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Coronavirus Disease (COVID-19) and Africa: acclaimed home remedies.**Orish E. Orisakwe^{1,2*}, Chinna N. Orish³, and Eudora O. Nwanaforo⁴**

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Abstract: At last the WHO declared the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) now known as COVID-19 a pandemic. Amidst uncertainty both in the pathophysiology and the management of COVID-19, many African countries in the face of either over-stretched or non-existent healthcare infrastructure resorted to home remedies as immediate alternative or first line of action. The present study is a synoptic capture of these home remedies with an attempt to understand the pharmacological basis on which these choices are predicated. Literature was compiled from google, social media, Radio and Television commentaries and news with stringent inclusion and exclusion criteria. Natural spices (turmeric, ginger, garlic etc) and leaves (neem, paw paw, guava, etc) with notable antioxidant and anti-inflammatory properties were found to be beneficial. These home remedies may hold promise in the prophylaxis and cure of COVID-19 infection.

Keywords: viral infection; COVID-19; home remedies; natural products, public health.

Introduction: Coronaviruses (family Coronaviridae and subfamily Orthocoronaviridae) are non-segmented positive-sense RNA viruses or (+) ssRNA virus) which are distributed in humans (Richman et al 2016). COVID19 uses positive sense single stranded RNA as its genetic material. Novel coronavirus disease 2019 (COVID-19) which took its root in Wuhan, China in December 2019 is caused by the corona virus that can spread between animals and humans. COVID-19 is a present crisis whose clinical and epidemiological characteristics are currently being documented (Wu et al 2019, Guan et al 2020).

Hitherto, the primary source of infection remain pneumonia patients infected with COVID-19. Transmission of respiratory droplets is the main transmission route, which can also be transmitted by contact (General Office of National Health Committee, 2020). The most common symptoms of Coronavirus disease COVID-19 are fever, tiredness, and dry cough. It may be accompanied by aches and pains, nasal congestion, runny nose, sore throat or diarrhea in some people. At the moment, effective treatments modalities that target the coronavirus remain elusive and largely unknown. The therapeutic regimens and treatment modalities may require a while to be realised. This gap in knowledge and the quest for immediate credible solution has compelled governments and scientists to search for anti-COVID-19 remedies. Panicky developing nations including Africa in the phase of this wide spread and the predicted humanity and economic disasters resorted to home treatment of contacts and COVID-19 cases.

In Africa, the orientation has skewed towards exploring natural spices and natural compounds (Chen and Nakamura 2004). It has been reported that traditional remedies may alleviate the symptoms of COVID-19. This is a synoptic capture of acclaimed home remedies with proven efficacy employed in various countries of Africa within the first four months of the COVID-19 pandemic.

Methodology: Information from google, newspapers, magazines, different social media namely: facebook, twitter, whatsapp, testimonies of survivors through radios and televisions were gathered from February-May 2020. Sources that emphasised hospital treatment with orthodox medicines were excluded. Claims without dates and verifiable locations and identities were also excluded. Suspected postings by herbalists and traditional medical practitioners TMPs which could be viewed as promotional adverts were excluded. Socioeconomic status (education, employment etc) of all claimants were also recorded.

Results & Discussion: Table 1 is a summary of acclaimed remedies for the management of COVID-19. The following underlisted barks, leaves and roots of plant materials used as aqueous decoctions were the acclaimed anti-COVID -19 remedies. Decoctions of bark, leaves and root of Neem tree (*Azadirachta indica* also called *Dogoyaro*), *Tetrapleura tetraptera* (Schumach. And Thonn) Taub, Mimosaceae, commonly known as Aridan (fruit). The plant is called Prekese in the Twi language of Ghana. It is also called Uhio in the Igbo Language of Nigeria. *Heliotropium indicum* roots also called Indian Heliotrope belonging to the plant family *Boraginaceae* is a sweet-scented plant. (*egbo agogo igun* in Yoruba). *Khaya grandifoliola* bark. *Khaya grandifoliola* is also called African mahogany, Benin mahogany, large-leaved mahogany, or Senegal mahogany, is a species of plant in the family Meliaceae. *Opuntia dillenii*, a well-known member of the Cactaceae family, is used as a medicinal plant in various countries and grows in the desert, semi-desert, tropical and sub-tropical areas. Bird pepper or *Capsicum frutescens* (also called *Ata Ijosin* in Yoruba) is a tropical solanaceous plant. Turmeric root is a bright yellow-orange spice commonly used in curries and sauces. Ginger is a flowering plant whose rhizome, ginger root or ginger, is widely used as a spice. Garlic is a plant in the Allium (onion) family. The lemon is citrus like and a specie of small evergreen tree in the flowering plant family

Rutaceae. Paw-paw, *Asimina triloba*, is a small deciduous tree. Other remedies include unripe pineapple and blackseed oil, black pepper, mango and guava leaves. The aqueous decoctions of these remedies especially the leaves were either taken orally or by steam inhalation. Since most of the home remedies are classified as 'generally regarded as safe' GRAS and in fact already used as food, dosing was not problematic. Generally, one teaspoonful of the powdered spices in 240-250 ml of warm water to be taken three times a day constituted daily routine throughout the period of treatment.

About three months after it was officially recognised as a pandemic, the spread of the COVID-19 virus has continued, that urgent strong remedy is required, notwithstanding the paucity of knowledge on the life cycle of the virus and its mechanistic considerations (WHO 2019, Liu et al 2020). Currently there is no ideal anti-COVID-19 medications. An ideal anti-COVID-19 medication (or a combination of agents) should be safe for such patients while conferring three basic therapeutic effects (and/or preventive health benefits): enhancing the antiviral immunity, tissue-protection (and tissue repair) and exerting potent antiviral effects (El Sayed et al 2020). COVID-19 presents a vast public health challenge both in developed and developing nations.

The striking feature of most of the COVID -19 home remedies in Nigeria is their ability to restore physiological and psychological functions. Phenolic compounds and antioxidant properties of these remedies are known to contribute to their therapeutic effects. Consumption of these Nigerian home remedies increase the anti-oxidant molecules and enzymes in the body and protect the cells and its membrane from being damaged by the toxic substances. (Amadi et al 2019, Orisakwe et al 2020). Phenolic moieties boost the body's immunity and defence against the threatening virus (Mondal *et al.*, 2009). Scientists from the academia and Research Institutes

have also supported the use of these home remedies as anti-COVID agents. In Madagascar a combination of artemisia, neem leaves, paw paw leaves, garlic, ginger, lime and oranges has been adopted as a notable anti-COVID agent. This combination is boiled for 30 minutes and steam-inhaled. Expectedly the steam inhalation clears the lungs of the virus. In fact, the Madagascar Institute of Applied Research has branded this decoction which can be also be taken orally as Covid-19 Organics CVO. Similar decoctions have been used in Nigeria and even by Nigerians who live in the diaspora. At inception COVID-19 was thought to be a lung disease but later evidence from autopsy reports tended to implicate Disseminated Intravascular Coagulation (DIC, Thrombosis). Regardless of the pathology, the African home remedies with their inherent antioxidant and anti-inflammatory properties may explain at least in part, the acclaimed protection, remission in symptoms, seroconversion and cure of COVID-19 in many parts of Africa.

Table 1: Acclaimed remedies for the management of COVID-19

Place claim was made. City/Country.	Socioeconomic status of claimant: Education/Employment.	Recipe/constituents /preparation of remedy. Include dose if specified	Outcome/number of days to achieve remission.	References
Ibadan, Nigeria.	Chief Medical Director, University College Hospital.	Vitamin C-1000mg, chloroquine, turmeric, lemon,	7 days	https://www.uhealth.org/today/19-goes-home-after-son-prayed-days/

		unripe pineapple and steam inhalation plus prayer.		
Ekiti State. Nigeria	Governor.	Onion and blackseed oil, blended together and mixed with pure honey. One tablespoon morning and night plus one tablet of vitamin C (1000mg) daily.	7-10 days	https://www.lindaikejisblog.com/19-with-carrots-black-seed-oil-h-governor-makinde.html
United Kingdom	Old Nigerian woman	Ginger, 20 cloves of garlic and lime blended together and made to paste. A scoop of the paste was put in a teacup of boiled water with lipton tea and 1000mg of grounded paracetamol. She	3days.	https://www.detectuniverse.com/virus-extra.html

		took it every 4 hours.		
USA	Nigerian family	Turmeric powder, ginger, garlic and lemon cooked together with the steam inhaled by covering head with blanket while inhaling the steam from the hot pot.	3days.	https://www.detectuniverse.com/virus-extra.html
Anambra state, Nigeria.	A former governor.	Lemon (two or three), ground ginger (one teaspoon), ground turmeric(one teaspoon),ground black pepper(half teaspoon), ground garlic (half teaspoon) are mixed in hot water and taken. The person draw (breath) in the steam through the nose for 20-30minutes. Among the herbal elements in the steam are usually neem(dogoyaro),		https://www.vanguardngr.com/2020/05/20/people-treated-with-herbal-cure-for-covid-19/

		lemon grass, ginger, mango leaves and guava leaves. If people take the herbal mixture every morning, steam every four days and take vitamin c (1000mg),		
Madagascar	Madagascar Institute of Applied Research	Artemisia, Neem leaf (dogoyaro leaves), paw paw leaf, small garlic and ginger, lime and oranges. Cook them together for 30minutes for effective treatment. Inhale as it is being boiled, it clears your lungs.	7-14days.	https://www.africanews.com/2020/05/20/organics-madagascar-launches-essential-oils-to-treat-covid-19-virus/
Nigeria	Organic Chemistry Researcher	<ul style="list-style-type: none"> • Bark, Leaves and Root of Neem tree (Azadirachta indica also called Dogoyaro in Yoruba) •10 pieces fresh Tetrapleura tetraptera (also called AIDAN in Yoruba) •10 handful of Heliotropium indicum roots (also 	7-14days.	https://theeagleonline.com.ng/news/2020/05/20/organic-chemistry-researcher-provides-details-of-herbs-to-cure-covid-19/

		<p>called egbo agogo igun in Yoruba)</p> <ul style="list-style-type: none"> •10 handful of Khaya grandifoliola Bark (also called eepo Oganwo in Yoruba) •A handful of Opuntia dillenii (also called oro agogo in Yoruba) •Two handful of Bird pepper or Capsicum frutescens (also called Ata Ijosin in Yoruba) •A handful of Turmeric (also called Atale in Yoruba) •A handful of Garlic or Allium sativum (also called alubosa aayu in Yoruba) •5 litre of original honey (also called Oyin Igan in Yoruba) •Some bottles of Schnapps <p><u>Preparation Steps</u></p> <ul style="list-style-type: none"> •Cut the hard parts of the plant materials into small pieces •Arrange them into a new cooking pot •Add 5 litres of original honey and 		
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		<p>Schnapps that will be enough to bring it to boil</p> <ul style="list-style-type: none"> •Place the pot on fire and boil for 45 minutes • Allow it to cool <p><u>Dosage</u> After it has been warmed on fire, drink in this order:</p> <ul style="list-style-type: none"> •Children: 5 ml morning and night •Adults: 10 ml morning and night. <p>It is to be taken 45 minutes before breakfast and 45 minutes before bed time for two weeks.</p>		
Jigawa State, Nigeria.	Head of the research team of Federal University of Jigawa.	Medicinal plants	Toxicity evaluation is in progress.	https://www.channelstv.com/2020/05/14/varsity-in-jigawa-commences-clinical-trial-based-covid-19-medicine/
Yobe State	President, College of Traditional Medicine and Acupuncture LTD.	Four seeds and plants.	Certification in progress.	https://aynaijang.com/2020/05/14/another-cure-for-coronavirus-reaches-the-lungs.html
Edo state.	Joint effort of University of Lagos and University of Benin.	CVD PLUS	NAFDAC approval is ongoing.	https://fadakay.org/ewu-monastery-approves-cvd-plus-for-the-treatment-of-covid-19/

Author Contributions

OEO & CNO conceptualization, reviewed the draft manuscript and certified final manuscript.

EON conducted the search, data extraction, drafting of manuscript.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

- Amadi, C.N., Ofor, S.J., Frazzoli, C. and Orisakwe, O.E., 2019. Natural antidotes and management of metal toxicity. *Environmental Science and Pollution Research*, pp.1-21.
- Chen, Z. and Nakamura, T., 2004. Statistical evidence for the usefulness of Chinese medicine in the treatment of SARS. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*, 18(7), pp.592-594.
- Covid 2019. Coronavirus disease- situation reports. *World Health Organization. Situation Reports*, pages 1–56.
- El Sayed, S.M., Almaramhy, H.H., Aljehani, Y.T., Okashah, A.M., El-Anzi, M.E., AlHarbi, M.B., El-Tahlawi, R., Helmy11, M.M., Aboonq12, M., Hamouda, O. and Alhadramy, TaibUVID for Minimizing COVID-19 Fatalities and Morbidity: An Evidence-based Approach for Better Outcomes (A Treatment Protocol). *American Journal of Public Health*, 8(2), pp.54-60.
- General Office of National Health Committee, 2020. Office of state administration of traditional Chinese medicine. *Notice on the issuance of a program for the diagnosis*

and treatment of novel coronavirus (2019-nCoV) infected pneumonia (trial version 6)[text in Chinese.

Guan WJ, Ni ZY, Hu Y, et al. China Medical Treatment Expert Group for Covid-19. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med* 2020. 10.1056/NEJMoa2002032 32109013.

<https://aynaijang.com/2020/05/nigeria-doctor-discovers-another-cure-for-coronavirus-reveals-seeds-to-improve-the-lungs.html>.

<https://fadakay.org/ewu-monastery-develops-cvd-plus-for-the-treatment-of-covid-19/>.

<https://theeagleonline.com.ng/nigerian-researcher-provides-details-of-herbs-to-cure-covid-19/>.

<https://www.africanews.com/2020/04/22/covid-organics-madagascar-launches-africa-s-first-cure-for-virus/>.

<https://www.channelstv.com/2020/04/24/federal-varsity-in-jigawa-commences-clinical-trial-of-plant-based-covid-19-medicine/> .

<https://www.detectuniverse.com.ng/2020/04/corona-virus-extra.html>.

<https://www.lindaikejisblog.com/2020/4/i-fought-covid-19-with-carrots-black-seed-oil-honey-vitamin-c-governor-makinde.html>.

<https://www.uhealth.org/today/jbs-worker-with-covid-19-goes-home-after-son-prayed-outside-hospital-for-days/>.

<https://www.vanguardngr.com/2020/04/covid-19-people-treated-with-herbal-cure-recovers-faster-%E2%80%95eife/>.

Liu, Y., Gayle, A.A., Wilder-Smith, A. and Rocklöv, J., 2020. The reproductive number of COVID-19 is higher compared to SARS coronavirus. *Journal of travel medicine*.

Mondal, S., Mirdha, B. R., S, M. 2009. The science behind sacredness of Tulsi (*Ocimum sanctum* Linn.). *Indian J Physiol Pharmacol*, 53:291–306.

Orisakwe, O.E., Amadi, C.N., Frazzoli, C. and Dokubo, A., 2020. Nigerian foods of probiotics relevance and chronic metal exposure: a systematic review. *Environmental Science and Pollution Research*, pp.1-13.

Richman, D.D., Whitley, R.J. and Hayden, F.G. eds., 2016. *Clinical virology*. John Wiley & Sons.

World Health Organization, 2020. Coronavirus disease 2019 (COVID-19): situation report, 51.

Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA* 2020. 10.1001/jama.2020.2648 32091533

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:



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