Ogun State and Adekunle and Oluwalana (2004) studied the forest plants used in traditional healthcare in Owo Local Government Area of Ondo State, Nigeria.

#### **3.1 Anti-army ants (soldier ants) preparation: Yoruba, Nigeria**

a. White bowl, white quartz stone and water: To expel army ants from properties they have invaded, put water and a piece of white quartz stone in a white bowl. The bowl(s) is placed at the entrance(s) of the property, the army ants will move out of the property. No chemicals are used for this purpose.

b. Three stones arranged in triangular form and a disused metal pot placed on them is claimed to prevent the invasion by army ants, as they will never again to come to such a place.

**3.2 Cures for Diseases: Yoruba, Nigeria**

a. Asthma: *Thaumatococcus danielli* (Benn.) Benth. and *Megaphrynium macrostachyum* (K.Schum.) **Milne-Redh:**

The roots of *Thaumatococcus danielli* (Ewéran in Yoruba), and *Megaphrynium macrostachyum* (Gbòdògì in Yoruba) are dried, pyrolysed, powdered; the powder is mixed with honey and licked for asthma.



Figure 1: *Thaumatococcus danielli*      *The Guardian Nigeria*



Figure 2: *Megaphrynium macrostachyum*      Wikimedia Commons

b. Bile duct obstruction/Oliguria: *Hoslunda opposita* Vahl: Boil the dried ground leaves in water, cool and strain. Drink three times daily for bile obstruction and oliguria (scanty urine).



Figure 3: African Plants - A Photo Guide – *Hoslunda opposita* Vahl

c. Cancer:

i. *Curculigo pilosa* (Schumach. & Thonn.) Engl. (? pakún in Yoruba): Boil the tuber of *Curculigo pilosa* in water, decant after boiling, and drink for cancer cure.

ii. *Eleusine indica* (L.) Gaertn. (Stubborn grass): Wash roots of *Eleusine indica* to remove soil particles, dry, add *Aframomum melegueta* seeds, copra of immature coconut, grind all together with coconut water. Sieve the mixture; add honey in a ratio of 2 to 1 (2 of the mixture, 1 of honey).

iii. *Tragia benthamii* Baker (Èsìsì funfun in Yoruba; ìbabìd?n in Edo; abalagw?/abwala in Igbo): The whole plant is boiled in water and the decoction is drunk for breast cancer.

*Acalypha ciliata* may be added to the *Tragia benthamii*.

iv. Earthworms and shea butter: Fresh earthworms are collected, ground into paste; the paste mixed with shea butter is applied on breast affected by tumor.

v. Grind the sponge-like “fungus garden” or combs constructed by termites (Yoruba: Àkàrà olú ikán) with a few seeds of *Aframomum*

*melegueta* K. Schum. into powder. To use the mixture, mix a little quantity with maize pap and take as food. This is also applicable to cough.

Note: Cover nose when grinding the two products.

d. Cholera: *Sida acuta* Burm. f.: Squeeze fresh leaves of *Sida* in water; add little quantity of salt, drink for cholera.

e. Continuous menstrual flow (“àwádá” in Yoruba): Pyrolyse the shell of egusi melon seed (*Cucumeropsis mannii* Naudin), hair of grasscutter (*Thryonomys swinderianus* (Temminck, 1827), and seeds of *Aframomum melegueta* K. Schum. together. Pulverize the pyrolysed material; take a teaspoon with cold maize pap to control the ailment.



Figure 4: *Aframomum melegueta* (West African Alligator Pepper) - Royacshop

f. Chronic diabetes: *Sansevieria trifasciata*, *Gladiolus dalenii* Van Geel (Yoruba: Bààkà), Garlic. Pound the root of *Sansevieria* with garlic, and *Gladiolus*, extract the juice, and orally take 2 tablespoons thrice daily for chronic diabetes.





Figure 5: *Gladiolus dalenii* bulb

g. Diabetes mellitus: “Àt?gb?” in Yoruba: Pyrolyse *Curculigo pilosa* (Schumach. & Thonn.) Engl. (? pakún in Yoruba), and “?y? itù”, take powder with “omi ako isu”



Figure 6: *Curculigo pilosa* West African Plants. A Photo Guide – *Curculigo pilosa* (Schumach. & Thonn.) Engl.

h. Gonorrhoea: *Tragia benthamii* Baker (Èsìsì funfun in Yoruba; ibabid?n in Edo; abalagw?/abwala in Igbo): The leaves of *Tragia benthamii* are scrubbed in water and the extract drunk as a cure for gonorrhoea.

i. Hypertension: For, hypertension, pyrolyse the whole fruit of *Blighia sapida* K.D. Koenig, orally take the powder with warm water daily.



Figure 7: Fruits from A-Z – WordPress.com Ackee/akee apple/*Blighia sapida*

j. Hypertension: Boil *Solenostemon monostachyus* (P. Beauv.) Briq. (“olójòun-gbùdù” in Yoruba) in water and drink the decoction as a very effective remedy for hypertension.



Figure 8: *Solenostemon monostachyus* (P. Beauv.) Briq.

k. Hypertension: *Sida acuta* Burm. f. (? ??kòtu in Yoruba): Squeeze fresh *Sida* leaves in water and drink for hypertension.

l. Ovarian cyst: *Curculigo pilosa* (Schumach. & Thonn.) Engl. (? pakún in Yoruba), make into powder, pack as capsules, and take for ovarian cyst.

m. Palpitation: Three hundred grams of dry leaves of *Musa paradisiaca* (the banana plantain) are crushed, and boiled in water; strained, and 160 ml of the decoction is drunk three times a day to relieve palpitation.

n. External parasites: Control of Bed bugs (*Cimex hemipterus* (J.C.Fabricius, 1803) : Pound the mixture of the fresh leaves of

Aspilia (*Aspilia africana* (Pers.) C.D. Adams) and charcoal; soak the mixture in water for three days. Use this to paint the house against pests. It is especially effective against bed bugs.

***Cimex hemipterus*** (J.C.Fabricius, 1803 is the tropical bed bug.

Aspilia is Yunrinyun in Yoruba.

o. Internal parasites including tapeworm and to treat stomachache, diarrhea and gastroenteritis: *Tragia benthamii* Baker (Èsisi funfun in Yoruba; ibabid?n in Edo; abalagw?/abwala in Igbo): The leaves of *Tragia benthamii* are scrubbed in water and the extract drunk to kill parasites including tapeworm and to treat stomachache, diarrhea and gastroenteritis.

p. Pile: Boil *Sida acuta* Burm. f. leaves in water with trona “ako kaun”, use as sitzbath and drink a cup of the decoction for an immediate cure of pile.

q. Prostate hypertrophy: The roots of *Croton membranaceus* Müll. Arg. are soaked in alcohol for a minimum of six weeks to make a tincture. A teaspoon of the tincture is taken sublingually (under the tongue) to enhance urination without the accompanied difficulty.

Recommendation for standard tincture and sublingual application are my deviations from the traditional method of soaking materials in alcohol sometimes for just two days before drinking the extract. I consider such as a subtle way of encouraging alcoholism and there may be health consequences for taking alcohol.

r. Sexually transmitted diseases (STD): *Curculigo pilosa* (Schumach. & Thonn.) Engl. (?pakún in Yoruba), use needles to create holes in the epakun, put the exudates of enukopire into the holes, dry, take the powder against STD and testes problems. Use with warm water.

s. Tuberculosis: Green peel of local sugarcane stem and the flower of *Imperata cylindrica* (L.) P. Beauv. are dried and pyrolysed. The powdered pyrolysed material is taken with honey for tuberculosis.



Figure 9: Cogon grass (*Imperata cylindrica*) – Dlium

### 3.3 Blocked fallopian tube: Yoruba, Nigeria

Fresh ripe fruits of *Mormodica charantia* Linn. are harvested, the seeds removed and the pulp is ground to paste mixed with a little quantity of trona (kanun). The mixture is rolled into pellets and inserted into the vagina (not through sex) to evacuate all forms of dirt from her uterus and fallopian tubes.

### 3.4 Complicated childbirth: Yoruba, Nigeria

- a. To turn a baby coming with legs during birth: Touch the baby's leg with *Blighiasapida* K.D. Koenigseed, the baby will withdraw the leg immediately and turn in the womb.
- b. Placenta expulsion after childbirth: Put a feather of Vulture bird (*Cathartes aura* (Linnaeus, 1758) (“? y? Igún” – in Yoruba) in West African palm oil, drop the oil in the woman's mouth using the vulture feather, the placenta will come out immediately.



Figure 10: Vulture (*Cathartes aura* (Linnaeus, 1758)



Figure 11: Vulture Feather – vikings.hep

### **3.5 Easy delivery: Yoruba, Nigeria**

a. African oil palm tree (*Elaeis guineensis* Jacq.): Scrub the young folded oil palm tree fond in water; give to the woman in birth labour to wash her body for very easy delivery. Splash the water in the alternative, on the woman's body for the same purpose.

b. *Jatropha curcas* L. (Psychic nut): Chew the roots of *Jatropha curcas* to ease birth labour and help ease delivery.

*Jatropha curcas*: Common names: **English**: Psychic nut; **Nigeria**: mbubok (Anaang); habb el meluk (Arabic-Shuwa); oru-?bo (EDO); kokolaji (Fulfulde); étó ́kpà = tree of death (Efik); kwotewi (Gwari); ugbolo (Igbo (Agulu); ho (Jukun (Wukari); bòtùjẹ, olóbòtùjẹ, olobotuj? (Yoruba), làpá làpá, lóbòtùjẹ (Ile-Ife), ?of? (Owo, Ondo State)

### **3.6 Edema (fluid accumulation) in the abdominal area: Yoruba, Nigeria**

The crushed fresh roots of *Mucuna pruriens* (L.) DC. are rubbed on the stomach to treat edema in the abdominal area.

### **3.7 Epilepsy: Yoruba, Nigeria**

a. *Newbouldia laevis* Sm. (Boundary tree; African boundary tree; Akòko (Yoruba); Ogilisi (Igbo) Boil the bark in water and drink the decoction to control epilepsy.

b. Epilepsy: *Synedrella nodiflora* (Linn.) Gaertn. Boil the whole

plant and drink extract for the cure of epilepsy.

*Synedrella nodiflora* (Linn.) Gaertn. Cinderella Weed, Nodeweed, Pig grass, *Synedrella* (English); Tota halu gida (Kannada, India); Tannápo?ó; Alugannbi; Akoyunúnyun (Yoruba); Ponripon-eluju (Ìs?-Èkìtì); Àkàrà aj? (Ile-Ife).

### **3.8 Fibroids: Yoruba, Nigeria**

Macerated fresh leaves of *Mormodica charantia* Linn. are infused (soaked) with palm kernel oil (PKO) for some days. Three tablespoon of the extract are taken orally, once daily for fibroids.

*Mormodica charantia* (*Ejìnrìn* in Yoruba).

### **3.9 Infertility: Yoruba, Nigeria**

*Waltheria indica* L. (Padimo in Yoruba): Uproot whole plant, cut into roots, leaves and stems. In a pot, first put the roots, then the leaves, and the aerial parts. Next put ashes wrapped in banana leaves on top of the aerial parts. Add water, boil, and drink to cure infertility.



Figure 12: *Waltheria indica* – Photoimages.siu.edu

**3.10 Low or No sperm count: Yoruba, Nigeria**

Fresh maize grains (*Zea mays* Linn.), Monkey cola (*Cola millenii*/*Cola laurifolia* (obi ?dun in Yoruba), table salt; grind all together, dry, and take with maize pap every night.

Obi edun, At?w?-edun (**Yoruba**), Achi okokoro (**Igbo**), Ewoha-bitan (**Edo**)



Figure 13: *Cola millenii* (Red Monkey Kola) BloomHood

**3.11 Prostate enlargement: Yoruba, Nigeria**

The dry leaves of *Canna indica* Linn. are used as tea as an effective remedy for prostate enlargement.



Figure 14. *Canna indica*



**3.12 Sudden death antidote: Yoruba, Nigeria**

A decoction extract from the leaves of “Akòko” plant (*Newbouldia laevis*) is put into the mouth of anyone that dies suddenly, and especially children, to bring the person back to life.

**3.13 Storm prevention: Yoruba, Nigeria**

a. Onion peels and the peels of native banana (“ogede ominni” in Yoruba), dig a hole in the ground, put the onion peels first and on top, put the banana peels, cover with soil. There will be no storm in such a place.

b. Stubborn grass (*Eleusine indica* (L.) Gaertn.): The grass (*gbègi* in Yoruba) is uprooted, placed on a forked tree stem with a piece of stone or rock placed on it to prevent storm or wind throw on a farm.

**3.14 Thunder catcher and lightning arrestor: Yoruba, Nigeria**

*Securidaca longipedunculata* Fresen. (Igi Ìp?ta in Yoruba): To use this plant, the centre of a house wooden roof is located, and a piece of *Securidaca* wood is nailed to the located position of the roof; this serves as a thunder catcher and lightning arrestor.



Figure 15: *Securidaca longipedunculata* Fresen.- Alchetron



### **3.15 Venomous attacks from snakes and other animals: Benue State, Nigeria**

Fresh *Euphorbia hirta* Linn. plants are chewed to form a paste and the paste is spewed on the palms (hands). No venomous snake or animal will attack the person.

**Common names of *Euphorbia hirta*: English: asthma-plant, garden spurge, Dove milk; French: malnommée;**

**Nigeria:** endamyel (Fulfulde);

nóónòn kúrcíyáá = dove's milk (*Hausa*);

òbẹ ànẹ= ground fig tree (*Igbo (Asaba)*; ?ba ala (*Igbo (Owerri)*);

bou obíríma the fruit, indóú béní dírí breast milk medicine, obírímá (*Ijo-Izon (Kolokuma)*);

akun esan (*Yoruba: Ife*), buje, ẹgẹẹ, ẹgẹ-ilẹ from ẹgẹ: cassava; ilẹ: ground, ẹmile, ẹmi-ilẹ from ẹmi: shea butter tree; ilẹ: ground (*Yoruba*); **Philippines: tawa-tawa**

### **3.16 Warfare, anti-robbery, and anti-theft preparations: Yoruba, Nigeria**

a. Goat (*Capra hircus* Linnaeus, 1758) droppings and salt. The combination of goat droppings and salt is used as bullets.



Figure 16: Goat droppings

b. “Crab eye” seeds (*Abrus precatorius* subsp. *africanus*) used as bullets. The seeds are very toxic if ingested.



Figure 17: Crab's eye (*Abrus precatorius* subsp. *africanus*)

c. Army ants (*Dorylus gribodoi* Emery, 1892 and Maize grain (*Zea mays* Linn.)

Army ants or legionary ants (known as soldier ants in Nigeria) and a grain of maize seed are used in warfare especially in dislocating enemies out of a location.



Figure 18: Army Ants – Pinterest

d. *Sida acuta* Burm. f.: The dry leaves on the stems are harvested, wrapped, smoked or sniffed as tobacco against accidents, and gunshot attacks.

e. *Paltothyreus tarsatus* (Fabricius, 1798), the African Stink Ant - “ikandu” in Yoruba, and palm kernel oil, are used together to secure property from being stolen by people from outside the home but not from thieves that are from within the property.

f. *Paltothyreus tarsatus* (Fabricius, 1798), the African Stink Ant - “ikandu” in Yoruba, and bitter kola are used in war fronts against being hit by bullets.

g. “Fire brigade”: “Fire brigade” is the local name for this preparation. The ingredients used include “eku eléri”, *Aframomum melegueta* K. Schum. (atare in Yoruba) and a Yoruba cloth, “a?? wáji”, and used against land invasion/grabbing and robbery.

h. Earthworm cast and salt. Earthworm casts are powdered and mixed with salt. The mixture is used in lining an area where an event is to hold, no fight will ensue in the event until people leave the area.

i. The combination of the seeds of *Aframomum melegueta* K. Schum. and African Stink Ant *Paltothyreus tarsatus* (Fabricius, 1798) is used in warfare. The seeds in the combination must not touch one's hand otherwise, the person will suffer from high body temperature.

j. The inflorescence (flower) of *Heliotropium indicum* Linn. and one seed of *Aframomum melegueta* K. Schum. are chewed as “anti-bullet” in war front.

Common names: English Indian heliotrope, Indian turnsole  
English cock's comb;

Nigeria: èdísímmõṇ° (*Efik*); kalkashin kooramaa (*Hausa*);

ilolo isi mwa-eku (*Igbo: Agukwu*); ẹ̀tábā ànẹ = tobacco of the ground (*Igbo: Ibusa*); azu uzo (*Igbo: Owerri*);

ùmbú (kórómó) dírí = medicine to make navel (cord) fall off (*Ijo-Izon: Kolokuma*);

vòkpa gùlu = the vulture's knee (*Nupe*);

àgógó igùn = beak of the vulture; ogbe àkùko = cock's comb (*Yoruba*); ogbe orí àkùko, àkúko omade (*Yoruba: Ife*)

### **3.17 Animal husbandry: Yoruba, Nigeria**

a. To confine a goat to a particular area such as a home compound: Get a cockroach from the same house, fry/roast and powder it, and mix the powder with feed and fed to the goat. The goat would rather stay indoors.

b. To make a cow to deliver two calves (usually cows give birth to one calf): Take two fresh sticks from the branches of *Spondias mombin* Linn. tree ( Yoruba: *ìyeyè*), peel them, and use them to carry the cow's placenta after it gives birth to its first offspring (calf) and bury the placenta. This same protocol applies to goats.

c. To deworm dogs of flukes (èèpà in Yoruba): Fresh leaves of white-skinned melon are cut in pieces and wrapped with fresh of other plants such as those of banana; these are then put in hot ashes to heat them up. Thereafter, they are unwrapped, the melon leaves are squeezed and the extract is given to dogs to expel flukes. This also applies to HIV in dogs. This is also applicable to man.

## **4.0 FEDERAL UNIVERSITY OF AGRICULTURE AS A HEALTH AND ECONOMIC ECOLOGICAL ZONE (ECOZONE)**

The ecozone of the University is full of plants, insects, soil microbes and other animals of great medicinal and economic importance. I have worked and documented some of the resources. The University Ecozone is a land “flowing with milk and honey”. Tudge (2005) had observed that the human debt to plants is absolute. Without plants, he noted, man would not have come into being at all. The University sits on a land to which the University community owes a huge debt. In various publications including Oluwalana, Alegbeleye and Bankole, 1998; Oluwalana and Adekunle, 1998; Adekunle and Oluwalana, 2000; Oluwalana, Adeola, and Amula, 2001; Oluwalana and Erinoso, 2001;

Oluwalana, & Adeola, 2002; Adekunle and Oluwalana, 2002; Adekunle & Oluwalana, 2003; Oke, Oluwalana, Osipitan, Ademolu and Bisong, 2014, others and I have pointed out the importance of some Nigeria's genetic resources. It is important to know that the Federal Republic of Nigeria Official Gazette No. 62, Vol. 96, Abuja, 2009 seeks to protect Nigeria's genetic resources from being exploited at the detriment of the nation. The Gazette has the short title National Environmental (Access to Genetic Resources and Benefit Sharing) Regulations, 2009. Under the Schedules, Part 1, Section 5 states that “ Any person who intends to access genetic resources in Nigeria shall apply to the Agency for an access permit in the form set out in the First Schedule to these Regulations and such application shall be accompanied by the fees as shall be prescribed by the Agency”. Unfortunately, today, this is not the case, as Nigeria appears to be a “free for all” for foreigners to take away her resources.

In this section of the Inaugural lecture, specific uses and use potentials of some genetic resources available on the University Campus are highlighted.

#### **4.1 Corn (*Zea mays* Linn.) Silk medicine:**

**i. Liver diseases:** Drinking a mixture of hot tea from corn silk, with added little quantity of lemon orange juice, and honey is effective for the following:

i. Combating **liver diseases**,

ii. Kidney and gall bladder **stones**: The mixture combats **kidney stones and other kidney diseases**. It removes kidney and gall bladder **stones** due to its *lithotriptic* (causing the destruction of bladder stones) property,

iii. Hypertension and cardiovascular diseases: It is an effective remedy for hypertension and cardiovascular diseases,

iv. **Spleen problems**: Cleanses and combats **spleen problems**,

v. Prostate gland: Strengthens the prostate gland,

vi. Obesity: Reduces weight in people obese people,

- vii. Venereal and infectious diseases: Cleanses the genital organ and eradicates venereal and infectious diseases,
- viii. Irregular menstruation (**oligomenorrhea**): It is a remedy for irregular menstruation,
- ix. Ovarian and uterine cysts: It is a remedy to prevent ovarian and uterine cysts,
- x. Fibroids (**leiomyomas**): It is a remedy to prevent fibroids.

#### **4.2 *Lawsonia inermis* L. (English: Henna; Yoruba: Làálì)**

- a. Memory booster: The flowers are boiled in water and the decoction is given in a dose of 15 ml is orally taken, three times a day as a memory booster in persons suffering from low I.Q.
- b. Jaundice: To cure jaundice, called “ibaponju” by the Yoruba people, bark and leaves of Lawsonia plant are boiled in water and about 40 ml of the decoction is orally taken three times a day. Sometimes the patient may be required to bath with the decoction.

#### **4.3 *Alternanthera sessilis*(L.) R. Br. ex DC**

It .is one of the commonest herbs on the University Campus. It is a “gold mine” waiting for attention.



Figure 19: *Alternanthera sessilis* (L.) R. Br. ex DC.

All parts of the plant are useful. Listed below are some of the amazing health benefits of this amazing plant called Sessile joyweed, Tangle mat, or Dwarf copperleaf.

Tender shoots and leaves are used as vegetable, suitable with fish, considered highly palatable vegetable. The plant is medicinal for liver. The leaves and young shoots are cooked and used as a vegetable. The leaves are highly recommended for breast-feeding mothers as it increases lactation.

i. Infertility: The fresh leaves of sessilis plant consumed in everyday diet is a cure for male infertility and impotence.

ii. Gonorrhea: The fresh, young leaves of sessilis included in everyday diet, cures gonorrhea.

iii. Diabetes: The leaves included in everyday diet, gives energy to diabetics; and helps to maintain the sugar level in the blood.

iv. Cancer prevention: Eating the leaves, or used as an extract, helps to purify the blood of toxins and thus prevent cancer. It has the potential to kill germs and heals the wounds.

v. Night Blindness: Eating the raw flower of sessilis continuously and helps to improve eyesight in persons suffering from night blindness (nyctalopia).

vi. Regulates Nervous System: Eating sessilis cures many nerve related disease, improves memory power, it cools and relaxes the eye and brain.

vii. Jaundice: To cure jaundice, sessilis leaves are ground or blended, extract 20 ml of the juice; boil the extract with brown sugar and mix with cow milk; the mixture is drunk to obtain cure jaundice.

viii. Eyesight: Consuming the greens (fresh young leaves) for 27 consecutive days leads to clear eyesight. It is touted that one can see the moon during the day.

ix. Eye sight and memory: Pound fresh leaves or the whole plant; mix the pounded material with water, and extract the juice. Mix a



liter of the extract with 250 ml of sesame oil; boil the mixture until it is reduced to about 250 ml of the original volume, cool and strain. Massaging the strained oil on the head gives good eyesight and memory.

x. Memory: Regularly giving the fresh young leaves of sessilis in diet to children who are studying will stimulate, improve and increase their memory.

xi. Hemorrhoid (Pile): Soup prepared using sessilis leaves, garlic and pepper is very effective in curing piles.

xii. Weight Loss: Eating fresh leaves of the plant cooked with salt and pepper helps in body weight reduction.

xiii. Bad breath: Regularly eating the fresh green leaves of the plant helps to get rid of bad breath.

#### Culinary Uses:

In Ibadan, Oyo State, Nigeria, this plant called “Ódùn j?ja” (literarily meaning *more delicious than fish*) is relished as a vegetable. Citizens of Benin Republic living in Abeokuta also relish it.



Figure 20. Young Alternanthera sessilis



#### 4.4 *Eclipta alba* (L.) Hassk. This is a most abundant plant in the University campus.

*Eclipta alba*, called “afúnlójú” in Yoruba, meaning “white-eyed” is one of the most popular herbs used to treat hair thinning in India and some Asian countries.



Figure 21. *Eclipta alba* (L.) Hassk.

In Ayurvedic medicine, India's oldest holistic healing practice, *Eclipta alba* powder is mainly used for the purposes of *detoxifying the liver and stimulating hair growth*. Asian countries, including China and Korea, have also traditionally used *Eclipta alba* as a powerful herb for *hair growth and hair darkening effects*.

The benefits of the plant:

- i. Oil is prepared from boiling the leaves with same quantity of water and oil (coconut oil, sesame oil, or organic castor oil) until the water has completely vapourized. The preparation is allowed to cool and sieved; it is then stored in amber bottles, stimulates hair growth. It is also very effective for the control of baldness, and darkens hair color
- ii. Taken as tea, *Eclipta alba* helps to detoxify the body, protects the liver, improves eye health, has diuretic effects (urine production), reduces pain, moderates anger and reduces blood pressure.

iii. The fresh juice of the plant applied on the body helps to cure eczema.

#### **4.5 *Cynodon dactylon* (L.) Pers.**

Common names include Bermuda grass, *Dhoob*, *dūrvā*grass, *ethana* grass, *dubo*, dog's tooth grass, Bahama grass, devil's grass, couch grass, Indian *doab*, *arugampul*, *grama*, wiregrass and scutch grass.



Figure 22. Bermuda grass University of Maryland Extension

Uses of Bahama grass (*Cynodon dactylon* (L.) Pers.):

- i. Menstrual problems: The mixture of Bahama grass juice and honey, taken 3-4 times a day, is an effective remedy in case of heavy and prolonged menstrual durations.
- ii. Bleeding of gums: The mixture of 3-4 teaspoons of Bahama grass juice and one glass of water, slowly drunk, is an effective remedy for curing bleeding gums and other oral related health problems.
- iii. Blood sugar: The mixture of Bahama grass juice the juice of the leaves of neem (*Azadirachta indica* Juss.), is drunk for normalizing blood sugar level, even for chronic diabetes.
- iv. Stress management: A walk on Bermuda grass especially early in the morning with dew on the grass helps to obtain relieve from stress. Alternatively, a paste made from grinding fresh Bahama grass, and applied on the soles of the feet gives relief from stress.

#### **4.6 Teak (*Tectona grandis* L.f.)**

Teak is used mainly for its wood in Nigeria. An optimal use of this

plant will promote the economy of rural areas where there is Teak plantation.

i. Diabetes mellitus: Leaf powder in Type II Diabetes mellitus: Fresh and matured (not ripened) green leaves of teak are collected and dried under shade, powdered well and stored. A dose of 2-3 gram of the leaf powder is administered preferably daily during early morning.

Note: Some people develop nausea due to the peculiar odour of the teak leaf powder; in such a case, it is advisable to avoid this recipe.

ii. Diabetes and in uncontrolled urination: A fresh bark from a mature teak tree dried, and 10 g of the dried bark is boiled in water. The decoction is filtered and drunk. This will marginally decrease sugar level in the body. This remedy is beneficial in uncontrolled urination, especially caused during old age.

iii. Burns: Twenty to twenty-five (20-25) tender leaf buds (coppery red in colour) of teak plant are crushed into fine paste; the paste is mixed with 100 ml oil (coconut or sesame oil) and 200 ml water; the mixture is cooked until all water has vapourized. This yields a red or reddish brown oil. Regular application of this oil over burns and scalds relieves pains from burns and in addition cures the lesions without any resulting scar. The oil can be used in the treatment of dandruff and blisters of the scalp especially in children.

iv. Clogged milk glands: Fresh fruits of *Tectona grandis* are ground with rice washing water into paste; the paste is applied topically on breasts to clear clogged milk glands.

#### **4.7 Bamboo**

There is a gross underutilization of bamboo in Nigeria. It therefore becomes pertinent to point out many other uses of this versatile plant.

i. Skin problems: The root of bamboo, pounded into paste is applied over area of body affected by eczema, or dark

discolouration.

ii. Skin infection: The tender shoots of bamboo, made into paste, is applied over skin to cure ringworm and discolouration.

iii. Wound treatment: Paste of bamboo shoot or tender buds is made into powder and applied over wounds as part of treatment.

iv. Dysmenorrhea: Decoction of the leaves is given in a dose of 40-50 ml to treat dysmenorrhea, pain in the abdomen during menstruation.

v. Post delivery treatment: Decoction of the leaves is given in a dose of 40-50 ml to strengthen the uterine muscles after delivery.

vi. Intestinal worms: Decoction of the leaves is given in a dose of 40-50 ml to treat intestinal worm infestation.

#### **4.8 Mango tree flowers**

i. Cures Upset Stomach: Consuming mango flower juice regularly keeps the digestive system running smoothly. This is by taking a complete flower, and soak it overnight in water; in the next morning, the mixture is filtered and the extract (juice) is stored in the refrigerator for use.

ii. Reduce Cholesterol: Drinking mango flower juice every morning helps to get rid of excessive fat. It will slowly eliminate fat from the body. For best results, it is advisable that in addition to drinking the mango flower juice, a brisk walk every evening for 15-minutes is advised.

iii. Treats Acidity Problem: The juice of mango flower is known to cool down the digestive system. Ingesting mango flower juice can help in curing headache vomiting, and other allergies.

iv. Heal Nosebleeds: Inhaling the mango flower can help resolve the problem of nosebleeds.

To avoid small dust particles from getting into the nostrils, causing other problems, the flowers should not be inhaled very closely.

v. Control Diabetes: Fresh flowers of mango plant are soaked in water overnight; in the morning, they are squeezed, filtered and drunk. The daily consumption of this extract will help control early diabetes.

**4.9 *Solanum torvum* Sw.**

Common names: English: Turkey Berry, devil's fig, pea eggplant, platebrush or susumber; Nigeria: *Afufa*, *anara* (Igbo); *Ijẹgún-ẹẹgún*, *igbàlódé ẹẹgun*, *Igbá yinrin ẹẹgun* (Yoruba)



Figure 23. Turkey Berries (*Solanum torvum*)

On Indiamart, one kilogram of the seeds of *Solanum torvum* is sold for 500 Indian rupees, and at one rupee exchanging for 5.43 Nigerian Naira, 500 rupees amount to two thousand 2, 715 Nigeria Naira. This certainly can help alleviate poverty in rural households if *Solanum torvum* is preserved or cultivated.

I have observed that elderly people eat the ripe berries as snacks, use them as soup condiments and adjuncts. The berries with fresh cayenne pepper are cooked and used as sauce for eating cooked yams. It is a general belief among the people that eating anything bitter promotes good health and Turkey berries are bitter.

The health benefits of turkey berries:

- i. Treatment of indigestion and diarrhea: Turkey Berries are good for digestion. They help to treat indigestion, stomachaches and diarrhoea.
- ii. Prevents intestinal worms: Regular intake of the berries can prevent the formation of worms in the intestine.
- iii. Treatment of Diabetes: Eating turkey berries helps in the

treatment of diabetes. In addition, adding dried powdered leaves of the plant to cooked berries can control diabetes.

iv. Protection from cancer: The extract of Turkey Berry can protect against lung cancer and in addition, Turkey Berries are antibacterial, anti-fungal.

Caution: Eating raw immature Turkey Berries could be toxic.

#### **4.10 Sunflower (*Helianthus annuus* L.)**

Sunflower is used to cure many diseases

*Medicinal Uses of Sunflower:*

i. Malarial fever: Sunflower leaves have therapeutic properties for curing malarial fever. Malaria fever is extremely dangerous and can make one feel very sick. It comes with shakes and chills and can easily kill if left untreated.

A tincture of sunflower leaves is prepared and covered in a moist towel; the towel is used to wrap round the patient. This induces perspiration and help reduce the fever and abate the illness.

ii. Arthritis: A poultice is prepared from Sunflower leaves and applied directly on the joints. This helps reduce swelling and curb pain. Drinking made tea from Sunflower leaves can also prevent arthritis.

iii. Gastroenteritis: Drinking the tea from the boiled leaves gives an almost immediate relief.

iv. Pulmonary pneumonia: Drinking tea made from Sunflower leaves helps soothe the chest pain and heal pneumonia.

v. Wound dressing: Applying a poultice made from crushed fresh sunflower leaves on wound and left to dry, heals the wound.

vi. Insect Bites: When applied against insect bite poisons, crushed sunflower leaves bring instant relief.

vii. Headaches: A paste of crushed sunflower leaves when applied on the forehead in case of a headache brings an almost instant relief.

viii. Diuretic effects: Sunflower leaves taken as tea, have diuretic properties that help increase urine excretion for patients with

bladder disorders.

ix. Sore Throat: The tea produced from sunflower leaves and petals is an effective remedy for sore throat and helps reduce inflammation of the windpipe. It also helps protect against new infections.

x. Tonsillitis: Drinking sunflower leaves tea helps cure tonsillitis, reduce the swelling and restore normal respiratory functions.

#### **4.11 *Adansonia digitata* Linn.**

Common names includes (Baobab, Monkey Bread tree, African calabash; Nigeria: ùsì (*Edo*); *kwahi* (*Gwari*); (*OèèYoruba*).

i. Sick cell anaemia: Drinking the aqueous extract of the bark of *Adansonia* stem is useful in treating sick cell anaemia.

ii. Bronchial asthma: The dried fruit pulp is soaked in water and the extract is drunk to give relief in bronchial asthma and allergic dermatitis.

#### **4.12 Rice**

Rice has become a leading food item in Nigeria. There is a massive importation of the food item and has occasioned smuggling with the attendant economic and health consequences. Rice is not only for food, it has medicinal uses. The few discussed here are from Ohsawa (1976). I regularly make roasted rice grain and recommend the use of rice washing water and rice soup.

i. Brown Rice Soup: Brown rice, one cup, is roasted until well browned but not burnt. The roasted rice is boiled in ten cups of water until it reaches a rapid boil. Add a pinch of salt (preferably Sea salt or Celtic salt or Himalayan crystal salt), and further boil the rice until the original water volume is reduced to half. The gruel is consumed as a good remedy for all sicknesses.

ii. Rice Coffee: Rice coffee is especially recommended for students and others doing intellectual work. Rice coffee helps to



clarify ideas, good for constipation and recurring headaches. Rice coffee is prepared by roasting one-quarter cup of brown rice until golden; add three and a half cups of water and boil for twenty minutes. Strain and serve (the liquid extract).

iii. Special Rice Soup: Special rice soup is very effective for rheumatism, arthritis, and heart conditions. Special rice soup is made by frying one cup of brown rice in a teaspoon of sesame oil until browned; then add seven cups of water and a pinch of salt and bring to boil. Cook the rice until it becomes soft and should not be stirred. Eat the cooked rice as thick soup.

v. Raw Brown Rice to rid the duodenum of hookworms: A handful of raw brown rice well chewed every morning on empty stomach, for about one month, will rid the duodenum of hookworms.

#### **4.13 *Physalis angulata* Linn.**

Common names of *Physalis angulata* Linn. English: angular winter cherry, balloon cherry, cutleaf groundcherry, gooseberry, hogweed, wild tomato, camapu; Egyptian: Hrankash; India: Hindi: Chirpoti, chirpati, tulati pati; Sanskrit: Tankari; Indonesian: ceplukan or ciplukan; Nigeria: Fara?urus (Hausa); àlasàngì (Nupe); Koropo, Papo (Yoruba); South America: mulaca, tino-tino; Spanish: bolsa mullaca.



Figure 24. *Physalis angulata* Source: Lucidcenral.org | Factsheet – *Physalis angulata* (Wild Gooseberry)



- i. Diabetes: The roots of *Physalis angulata* are sliced and macerated in a quarter ( $\frac{1}{4}$ ) litre of rum for seven days. Honey is added, and half glass of the preparation is taken twice daily for sixty day (Taylor, 2005).
- ii. Diuretic: The roots are prepared as tea and drunk as a good diuretic.
- iii. Hepatitis: The roots are prepared as tea and drunk to treat hepatitis.
- iv. Asthma and malaria: One cup of tea made from the aerial parts of *Physalis angulata* is drunk.
- v. Flaccid breast (Breast flaccidity is when the breast lacks firmness, resilience, or muscle tone): The whole plant along with its root is crushed and made paste with rice washed water and applied over the flaccid breasts as a remedy for breast flaccidity.
- vi. Measles, yaws and guinea worm sore: Leaf paste is applied externally in measles, yaws and guinea worm sore.
- vii. Gonorrhoea, indigestion, nephritis and fever: In Central and South America, infusions of the plant are taken to treat gonorrhoea, indigestion, nephritis and fever.
- viii. Guinea worm sores: The leaves of *Physalis angulata* are applied to Guinea worm sores, killing the worms and easing extraction.

**4.14 *Citrus aurantifolia* (Christm.)**

Swingle, this is the lime orange. Clean, dry leaves of *Citrus aurantifolia* are boiled in water; the lukewarm extract is drunk many times a day against tumor/cancer.

**4.15 *Zingiber officinalis* Roscoe, ginger**

Old leaves of ginger plant are cleaned and cut into pieces, then boiled in water. The extract is drunk to alleviate stroke, paralysis and vitality disorders.

**4.16 *Chromolaena odorata* (L.) R.M. King & H. Rob.**

Fresh leaf of *Chromolaena* is made into paste and inhaled to increase memory power (Padhy, Durga and Kumari, 2020).

**4.17 Buttermilk made from cow milk**

Buttermilk is one of the products that I make from time to time from fresh cow milk purchased from Fulani cattle farmers around the campus of the University.

It is valuable for cancer treatment. Cancer treatment reduces appetite and makes one feel sick immediately after eating. However, it is important to note that nutrition is important for recovery from cancer.

Buttermilk is good for intestinal mucosa, lining of the stomach (often is compromised during cancer treatment), reduces acidity and burning sensation, nourishes taste buds, replenishes appetite.

**4.18 Ghee (clarified butter)**

A mixture of two hundred and fifty grams of ghee (clarified butter from cow milk) of cow (*Bos taurus* Linnaeus, 1758) and one hundred grams of powdered black pepper (*Piper nigrum* L.) is given orally to neutralize snake poison (Mahawar and Jaroli, 2006). I make ghee from raw cow milk.

The West African black pepper (*Piper guineense* Schumach.) Common names: masoro, bàrk?nō (Hausa); Uziza (Igbo); Ìyèrè (Yoruba).

**4.19 Honey**

Honey is a versatile natural resource that find uses for many ailments.

- i. Honey and lemon orange syrup with coconut oil: The syrup is prepared by mixing three tablespoons of lemon orange juice, one-cup organic honey, and two tablespoons of extra virgin coconut oil. The mixture is taken orally to alleviate coughs, sore throats, and to enhance immunity.
- ii. Broken Bones: Slightly roast some wheat grains and powder them to flour; mix the flour with honey and eat the mixture to help join broken bones together.
- iii. Jaundice: Eat ripe banana with honey as a cure for jaundice.
- v. Jaundice: Drink carrot juice mixed with honey as a cure for jaundice.

**4.20 Deer horn**

Rubbing deer horn powder on the chest can instantaneously relieve angina pain (Lad, 1998). Antelope horn can be used in place of deer horn. The horn powder is made by pounding the horn using a mortar and pestle or rubbing the horn on a rough grinding stone.

**5.0 OTHER UNCOMMON MEDICINAL USES OF PLANTS**

There are other uncommon medicinal uses of plant for preventive and curative purposes.

**5.1 Uncommon uses of Plants for curing certain diseases**

Here compiled are some uncommon medicinal uses of plants that I have recommended to many who have come to me for health advice.

**1. Baldness:**

Bamboo skin and root: Burn the skin and roots of bamboo; mix the ashes in apple cider vinegar. Apply the mixture on the head to promote hair growth.

**2. Blood purification:**

i. Neem (*Azadirachta indica* A. Juss., 1830) leaves: Eat 5-6 fresh leaves of Neem every day to cleanse the blood of impurities.

ii. *Ocimum gratissimum* L. (Basil): Twelve (12) leaves of *Ocimum gratissimum* (African basil; *Efinrin* in Yoruba) are thoroughly chewed and swallowed to purify blood and remove toxins from the body.

3. Burns: Grind and make a paste of cotton (*Gossypium arboreum* L.) flowers. Apply the paste as a cream on first degree burns to heal the wounds. This helps to promote quick recovery of skin's original colour and removes burnt marks.

ii. *Regular drinking and taking bath with fresh water decoction of Guiera senegalensis* J.F. Gmel (called "Sabara" by the Hausa in Nigeria;) leaves (the leaves are known as a medicinal "cure all" in Africa) is used in the treatment of breast cancer and associated breast inflammatory lesions such as mastitis. Poultices of the fresh

*leaves are made in some instances and rubbed all over the affected breast.*

4. Dental problems: Burn the roots of bamboo, massage teeth with the ash; the teeth become clean and shining.

5. Dog bite: To remove poison arising from dog bite, grind roots of bamboo, mix in milk and drink.

6. Epilepsy: Roots of Moringa (*Moringa oleifera*) are boiled in water and the extract is given for epilepsy and hysteria in women.

7. Female sterility: A decoction of the leaves of *Acalypha ciliata* Forssk. is drunk as a remedy for female sterility.

*Acalypha ciliata* Forssk. (Fringed acalypha (English); Jìwínnì (Yoruba); Abaleba-ji (Igbo); mfofoa (Akan-Asante, Ghana).

8. Heartburn: Chew tender leaves of *Spondias mombin* L. and swallow the juice for heartburn.

*Spondias mombin* L. English: Yellow mombin, hog plum; Ìyeyè (Yoruba)

9. Heart failure: *Paullinia pinnata* Linn.: Dry the leaves, crush into smaller pieces and boil with water. Strain for use. Drink decoction, 25 cl, three times a day to cure heart failure.

10. Hip pain: Burn bamboo roots, mix the ash with water and apply the mixture on the hipbones to relieve hip pain.

11. Hydrocephalus: Grind the leaves of *Struchium sparganophora* (Linn.) O. Ktze and seeds of *Aframomum melegueta* K. Schum. to paste, apply the paste to the head for the management of hydrocephalus.

*Struchium sparganophora* (Linn.) O. Ktze: ntẹ mgbàdà = ear of Maxwell's duiker (Igbo); bòù kírìólògbò = bush bitter leaf; kírì-kòròmòṇṇ-ẹ-kòrẹ (Ijo-Izon (Kolokuma); ewúrò, ewúrò odò = water bitter leaf, ewúrodò (Yoruba).

12. Jigger/jigger flea/chigoe/sand flea – *Tunga penetrans* (Linnaeus, 1758) disease: Squeeze the seeds of *Pentadesma butyracea* Sabine 1824 (Yoruba: Orógbó erin, Iroro, Uroro) to produce oil juice. Apply the oil extract to affected parts to destroy jigger.

This is also applicable to head louse (*Pediculus humanus capitis* De Geer, 1767)

13. Kidney problems: Boil the leaves of *Sida acuta* Burm.f. in water, add honey and take half a glass cup of the decoction three times daily for kidney problem.

14. Leprosy: Boil the whole plant of *Guiera senegalensis* J.F. Gmel (called “Sabara” by the Hausa in Nigeria) in water, and drink the decoction for leprosy.

15. Leukemia: Pumpkin (Tahitian squash, winter squash, autumn squash) - *Cucurbita moschata* Duchesne: Boil pumpkin, extract the juice and drink every day in the early stages of leukemia as a health miracle for leukemia.

16. Liver flukes: *Citrullus colocynthis* (L.) Schrad. (? gúsí bààrà) leaves: Heat the leaves slightly on fire, squeeze out the juice. Give juice to dogs to expel liver flukes. It applies also to man.

17. Measles: To control measles outbreak in a community, uproot *Sida acuta* Burm.f., use the plant as a broom to sweep the premises.

To cure measles, cut the uprooted plant into pieces, boil and use the extract to bath. In three days, the measles will stop.

18. Memory booster: The flowers of *Lawsonia inermis* L., (1753) are boiled in water and 40-50 ml of the decoction in divided dose is drunk as a memory booster in persons with low I.Q.

*Lawsonia inermis* L., (1753): Common names: English: henna, hina, the henna tree, the mignonette tree, and the Egyptian privet; Nigeria: Yoruba: Làálì.

19. Meningitis: After grinding the bark of *Moringa oleifera* Lam.), the liquid is squeezed and put into the nostrils or given orally as a drink to cure meningitis.

20. Migraine: Crush to pulp the leafy twigs of *Blighia sapida* K.D. Koenig and rub the pulp on the forehead for the cure of migraine.

21. Obesity: Boil in water, the combination of the stem bark of bitter kola (*Garcinia kola* Heckel) and fruits of *Xylopia quiantasii* Engl. (“? rùn àw?nká” in Yoruba) Drink 15 ml of the decoction twice daily.

22. Painful urination: Boil guava (*Guava guajava* L.) leaves in water with bruised ginger or pepper. One small teacupful of the decoction is taken warm, three or four times a day. This protocol is copiously diuretic.

23. Schistosomiasis: Leaves of *Sida acuta* Burm.f. are boiled in water and the extract is drunk as an effective cure schistosomiasis.

24. Stroke: The root juice of *Mucuna* (*Mucuna pruriens* (L.) DC.) is drunk to cure paralysis and atrophied arms arising from stroke. 25. Scorpion bite: Pound or chew fresh leaves of *Gmelina arborea* Roxb. to a paste and apply the paste on the sting area and bandage for two hours.

25. Sickle cell:

i. Pound the stem bark of *Albizzia ferruginea* (Guill. & Perr.) Benth. and boil in water. Take 10 ml of the decoction three times in a day for sickle cell.

*Albizzia ferruginea* (Guill. & Perr.) Benth. Common names: English: West African albizia; Nigeria: Uwowe-nugu (Edo), Ngu (Igbo), Ayinr?-?g? (Yoruba).

ii. Separately grind the seeds of Alligator pepper (*Aframomum melegueta* K. Schum.) also grind the cleaned stem bark of *Calotropis procera* (Aiton) W.T. Aiton, (bomubómú in Yoruba) and mix the two powders. About 50 mg of the mixture is taken with food as often as it is needed for the cure of sickle cell.

26. Uterine fibroids: Turmeric and Neem: Add 2 or 3 tablespoons of turmeric powder, five handfuls of fresh leaves of neem to water and make a paste of them. Apply the paste thickly in the pelvic region and cover it with cloth as an Ayurvedic remedy for uterine fibroids. Leave it for half an hour. This will help remove fibroids.

27. Wasp sting: Pound or chew one or two fresh leaves of *Gmelina arborea* Roxb., rub the affected area with the pounded leaves until the pain disappears.

28. Whooping cough: Boil roots of *Alchornea cordifolia* Müll. Arg. and *Funtumia elastica* (Preuss) Stapf. in water, drink the decoction as required to cure whooping cough.

*Alchornea cordifolia* Müll. Arg. Common names: Christmas bush;

uw?nmw? (Edo); mbom (Efik), tahi (Gwari); bambami, bambani, bombana (Hausa); ubebe, ububo (Igbo); ɣ́ááɣ (Ijo-Izon), *IZON* (*Kolokuma*) ipááɣ, ʔón ɣ́ááɣ = Ijo's ɣ́ááɣ; ipa-esin, ipa, èpa (Yoruba).

*Funtumia elastica* (Preuss) Stapf. Common names: English: African wild rubber; bush rubber; ire-rubber tree; ive rubber; Lagos rubber; Lagos rubber tree; Lagos silk rubber tree; silkrubber; West African rubber; West African rubber tree; French: Arbe à caoutchouc; Portuguese: borracheira Africana; Spanish: caucho Africano. Nigeria: básábásá (Edo); kpasẹkaraghá, kpàsẹkàràgha (Ijo-Izon (Egbema); 'cigbàn'te (Nupe); ir? (Yoruba).

## **5.2 Plants Used in the Treatment of Mental and Neurological Disorders**

Native people use plants in the care of mental and neurological problems. Some of the plants are as given below.

1. *Achyranthes aspera* L.: When inhaled, the powder of the seeds gives relief from stiffness and headache of migraine.

Common names of *Achyranthes aspera* L: English: chaff-flower, prickly chaff flower, devil's horsewhip, snake's tail; Sanskrit (an ancient Indo-European language of India): अश्विनीपामार्गा;

Nigeria: ọkpòkọ údọk mbieèt (*Efik*); kebbe jawle = Guinea fowl's bur-grass, kure pallaandi = lizard's arrows, mbagga (*Fula-Fulfulde*); weknawuhi (*Gwari*); hákoórín mácìjìjì = snake's tooth, káimin kadangaree = lizard's, kiban kadangaru (*Hausa*); (*Agukwu*) ọ́lì átẹ̀lẹ̀ = sheep's food; ọ̀dẹ̀dẹ̀ ngwèlè = lizard's tail (*Igbo*); aboro, èèmá àgbò (*Yoruba*).

2. *Citrus aurantifolia* Lemon (i) Seeds and juice are beneficial in insanity related disorder. (ii) Lemon juice is given to the patient of anxiety to regularize the heartbeat.



8. *Eleusine indica* (L.) Gaertn. The leaves of *Eleusine indica* are infused in water and the extract is drunk in the management of anxiety (Ior, et. al., 2017).

### **5.3. Plants and Radiation**

Science and technology have changed the face of communications and warfare. Hypersonic war machines, are being invented and used by different nations. Communication gadgets developed in the past thirty years surpass all other communication gadgets produced since written history. Nuclear tests underground and now in space, extraterrestrial explorations, security gadgets, household gadgets such as refrigerators, ovens and many other devices emit different forms of radiation. The rays have been implicated in different diseases afflicting modern man. Part of my research has been to find plants that can absorb these rays.

Some indoor anti-radiation plants purify the air inside a room by absorbing the electromagnetic radiation from electronic gadget thus improving the air quality index. They detoxify the air, converting the carbon dioxide present in the room into fresh oxygen, making occupants of such places to breathe better, lower stress levels, and reduce the frequency of headaches that is often associated with radiation. Pyrolyzed charcoal is also good as anti-radiation.

The plants include cactus, Mother in-law's tongue, spider plant, and Aloe vera.

1. Cactus (is a member of the plant family Cactaceae, a family comprising about 127 genera with some 1750 known species): Having a cactus around the computer can be very powerful and help absorb ambient radiation bouncing around in the office or bedroom and can make one feel a little better at work. Also getting a compact size cactus can really help one get fresh air.

2. Spider plant: *Chlorophytum comosum* (Thunb.) Jacques usually called spider plant but also known as Spider ivy, Airplane plant, St.

Bernard's lily, Ribbon plant and Hen & Chicken, is native to tropical and southern Africa. It removes harmful chemicals from the air, such as carbon monoxide, xylene, formaldehyde and toluene. Formaldehyde is particularly important because it is a common household chemical and in manufactured wood products, plastic products, pesticides, leather goods, adhesives and clothing. Spider plant absorbs nuclear radiation and gives fresh air.



Figure 25: Spider plant: *Chlorophytum comosum* (Thunb.) Jacques

3. Aloe vera absorbs high levels of radiation, cleans the air, and absorbs carbon dioxide and converting it into oxygen. Aloe vera should be placed in a straight line from the electronic device that is emitting radiation.

4. Sunflower (*Helianthus annus* L.):

About six months after the devastating tsunami hit Japan, communities turned to mother nature to help restore their homes and hopes (Cotter). The 2011 Tohoku Earthquake and Tsunami event, often referred to as the Great East Japan earthquake and tsunami resulted in the deaths of over 18,000 people, including several thousand victims who were never recovered. The deadly earthquake was the largest magnitude ever recorded in Japan and the third largest in the world since 1900. In Japan, the disaster resulted in the total destruction of more than 123,000 houses and about one million houses damaged. The tsunami disabled three nuclear reactors within days. The costs resulting from the

earthquake and tsunami in Japan alone were estimated at \$220 billion USD. This was the most expensive natural disaster in history (The National Centers for Environmental Information, National Oceanic and Atmospheric Administration, 2011).

Millions of sunflowers have been planted in radioactive areas to soak up toxins from the ground and brighten the hillside of Fukushima. Sunflower plants are known to soak up toxins from the soil. Also believed to absorb radiation are mustard, amaranthus and cockscomb. However, it was not the first time that sunflower would come to the rescue in radioactive situations. Many were planted around the Chernobyl site to extract radioactive cesium from nearby ponds (Cotter). Considered the worst nuclear disaster in history in both cost and casualties, Chernobyl disaster was a nuclear accident that occurred on 26 April 1986 at the No. 4 reactor in the Chernobyl Nuclear Power Plant, near the city of Prip'yat in the north of the Ukrainian SSR in the then Soviet Union (Wikipedia, Chernobyl disaster).

This suggests that amaranthus vegetables and the Silver cockscomb, that is, Lagos spinach (*Celosia argentea* var. *argentea* Linn.) have potentials for cleaning radioactive radiation.

#### **5.4 The Plastic War and Plants to the Rescue**

Plastic pollution has become one of the most pressing environmental issues, as rapidly increasing production of disposable plastic products overwhelms the world's ability to deal with them. Plastic pollution is most visible in developing Asian and African nations, where garbage collection systems are often inefficient or nonexistent (Parker, 2019).

Belgian-born scientist Leo Baekeland invented the first mass-produced plastic in 1907. The plastics boom began in earnest after World War II, when global production skyrocketed from 1.5 million tons annually in 1950 to 100 million tons in 1989. In 2017,

nearly 350 million tons were produced (Hervey, 2019.).

Of more than 6 billion tons of plastic waste produced since the 1950s, only 9 percent has been recycled, and 12 percent has been burned. The remaining 4.7 billion tons of plastic waste sit in landfills, little trash mountains piling up in every country of the world (Hervey, 2019).

Plastics often contain additives making them stronger, more flexible, and durable. However, many of these additives can extend the life of products if they become litter, with some estimates ranging to at least 400 years to break down.

Parker (2019) also noted that once at sea, sunlight, wind, and wave action break down plastic waste into small particles, which spread throughout the water column and the particles have been found in every corner of the globe. According to Hervey (2019), the microplastics range in size from microscopic to 5 millimeters long.

Carrington (2020) noted that **microplastics** have polluted the entire planet, and that people are also known to consume them via food and water, and to breathe them in. In addition, Furthermore, **microplastic** and **nanoplastic** particles are now discoverable in human organs but the potential impact on human health is not yet known.

According to Parker (2019), plastics kill millions of animals every year, from birds to fish to other marine organisms, and about 700 species, including endangered ones are known to have been affected by plastics. Land animal-based animals also consume plastics and in some cases cause death. Such land-based animals include elephants, hyenas, zebras, tigers, camels, cattle, and other large mammals. Furthermore, tests have also confirmed liver and cell damage and disruptions to reproductive systems, prompting some species, such as oysters, to produce fewer eggs.

Of major concern with plastics is the widespread use of

Bisphenol A (BPA) in the manufacture of plastics. BPA has the chemical formula 2,2-bis(4-hydroxyphenyl)propane.

Bisphenol A is a synthesized chemical compound used in the production of everything from plastic water bottles, plastic baby bottles, household electronics, eyeglass lenses, CDs, DVDs, food storage containers, canned foods and paper receipts (Kablo, 2019).

BPA was first synthesized in 1891 by the Russian chemist Aleksandr P. Dianin, who combined phenol with acetone in the presence of an acid catalyst to produce the chemical. In the early 21st century, global BPA production amounted to more than 2.7 billion kilograms annually, roughly one-third of which was made in the United States (Rogers, 2022).

BPA has been linked to causing reproductive, immunity, and neurological problems, as well as an increased likelihood of Alzheimer's, childhood asthma, metabolic disease, type 2 diabetes, and cardiovascular disease (Kablo, 2019). In addition, exposure to BPA is a concern because of the possible health effects on the brain and prostate gland of fetuses, infants and children. It can also affect children's behavior (Bauer, 2022). BPA is also implicated in cancer, weight gain and brain function disorders (Kablo, 2019). Bisphenol-A can cause obesity, devastating sex/reproductive changes, brain impairment, and Attention deficit hyperactivity disorder (ADHD)-type symptoms. ADHD is a neurodevelopmental disorder (Anthony William, 2015).

Because BPA is soluble, when it comes into contact with liquids or when it is heated, the bond it has formed with the plastic can be broken, and BPA can seep into the contents of food or beverage. In addition, because BPA is found in almost every type of plastic, BPA is frequently leaking into water supply and foods such as fish especially from the oceans (fish absorb many contaminants found in the ocean) (Kablo, 2019).

The problem posed by plastic pollution sometimes referred to as

plastic war prompted my search for plants that could detoxify plastics and its derivatives from the human body.

#### Natural Methods of Removing BPA from the Body

- i. Anti-plastic tea: Blend equal proportions of fenugreek (*Trigonella-foenum-graecum* L.), mullein leaf (*Verbascum thapsus* L.), olive leaf (*Olea europaea* L.), and lemon balm (*Melissa officinalis* L.). Make a tea by steeping one tablespoon of the mixture in a cup of hot water (William, 2015).
- ii. Black Tea: Drinking black tea can reduce BPA toxicity.
- iii. Quercetin: Quercetin, a flavonoid found in onion peels, tea and whole grains, can reduce BPA toxicity. Tea from onion peels is made by soaking the peels in hot water or by simmering the peels in boiling water for ten minutes.
- iv. Anti-pesticide, and fungicide tea: Steep a tablespoon of a mixture of the following herbs Burdock root (*Arctium lappa* L.), Red clover (*Trifolium pratense* L.), Lemon verbena (*Aloysia citrodora* Palá), and, Ginger (*Zingiber officinale* Roscoe) in a cup of hot water and drink to remove pesticides, herbicides, and fungicides deeply stored in the body (William, 2015).

### **5.5 Forestry and agricultural plants in animal care**

Forest plants are of immense importance in animal health. The plants are non-toxic and therefore pose no threat to the environment.

1. *Vachellia nilotica* (L.) P.J.H. Hurter & Mabb. This is the popular *Acacia nilotica* Linn. Common names: gum arabic tree, babul, thorn mimosa, Egyptian acacia or thorny acacia.

i. Jaundice: Grind into smooth paste, about 200 g flower of *Acacia nilotica* and mix with 250 ml (0.25 liter) of water, the solution obtained is given orally twice daily for 15-20 days to animal to cure jaundice.

ii. Dysentery: The extract of bark in water is given to animal orally twice a day for 10-20 days to cure dysentery.

2. *Azadirachta indica* A. Juss.

*Wounds:* About 500 g bark of *Azadirachta indica* and 250 g bark of *Vachellia nilotica* are ground together and mixed with water. The paste obtained is applied over wounds until complete recovery.

3. *Calotropis procera* (L.) R. Br. (*bomubómú* in Yoruba)

Anti-poison: Milky latex of plants is applied externally on snakebite to neutralize poison in livestock.

4. *Cynodon dactylon* (Linn.) Pers.

The aerial (0.3 kg per day) plant is given as fodder for increasing lactation and milk quality.

5. *Eclipta prostrata* Linn.: Fresh leaves are ground and boiled with mustard oil. The paste obtained is applied twice daily for 10-15 days on wounds for early healing.

6. *Mangifera indica* Linn.

About 100-200 g leaf paste of mango is given twice daily for three to 5 days to cattle for quick relief from diarrhoea and dysentery.

7. *Moringa oleifera* Lam.

i. About 100-200 g leaf paste is given twice daily for three to 5 days to cattle for quick relief from diarrhoea and dysentery.

ii. The paste is prepared from 450-500 g pods and given as feed for one month for relief from rheumatism.

iii. Juice of the roots is applied on the ulcers of cattle for healing and removal of larvae of insects from it.

8. *Musa paradisiaca* Linn.

Young leaves and roots are given with fodder for one week to reduce body heat of cattle.

9. *Ocimum gratissimum* Linn.

Leaf paste is applied externally on skin of cattle for removal of ecto-parasites.

10. *Vigna radiata* (L.) R. Wilczek

About 250 g seed powder of *Vigna radiata* (the Mung bean) is mixed with 100 mL oil of *Arachis hypogaea* L. (groundnut/peanut) and given twice daily for 7 days to cattle suffering from cough and cold (Verma, 2014).



**5.6 Healing Forest**

Healing forest is a concept that I have actively promoted over the years to enhance the health and welfare of our citizens. It has immense benefits for urban dwellers exposed to stress and the attendant consequences. I acknowledge the Ogun State Traditional Medicine Board who immediately accepted my suggestion to have it in the State.

A modern affliction is what Evans (2018) has noted to be “Nature deficit disorder.” This manifests increasingly in people living in cities, working in high-rise office buildings, and becoming addicted to their innumerable electronic devices.

University of Minnesota (2016) noted that research revealed that environments could increase or reduce stress, which in turn impact human bodies. The stress of an unpleasant environment can cause one to feel anxious, sad, or helpless. This in turn elevates blood pressure, heart rate, and muscle tension and suppresses immune system. A pleasing environment reverses that. The University further stated that what people are seeing, hearing, experiencing at any moment is changing not only their mood, but also how the nervous, endocrine, and immune systems are working. In addition, that “Nature deprivation,” a lack of time in the natural world, largely due to hours spent in front of TV or computer screens, has been associated, unsurprisingly, with depression.

Exposure to natural world reduces mental fatigue provoked by the city environment and increases concentration and the ability to perform tasks. Having a walk in nature may clear the head of bad feelings. Natural spaces have also an effect on behaviour: promotes self-discipline, self-esteem, self-reliance, self-concept, and self-perception and reduces aggressive behaviours. Plants in a work office or a classroom decreases coughing, headaches, dry skin and fatigue. They also reduce the occurrence and frequency of

time off through illnesses (Camps, 2016).

Being in nature, or even viewing scenes of nature, reduces anger, fear, and stress and increases pleasant feelings. Exposure to nature not only makes one feel better emotionally, it contributes to physical wellbeing, reducing blood pressure, heart rate, muscle tension, and the production of stress hormones. It may even reduce mortality.

Research done in hospitals, offices, and schools has found that even a simple plant in a room can have a significant impact on stress and anxiety (University of Minnesota, 2016). According to Camps (2016), the following are benefits of connecting children with nature:

- Foster their intellectual, cognitive, emotional, social, spiritual and physical development.
- Supports creativity and problem solving.
- Display decision-making skills.
- Increases their ability to focus and enhances cognitive abilities.
- Improves academic performance (social studies, science, language arts and mathematics).
- Reduces symptoms of Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD).
- Increases physical activity, aware of nutrition, politeness and creativity.
- Increases calmness and reduces disruptive behaviour.
- Reduces myopia.
- Improves social relations, self-control and self-discipline.
- Reduces stress.
- Promotes wellness of future adults.
- Promotes support and concern to conservation initiatives in adulthood.

A Japanese organization, Japanese Society of Forest Medicine promotes research on the therapeutic effects of forests on human

health and educates people on the practice of forest. It has found that spending time in a forest can reduce stress, anxiety, depression, and anger; strengthen the immune system; improve cardiovascular and metabolic health; and boost overall well-being.

Japan, in 1982 launched a national program to encourage forest bathing, and in 2004, a formal study of the link between forests and human health began in Iiyama, Japan—a place particularly known for its lush, green forests. Now, each year upwards of 2.5 million people walk those forest trails as a way to ease stress and enhance health. The art of “forest bathing”—*shinrin-yoku* involves slowly walking through a forest (Evans, 2018).

### **5.7 Soil Microbes: The Unsung Heroes of Human Health and Survival**

Soils have an impact on human health in many ways. The link between soils and human health has been recognized for thousands of years (Nieder, Benbi and Reichl.).

The planet earth still holds many secrets to modern ailments. A large number and growing list of drugs come from nature. Soil-dwelling bacteria and fungi make many of these medicines. The medicines include penicillin, statins, and cyclosporins (originally come from fungi) for treating cancer and infections (Citizen Science Salon, 2015).

Soils are one of the main global reservoirs of biodiversity with more than 25 percent of the world's biological diversity (New FAO). The species range from beetles and springtails to worms, spiders, nematodes, and billions of other microorganisms too small to be seen by the naked eye, but vitally important to soil health and the planet. Up to 10 billion microorganisms can be found in just a quarter of a teaspoon of soil (Soil Association). In

addition, more than 40 percent of living organisms in terrestrial ecosystems are associated with soils during their life cycle (New FAO report).

Soil microbes and animals, from tiny soil bacteria to earthworms, are unsung heroes in the environment, providing hundreds of billions of dollars in ecosystem services. These organisms are critical to maintaining the global biosphere and human existence (Virginia Tech., 2019). Soil microorganisms have a significant potential to mitigate climate change. They play a key role in carbon sequestration and reducing greenhouse gas emission (New FAO report).

Soil fungi, hidden underground, can spread for kilometres, creating a huge network that is vital for soils, and helps plants and trees to communicate – it is sometimes known as the 'wood wide web'. Fungi are amazing cleaners of soils, filtering out everything from heavy metals to pesticides, and even radioactive waste. Fungi also capture carbon. There is more carbon in soils than there is in all the world's plants, forests and the atmosphere combined (Soil Association; Amaranths and Allen, 2013). Soil microbes are not only carbon processors, the vast microbial communities underfoot affect air quality and global temperatures, they can also affect the taste and quality of the food grown ([Svoboda](#), 2015). The protection of soil microbes is of utmost importance to ensure the future of agri-food systems and the provision of key ecosystem services (New FAO report).

## **5.8 Earth-Cure**

The earth is an invaluable element in the domestic treatment of diseases and forest soils are particularly suited for this. I have supervised students on healing soils and one student at the Ph. D level. Earth-cure can be used with success in the treatment of even the most complicated diseases (Ghandi, 1921). According to him, great heat is generated in the body by burying it in the earth; the

earth does possess the property of absorbing the poison.

Constipation, dysentery, and chronic stomachache are cured by the use of a mud-poultice over the abdomen for two or three days. Instant relief is obtained in cases of headache by applying a mud-bandage round the head. Sore eye is also cured by the same method. A mud-poultice over the abdomen and the head, gives distinct relief in a state of high fever. Skin-diseases like the itch, the ringworm, and boils, have been cured with the use of mud, though no doubt ulcers from which pus issues are not so easily cured. Burns and scalds are likewise healed by mud, which also prevents inflammation. Piles, too, are cured by the same treatment (Ghandi, 1921).

Furthermore, according to Ghandi (1921), dry earth dug out from a clean spot has been found the most effective. It should not be too sticky, free from cow-dung and other rubbish. Mud which is midway between sand and clay is the best.

It is believed that walking barefoot in mud or applying a cooling layer around the eyes rejuvenates the eyes and promotes good eye health. Mud baths are claimed to be able to cut down the risk of developing glaucoma as one ages. I promote walking barefoot in mud, on grass and on home floors to promote health.

### **5.9 Animal medicine**

Derivable economic and medicinal products from cows include cow dung, cow urine, buttermilk, ghee (clarified butter), and cow bone broth. I have processed buttermilk, butter, ghee, and bone broth. Cows form part of pastoral agroforestry.

Cows offer environmental protection as the nerve on cow's back absorbs harmful radiations and cleanses the atmosphere. Cow dung has antiseptic, anti-radioactive and anti-thermal properties. When used in coating walls and cleaning floors of a house, it protects the dwellers. In 1984, gas leak in Bhopal killed more than

20,000 people. Those living in houses with cow dung coated walls were not affected. Atomic power centres in India and Russia use cow dung to shield radiation (Page, 2021).

Wiping the ground floor with cow dung protects from bacteria while at the top floor, it protects from atomic emissions. The smell of fresh cow dung repels viruses and bacteria. Cow dung ash is used for water purification, washing vessels, treating wounds, acts as pesticide, and in preserving grains. Tooth powder, perfumes, and papers are made from cow dung (Page, 2021).

Cow urine is anticancer, antibacterial, antifungal, antiviral, toxin destroyer, and a germicide, and non-toxic. It has medicinal and disinfectant properties. It serves as an effective insecticide and helps in keeping the plant evergreen. It contains sulphur, nitrogen, phosphorus, iron, sodium, potassium, copper, manganese, carbolic acid and 24 types of salts. It contains 95 % water, 2.5% urea, 2.5% minerals, hormones, enzymes, amino acids, cytokines among many others.

### **5.10 Insect Medicine**

Costa-Neto (2005) in his landmark review of entomotherapy surmised that insects and the substances extracted from them have been used as medicinal resources by human cultures all over the world. Science has proved the existence of immunological, analgesic, antibacterial, diuretic, anesthetic, and antirheumatic properties in the bodies of insects. Insects seem to constitute an almost inexhaustible source for pharmacological research. The therapeutic use of insects and insect-derived products is known as entomotherapy

There are many examples in entomotherapy including the use of bedbugs against quartan fever and cockroaches ground with oil or cooked and used against earache. Others are, fried cicadas used against bladder complaints; locusts or grasshoppers used for

fumigation against anuresis of women, and dried and taken with wine they were used against scorpion stings (Costa-Neto , 2005). Promising anticancer drugs, such as isoxanthopterin and dichostatin, have been isolated from the wings of Asian sulphur butterflies (*Catopsilia crocale* Cr., 1775) and the legs of Taiwanese stag beetles (*Allomyrina dichotomus* (L., 1771]) respectively (Kunin and Lawtin, 1996).

According to van Huis (2017), the number of termite species in the world is more than 2500, and Africa with more than 1000 species has the richest intercontinental diversity. Termites constitute 10% of all animal biomass in the tropics.

Mounds and soil of termites have numerous functions (van Huis, 2017), including their use (i) as fertilizer, (ii) for geochemical prospecting, (iii) making bricks, (iv) plastering houses, (iv) making pots, and (v) for storage. Other uses are (vi) geophagy, the act of eating soil among women, especially those that are pregnant, is practised all over Africa, (vii) the mounds can serve as burying places and are often associated with the spiritual world, especially containing the spirits of ancestors and (viii) termites also play a role as oracle, in superstitious beliefs, in art and literature.

On geochemical prospecting, van Huis (2017) quoting several literature sources noted that termite mounds are used to explore for gold, zinc, uranium, and other metals. Termites, for reasons to avoid drought, obtain clay for building purposes or for moisture, can dig up to 10 m underground, even to 70 m. They then ingest and bring the new deposits to the surface. They do not concentrate metals in their bodies; they actively rid their bodies of excess metals. The excretions of mineral deposits in the mound are used commercially by mining companies to determine the location of gold and other mineral deposits. The technique is an alternative to invasive and expensive drilling methods.



Chinese scientists of the Institute of Insect Science and Technology at South China Normal University in Guangzhou City (XINHUANET, 2021) are taking a close look at cockroaches to explore their potential in medical treatment. There is a surge in the farming of cockroaches in China. Cockroaches can cure oral and peptic ulcers, skin burns and wounds, and even prevent stomach cancer (India Today, 2018).

Centipedes are an important animal Chinese herb with thousands of years of medicinal history. Centipede venom is frequently used as a secret weapon in Chinese herbal remedies to treat incurable diseases. Centipede is widely used for the treatment of tuberculous pleuritis, tuberculosis, bone tuberculosis, mammary (breast) tuberculosis, cervical lymphatic tuberculosis, esophageal cancer, breast cancer, skin cancer, lung cancer, uterine cancer, lip cancer, and others (Chinese Herbs Healing. Facts about Centipedes (Wu Gong).

Spiders are resources with tremendous potential and uses. According to Rameshwar and Zumberlal (2018), spider web is the strongest polymer bio-fiber used in making bulletproof clothing, lightweight clothing, rope, nets, seat belts, parachutes, biodegradable material and optical industry. In agriculture, spider web acts as a biological control agent and reduces plant damage by insect pests. In medical field, spider web has applications as biodegradable carrier, artificial tendon or ligament supports for weak blood vessels, making bandages, and surgical threads. Mixture of spider dust with different medicinal plants can cure various types of diseases. Spider silk acts as wound healer, as it is anti-inflammatory, antibacterial and antimicrobial in nature. The regenerative potential of silk is in the repair of peripheral nerve injury.

The edible insect market in the world is expected to grow from about \$400 million in 2018 to almost \$1.2 billion in 2023 (Guiné,

*et.al.* (2021) as shown in Figure 1. This translates to an increase of about 25% per year. The market might be worth around \$8 billion by 2030 with Asia-Pacific and Latin America accounting for over 50% of the market.

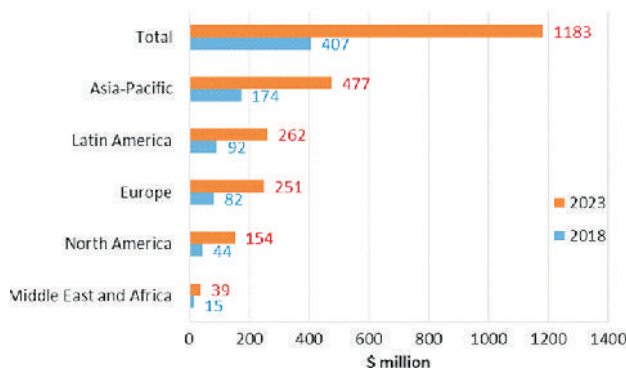


Figure 26: Expected growth of edible insects' market value according to the different regions. Source: Raquel P. F. Guiné, Paula Correia, Catarina Coelho and Cristina A. Costa, 2021.

Also according to Guiné, *et.al.* (2021) the market of edible insects is expected to exceed \$270 million by 2024 in Asia Pacific area. In Cambodia, insect farming is becoming a key factor to fight against rural poverty. Family farmers and poor families are upscaling cricket production, thus improving their livelihoods.

Thailand, where many people enjoy eating a wide variety of insects, leads the world production of insects aimed at human consumption. In recent years, the annual insect production is 7,500 tons, originating mostly from small family enterprises spread all over the country, thus generating a multimillion-dollar industry. The insect production is actually saving poor Thai farmers, generating income and providing a means of livelihood to families. There are over 20,000 listed farms in Thailand, most of them small-scale household operations; many of them breed crickets, which grow very fast, take up little space and with minimal work (Guiné, *et.al.* (2021).

A look at Figure 1 shows that Middle East and Africa are far behind in the global edible insects market. Yet, more than 2,000 species of insects (2,140, as reported) are recognized as being consumed by more than 3,000 ethnic groups in up to 130 countries, concentrated mostly in sub-Saharan Africa, central and south America, or in the southeast Asia and the Pacific. The countries with the highest consumption of insects as food include Democratic Republic of the Congo, Congo, Central African Republic, Cameroon, Uganda, Zambia, Zimbabwe, Nigeria, and South Africa (Guiné, *et.al.* (2021).

Ijalana (Oluwalana) and Ilori (1991) had advocated for butterfly agroforestry farming in Nigeria borrowing from the experience of Papua New Guinea. Adekunle and Oluwalana (2000) published the forest Insect biodiversity utilization as traditional foods in Abeokuta, Ogun State, Nigeria.

Examples of some uses of food (entomophagy) and medicinal uses (entomotherapy) of insects are as follows:

### **5.11 Honeybees and honey**

Honeybees, honey and their different products constitute an armoury of health materials.

i. Health recovery: The seeds of *Amaranthus viridis* L. are dried, fried and mixed with honey to form a paste. The paste is consumed several times a day to regain health.

*Amaranthus viridis* L. Common names: English: African spinach; callaloo; green amaranth; rough pigweed; wild amaranth; French: amarante verte; Spanish: bledo blanco (Argentina); bledo manso (Colombia); bledo verde (Colombia); caruru (Argentina); chichimeca (Argentina); citaco (Argentina);

NIGERIA: haako-ndiyam = water-leaf/plant, rukuṣuho (*Fula-Fulfulde*); malan-kotshi, malan kochi, lábàshii (*Hausa*); ìniine ójǐ, memomene, ìninèmbèwú, ìninèmmē (*Igbo*), ìninè ófíá óló (*Igbo (Agukwu)*); ìnìnà'ń (*Ijo-Izon (Kolokuma)*), níníyà (*Izon (Oporoma)*); lekír (*Kanuri*); tètẹ, tètẹ àtètèdáyé, tètẹ kékeré = little tete (*Yoruba*).

- ii. Back pain: Honeybee eggs or larvae are applied directly on affected. Alternatively, the eggs or larvae are consumed.
- iii. Chest pain: Honeybee egg or larvae are powdered; the powder, mixed with honey and consumed to cure chest pain (Wilsanand, Varghese & Rajitha, 2007).
- iv. To lower the negative side effects of radiation effect, particularly that of radium, x-rays and cobalt-60 radiotherapy: Taking two (2) tablespoons of bee pollen before, during and after exposure to radiation, two or three times a day can help lower the effects of radiation effects.

### **5.12 Use of Ants for Medicinal Purpose**

The traditional use of the red wood ants and anthills as important parts of Swedish folk prescriptions (Ingvar Svanberg and Åsa Berggren, 2019)

- i. If a person put a stick in the first anthill found in spring and if ants crawled right up to the top of the stick, that person would not die during the year.
- ii. People squeezed the ants on the stick and sucked the “juice”, that is, formic acid as a prevention against diseases.
- iii. To stay healthy throughout the year was to visit an anthill early in the spring, stir it and inhale the smoke of formic acid the irritated ants sprayed.
- iv. Entire anthills were commonly cooked in remedies folk medicine all over Sweden. The water left after the ant nest had been boiled was used to wash the body for rheumatism. The bath is called “ant bath” (myrbad in Swedish).

The bath was prepared by an addition of a decoction of ants, later also by an addition of formic acid tincture. In neighbouring Norway, rashes were treated using the same cure.

A modern way to consume formic acid known already in the 1960s and still mentioned on social media is to let the irritated red wood ants spray their acid on an open sandwich held over the anthill.

- v. Ant vinegar was once considered a nice condiment in Norway

and was made by tumbling ants into a pot of hot water, where they emitted a vinegar-like substance. A similar kind of vinegar is also mentioned from the Swedish province Småland, where it was considered good against headache.

vi. Distilled liquor flavoured with ants was regarded as very effective against gout and rheumatism. Homemade ant schnapps (Swedish myrbrännvin) is an alcohol (aquavit) that has been flavoured with formic acid, and was originally made as a remedy for a variety of symptoms and illness. The drink has a long tradition is still appreciated as flavoured schnapps by some people. Ant schnapps is now consumed mostly in connection with meals.

### **5.13 Insects utilized as medicine by ancient Mexicans**

This is adapted from Conconi and Moreno (1988).

i. Grasshoppers (*Sphenarium purpurascens* Charpentier, 1842, *Taenipoda eques* Burmeister, 1838 the lubber grasshopper, and *Melanoplus femurrubrum* De Geer, 1773 the red-legged grasshopper): The hind legs of grasshoppers were crushed and mixed with water, the mixture is drunk as a powerful diuretic to treat kidney diseases. The infusion, which has refreshing properties, reduces swelling.

ii. Locusts (*Schistocerca piceifrons piceifrons* (Walker, 1870); *Schistocerca cohni*, Song, 2006 (a species of bird grasshopper in the family Acrididae, found in Mexico, *Schistocerca nitens* (Thunberg, 1815), the gray bird grasshopper, short-horned), were pulverized and eaten as a dietary supplement to alleviate nutritional deficiencies and to fortify the blood.

iii. Crickets (*Acheta domesticus* (Linnaeus, 1758): The legs were prepared like those of grasshoppers and were employed as a diuretic for dropsy (edema).

iv. Xamues (*Edessa bifida* (Say, 1832), a species of stink bug; *Pachilis Pachilis gigas* (Ramos-Elorduy 1996, and *Leptoglossus*

*phyllopus* (Linnaeus, 1767) the leaf-footed bugs, ). These insects were roasted and powdered and utilized in whooping cough cases, eating the entire body. This could be because of their nutritional value and the quantity of vitamins they contain.

v. Mealybugs *Coccus axin* (Llave, 1832), *Llaveia axin axin* (Llave, 1832). Known as "Aje," mealybugs are multi-purpose medicinal and useful insects. In addition to their use as an ointment, varnish, or perfume, whole insect bodies were boiled to produce a sticky mass which was placed over lesions of leprosy and other skin conditions and to treat muscular pain, chronic itching, mange bum (a scaly skin disease), or scars. The sticky mass aids in the healing of burns through reducing excessive swelling and inflammation and thus helpful in heat strokes and diseases of fluid imbalance such as dropsy (edema).

vi. The mass of boiled mealybugs was sometimes ingested to alleviate the effects of poisonous mushrooms and other fungi, or diarrhea and to clean the teeth.

vii. *Dactylopius coccus* Costa, 1835, known as "grana" mealybug, is mostly used as an agent to colour or redden tissue or foods. The mealybug can also be boiled to produce a sticky mass and used, like *Coccus axin* (Llave, 1832), as a skin treatment, a tooth powder to clean teeth and in the treatment of caries.

viii. Beetles: Several species of beetles have been used as aphrodisiacs. Larvae of these beetles are roasted or crushed, mixed with water then drunk to treat urogenital disorders. The drink is equally well known as a stimulant (love potion) for lovers.

ix. Butterflies (*Aegiale hesperiaris* (Walker, 1856). *Aegiale hesperiaris* is a butterfly known as the tequila giant skipper). "Meocuilin" is the common name for *Aegiale hesperiaris*, the

white agave worm. Having an appearance of white worms, they are eaten alive for their reputed aphrodisiac properties as well as for stomach disorders and rheumatic diseases.

x. *Bombyx mori* (Linnaeus, 1758) the domestic silk moth. The boiled larvae were used in a variety of ailments, such as apoplexy (unconsciousness or incapacity resulting from a cerebral haemorrhage or stroke), aphasia (*a brain disorder where a person has trouble speaking or understanding other people speaking*), bronchitis or pneumonia, and convulsions. The boiled pupae were used to treat hemorrhages and to alleviate polyuria or frequent urination.

xi. *Bombyx mori* (Linnaeus, 1758): Excrements of the pupae are eaten to alleviate vomiting and diarrhea brought on by cholera, and to improve circulation.

xii. Wasp: *Polistes instabilis* Saussure, 1853, a type of paper fly known in *Spanish* as the *avispa guitarrilla* ("guitar wasp"), is roasted or boiled or eaten alive are used to cure nervous breakdowns. Although this wasp has a powerful venom, people, usually women of menopause age ate their brood. The reason for this may be the quantity of hormones immature stages of insects contain which are steroid type compounds and/or by their high nutritive value, or the quantity and quality of their proteins that help in this physiological change of woman.

xiii. Wasp: *Polybia occidentalisnigratella* Buysson, 1905 people eat the brood of this little black wasp alive directly from the hive in the case of urinary diseases.



**5.14 Other insect/ant medicines (Lokhart, 2000)**

i. “Anting” is a practice by birds to bath in an ant nest. Birds use ants to maintain their feathers. Many ants have a high concentration of formic acid which kills feather lice species.

ii. Feeding chickens with large red ants and their eggs is one of the old secrets of European poultry. The use of ant eggs was a secret of French poultry breeders. Ants are a powerful stimulant of egg production. Ant eggs cause a weight gain and the chicken lose fat. Ant eggs also seem to prevent coccidiosis and enteritis.

iii. Australian aborigines make teas of green tree ants *Oecophylla smaragdina* Fabricius, 1775 for headaches.

iv. In Russia, milk bottles were filled half volume each of ants and vodka and kept in warm place for several days after which a teaspoonful was taken morning and night for arthritis.

v. In Arabia, ten large ants pulverized and taken with wine is useful to alleviate spider bites.

vi. Love ants roasted in oven and made into powder and the powder is rubbed on a child's legs to make a child who is unable to walk to be strong, walk and run.

vii. A tablespoonful of tea made from boiling about twelve bees in about half a litre of water is administered orally to promote free urination in urinary obstruction. Bee tea is also good for coughs and hoarseness.

viii. Take bees out of the hive, pound them, and add to wine or milk and drink. It will strongly cure dropsy (edema) and dissolve stone, gravel, open all passages of urine, cure all stoppages of the bladder, cure gripping or wringing of the belly and guts.

x. Mixing bees with honey and applied on a baldhead makes hair to grow.

ix. If a sterile woman eats bees, she will get pregnant.

5.15 To cure serious intestinal problems that have defied other cures, a queen termite dug up from the termite nest, is killed and swallowed fresh. This is a protocol recommended in Yoruba medicine. Testimonies abound about this rare remedy.

## 6.0 WATER CURE

I have supervised a final year project in forestry on forest water. The aim was to find the uses of water in the sampled forested areas. Unpolluted and untreated waters (with fluorine and chlorine) from forests are very useful therapeutically. Native people use water to treat diseases but the methods are not clearly stated. Water has curative properties that are affordable and at very low costs. The uses as stated below are from the book by Ghandi (1921).

### 6.1 Cold water:

i. Fever, small pox and skin diseases: The curative value of cold water. The application of a sheet dipped in cold water on the body is beneficial, and often produces startling results in fever, smallpox, and skin-diseases. It poses no risk.

ii. Dizziness or delirium can be instantly relieved by tying round the head a cloth dipped in melted ice.

iii. Constipation

Tying round the stomach for some time a piece of cloth dipped in melted ice offers great benefit to people suffering from constipation.

iv. Involuntary seminal discharges

Tying round the stomach for some time a piece of cloth dipped in melted ice offers great benefit to people suffering from involuntary seminal discharges.

v. Bleeding

Bleeding in any part of the body may be stopped by the application of a bandage dipped in ice-cold water.

vi. Nosebleed

Bleeding from the nose is stopped by pouring cold water over the head.

vii. Heat in the abdomen

Bathing of the abdomen and the surrounding parts with thoroughly cold water helps in the cure of heat in the abdomen.

The sheets used in the process of taking this bath should not be used again without being well washed in boiling water.

## **6.2 Steam bath: Steam is a curative agent.**

i. Rheumatic pain in the joints: Quick relief is obtained by the use of steam followed by a cold bath in cases of rheumatic pain in the joints.

ii. Boils and ulcers: Boils and ulcers (not intestinal) not cured by simple dressing with ointments can be completely healed by the application of steam.

iii. Extreme fatigue: A steam bath or a hot-water bath immediately followed by a cold bath is very effective in extreme fatigue.

iv. Insomnia (sleeplessness): Instant relief is often obtained by sleeping in the open air after a steam bath followed by a cold bath.

## **6.3 Hot water**

Hot water can be used as a substitute for steam.

i. Severe stomach pain: Instant relief from severe stomach pain is obtained by placing a bottle filled with boiling water placed over a thick cloth wrapped round the waist.

**ii. Constipation**

People suffering from constipation often derive great benefit by drinking a glass of hot water either at bedtime or soon after rising and cleaning the teeth in the morning.

Observing wholesome diet and exercise are prerequisites for reaping the full benefits of water cures.

**7.0 PERIODIC TABLE AND HUMAN HEALTH AND WEALTH**

I had to study, and I am still studying the role of the elements in the Period Table on human health and wealth. I took particular interest in the periodic table elements after gathering information that the lack of certain mineral elements could negatively affect human health. These elements are often found in forest soils that have not been exposed or degraded. Developed countries trade in products manufactured from these elements as supplements and medicine. I have produced Lugol iodine and super saturated potassium iodide (SSKI) based on the knowledge about Group 17 on the Periodic Table. The financial value from these products is enormous so also the health benefits.

A few years back, there were daily reports of people attempting or committing suicide by jumping into the Lagos lagoon in Nigeria. This prompted my interest in lithium. Wallach and Lan (1999) asserted that depression and manic depression are simply a lithium deficiency, aggravated by high sugar consumption. They asserted further that animal studies showed that a deficiency of lithium results in reproductive failure, infertility, reduced growth rate, shortened life expectancy, and behavioural problems. That in humans, manic depression, depression, “bipolar” disease, rages, and road rage, Dr. Jekyll/Mr. Hyde behaviour, hyperactivity, Attention deficit disorder (ADD), Attention deficit hyperactivity disorder (ADHD), and “bad seeds” are hallmarks of lithium deficiency aggravated by a high sugar intake.

Dr. Jekyll/Mr. Hyde behavior means that a person acts a certain way one minute, only to be the complete opposite the next, a *personality* who is being super nice *and* abusive to the same person, not different people. It is a psychiatric disorder, commonly known as *split personality*. Lithium might help mental disorders by increasing the activity of chemicals in the brain (WebMD). I advise people with a tendency for any of the symptoms to take lithium orotate.

## 8.0 THE WEALTH OF FOREST RESOURCES

The wealth of forest resources is unquantifiable. The indices for the measurement of forest wealth include contributions to health, livelihood, human survival and future potentials. Peoples and nations can rise or fall depending on their rational utilization of their natural resources. For instance, climate change is a pointer to the importance of forest resources. The loss of culture and languages with the attendant demographic disruptions arising from loss of forest resources also attests to the socio economic importance of forest resources. Forest resources have social, cultural, psychological and spiritual values that are not easily to be quantified in terms of money. My relationship with some forest resources based on their uses has shown hidden enormous values.

Taylor (2005) gave the following facts about tropical rainforests.

1. A single pond in Brazil can sustain a greater variety of fish than is found in all of Europe's rivers.
2. A ten-hectare plot of rainforest in Borneo may contain more than seven hundred species of trees – a number equal to the total tree diversity of North America.
3. A single rainforest reserve in Peru is home to more species of birds than are found in the entire United States of America.
4. One single tree in Peru was found to harbour forty-three different species of ants – a total that approximates the entire number of ant species in the British Isles. The British Isles are a group of islands in the Northern Atlantic Ocean off the northwestern coast of continental

Europe, consisting of the islands of Great Britain, Ireland, the Isle of Man, the Inner and Outer Hebrides, the Northern Isles, and over six thousand smaller islands with a total area of 315,159 km<sup>2</sup>. The number of species of fish in the Amazon exceeds the number found in the entire Atlantic Ocean.

Taylor (2005) further stated that the biodiversity of the tropical rainforest is so immense that scientists have studied less than one percent of its millions of species for their active constituents and their use potentials. In addition, scientists believe that there are between ten and thirty million yet-to-be-discovered insect species living in rainforest canopy trees. The rainforest and its immense undiscovered biodiversity hold the key to unlocking tomorrow's cures for devastating diseases.

## 9.0 MY CONTRIBUTIONS

These are discussed in three tiers: responsibilities in the university, patency and products based on my research findings.

1. I was the first Coordinator of the Department of Forestry and Landscape in the University of Agriculture (UNAAB), Abeokuta; this was changed to the Department of Forestry, Fisheries and Wildlife Management. Later, Fisheries unit was carved out of the department. I remained the Acting Head of the Department of Forestry and Wildlife Management.

2. I was the first person to practice and introduce beekeeping to the University. Seeing the potential, the University sponsored me for an Israeli training programme on beekeeping at the Institute of Agricultural Training, Moor Plantation, Ibadan, in 1989.

3. I initiated the first utilization of the cashew resources at the permanent site of the University. As at that time, the University was still operating at the temporary site, Isale-Igbein, Abeokuta.

The Vice-Chancellor then, Prof. Julius A. Okojie gave me twenty-five thousand naira (N25,000.00) to enable vehicle fueling and hiring of labour to harvest wild cashew on the permanent site. The expressed juice of the fruits was sold to the University community. The project eventually became the springboard for the Cashew Factory of the University. I headed the Committee for the factory setup with Dr. (now Prof.) Lateef Sanni as one of the members.

4. I was the first elected Congregation member to the University Council and I was a member for ten years. I always shared the sitting allowance with the Academic Staff Union and the non-teaching Senior Staff Union. This I did throughout my membership of the Council.

5. In 2001, on my return from the Haggai International Institute of Leadership, I wrote to the University Management to deduct ten (10) percent of my monthly salary for one and a half years as a contribution to tree planting in the University. I got the inspiration while in the beautiful city-state of Singapore.

6. I was the Dean, Student Affairs between 2008 and 2012.

7. Some of my undergraduate students and especially the final year project students have obtained Master's degrees in pharmacognocny at the College of Medicine, University of Ibadan, Ibadan. Dr. Ibrahim Lawal who started the emigration from forestry to pharmacognocny after the Master's degree in pharmacognocny went ahead to South Africa to obtain a Ph. D degree in Plant Medicine.

8. It will be modest to state that I introduced scientific herbalism and natural therapeutics to the University and hence be called the father of Herbalism in FUNAAB.

**9.1 Patents and Products developed**

Base on my research findings, the following are patents and products that I have developed with other researchers

*9.1.1 Patents*

Elizabeth Olufunmilayo A. Oluwalana and Prof. Samuel Adeniran Oluwalana. “SHEABUTTER BALM.”

Rp: NG/P/2007/444. Date of Patent: 10/8/2007. Date of Sealing: 19/8/2008.

Elizabeth Olufunmilayo A. Oluwalana And Prof. Samuel Adeniran Oluwalana. “HERBAL SOAP (HONEY-BASED).

Rp: NG/P/2007/445. Date of Patent: 10/8/2007. Date of Sealing: 19/8/2008.

Prof. Samuel A. Oluwalana And Elizabeth Olufunmilayo A. Oluwalana “UNAAB TWIN BEEHIVE.”

Rp: NG/P/2008/446. Date of Patent: 10/8/2008. Date of Sealing: 19/8/2008.

*9.1.2 Products developed*

To address some of the health problems that people complain of, I have developed some products, and these include,

- i. Infused chew stick (Infusing eleven (11) chew sticks into one)
- ii. Nixtamalization of maize (using wood ashes or lye to cook maize)
- iii. Buttermilk, Ghee (clarified butter) and Butter from raw cow milk
- iv. Cow bone broth for medicinal and nutrition purposesv.
- Bamboo salt
- vi. Cassava tuber extract
- vii. Pyrolyzed eggshell for cancer and eyesight
- vii. Crab shell powder in wine for breast cancer
- viii. *Boerhavia diffusa* L. tea for kidney problems



- ix. Mandarin orange seeds boiled in wine for cancer treatment
- x. Fish emulsion (fermented fish fertilizer)
- xi. High performance agriculture materials (stone dust, maize stem, bamboo, plant ashes, and others)
- xii. Anti-cancer teas
- xiii. Anti-cancer salves
- xiv. Herbal tinctures
- xv. Anti-fibroid recipes
- xvi. Banana stem/root juice for tuberculosis and epilepsy)
- xvii. Banana fibre
- xviii. Ant tea
- xix. Sesame salt (the Japanese “Gomashio” made from roasted salt and roasted sesame seeds)
- xx. Garlicked honey (honey with garlic allowed to stand for more than six months)
- xxi. Garlicked coconut oil (coconut oil with garlic allowed to stand for more than six months)
- xxii. Helio-infused palm kernel oil (for prostate cancer)
- xxiii. Plant leaf oils
- xxiv. Gundruk (“Gundruk”, the Nepalese word for fermented vegetables)
- xxv. Orange grape peel and pectin powder by: S.A. Oluwalana’ E.O.A. Oluwalana, Sulaimon, S.A., Alphaeus, D., Omosekeji, R.
- xxvi. Cow urine by: S.A. Oluwalana’ E.O.A. Oluwalana, Sulaimon, S.A., Alphaeus, D., Omosekeji, R.
- xxvii. Cow dung ash by: S.A. Oluwalana’ E.O.A. Oluwalana, Sulaimon, S.A., Alphaeus, D., Omosekeji, R., Ogungbenro, R.O.
- xxviii. E-electricity (using *Kigelia africana* and yams to generate electricity). By S.A. Oluwalana and Atanda
- xxix. Liposomal Vitamin C.
- xxx. Supersaturated potassium iodide (SSKI). by: S.A. Oluwalana’ E.O.A. Oluwalana, Ogungbenro, R.O., Sulaimon, S.A., Omosekeji, R. & Alphaeus, D.
- xxxi. Lugol iodine. S.A. Oluwalana’ E.O.A. Oluwalana,

Ogungbenro, R.O., Sulaimon , S.A., Omosekeji, R. & Alphaeus, D.

xxxii. Bamboo Charcoal Tea

xxxiii. Coconut Charcoal Tea

xxxiv. Okra Powder by: S.A. Oluwalana & E.O.A. Oluwalana,

This was a value-appreciation product from okra, *Abelmoschus esculentus* (Linn.) Moench, to prevent wastage at farm gate or in the market, to enhance farm earning from the production of okra. Okra powder is especially good for stomach ulcers, normalizing blood sugar levels, thus beneficial to diabetics.

xxxv. Papaya Oil by: S.A. Oluwalana & E.O.A. Oluwalana,  
Papaya oil is a valuable component in products for skin cleansing, skin toner and moisturizing oil. It is also used in formulating for relaxing bath, pain-relieving bath, and refreshing bath.

xxxvi. Eggplant Biochar by: S.A. Oluwalana & E.O.A. Oluwalana, 2004

Eggplant bio-char, also called pyrolyzed eggplant charcoal is used in oral care and is regarded as one of the best natural toothpastes; it is also useful as anti-poison, and for stomach ailments.

xxxvii. Pyrolyzed Bamboo Charcoal by: S.A. Oluwalana, E.O.A., 2013

Pyrolyzed bamboo charcoal is a versatile, economic, and medicinal product. Bamboo charcoal is anti-bacterial, anti-fungal, absorbs odor, absorbs harmful pollutants in the air and water, regulating humidity, absorb and emit far-infrared radiation and release beneficial negative ions. Pyrolyzed bamboo charcoal contains many pores, making it excellent for adsorption, electromagnetic wave shielding, and far-infrared rays emitting.

xxxviii. Neem Leaf Tea By: S.A. Oluwalana E.O.A. Oluwalana, Sulaimon, S.A., Alphaeus, D., Omosekeji, R. & Ogungbenro, R.O., Neem Leaf Tea is the packaged dry leaves of neem tree-

*Azadirachta indica* Juss. Neem Leaf Tea is taken for stomach ulcers, gout, pneumonia, malaria and heart disease. It is also taken for hypertension, high LDL cholesterol, arrhythmia/rapid heartbeat, arthritis and rheumatism. The tea is also used to soak feet for treating various foot fungi. After infusion, the leaves can be used as a bio-pesticide mulch, and fertilizer.

xxxix. Guava Leaf Tea by: S.A. Oluwalana, E.O.A. Oluwalana, 2014

Guava Leaf Tea is made from the dry leaves of guava plant (*Psidium guajava* Linn.). Guava leaf tea is applied as gargle for mouth sores, bleeding gums, or use it as a douche for vaginal discharge and to tighten and tone vaginal wall after childbirth. Guava leaf tea is useful for exhaustion, disinfection (Vaginal douche after birth), diabetes, diarrhea, epilepsy, gout, headaches, colitis (intestinal infections), menstruation and dizziness.

xl. Mango Seed Kernel Powder by: S.A. Oluwalana, E.O.A. Oluwalana, 2007

Mango Kernel Powder is produced from the seed kernel of Mango (*Mangifera indica* Linn.). The powder is applied in brushing teeth for oral care especially against mouth gum diseases. The powder is taken thrice a day in doses of 1-2 grams with honey to cure diarrhea and dysentery. Mango seed butter is applied on hair to enhance luster and strength.

xli. Banana/Plantain Stem Core by: S.A. Oluwalana, E.O.A. Oluwalana 2014

The tender core of banana/plantain stem is edible as food. It is useful in stomach upset and diabetes. The extract of the stem is useful in dissolving stones in the kidney and urinary bladder and reducing weight.

xlii. Buttermilk Production from Fresh Cow Milk in Abeokuta, Ogun State by: S.A. Oluwalana, E.O.A. Oluwalana, Sulaimon,

S.A., Alphaeus, D., Omosekeji, R. & Ogungbenro, R. O. 2014  
Acidified buttermilk was produced from fresh cow milk purchased from Fulani cattle-rearers in the neighbourhood of the University campus. The profit margin in the conversion of fresh milk to buttermilk is more than 2000 percent! The butter produced was converted to ghee (clarified butter).

xlili. Organically Flavoured and Enhanced Chew Sticks by: S.A. Oluwalana & E.O.A. Oluwalana, 2012

Organically flavoured and enhanced chew stick was produced through infusion of the properties of other plant materials or desired spices into a chew stick in order to flavour and enhance the medicinal properties and economic value of such a chew stick.

xliv. Roasted Grain Tea by: S.A. Oluwalana & E.O.A. Oluwalana, 2013

Roasted corn tea is good for alleviating high blood pressure, kidney disease, digestion, and intestinal health. It calms nerves, soothes headache, and relieves fatigue and migraine, and eases stomach pain resulting from indigestion. Roasted rice tea is known for cleansing the colon and flushing impurities from the body. It lowers cholesterol, and because of the mineral content in rice, the tea supplies nutrients for building strong hair, teeth, nails, and bones. Roasted wheat kernel tea is particularly useful in cases of arthritis, rheumatic fever, and some forms of cancer. It is good for general cleansing (detoxification) of the body.

xlvi. Sprouts   xlv. Micro-Greens   xlvii. Pyrolyzed Melon seed shell (for eye problems), 2018

xlvi. Rev. Father Romario's Aloe Vera anti-cancer recipe, 2013

xlix. Mamaligar 2022

## 10.0 CONCLUSION AND RECOMMENDATIONS

1. The forest is a vast, boundless health and wealth territory. Wherever we look at in the forest, the land, the soil, the air, the space, the water, plants and animals, the invisible, all contain unquantifiable health and wealth potentials for man.

A revolutionary insight into forest resources is desired. The current focus and overemphasis on seeing the forest mainly for wood production diminishes the potentials of this vast asset. The forest should be seen as a necessary ally for the survival of man both in health and in wealth. Forestry professionals should be rightly accorded as keepers of what enhances the survival and future of man.

2. There is a need to overhaul the teaching of forestry at all levels. Indigenous knowledge, science and technology, biomimicry, space science and anthropology among others should be part of studies in forestry.

3. Soils are a life production machine that can enhance national economy, and the health of the people. We need not wait until we start importing soil organisms from other nations before we know that we have destroyed and forfeited our own natural resources. Soils are beyond what is trodden under foot. Foresters and soil scientists should be seen as important doctors of nature and should therefore be rightly accorded the prime place of importance.

4. Animals including insects, plants and soils are largely unappreciated for their enormous contribution to the health and wealth of man. These resources are crucial to man's survival on earth. There is a need for a complete paradigm shift about the societies' attitudes towards insects for instance. I totally align myself with the recommendations of Kawahara, et. al., (2021) to reduce harm to insects by people turning off unneeded lights, dim

necessary light sources, use motion-activated lighting, shield bulbs, and switch to bulbs that produce amber- or red-colored light, which produce wavelengths that are less attractive to insects. Insect populations will benefit from conservation efforts to protect dark night skies.

Natural waterways, because they contain a diversity of aquatic insects, including some of the most threatened animals on Earth, need protection.

I appeal to my colleagues to become educators, ambassadors and advocates for insect, plant and soil conservation through outreach to others by formal or informal teaching and discussion as powerful means for increasing awareness and appreciation of these resources. Time is running out, the extinction of the forest resources may become a burden for the survival of tomorrow's human generations. Poverty is a close ally of a destroyed environment. People are deprived of the economic and environmental services provided by forest resources when the resources are destroyed.

5. The establishment of a Centre of Indigenous Knowledge in the University is advocated. Indigenous knowledge is a gold mine crucial for the prosperity of the people and nation of Nigeria. The time has come to explore the wellspring of indigenous knowledge and experience that are relevant to the people. This, for instance, will enhance the establishment of forest archeological studies and in turn enhance forest resource utilization and conservation.

6. The educational system in Nigeria appears to constrict the mind and discourage innovation. Interactive education should be vigorously encouraged. Instead of Continuous Assessment Tests, which unfortunately have largely become Continuous Assessment Examinations, tests or homework assignments that would stimulate innovative thinking should be encouraged. We can learn from Norway, Singapore, Malaysia and India among many other nations that prize education for development. Students should be trained to provide answers to pressing societal problems. Why

should a forestry student not be conversant with the Periodic Table? Why should they not be encouraged to study the Lanthanides and the Actinides? The Periodic Table is a gateway to poverty amelioration. The Lanthanides, fifteen in number including promethium (Pm) the only radioactive member of the group, are waiting members of the “milk and honey” that can spur the wealth of the people and the nation. Indeed, from experience, understanding the Periodic Table is a source of income.

7. Insect farming is an emerging and profitable enterprise. The Federal University of Agriculture should add insect farming (including cockroaches, grasshopper, crickets, maggots and others) to her portfolio. It is time to practise butterfly farming, gaining experience from Papua New Guinea, the country in the world that provides for protection of butterflies in its constitution.

8. Establishment of a Healing Forest by the University is advocated; it is a strategy of Place marketing that will not only project the image of the University worldwide, but also provide multiple benefits for ecotourism and wealth creation.

9. The Acting Vice-Chancellor Sir, a place beckons to the University and that is Tongeji Islands in Ogun State. The University should work fast and get a foothold in that 200-hectare Island of just 1,000 persons in Ipokia Local Council Area of Ogun State.

10. Who cursed us with bad leadership? Under them, borrowing from Charles Colson (1989) in his book “Against The Night, Living in the New Dark Ages”, “... literacy, law, and order – the pillars of civilization – are crumbling”, driving the society into almost barbarism. Like the Visigoths, a Germanic tribe, who sacked Rome, our leaders have developed barbarian lapses of character. Even though long separated by time from the Visigoths, our leaders are no different except that today's barbaric Visigoths appear in modelled “Agbadas, Babarigas” and Dubai goggles, and

are religious. They speak with their ears, and hear with their mouths. They build houses with foundations at the rooftops. They have enthroned a system where the Mouse is the Chairman of the House of Cats.

In spite of this, however, the University must arise, become more characterized by discipline, creativity, and innovation. These are potent weapons for disabling bad and evil leadership. It has happened in history. It can and it will happen again.

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