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Perspective

Vicennial Summary of Traditional Nigerian Herbal Remedies for Cardiovascular, Metabolic, and Tropical Disorders (1967–1987)

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Abstract

During a vicennial period, 1967–1987, the application of Nigerian traditional herbal remedies was observed for their effects on cardiovascular, metabolic, and tropical disorders as well as applications for other conditions. Some of these remedies were noted as useful for their specific applications; however, there were no scientific studies performed to evaluate the mechanisms of these traditional treatments or if any remissions or cures were coincidental, due to faith, a placebo effect, or resolved on their own. Many of these purported "cures" and cure-alls were toxic and harmful, especially to children; the use of some potions resulted in death.

At that time, patients receiving drugs frequently used traditional herbal concoctions concurrently, which resulted in adverse reactions or reduced the efficacy of the prescribed drugs. There were many reasons for the use of traditional therapies including poverty, ignorance, and questionable drug availability and quality—combined with the ubiquitous presence and acceptance of local healers and their potions.

Nonetheless, some of these traditional remedies showed favorable results and stood the test of time. From these traditional beginning—with formal scientific scrutiny and research—some of these remedies may find a place in the treatment or prevention of cardiovascular disease, metabolic disorders, and specific tropical diseases.

Keywords: *Africa; Cancer; Cardiovascular Disease; Herbal Remedy; Nigeria; Traditional*

Introduction

In the first author's own words:

I was born in Nigeria in 1960. I became keenly aware of my environment and social interactions at the age of 7 years. I left Nigeria in 1987, three years after graduating from medical school at Ife University Teaching Hospital, Obafemi Awolowo University, Nigeria.

The principal lesson I learned during my twenty years of observation and medical studies in Nigeria was that—due to poverty, ignorance, illiteracy, religiosity, lack of adequately equipped clinics and hospitals, the plethora of untrained or quack doctors, personal preferences, distrust of western medical care, and the questionable quality of available medicines (particularly on the black market), combined

with ready access to traditional medicines—the majority of the local populations depended on faith in God and Nature to cure or alleviate numerous medical conditions, or, hopelessly, did nothing about their afflictions.

Some people had faith in the leaders of their religions. Others expressed faith in their ancestors and whatever their ancestors believed in spiritually through the rituals and sacrifices they practiced, hoping to gain "access" to their ancestors in order to annul the curses of whatever diseases or illnesses ailed them, and to appease their ancestors for any of their decendants wrongdoings that might be at the root of the sickness in their lives. Those who practiced their religious faith in God went to their religious groups to call unto God to heal them.

During my first pregnancy, a well-intentioned neighbor gave me a fetish string to tie around my waist so that I would not have complications during delivery. When I refused the fetish string from my neighbor, he became furious, and he scolded that my labor would be complicated, and without it, I might die or lose my baby.

As a young Christian fresh from an undergraduate college, I began attending church prayer meetings for pregnant women; however, I combined my healing faith in God with allopathic antenatal care at a local teaching hospital. My delivery was uneventful, albeit a bit prolonged.

My well-intentioned neighbor emphatically proposed what he believed; but, in the face of scorn and facing ostracism, I refused to accept the tribal-trusted fetish string as I did not believe in its healing or protective powers. In those days, regarding traditional medical treatments, the majority of people combined traditional herbal and natural remedies with western medical treatments.

I have had more experience with traditional Nigerian herbal remedies (in contrast to all sorts of natural remedies), so the focus herein is regarding traditional Nigerian herbs, particularly those used routinely during the period of my direct and persistent exposure to and experience with them during the vicennial period 1967–1987. There were several non-herbal traditional remedies that I witnessed to in Nigeria during those twenty years, which are briefly summarized as follows:

- Dull students or people with memory loss were given "electric fish" (called "ojiji" in the Yoruba dialect), which were purported to increase intelligence and memory.
- My grandmother put earwax on boils; frequently, the boils drained and healed.
- Girls with whitlows on their fingers (in the early, pre-open lesion stage) treated the condition by inserting the involved finger into their vagina (for the presumed benefit from vaginal secretions) about four times per day. Some whitlows healed without any need for incision and drainage of the involved finger.
- In 1973, a family friend fractured her patella in a severe motor vehicle accident. Surgery was performed. She was told that her blood vessels and nerves were permanently damaged and she would never walk again. The surgeons were planning to amputate her leg. She signed out of the hospital, against western medical advice, and sought a traditional healer's help. The traditional healer used animal horns to suck out clots from the knee joint twice a day, and he spoke to the joint. In about three months, she was walking, and able to bear weight on the affected extremity.
- After the birth of my first son, a close in-law brought concoctions to me to give to my baby orally and rub on his body as tradition prescribed. One day, some of this concoction spilled on the bedsheet and—witnessed by my own eyes—burned the sheet in small circular holes. Subsequently, I refused to administer either of these concoctions to my baby boy. When the in-law heard that I stopped using the concoctions, she yelled angrily at me: "We used the same thing to raise the father [of my son]". I asked for the ingredients of the concoction, but she did not know them. She added that the concoction was good for convulsions, even though my baby never had a single convulsive episode. After I refused to administer the mysterious concoction to my child, I was

labeled a "book woman". At that time, as a wife, a woman was expected to respect and obey the rules of the husband's family. I irrefutably refused to administer or apply the concoction, and realized that numerous babies could develop gastric ulcers or liver problems—or even be killed—by giving them this seemingly acidic and toxic solution.

The above anecdotes regarding natural remedies are just a few of the many experiences I had personally or directly observed involving family members, neighbors, and patients. However, as mentioned previously, I have more experience with traditional Nigerian herbal remedies, particularly those herbal remedies popular during 1967–1987. I grew up using some of these remedies (which will be described in the next section) and still use some of them today with undeniable results. The following is a recap of those traditional herbal remedies.

Discussion

Herbal remedies are generally derived from leaves, flowers, fruits, stems, roots, bark, tubers of plants—consumed raw or prepared as extracts (by boiling with water) to drink, bathe, or apply to lesions. Different types of herbs are taken by a person or as a family or group to maintain well-being, prevent sickness, reduce symptoms, and sometimes cure. During the timeframe of this study, observation, and use, there was little or no proof of the efficacy of these herbs or their derivatives; few people knew of the contents or ingredients. Drug hawkers, positioned most conspicuously at train stations, advertised and sold herbal concoctions, calling them "gbogbo nise" (meaning "cures it all"): headache, stomach ache, piles, rashes, and more. Many innocent, unlearned, and desperate people bought these "cure-alls" even though they were unaware of the ingredients. Also, frequently, people did not tell their medical doctors about the herbs or concoctions they were taking along with their prescribed medications, which was a common but dangerous practice.

During the period of 1967–1987 (and even continuing today), many educated people of Nigeria combined western allopathic prescription medicines with traditional herbal treatments. Some traditional herbal remedies (or combinations thereof) lead to toxicity, overdose, or inadequate therapeutic doses in the blood due to lack of knowledge of the ingredients of the herbal medicines, dosages and timing, contradictions, and adverse interactions with prescribed drugs.

At that time, there were numerous herbal medications; however, this retrospective summary displays and describes the most popular and memorable herbal remedies of that period.

Hibiscus (flower and leaves)

Hibiscus tea was (and still is) a practical, Nigerian herbal remedy, which was known for its beneficial effects on the cardiovascular system by lowering blood pressure and cholesterol, but could lead to hypotensive emergencies if used with anti-hypertensive medications like Lasix, losartan, amlodipine, hydrochlorothiazide, or Aldomet. Hibiscus tea was given to pregnant women to prevent preterm labor but could be contraindicated due to its hypotensive effect on a pregnant woman who may already be hypotensive due to pregnancy.

Shrub althea boasts a beautiful flower (Figure 1). The shrub was planted in front of most local houses, in landscaping, and parks. An extract of the leaves and flowers was sometimes mixed with an alcoholic beverage—the resultant concoction nicknamed "guinness stout". It was known to stop abnormal uterine contractions and spontaneous abortions. The tea made from the hibiscus flower was used to reduce high blood pressure and cholesterol levels. The extract from the flowers was also used to treat hair loss and hair greying, and depressed mood.

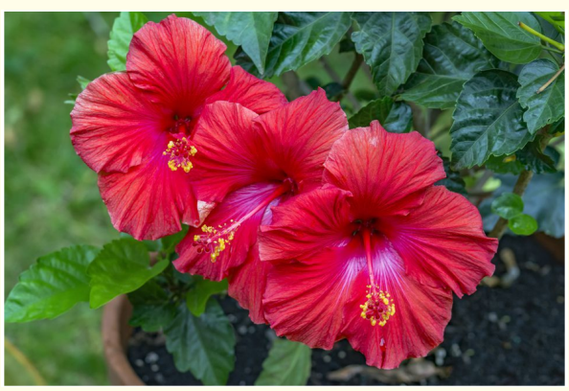

Figure 1: *The flower of the hibiscus shrub. Note: image in the public domain.*

"Green"

"Green" is a translucent, turquoise green colored herbal extract that parents had their children drink every Saturday as the children were typically not in school on Saturday. The concoction was simply called green, but no one except the producers knew the actual ingredients (Figure 2). Visible at the bottom of a bottle of green were cut alligator pepper, garlic, and ginger. Before drinking green, the child was covered under a thick blanket for about 15 minutes while breathing in the steam or vapor from eucalyptus leaves placed in hot or boiled water. After 15 minutes of inhaling eucalyptus vapor, the child was given two tablespoons of green to drink—purportedly to cleanse and detoxify the lungs. About 15–30 minutes after ingesting green, the child vomited and coughed up thick mucus secretions. Purification was supposedly complete.

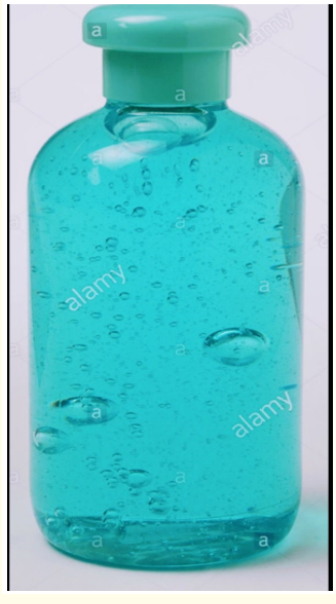

Figure 2: *"Green", the mystery concoction that "purified" children through emesis. Note: image by Emmanuella Solomon (2020).*

Dongoyaro

Dongoyaro (known as neem tree) carries the botanical name *Azadirachta indica* (Figure 3). The yellow extract from boiling the leaves and or bark of the tree with water was collected for drinking and bathing. It was used for the treatment of malaria fever, sometimes with prescribed western antimalarial, chloroquine tablets. Bathing with the extract was believed to treat chickenpox, acne, and fungal skin conditions, like ringworm. Some who drank it reporting passing intestinal worms. Many people drank it regularly, believing they were "cleaning their blood". However, many children were brought to the emergency department in stuporous or drowsy states from dongoyaro overdose or toxicity. These paediatric patients were treated with intravenous fluids and sodium bicarbonate, stabilized, their airways cleared, healthy circulation restored, and further treated for concomitant convulsions and other adverse effects brought on by the herbal overdose.

Unripe pawpaw peel

As far back as 1984, pawpaw peel (derived from the Carica papaya) was used to reduce the incidence of sickle cell crises by decreasing the sickling of red blood cells (Figure 4). Also, papaya leaves were cooked, and the extract consumed to treat malarial fever, dengue fever, and jaundice.

Figure 3: *Dongoyaro (neem tree). Note: image in the public domain.*

Figure 4: *Carica papaya, the source of pawpaw peel. Note: image in the public domain.*

Dried pawpaw leaves were made into a tea and consumed for the tea's supposed anti-sickling effects. Also, the tea was believed to contain ingredients that cured cancer. The tea was considered to reduce the risk of obesity and related diseases by reducing fat absorption. Some people inhaled the smoke of burning papaya leaves to treat asthma and obstructive airway diseases. Most enjoyed merely eating the fruit, which is known to be rich in vitamin C and used to boost the immune system.

Bitter leaf

Bitter leaf (Vernonia amygdalina) was grown in most African or Nigerian backyards (Figure 5). The stem of bitter leaf was used as chewing sticks, which produced soapy-looking saliva as people chewed on it. It was purported to "cleanse and disinfect the mouth". The leaves could be cooked with other vegetables or soaked to create herbal extracts. Bitter leaf was used for stomach discomfort and constipation. Some people used it as a treatment for diabetes. Also, it was believed to prevent pneumonia and fight prostate cancer.

Figure 5: *Bitter leaf: a common backyard plant used for oral cleansing. Note: image in the public domain.*

Bitter kola

Bitter kola, known as Garcinia afzeli, is a nut that was chewed like snacks even though it was bitter-tasting (Figure 6). It was known for improving lung function in respiratory illnesses, like asthma and bronchitis. Also, traditional religious leaders used the nuts in rituals, relying on bitter kola's mysterious spiritual properties. Bowls of bitter kola nuts were placed at road intersections as sacrifices. The nut was chewed socially and present in traditional marriages and naming ceremonies. It was used for many purposes. Some men chewed it a few minutes before intercourse, saying that it improved sexual performance; it was used for treating male infertility. Older adults chewed bitter kola to reduce osteoarthritis. It can still be purchased at African stores today and is anecdotally reported to reduce emergency department visits for acute bronchospasm caused by asthma and bronchitis.

Figure 6: *A pile of bitter kola nuts used for auspicious occasions and a variety of health conditions (such as asthma, bronchospasm, and male infertility) and as a male aphrodisiac. Note: image in the public domain.*

Wild yam

Wild yam (Dioscorea villosa), is a tuber that was grown on many local African farms (Figure 7). It grew well in a village called Igbo Ora, Osun state, Nigeria, where a higher rate of multiple pregnancies has been reported. The incidence of twins has been estimated to be more than five times the average throughout the country. To treat infertility in women, a woman would eat wild yam during the first half of her menstrual cycle until ovulation. After ovulation, she stopped eating it. It was believed that this wild yam could increase estrogen levels, which caused the release of multiple oocytes or ova.

Figure 7: *Wild yam, a purported fertility tuber. Note: image in the public domain.*

Winter cherry (ashwagandha) and horsetail

Sometimes, wild yam was combined with "koropo", known as "winter cherry" (Figure 8) and "horsetail" (Figure 9), which were ingested by girls and women for breast enlargement or enhancement.

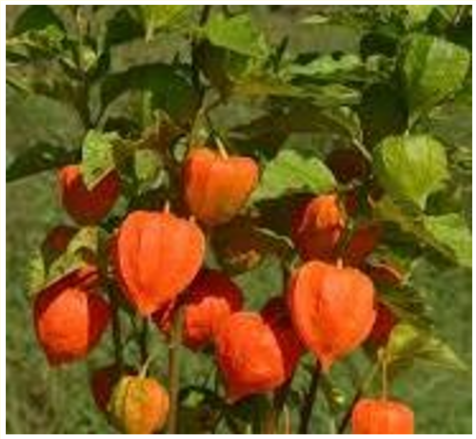

Figure 8: *Winter cherry. When combined with wild yam, winter cherry and horsetail were consumed for breast enlargement. Note: image in the public domain.*

Figure 9: *Horsetail. When combined with wild yam, winter cherry and horsetail were consumed for breast enlargement. Note: image in the public domain.*

Mint leaf (scant leaf)

The mint leaf, called "efirin" in the Yoruba language and "nwachu" in the Ibo language, carries the botanical name Ocimum gratissimum. The mint leaf was used for nutritional and diverse medicinal purposes. Local healers prescribed it for malaria, diarrhea, urinary tract infections, cholera, dysentery, and vomiting. The herbal extract, from cooking the mint leaves, was used for bathing in cases of ringworm. Due to its assumed anti-infective properties, it was used for the healing of the umbilical cords of newborn babies. Nutritionally, it was used as a spice to flavor or season foods. In Ibadan and Ondo, Nigeria, efirin was planted around houses and schools. It was believed that the strong odor the mint leaves drove away snakes.

Figure 10: *Mint leaves, used to discourage snakes, make food more flavorful, and treat various tropical diseases. Note: image in the public domain.*

Soursop

Soursop (Graviola), is termed "sawa sawa" in Nigeria (Figure 11–12). Sawa-sawa seeds, fruit, and leaf extract were used to treat cancer, particularly in those who could not afford chemotherapy, radiation treatment, or other typical western cancer treatments. It was also used as an antibacterial and anti-inflammatory in specific infective states. (The fruit is creamy in texture and tastes like pineapple or strawberries. It is nutritious and contains a high amount of fiber and vitamin C while being low in calories.) Some people have used the extract of the leaves to maintain low blood sugar in diabetes. However, the seeds have been reported to be neurotoxic.

Figure 11: *Soursop (sawa-sawa) fruit and seeds used to treat cancer.. Note: image in the public domain.*

Figure 12: *Sawa-sawa fruit attached to the soursop tree. Note: image in the public domain.*

In contemporary times, soursop has become a popular commercial drink, which can be purchased at African stores and other marketplaces (Figure 13).

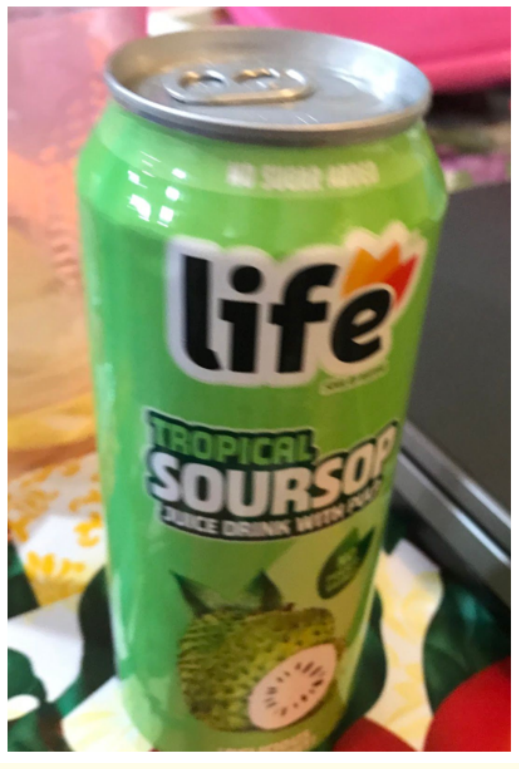

Figure 13: *A can of Soursop drink with available at specialty stores. Note: image by Emmanuella Solomon (2020).*

African walnut

African walnut (Tetracarpidium conophorum), called "awusa" in the Yoruba language, was (and still is) a favorite snack of children (Figure 14). It was eaten raw or cooked. When the black nut is cracked, it appears white on the inside.

Figure 14: *African walnut, eaten raw or cooked as a snack or medicinally applied in the event of insect bites or scorpion stings; noted for beneficial cardiovascular effects. Note: image in the public domain.*

The nuts, leaves, and bark were believed to act as an antidote for poisons, insect bites, and scorpion stings. It was also considered useful for treating specific types of toxic metal poisoning. Some of its other considered uses and applications included the following:

- Believed to minimize the risk of heart attack and coronary artery disease by reducing the damage done to arteries by fatty food, due to its high content of phytosterols, omega-3 fatty acids, antioxidants, and L-Arginine.
- Considered as an excellent source of essential minerals, vitamins, and phytonutrients for the healthy functioning of the body.
- Believed to help with weight loss.
- Believed effective in treating male infertility by boosting sperm production due to a high amount of fatty acids contained in the nuts.
- The leaf extracts were thought to regulate menstrual flow in women with irregular menstruation.

Abortion inducer

In the past, concoctions were ingested widely by young girls to induce abortion. While many of these girls used a concoction of unknown ingredients made from plants, some girls used dry gin mixed with lime juice and sachets of pain medication (called "alabukun" powder), which contained acetylsalicylic acid and caffeine to end an unwanted pregnancy. Unfortunately, the majority of these girls ended up with incomplete abortions, pelvic inflammatory disease, and death in some instances.

Cow urine

Although not an herb, cow urine was the main ingredient in a potion given to children as a traditional way of treating convulsive seizures. It was mixed with specific plant extracts known to have neurogenic effects. It was called "agbo giri". After its consumption, many children were taken to the emergency department in stupor, bradycardia, hypotension, and respiratory distress; some died from the toxicity while others were resuscitated. The severe adverse effects seemed due to dehydration from the hypertonicity of the cow urine. Adults mixed cow urine with tobacco leaves and kola nut, both containing nicotine, in an effort to treat cancer, tuberculosis, diabetes, and other conditions.

Conclusion

During the vicennial period 1967–1987, Nigerian traditional herbal remedies were observed and noted as being typically derived from leaves, flowers, fruits, stems, roots, bark, and tubers of plants. These herbals remedies were consumed raw or prepared as extracts. They were ingested orally, applied to lesions, or added to bathwater. Some of these remedies were observed to be useful for their specific applications, although no studies were performed to determine the mechanisms of these treatments or if the remissions or cures were simply coincidental, spontaneous, or serendipitous. However, many of these purported "cures" and cure-alls were toxic and harmful, especially to children (who were compelled to consume and endure them); the use of some potions resulted in death.

It was not uncommon for patients receiving prescribed allopathic medicine to concurrently use specific herbal concoctions, which resulted in adverse reactions or attenuating the efficacy of the prescribed drugs. At that time (and continuing today), the reasons for the belief in and use of traditional therapies were many: poverty, ignorance, illiteracy, religiosity, lack of adequately equipped clinics and hospitals, the surfeit of untrained or quack doctors, personal preferences, distrust of western medical care, the questionable quality of available medicines (particularly on the black market), and the widely-available traditional remedies and "gbogbo nise" cure-all.

Nonetheless, certain herbs, herbal solutions, and traditional treatments have exhibited some favorable results, and some are still being used today with success on specific conditions and are sold at African stores and marketed worldwide. Out of primitive beginnings, some

of these remedies may find a place in modern applications in cardiovascular, metabolic, and specific tropical disorders. Indications and contraindications need to be determined as well as dosage and timing. Ascertaining any interactions with prescribed pharmaceuticals is fundamental [1–6].

Conflict of Interest Statement

The authors declare that this paper was written in the absence of any commercial or financial relationship that could be construed as a potential conflict of interest.

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