International Journal of Humanities and Social Science Research
www.socialsciencejournal.in
ISSN: 2455-2070
Received: 27-04-2021, Accepted: 13-05-2021, Published: 01-06-2021
Volume 7, Issue 3, 2021, Page No. 56-67

Globalization, Covid-19 pandemic and the politics of indigenous health development in Nigeria: *An assessment of Bitter Kola, Garlic, Ginger, Lime and Turmeric* as plants with Anticovid-19 properties in the Niger Delta Region

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Abstract
This research x-rays Globalization, Covid - 19 Pandemic and the Politics of Indigenous Health Development in Nigeria with emphasis on how Bitter Kola, Garlic, Ginger, Lime and Turmeric can be deployed as plants with Anticovid-19 properties to emasculate the spread of the disease in the Niger Delta Region**.** To do this, the research adopts the Health Belief Theory developed in the 1950s by (Hochbaum 1958; Rosenstock 1966) [14- 35]. The theory assumes that belief has a psychological causal link between information, patronage and behaviour of consumers toward the consumption and administration of conventional or alternative indigenous medicine, it relates to the research in that it reveals the implication of negative propaganda of international pharmaceutical companies and the world health organisation regarding the use of indigenous medicine as alternative medication against the Covid19 virus. The study adopts descriptive design and generated data through secondary and primary sources like textbooks, published journal articles and specimen experiment and observation. A combined qualitative and quantitative methods of data analysis via content, computational and transcriptional approaches reveals that indigenous health development is constrained by globalization matrix and the Nigeria medical institutions controlled behind the scene by multinational pharma companies and further argue that traditional roots, herbs,, barks and leafs if combined as prescribed can deter covid19.The study concludes that unless government protect and improve indigenous health sector through policy focus and public private partnership, the development of preventive or curative medicine for the covid19 pandemic will remained elusive. It recommends a more academic research into the potency of Bitter kola (Garcinia kola) Garlic (Allium sativum), Ginger (Zingiber officinale), lime (Citrus limonum), and Turmeric (Curcuma longa) as potential indigenous herbal products for the production of a curative medicine against the disease.

Keywords: *Globalization, Covid-19, indigenous-health-development, Bitter Kola, Garlic, Ginger, Lime and Turmeric*

Introduction

Presently zoonosis and globalization matrix is imbued with integrating themes of human socialization. In the economics of means, this integration is replete with production and trade advantage to developed economies of Europe, North America and Asia. This advantage as occasioned by asymmetries in the production of raw materials and consumption of finished goods with the developing economies is not without some sociobiological malwares. In the context of virulent diseases, from the Bubonic plaque caused by Yersinia Pestis transmitted from China to Europe through trade routes. the small pox endemic of the red Indians brought by the British soldiers and diplomats, influenza pandemic of 1918 following the movement of armies in the first world war that led to over 50 million deaths worldwide, Asian flu of 1957 (influenza A H2N2) that was reported in 20 countries and primarily spread via land and sea travel (WHO, 2020) [39] to The Hong Kong flu pandemic (influenza A H3N2) reportedly spread through extensive air travel, the dialectics have always been exclusive to Europe and Asia. However, the breaking down of trade barriers, trade liberalization, migration, immigration and asylum seeking due to political and economic persecution have eventuated a plethora of interactions between Europe and indigenous people of Africa. In all the global virulent attacks in history, Africa has always been relatively spared. This contemporary and massive interactions between Europe and indigenous African people shaped by globalization matrix has open African indigenous health development to avalanche of constraints. These constraints include the tempering on indigenous health development through several campaigns from the media and orthodox health sectors both local and international against the efficacy, safety and falsifiability of traditional medical products. Although development in the indigenous health sector is circumspective to emerging new diseases that has somehow been resistant to orthodox medical treatment, conventional medical therapies have been deployed by scientists in total disregard to a possible cure from scientific evaluation of native herbal concoction. In the Niger Delta region of Nigeria, indigenous health development is burdened not only by the political economy of Pharmaceutical companies in the developed economies, it is equally saddled with lack of innovation, policy support and poor patronage.

These factors in addition to lack of research centres, government interest in the sector and poor infrastructure, forms the basis to which indigenous health development has gain little traction despite its potency in the face of the pandemic.

In response to the spread of recent COVID-19 virus, many countries in addition to closing their borders to most international travellers went into a reassessment of all medical arsenals including indigenous medicine. Some countries in the face of helplessness, commissioned several innovations ranging from herbalism, like in the case of Madagascar, to heat transfer like in the case of Uganda. About the unavailability of conventional medication against the virus in the Niger Delta region Nigeria, Ikeagwulonu, Etukudoh, Ejinaka, Ibanga, Obeta, Uro-Chukwu and Odeh (2020) [17] says that indigenous health practitioners resorted to extensive researches and some made use of bitter kola believing the virus to be reactive to the several antiviral content of the nuts. Anti-bactericidal properties in conventional medicine like Zithromax (class; Macrolide antibiotic; common name; Zithromax is a semi synthetic Macrolide used for the treatment of bronchial diseases comes from its ingredients which includes dehydrate, dibasic calcium phosphate anhydrous, pregelatinized Starch Sodium Croscarmellose and Magnesium are known to be present in local herbs, roots and nuts like Dogoyaro, bitter kola, kola nut, ginger, garlic and pawpaw leaves.

Etukudoh, Ejinaka, Olowu, Obeta, Adebowale, Udoudoh. (2020) says that Bitter kola and other native herbs and nuts whether as alcoholic or aqueous extracts have antimicrobial properties against many multidrug-resistant bacteria (gram-positive and gram-negative) in diseases like cough, and sexually transmitted diseases [STDs]. The neglect to the indigenous health sector has resulted in weak response to the covid19 leading to a geometrical rise in case load. Since the tracking of the caseload oscillates in consonance with new medical information, and recent availability of herbal concoction it would be safer to contend that in Nigeria, the COVID-19 pandemic is currently recording a sinusoidal pattern in the number of infections on a daily basis because many Nigerian researchers had advocated stepping up of medical laboratory testing and a reversion to the use of indigenous herbal products. The increased prevalence of COVID-19 in Nigeria is noted because of increased testing with implements believed to be not too reliable. Already, the seeming increase in community transmission of the virus are attributed to factors ranging from poor testing implements, deployment of unprofessional and poorly trained medical personnel, invented fictitious caseload by government agencies to secure funds from the federal government and international donors and the zoonotic nature of the virus. For Fang and Lanying (2019) [10] the nature of the virus could be studied by individual nations and the adoption of native medicine in the face of the problem to mitigate death rate will be a welcome motivation. Upon the above, the present assessment considers globalization as a determinant factor in the spread of the recent pandemic disease and its implication on the politics of indigenous health development especially in the production of preventive and curative herbal medicine for the disease in the Niger Delta region of Nigeria.

Statement of the Problem

A systematic interrogation of the emergence and spread of virulent diseases in the history of the world, without doubt, will indicate a somewhat similar theme, both in the nature of their manifestation and the politics of their management and cure. Of inevitable importance here, is the advent of Coronavirus(COVID-19) that has mesmerized the international system without the anthropological history of how weak the global health system is in mind, leading to over 125,000,000 victims, 71,000,000 recovered cases and 2,75,000,000 deaths as at 25th march, 2021 amidst the search of a cure and total prevention**.** The emergence of Covid-19 in Wuhan, China has caused complex health challenges in several dimensions including paralysis and asphyxiation of victims leading to loss of lives. This is encouraged by an increase of people on the move. Relatively spared by a battery of virulent diseases in the past through mobility, migratory constraints and the reliance on indigenous health skills in concoction of native pharmacology and herbalism, Africa in general and Nigeria in particular currently seem to have been overwhelmed by advent of the zoonotic corona virus of Covid-19.

The recent spread of Covid-19 in Nigeria is a price paid for her asymmetrical integration into the global platform as shaped by a plethora of interests in international medicine and the failure of the Nigerian government to develop with policy focus the native medical sector. In Nigeria, as at 25th march 2021, there have been 161,737 cases of which 147,899 was discharged cases and 2,030 deaths with a total sampled tested of 1,744,106 NCDC (2021). The increase of about 110,000 shows that even as the use of conventional medicine and other measures like social distancing and facemasks, the caseload maintained a geometric increase bringing into question the reliability of testing equipment and conventional medication. Perplexed by the increase in caseloads, health analysts and researchers encouraged the Federal Ministry of Health [FMoH] to look inward towards the direction of indigenous health practice. In the Niger delta region, the use of herbs and concoctions in the management of various ailments is not ahistorical. Prior to colonialization, every ethnic nationality practiced some form of herbalism, native orthopaedic bone setting, and gynaecology (traditional birth attendance) that gave attention and cognizant to emergency and none emergency medical challenges, and COVID-19 cannot be an exemption. The rapid rise in the index of victims in 2020 as announced by Federal Ministry of Health [FMoH] left many herbal medical practitioners no other option than to go back to their various products that could be used to contained the pandemic. Ezekwesili-Ofili and Okaka (2019) [9] contended that the first line of herbs used by indigenous health practitioners in fighting the covid19 in 2019 are edible and nutritious vegetables. They said because these herb have been in use in many traditional Nigerian societies long before colonialization, their safe consumption and reliability have been established without rigorous scientific method. And that since the herbs are consumed without toxic effects and some have been scientifically approved in the past by medical institutions in that regards, they could be readily approved by todays scientific world. This is where Bitter kola, Garlic, Ginger, lime, and Turmeric belonging to native herbal ingredients can be evaluated for their anti-Covid19 properties. The efforts directed at replacing conventional medicine with traditional herbal medicine in panicking periods of the pandemic is a consequence of the claims of Ezekwesili-Ofili and Okaka (ibid) that conventional medicine utilizes active compounds mostly isolated from some medicinal plants to the extent that about 80% of the active ingredients indicate a positive correlation between their modern therapeutic uses and herbal or traditional use depending on the soil formation where the plants are found.

Several scholars have therefore attempted to established a relationship between increasing caseload of Covid19 victims and indigenous health development in Nigeria, scholars like Ikeagwulonu, Etukudoh, Ejinaka, Ibanga, Obeta, Uro-Chukwu and Odeh (2020) [17] leaned on the exploits of pharmacologic actions of traditional herbal medicine in handling respiratory diseases in the past, they aver that because of the past efficacy in this wise. traditional herbal concoction, if well-developed can be active against other viruses and possibly against COVID-19. Etim, Etukudoh, Olumide, Uchejeso, Lucy and Bwotle (2020) [6] focused on Hypoglycemic and Hypolipidemic effect of Bitter Kola (Garcinia kola) seed extract on Alloxan-Induced Diabetic Albino Rats as a programme that could underscore innovation in traditional medicine. They said that COVID-19 pandemic is a global threat without any confirmed treatment regimen that has pulled the global community into a trail to get preventive and treatment measures. These measures, they suggest could be discovered in each country's evaluations of alternative medical products. Ohanube, Obeta ,Ikeagwulonu and Jwanse, (2020) [30] study of vitamin C enriched plants and ascorbic acid points to curative potentiality to Covid19 if traditional medicine in Eastern Nigeria is given proper attention. Shaath and Alajez (2020) using computational and transcriptome analysis for a preferential induction of chemotaxis and lipid synthesis by SARS-COV -2 draws virologists' attention to a continuous and rapid emergence of new viral strains, while Omer (2020) tries to theorize traditional African indigenous medicine in the context of Saudi herbalism against COVID19. However, their attention was on how the pandemic burden has increased the effort of traditional/herbal medicine practitioners across the globe generally and Nigeria in particular towards arriving at a cure for the novel Coronavirus**.**

In other to best understand the views of the current assessment, an autopsy of the thrust of some of these researches in biomedical; the *Politics* of *Medicine*, *Putative Prophylactic solution for Covid-19*, and *the Sociological Impact of Native herbalism on covid19* etc adopted different approaches to conceptualized myriads of framework ranging from the *Malthusian population theory*, *Political Economy*, the *Feedback Theory*, The *Molecular Modelling Approach*, the *Psychological Behavioural Approach*, *Epidemic Modelling*, *Wavelet theory* and the *Shadow Warfare* theory and perspectives.. Several of these studies have focused on different aspects of virus spread, containment, development of herbal medicine, herbs, roots and bark extracts as possible incentive to a holistic cure to the virus, but none had focus on the influence of globalization to the spread of the infectious virus and the implications on the politics of the indigenous health development regarding the use of anticovid-19 properties in Bitter kola, Garlic,Ginger, lime, and Turmeric in the Niger Delta region of Nigeria this is the preoccupation of this research.

Theoretical framework.

This study adopts the Health Belief Model developed in the 1950s by Hochbaum (1958) [14] and Rosenstock (1966) [35] to enhance the effectiveness of health education programmes. Demographic characteristics such as socio-economic status, gender, ethnicity, and age were known to be associated with preventive health-related behaviour patterns (i.e. patterns of behaviour predictive of differences in morbidity and mortality) as well as differential in the use of health services. Other proponents of the model include of Lewin (1951), Rosenstock (1974) [36]. King (1982) [21], Kelley (1967) [20], Fishbein and Ajzen (1975) [11]. The theory assumes that beliefs provide a crucial link between socialization and behaviour. That since beliefs are enduring individual characteristics that shapes behaviour and can be acquired through primary socialization, it can also be modified to help differentiate between individuals externally induced preference to a particular type of medical patronage and used even from the same background. As a persuasive technique, the theory assesses how information or misinformation can be used to change behaviour-related beliefs in a way that such interventions could result in behaviour change towards drug consumption and recovery from sickness. Such change provides a theoretical and practical basis for evidence-based health education. In the context of globalization and the Covid-19 pandemic, repeated media propaganda on the unsafe use of indigenous health products in fighting diseases even before the advent of Covid-19 has influenced negatively the patronage of traditional health product, the prestige of the practitioners, the consumption index and innovation in the sector

The relationship between health beliefs and behaviours of drugs users in the dialectics of virulent diseases maybe conceptualized primarily in terms of Lewin's (1951) idea of 'valence'. The explication of Lewin's conceptualization of the health belief model is that particular beliefs formed for a product especially as proposed by international experts about the product are thought to influence behavioural trajectories that could change consumption behaviour and make the product more or less attractive. As a consequence, the likelihood of a health problem in a developing economy being given native medical attention becomes a prerogative of the information at the disposal of the victim, the severity of the consequences of that problem, and the perceived benefits of a preventive behaviour, in combination with its potential costs. These factors can be seen as key beliefs that shaped health-related behaviour towards the covid19 in the indigenous health sector in the Niger delta region of Nigeria.

The theory relates to the research in that it establishes a link between international institutions like the World Health Organization [WHO] as agent of globalization in the international health arena and the influence exerted on the Nigerian ministry of health via the acceptance or rejection of procedures and practices of the Centre for Disease Control [CDC]. This consumption conundrum associated with health-related behaviour patterns could change through propagandistic and advertorial interventions, and thus shift product patronage and consumption patterns at local and international levels. A negative shift in patronage and consumption affect revenue and stunts innovation and research.

Globalization and Covid-19

Globalization has emerged as a means to ensure economic and cultural interaction, integration and growth of advantaged individuals, groups and organisations in advantaged economies. These advantaged economies have enjoyed closer integration of the world economy as facilitated by the rise in urbanization and global interconnectedness. Yet, trade and travel as essential components of globalization, are significant contributors to

the spread of infectious diseases. Historically, pandemics and the history of human movement and interaction have been observed to be inseparable. Technically, globalization has amplified global disease transmission and resulted in significant socioeconomic and health implications. The close integration of people and culture in modern times has therefore, emerged as an essential mechanism of disease transmission.

This was exemplified at the end of 2019 when (SARS-CoV-2) was first observed in Wuhan, China. COVID-19, the disease caused by SARS-CoV 2, presents itself with a spectrum of symptoms ranging from severe, to asymptomatic. On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic and as of 28 May 2020, over 5.5 million confirmed cases of COVID-19 and 0.35 million deaths have been reported worldwide. This death threat by COVID-19 triggered the implemented lockdown measures that influenced uncertainty regarding economic growth and health practices especially to indigenous people in the developing economies. The impact that COVID-19 has exerted on health systems of the world varies. For instance, Low- and middle-income countries with less developed health systems are confronted by more significant challenges and remained vulnerable in controlling COVID-19 compared to high-income countries. Low to middle income countries experienced higher vulnerability due to poor health infrastructures exacerbated during lockdowns and travel restrictions. Peters, Vetter, Guitart, Lotfinejad and Pittet, (2020) [32] intimated that about 62% of global employment constituting informal economy that is characterized by lack of social security, benefits, healthcare access, income security and the possibility of working in remote areas represented the most vulnerable group. The consequences of the pandemic in the health sector therefore can easily be defined in terms of mortality/ sick/victim index and the impacts on health development, livelihood and economy. With globalization accelerating victim index and influencing negatively sources of livelihood, the shift in policy and budget focus of weak economies like Nigeria in early months of the pandemic shaped infrastructural development and further burdens a neglected health sector the more. Generally, pandemics affect the health of a society in terms of mortality index and sick/victim ratio that impedes the availability of able bodied men and women in the production sector of the economy.

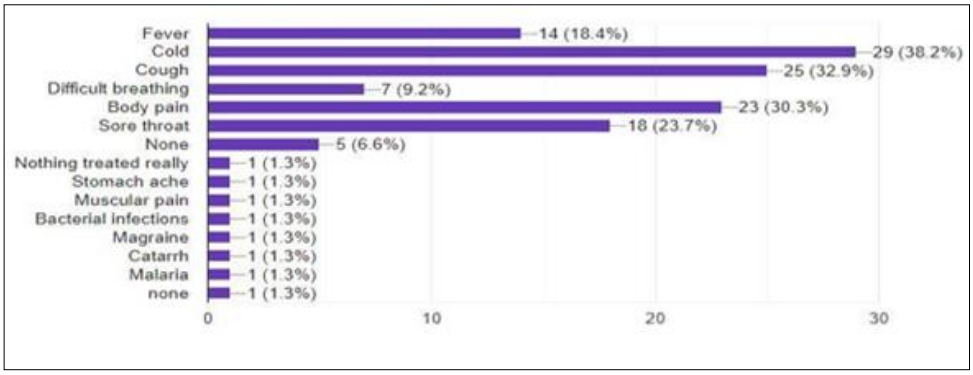
First, case load tends to cause panic and reduce per capital income of individuals. The panic seems also to drive indigenous health section into production haste, the hurries is anchored on hitherto neglects occasioned by propagandistic dissuasion regarding products' efficacy and potency by both local and international agencies in the health sector. Again, local consumers of indigenous health products and would be investors tend to lose confidence in production and sales thereby depreciating production and revenue. Secondly, a reduction in the workforce negates the supply in trade, travel, and public health. Another significant impact of globalization on the pandemic is the rate and speed of spread through interaction of carriers to healthy victims. Covid - 19 gained traction because of the ease with which people move and interact especially international people on the move. The pandemic also impacted the food and agriculture industry leading to shortages in face masks, sanitizers, paper products and food insecurity (Mackay and Arden, 2020) [25].

Globalization, Covid-19 and the Politics of Indigenous Health Development in Nigeria.

The Nigerian health sector is confronted with several factors ranging from low budgeting, misappropriation of funds earmarked for the sector and remonstrations between health unions and government. The academic curriculum of medical students is structured in a way that dissuade critical thinking. Medical colleges at best produces practitioners good at theorizing and remembering when to take temperatures, prescribe or dispense medicine. This is evidenced by zero presence of government drug manufacturing company in Nigeria. The lack of standard laboratories, research centres and zilch synergy between medicine and pharmacy has created a chasm that gives fecundity to the influence of multinational pharma and intergovernmental medical bodies like WHO to interfere at will in the medical affairs of developing countries. During the early periods of the pandemic, several people with claims to the efficacy of ingenious herbal concoction were sampled by the Institute of African and Diaspora Studies, University of Lagos. 8 states with the Federal Capital Territory responded to the survey with Lagos having 30% of the respondents; all respondents claimed the efficacy in the administration of a combination of herbs and roosts developed by native /herbal alternative methods to prevent and treat symptoms of COVID-19 with 100% recovery.

COVID-19 Symptoms: Survey on Alternative Treatment Commonly used by Nigerians.

76 Symptoms Treated



Source:https://iads.unilag.edu.ng/index.php/2020/04/14/covid-19-symptoms-survey-on-alternative-treatment-commonly-used-by-nigerians

Fig 1

According to the survey, the most used therapies in recurrent combination of indigenous respondents are:

a. Oral aqueous daily intake of boiled combination of lemon, ginger and garlic
b. Vitamin C and fruits
c. Oral aqueous daily intake of Detox Tea Mix.
d. Oral aqueous daily intake of boiled orange peels, garlic, ginger & onions.
e. Oral aqueous daily intake of boiled Garlic, lemon, ginger, green tea, moringa
f. Oral aqueous daily intake of boiled Orange peel, ginger, onions, garlic, lemon
g. Oral aqueous daily intake of boiled of Turmeric, garlic, onions, ginger, orange, lemon rind, Neem
h. Oral aqueous daily intake of boiled Neem leaves, lemon, ginger and garlic
i. Oral aqueous daily intake of boiled Lemon grass, aloe vera, ginger

(l) Oral aqueous daily intake of boiled Lemon grass, Maringa seed, scent leaf, ginseng and soda water

The finding indicates that some herbal remedies and traditional therapeutic regiments are efficacious and affordable. But the politics in the health sector makes the Ministry of Health refuse to accept test results of alternative medical medications that National Agency for Food and Drug Administration and Control (NAFDAC) has approved and are already in use. Example; *Ogbonge herbal cleanser*, *DR. Igodo herbal cleanser*, *Ecofyn9 herbal cleanser* to mention but a few. The administrative lacuna occasioned by the politics in the sector further intentionally masked the fact that other government agencies like Standard Organisation of Nigeria (SON) had approved and registered dozens of traditional remedies. The rejection of Iwu's plants-based cure' for COVID-19 by the Nigerian Ministry of Science is a case at hand. This further increase Public health challenges in addition to lack of medication and medical facilities accentuated by decaying infrastructures. Some of these challenges from the ministry of health played out in states like Rivers state in the Niger Delta region that had little or no reported caseload. Because of lack or limited reported caseload, the Rivers state government was not given a holistic support leading to alleged invention of covid19 victims and stats by states institutions. In the Niger delta region, some governors became chairmen of anti-Covid19 task force even without any experience whatsoever in the medical field. These factors have not only shaped the relationship between the pandemic and indigenous health challenges, it has equally impacted negatively on the production of local concoction known as *agbo* (a combo of herbs or roots whose active ingredients are extracted through fermentation, sedimentation, distillation or diffusion processes in water or alcohol. The Iwu and Madagascar *Agbo* are common referenced cases.

Due to the Covid -19, travel ban affected the journey to shrubs and forest by native health practitioners in search of herbs, roots and barks. This, conversely, affected the cost of the native concoction announced in the sector as preventive medicine against the virus. For instance, Obeta, Ejinaka, Ofor, Ikeagwulonu, Agbo and Abara (2020) says that the quantity of indigenous plants used by native herbalists since the outbreak are limited and should be made more available, however, they did not foresee the hurdles to access and availability as a consequence of lockdown. The authors suggested that these plants if extracted and combined have the properties that alter the PH on the interface between the virus spike proteins and the human respiratory surfaces causing a brake on the interaction with human ACE-2 where interaction takes place to disrupt replication and translation stages. The plants, according to them are thus potential modifiers of this milieu and inhibitor of the main protease and endoribonuclease via epigenetics and homeostasis. They added that the consumption of these plants should be encouraged as prophylactic or curative measures pending the discovery of a definitive cure in poor communities like the Niger delta region in Nigeria.

Globalization, Covid-19 and Indigenous Health Development in the Niger Delta region; an explication of Bitter kola, Garlic, Ginger, lime and Turmeric as plants with Anticovid-19 properties.

The emergence of Globalization underscores widespread influence on people and institutions in the world. Scholars attention is constantly drawn to both the positive and negative impacts generated by globalization, especially among the indigenous people and their alternative health development. Although extant literature shows few documentations regarding the influence of social determinants of health in the lives of native peoples, especially the Riverine people in the Niger delta with limited access to conventional medicine. Yet, it is clear that the physical, emotional, mental and spiritual dimensions of health among indigenous people in different climes are distinctly, as well as differentially, influenced by a broad range of social determinants. These include socio-economic circumstances, belief system as well as structures, systems and institutions that influence the development and maintenance of health along a continuum from excellent to poor. The social determinants of health can be categorized as *distal* (in historical, political, social and economic contexts), *intermediate* (in rural infrastructures, resources, systems and capacities), and *proximal* (in health behaviors, hygiene and social environment)

These determinants and its negative impacts in the context of a continued asymmetrical interconnectedness in a myriad of ways (health, trade, bilateralism, social and economic connections, geopolitics etc.) is often referred to as globalization. This is of course, a process of interconnectedness and faux interdependence that has brought vulnerable people closer to endemic diseases. Globalization processes, characterized by the increasing circulation of peoples, ideas and commodities, prompt the emergence of organizational forms like the WHO, World Trade Organization (WTO) and Doctors without Borders with intensions to control, adapt and tap into those circulations. Thus, many hitherto functions held by the nation-state becomes prerogative of trilemma transferred *upwards* to transnational institutions and common markets through *economic and political integration*, *downwards* to regions and communities through *political and administrative decentralization*, and *sideways* to NGOs and the private sector through *democratization* and *privatization*. The implications of the above is that cultural values, traditional norms and indigenous health practices of people in the rural areas of developing economies could easily by jettison for a metropolitan life style leading to acquisition of diseases alien to indigenous people. Again, due to the fear of acculturation that may lead to the abandonment of native

medicinal herbs, vegetable and roots in the wake of manipulation of medical information at the disposal of native people, herbalists become nebulous with information regarding their products. For instance, many rural dwellers in the Niger Delta communities do not actually believe that the Covid - 19 virus exist, to them it is political conspiracy to embezzle government funds. Even religious section of the communities could not be spared by the vacuity in the narrative of a worldwide conspiracy to depopulate the earth. This is even sociobiological contradictory owing to the fact that as at 1: pm local time on 26th August 2020, using Corona Scanner Realtime, a coronavirus statistics App (Free online dashboard solution), the Coronavirus has infected 215 countries of the world. Global Infections were 24,092,885 with 824,194 deaths showing 3.42% death rate and 69.04% survival rate (16,634,272 recovery) with daily infection rate at 223,070 persons. Nigeria is ranking 50 on the global list of infections with 52,800 reported cases, 1007 deaths showing a 1.91% death rate, and 75.69% survival rate (39,964 recoveries) with a daily infection rate of 460 persons. (NCDC, 2020) [26] COVID-19 Situation Report (situation report 180)

The Niger Delta region of Nigeria constitutes southern Nigeria oil rich states of Abia, Akwaibom, Bayelsa, Delta, Edo, Imo, Ondo and Rivers. constrained by the activities of ethnic militia, oil corruption and the intervention of Covid 19 amidst a neglected indigenous health system, the region lacks a fulcrum to spring itself to producing preventive Covid -19 medication. The Niger delta indigenous plants and herbs that have been used for treating and preventing several diseases, including respiratory viral infections in the past have been listed for consideration in a bid to discover their COVID-19 prevention, management and curative potency via a combination of bitter kola, garlic, ginger, lime, and turmeric.

Biomedical Explication of Traditional Herbal Ingredients with anti Covid -19 properties in the Niger Delta Region: bitter kola, garlic, ginger, lime, and turmeric

Prior to colonial era when conventional medicine was nearly none existent, indigenous medicine in what is known today as the Niger Delta region was widespread. Practitioners were highly consulted and respected. The advent of Christianity witnessed the destruction of native herbal laboratories often shrouded in secrecy, the *Debias*, *Mbia Ibok or Dompie* as they are locally known in Igbo, Ibibio and Ogoni were men and women knowledgeable in indigenous herbalism, pharmacology and therapeutic as their practices and products were paid tremendous attention. The combination of traditional roots, nuts, barks, leaves and fruit was common and the efficacy of their concoction was never in doubt. Colonialism. Neo-colonialism, globalization and the politics of medical multi-pharma companies changed the trajectory and rendered the practice obsolete until the intensive national sociobiological helplessness occasioned by covid19. This is not helped by the repeated propagandistic narratives of international health institutions and associations that have medically arm-twist internal medical institutions through the political economy of aids and reliefs. The rejection of Dr. Ighodo herbal cleanser by the Akwa-ibom ministry of health in the Niger delta region of Nigeria and the Nigeria Medical Association rejection of Dr. Abalaka claim to HIV cure through alternative medicine are cases at hand.

a. Bitter Kola

Classification of KOLA

Table 1

Plant name	**Bitter kola**	**Class:**	***Magnoliopsida***
Botanical name	Bitter kola – Garcinia kola	Order	*Theales*
Indigenous name	*Effiat* (in Ibibio language)	Family	*Clusiaceae*
Kingdom	*Plantae*	Genus	*Garcinia*
Division	*Magnoliophyta*.	Species	*Kola*
Part of the plant in Use	*Seeds*		

Source: *Compiled by Author*

Phytochemical components.

Studies by Iwu, Igboko, Onwuchekwa, & Okunji (2005) [18] have evaluated the phytochemical components of Garcinia kola. Such studies have shown that Garcinia kola contains alkaloids, saponins, tannins, flavonoids, glycosides, sterols, and phenols. The major constituents of the plant are kolaviron, garcinia biflavonoid (GB-1a-glucoside, GB-1a, GB-1, GB-2), kolaflavonone, benzophenone, xanthone, coumarin, apigenin, quercetin, and garcinoic acid, Hexadecanoic acid, 9-octadecanoic acid, methyl ester, linoleic acid, heptadecane-(8)-carbonic acids, formaldehyde, N, N-Diethyl, n-tetradecanoic acid amide; 3,4,8-trimethyl-2-nonenal were gotten from the seed of Garcinia kola. Carbohydrates were separated from the seed. The mineral composition of G. kola seeds extracts was also reported to contain some enormous amount of potassium, phosphorus, ash, crude protein, crude fiber, crude lipid, water-soluble oxalate, terpenoids, and fat The seeds oil contains fatty acid and amino acid derivatives, namely meristic, pentadecanoic, margaric, trans-palmitoleic, cis-vaccenic, cis-oleic, cis-linoleic, α-linolenic, threonine, tyrosine, methionine, serine, histidine, and alanine. Based on dietary properties, Anna, Olga, Zacharie, Patrick Van Damme, Vladimír, Ondˇrej and Bohdan (2019) gives the following moisture ratio by %: (7.2%–92.7%); crude protein (0.58%–7.8%); ash (0.33%–5.9%); crude fiber (1.23%–20.51%); crude fat (0.19%–14.5%); and NFE (10.85%–91.35%). The dominant fatty acids in the seed are oleic (38 mg/kg), linoleic (36 mg/kg), and palmitic acid (32 mg/kg). They scholars added that, the dominant essential amino acids are lysine (2.4 g/kg), leucine (1.9 g/kg), and valine (1.7 g/kg), and nonessential amino acids are glutamic acid (6.8 g/kg) and arginine (5.5 g/kg). The bitter kola seeds are low in anti-nutrients such as phytate or oxalate. However, high amounts of vitamin C have been recorded up to 23.1 mg/100 g. Potassium (722 mg/kg) and phosphorus (3.3–720 mg/kg) were recorded in bitter kola as the most abundant minerals in bitter kola seeds. In addition to it widespread properties in handling bronchial issues related to covid19, Badger-Emeka, Khalil and Emeka (2018) [4] and Ikeagwulonu *et al* (2020) [17- 30] aver that the health benefits and the medicinal importance of bitter kola is based mainly on the phytochemical components of the plants. Some of these components isolated from the seed include oleoresin, tannin, saponins, and alkaloids. Other are bioflavonoids such as kola flavanone, and hydroxy flavonoids. Bitter kola is thus, highly valued in in its various social and medicinal uses in

indigenous herbal concoctions, making it an essential ingredient in preparation of several *agbo* medicine.

In view of this, indigenous herbal medications have been found as a major contributor to the cure of many ailments and Bitter kola is believed to be an important source of flavonoids and chemical substances with potential therapeutic benefits especially in the treatment of diabetes and sexually transmitted diseases. According to Omeh, Onoja, Ezeja, Uchendu, Okorie and Raymond (2014) [31] bitter kola is cardio-protective because of the lipid reduction ability and the ability to treat gastric problems. The bioflavonoid kolaviron complex content of bitter kola is anti-inflammatory, neuroprotective, and antimicrobial. Kolaviron possesses anti-malarial and wound healing effects. It is also known that Kolaviron has the capacity to stop Ebola virus growth in medical laboratory trials. Kolaviron possesses antinociceptive (sedative) and anti-inflammatory activities, both centrally and peripherally, which justifies its traditional use to relieve pain and inflammation. Moreover, kolaviron could block signalling pathways implicated in lipopolysaccharide-induced inflammatory genes and equally prevent oxidative stress. It also helps in demyelination and neurotoxicity. It aids in the treatment of multiple sclerosis that can be clinically viable against ischemia/reperfusion injuries. Bitter kola has hepatoprotective properties, promotes survival of hepatocytes, and prevents liver injuries and intoxication. In rat models, bitter kola is anti-diabetic and protecting against hyperglycemia-induced apoptosis, attenuate the level of lipid peroxidation. Nworu, Akah, Esimone, Okoli & Okoye (2008) [28] discovered its immunomodulatory and immuno-restorative effects, making it useful in fighting immune-destructive diseases such as acquired immunodeficiency syndrome (AIDS) and other viruses which may include COVID-19. Bitter kola whether as alcoholic or aqueous extracts has antimicrobial properties against many multidrug-resistant bacteria (gram-positive and gram-negative) and fungi.

Possible Toxicology:

Maˇnourová, Leuner, Tchoundjeu, Patrick Van Damme, Verner, Ondˇrej Pˇriby and Lojka (2019) says that there is speculation that only high doses of Kolavirons (400 mg/kg) can cause liver damage but its ability to inhibit cyclooxygenase (COX-2) and inducible nitric oxide synthase (iNOS) expression through downregulation of nuclear factor kappa B (NF-κB) and activator protein-1 (AP-1) DNA binding activities shows the hepatoprotective properties of Kolaviron content of bitter kola.

Anti-COVID-19 Properties

According to Bahare, Nanjangud, Anil, Bilge, Mehdi, Mehtap, Gail, Sanja, Marcello, Farzad, William, Seyed, Athar, Javad (2018), Guttiferones are polyisoprenylated benzophenone derivatives of bitter kola that can inhibit the cytopathic effects of the virus responsible for HIV infection. Their evaluations show that Garcinol has the same or very similar structure and properties to Guttiferone F. Reports of use during COVID-19 in the local communities of the Niger delta region were helpful.

Garlic

Another plant with anticovid19 properties in the Niger Delta region used in the production of ingenious herbal medicine in the pre, during and post Covid lockdown is garlic.

Classification of Garlic

Table 2

Plant name	***Garlic***	**Class**	***Monocotyledonae***
Botanical name	*Allium sativum*	Order	*Liliales*
Indigenous name	*(Yabasi-Hausa-Igbo),(Adon Uya – Ibibio)*	Family	*Amaryllidaceae*
Kingdom	*Plantae*	Genus	*Allium*
Division	*Magnoliophyta*	Species	*Sativium*
Part of plant Used	*Bulb*		

Source: *Compiled by Author*

Phytochemical components.

Garlic contains carbohydrates, glycosides, and proteins in high concentrations; alkaloids, saponins, reducing sugars, oils, and steroids in medium concentrations, while flavonoids and acidic compounds were present in low amounts for Ohanube, Obeta, Ikeagwulonu and Jwanse, (2020) [30], Phytochemicals screening of the plant reveals that alkaloids reducing sugar, flavonoids, glycosides, cardiac glycosides, tannin and phenolic compounds, saponins, amino acid & triterpenoids in aqueous extract act as anti-bacterial agents.

Health Benefits of **Garlic**.

This plant is useful in chronic cough, arthritis, and constipation. Garlic has also been mentioned to be protective from epidemic viral diseases, little wonder it has always been used long before COVID-19. Garlic has antioxidant, anti-inflammatory, immune-modulating, antibiotic, bacteriostatic, antifungal, antiviral, Antihelminthic, antithrombic, hypotensive, hypoglycemic, and hypocholesterolemic properties. Including a virucidal effect on human rhinovirus-2, parainfluenza virus-3, HSV-1, HSV- 2, and vesicular stomatitis virus during in vitro study. Kang, Kim, Kim, Hwang, Kim, Chang Kim, Yoo and Choi (2020) explored the antioxidant and reactive oxygen species scavenging property of saponins produced by garlic and demonstrated the hepatoprotective and antioxidant property of single clove garlic in rabbits' models. Garlic is also used for the management of abdominal discomfort, diarrhoea, otitis media, and respiratory tract infections in the Niger delta region of Nigeria and treatment of common colds, hay fever, and asthma in Europe and India. Garlic also has immunomodulation, anti-inflammatory, and antioxidant with cardio-protective, and pulmonary protective properties.

Possible Toxicology

Fowotade (2017) reported a dose-dependent increase in levels of liver enzymes AST, ALT, and ALP) as well as an increase in serum creatinine levels and dose-dependent histologic alterations in hepatic, renal, and cardiac tissues in rat models indicating toxicity at higher dozes to the liver, heart, and kidney

Anti-COVID-19 Properties:

According to Nwokocha *et al* (2011) [27], garlic modulates cytokine expression in lipopolysaccharide activates human blood and inhibits NF-κB from which makes it immune-modulatory. It activates macrophages, promotes immunoglobulins and reduce the migration of polymorphonuclear cells through endothelial cell layers. Garlic inhibits the production of nitric oxide and prostaglandin-E2, suppresses the inducible form of nitric oxide synthase and COX-2 expression, and decreases the production of inflammatory cytokines like TNF-α, interleukin six, and interferon γ. It improves lung function in smokers and reduces tracheal exudates in horses. It is useful in inflammatory and asthma-like conditions of the lungs. The plant's exploits in pharmacologic actions in handling respiratory diseases and other viruses are possible in handling COVID-19.

b. Ginger.

Classification of Ginger

Table 3

Plant name	***Ginger***	**Class**	***Monocots***
Botanical name	*Zingiber officinale*	Order	*Zingiberales*
Indigenous (local) name:	*Adong Ufiob – Ibibio*	Family	*Zingiberaceae*
Kingdom	*Plantae*	Genus	*Zingiber*
Division	*Angiosperms*	Species	*Officinale*
Part of plant in Use	*Rhizomes*		

Source: *Compiled by Author*

Phytochemical components.

According to Etukudoh. Ejinaka, Obeta, Utibe, Lote-Nwaru, Agbalaka and Shaahia. (2020), the phytochemical components are citronellal, linalool, borneol, 10-dehydrogingerdione, 6- et 4,6, 8 ou 10-gingerdione, limonene; [6]-methyl gingediol, le [4]-gingediacetate, le [6]-gingediacetate, and le [6]-methyl-gingediacetate. While Constituents of essential oils are: curcumene, farrnesene, gingerols, zingiberene, zingerone, car-3-ene, α-terpinene, shogaols, paradols, αterpineol, neurol, 1, 8-cineole, neral, geranial, geraniol et geranyl acetate, isovaleraldehyde, nonanol, ethylpinene, α-Pinene, α-sesquiphellandrene, β-bisabolene myrecene, β-pinene, β sequithujene, sesquiphellandrene, camphene, sabinene, cis-sequisabinene hydrate, zingiberol, gingerone, and citral (geranial et neral). Macronutrients found are carbohydrates, fiber, and proteins (with amino acids such as cystine, phenylalanine, histidine, isoleucine, methionine, tyrosine, threonine, leucine, lysine, tryptophan, valine), lipids (including omega 3, 6 and 9 fatty acids). Micronutrients found are sodium, magnesium, phosphorus, potassium, calcium, magnesium, manganese, phosphorus, potassium, sodium, selenium, iron, copper, zinc, selenium, iodine, vitamins A (thiamine), B1 (thiamine), B2 (Riboflavin), B3 or PP or niacin, B5, B6 (pyridoxine), B9 (folic acid), C, D, E, K1, and K2. Other Compounds include: Flavonoids (Flavan-3-ol, flavone, flavonol, flavanone, tannins, quercetin, rutin, fisetin, morine, gallic acid, ferulic acid, vanillic acid, hexahydrocurcumin and desmethyl-hexahydro curcumin, 3S,5S)-3,5diacetoxy-1,7-bis(4-hydroxy-3-methoxyphenyl), allicin, alliin, ajoene, galanolactone, gingerenones, and gingediones.

Health Benefits.

Many bioactive ingredients; gingerol, zingiberine, shogaol, gingerdione, hexahydrocurcumin, paradol and gingerenone, makes ginger antioxidants, reduce oxidative stress and inhibit superoxide production. Dried ginger possesses potent anti-inflammatory and analgesic activities that gives a better effect against swine flu (H1N1), and human respiratory syncytial virus in human respiratory tract cell lines. There are antiretroviral sesquiterpenes in ginger that provides a bronchodilatory effect, prevents severe damage to the lungs due to inflammation, and ameliorates allergic asthma. Gingerol can be used to prevent or treat cancer and chronic inflammatory diseases due to antiparasitic effect, especially against Ichthyophthirius multifiliis (ciliate parasite of freshwater fish). The bioactive bitter and pungent component of ginger and its derivatives, reduced heavy menstrual bleeding in women of reproductive age; and protected rat fetuses against Gabapentin-induced hepatotoxicity. Ginger improved concentration of blood lipid and reduced body overweight, obese, and have an anti-diabetic effect (Adeniyi 2019) [1].

Possible Toxicology.

In the empirical studies of Idang, Yemitan, Mbagwu, Udom, Ogbuagu and Udobang. (2019) [16] rats that were given 2500 mg/kg were observed to have high toxic effect leading to severe hypotension and bradycardia with the induction of prenecrotic changes in cardiac tissues, but 50 mg/kg given for 28 days gave bradycardia to the rats with waviness in cardiac muscle fibres, they described the effect of ginger on some organ's histology and biochemical parameters as reversal when the administration is discontinued in rat models.

Anti-COVID-19 Properties:

In the early periods of the pandemic, the public panic motivated by inundation of death rate announced by WHO and caseloads announced by Centre for Disease Control (CDC) fecund the reengineering of extant indigenous antiviral concoctions in the Niger delta region. In Akwaibom, Rivers, Bayelsa and Delta states, herbal medication hitherto prepared for bronchial and deep cough were later reenergized with 23 pieces of 4mm sizes of ginger roots in combination of 8 pieces of divided bittakola, 3 roots of garlic cut in pieces, 6 piece of lime balls cut into halves in locally made gin that contains 45% ethanol or in the commonly used alcoholic beverage known as Seaman's Aromatic Schnapps for adults with normal blood pressure (BP) levels of 120/80mmhg to be taken 10mm twice daily for 15 days. Hypertensive adults and children considered aqueous prescribed dosages. (See anticovid combination for lime as a leading ingredient). It is veridical that the anti-inflammatory, analgesic, and antiviral activities of ginger

provide the positive property that COVID-19 can be managed by ginger.

c. Lime

Classification of Lime

Table 4

Plant name	*Lime*	**Class**	*Magnoliopsida*
Botanical name	*Citrus aurantifolia*	Order	*Sapindales*
Indigenous (local) name:	*(Mkperi sekoro – Ibibio)(Oroma nkirisi – Igbo)*	Family	*Rutaceae*
Kingdom	*Plantae*	Genus	*Citrus*
Division	*Streptophyta*	Species	*Aurantifolia*
Part of plant in Use	*Fruits*		

Source: *Compiled by Author*

Phytochemical components.

Rana, and Dixit (**2017**) [34] said that the aqueous extracts of lime pulp revealed the presence of carbohydrates, sugars reducing agents, proteins, alkaloids, tannins, fixed oils, cardiac glycosides, phytosterols, phenols, steroids, and flavonoids. The ethanoic pulp extracts showed only the presence of fixed oils, reducing sugars, cardiac glycosides, steroids, phytosterols, flavonoids, and amino acids. The aqueous peel extracts showed the presence of carbohydrates, alkaloids, tannins, fixed oils, proteins, cardiac glycosides, steroids, phenols and flavonoids, and amino acids.

Health benefits

The presence of various phytochemicals such as alkaloids, flavonoids, glycosides, saponins, steroids, anthraquinones, phenols, resins, fatty acids, and gums in the plant extracts, the antibacterial properties is high. The total phenolic content values have evidence of antimicrobial activity, just like the presence of steroids, flavonoids, alkaloids, tannic acid, and phenolics are against both gram-positive and gram-negative bacteria. Lime is popular as antioxidant, immunomodulator, and antibacterial.

Possible Toxicology

It may cause sensitive teeth, burns in the mouth, throat, and stomach. It may not be perfect for chronic ulcer patients. However, it is generally less toxic.

Anti-COVID-19 Properties:

In the Niger delta region, indigenous herbalists concoction of 15cl of liquid lime combined with 10g of crushed ginger, 8g of garlic and 18g powdered bitter kola extracts in a 75cl of clean water allowed to ferment for 48hrs in 37degree Celsius and taken 5cl twice daily for 15 days will not only improve the immune system to fight viruses or bacterial, it will impede the productive and replicative phases of any viral infections especially of the SARS-CoV-1.This assertion is corroborated by Kumar, Vani, Wang, Chen, Chen, Lu, Huang, Lai and Wang (2020) [15] who said that there is evidence that lemon essential oils have potent antiviral activity to other coronaviruses, such as SARS-CoV-1, and could also be the same in respect of COVID-19 by inhibition of viral infection and replication.

In Ibibio, Nembe, Ogoni, Igbo, Isetkiri and Okoja, bronchial infection are treated with lime in combination with bitter kola and ginger. Simple cold and flu are taken as signs of (plus++) malaria and the indigenous people has never been afraid of the disease. Covid-19 evaluations especially at the symptomatic levels displays all the common signs of simple flu, malaria and cold in prognosis evaluation

d. Turmeric

Classification of Turmeric

Table 5

Plant name	***Turmeric***	**Class**	***Monocots***
Botanical name	*Curcuma longa*	Order	*Zingiberales*
Indigenous (local) name:	*Tumerik*	Family	*Zingiberaceae*
Kingdom	*Plantae*	Genus	*Curcuma*
Division	*Angiosperms.*	Species	*Longa*
Part of plant in Use	*Rhizomes*		

Source: *Compiled by Author*

For Soheil, Habsah, Pouya, Hassan, Sazaly and Keivan (2014), the Phytochemical components of Turmeric reveals α- and β-turmerones, ar-turmerone, atlantone, cineole, d-phallandrene, α-phellandrene, curlone, zingiberene, ar-curcumene, d-sabinene, borneol, terpinolene, 1, 8-cineole, undecanol, and p-cymene]. The micronutrients contents are Calcium, Phosphorus, Zinc, Magnesium, Manganese, Copper, Iron, Potassium, Vitamins A, B1 (Thiamine), B2 (Riboflavin), B3 (Niacin), B5, B6, B9, Folate, C (Ascorbic Acid), E, K, While the macronutrients found are: carbohydrates, fiber, lipids (omega 3, omega 6, and omega 9), and proteins. Other Compounds present includes alkaloids, anthraquinones, curcumin, cyclocurcumin, cardiac glycosides, demethoxycurcumin, bis-demethoxycurcumin, tannins, terpenes, steroids, saponins, anthocyans, leucoanthocyans, saponins, quinones, and flavonoids.

Health benefits.

The health benefits of Curcuma longa are curcumin, dihydro curcumin, and hexahydrocurcumin. In the local communities, Turmeric has tremendous medicinal benefits ranging from phlegmagogue, anti-inflammatory, analgesic, antipyretic, blood purifier, healing properties antioxidant, immunomodulating, anti-inflammatory, antimicrobial and anticancer. Found are ingredients and volatile compounds like cinol, α-phellandrene, borneol, zingiberine, and different sesquiterpenes. Curcumin has been observed to be extremely effective in acute respiratory distress syndrome, COPD's, acute lung injury, and pulmonary fibrosis. Turmeric suppresses NF-α and inhibits NF-κB, in this way acts as a potent anti-inflammatory agent. Curcuma extract acts against various pathogenic bacteria, including Streptococcus, Staphylococcus, Klebsiella pneumonia, Helicobacter pylori, Bacillus subtilis, and Vibrio cholera. The revolutionary potential of turmeric is against viruses like H1N1, H6N1, respiratory syncytial virus, herpes simplex virus, parainfluenza virus type-3, coxsackievirus B3, Japanese encephalitis, hepatitis B virus, hepatitis C virus, human papillomavirus-16, and − 18. It has also been found to inhibit HIV-1 long terminal repeat directed gene expression (Aggarwa, Chacko and Kuruvilla, 2016) [2].

Possible Toxicology

Balaji and Chempakam (2010) [5] posited that curcumin and its derivatives may cause dose-dependent hepatotoxicity. They equally observed that, in contrast to curcumin, other compounds in turmeric which are non-mutagenic, non-

carcinogenic, non-hepatotoxic, and do not have any side-effects are listed by National Toxicology Program in USA. Nevertheless, the toxic and carcinogenic properties of an organic extract of turmeric, called turmeric oleoresin can be observed from animal models after a very long time of feeding the animal with it. For example, rats and mice were fed diets containing several concentrations of turmeric oleoresin for three months and two years, and the possible toxic and carcinogenic effects were evaluated. In the 2-year feeding studies, turmeric oleoresin ingestion was associated with increased incidences of ulcers, hyperplasia, and inflammation of the forestomach, cecum, and colon in male rats and of the cecum in female rats. In female mice, the ingestion of diets containing turmeric oleoresin was associated with an increased incidence of thyroid gland follicular cell hyperplasia. These negative effects of curcumin were said to be mediated by several possible mechanisms showing *Reactive Oxygen Species* (ROS) such as superoxide anion and hydrogen peroxide-based on the facts that ROS can induce cell malignant transformation,ii. Cancer cells commonly have increased levels of ROS,iii. The malignant phenotype of cancer cells can be reversed by reducing the cellular levels of ROS.

Experimental studies have equally demonstrated that, although low concentrations of curcumin induce antioxidant effects, while higher concentrations of this compound increase the cellular levels of ROS in alternative Medicine. However, Aggarwal *et al* (2020) gave a counter opinion on turmeric when they worked on Curcuminoid-essential oil complex (CEC) and found non-mutagenic effects in all three mutagenic investigations studied. however, following further investigations of acute toxicity, repeated dose toxicity, and mutagenicity, CEC was deemed a safe, non-toxic pharmacological formulation.

Anti-COVID-19 Properties.

Soheil, Habsah, Pouya, Hassan, Sazaly and Keivan (2016) compiled other studies on the role of turmeric on some viral infections thus: For (HIV), the presence of curcumin; caused inhibition of HIV-1 LTR-directed gene expression, inhibited Tat-mediated transactivation of HIV-1 LTR and Tat protein acetylation, inhibited HIV-1 integrase while curcumin boron complexes inhibited HIV-1 and HIV-2 proteases though reported no antiviral effect in a clinical trial for HIV. For Influenza, Curcumin inhibited hemagglutination. For herpes simplex virus-1 (HSV-1), gallium-curcumin, and Cu-curcumin reduced HSV-1 replication. For herpes simplex virus-2 (HSV-2), Curcumin gave significant protection in mouse models. For Coxsackievirus, Curcumin caused replication inhibition through UPS dysregulation. For hepatitis B virus (HBV), the aqueous extract suppressed HBV replication by increasing the p53 level. For hepatitis C virus (HCV), Curcumin decreased HCV replication by suppressing the Akt-SREBP-1 pathway. For human papillomavirus (HPV), Curcumin inhibits expression of viral oncoproteins of E6 and E7 and downregulation effect on the transcription of HPV-18. For Japanese encephalitis virus (JEV), Curcumin reduced the production of infective viral particles. For human T-lymphotropic virus-1 or human T-cell leukemia-lymphoma virus-1 (HTLV-1), Curcumin causes downregulation of JunD protein in HTLV-1-infected T-cell lines. Therefore, if all these viruses can be managed by turmeric, COVID-19 management is possible with this indigenous plant through inhibition, reduced replication, and dysregulation.

Conclusions

Although the challenges facing weak economies ranges from socioeconomic, political to health, these challenges are metastasized by a plethora of internal economic sabotage occasioned by corruption and lack of policy focus. The mentioned, goaded by the politics of big international Pharmaceuticals through negative propaganda has snowballed into a malignant social problem that the advent of Covid19 has inadvertently expatiated. This problem has presented some hurdles to people on the move and has constrained the process of people who survive from farm to fork and from the shrubs to mortar. Nevertheless, the reduction in replication and dysregulation of the corona virus in victims in the Niger delta region has been made possible by assistance from the intake of indigenous herbal medicine as shown in figure (1). Conversely, the ogbo herbal medicine has made it impossible to verify the actual number of people in the region infected by the virus due to the positive results and veridical benefits of its use outside the hospitals. However, the rejection of several herbal remedies since the emergence of the pandemic by the Nigerian ministry of health and the ministry of science even when government institutions like NAFDAC with superior knowledge and expertise had earlier certified the safe use of those medicine is an indication of the politics in the Nigerian health sector that underscores the influence of international health institutions.

Recommendations

Since the potency of traditional medicine against Covid19 has been found to be effective in countries like China, India, Japan, Madagascar, Singapore and Uganda, the Nigeria version should be subjected to more scientific research to secure a general, unified and acceptable national medication against the virus. More research should be conducted in basic clinical trials to ascertain the efficacy of local nuts, herbs and barks and their combination to producing a widely acceptable remedies, WHO certification nonetheless.

Again, the development of indigenous health practices should not be left alone in the care of those herbalists who sometimes are interested in the process of *shrubs to fork*. Government should synergise with traditional medical associations to fashion out a sustainable public private partnership programmes that would reenergized the sector and give fecundity to a robust, acceptable and potent medicine from the mortar of indigenous health practitioners. Finally, the search for COVID-19 cure should not be limited to conventional medicines, rather should be extended to some indigenous plants in local communities.

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