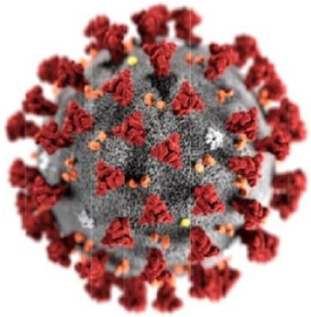
African Scientific Research and Innovation Council

African Union
SCIENTIFIC TECHNICAL RESEARCH COMMISSION

COVID-19

ASRIC Response and Intervention



ASRIC STI Intervention on COVID-19

Report on Africa's Indigenous Knowledge for Prevention and Control of Emerging Infectious Diseases on the Continent like COVID-19: Utilizing an Afro-Centric Response

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"Actions and Interventions"

This report is developed by the

ASRIC Working Group
on
Africa's Indigenous Knowledge for Prevention and Control of Emerging Infectious Diseases on the Continent like COVID-19: Utilizing an Afro-Centric Response

I. Introduction:

The Coronavirus 2019 (COVID-19) is a new respiratory illness that can easily be spread from person to person (WHO, 2020). Some of the means by which Covid-19 is spread include, contact with droplets produced by an infected person who is sneezing or coughing, or through touching contaminated objects and surfaces.

Since the first case of COVID-19 on the continent was confirmed in Algeria in February 2020, there are now more than 600,000 cases in Africa and they are increasing by the day. Some of the most affected nations to date include South Africa, Nigeria, Algeria, Egypt, Kenya and Cameroon. Besides COVID-19, Africa has been confronted with other epidemics such as Lassa fever and Ebola.

According to the World Health Organization (WHO), Lassa fever is known to be endemic in Benin, Ghana, Guinea, Liberia, Mali, Sierra Leonne, Togo and Nigeria, but probably exists in other West African countries, while, Ebola, since its discovery in 1976, has crossed borders to African Member States including Guinea, Sierra Leone, Liberia and DRC.

A report titled "Secondary impacts of major disease outbreaks in low-and-middle income countries", dated February, 2020 explains the devastating socio-economic consequences of pandemics in Africa. The report lists disruption of social cohesion, breakdown of trust, change of behavior that erodes the social fabric of families and communities and accelerated illiteracy as schools are closed due to fear of contagion.

Economically, pandemics have been characterized by massive job losses, collapsed businesses and dwindling livelihoods whenever they occur. The World Bank has already predicted that low-and-middle income economies of Africa will be seriously affected by the novel COVID-19 pandemic. The World Bank economic forecast for Africa paints a grim picture and reinforces the need for concerted efforts to curb the further spread of COVID-19 and other emerging infectious diseases.

In response to Africa's socio-economic challenges including previous pandemic outbreaks in Africa, the African Union established the Science, Technology and Innovation Strategy for Africa (STISA-2024). The master plan is hinged on four pillars, one of which is building technical and professional competencies, anchored on six priority areas that contribute to the overall development of Africa, one of which is prevention and control of diseases.

The African Research and Innovation Council (ASRIC) as a specialized Technical Advisory Body to the African Union reacted aggressively to the COVID-19 pandemic by assembling its scientists from Africa and Diaspora. Several advisory boards and working groups were established to advice the AU member states and to lead the Africa's scientists' movement to eliminate/prevent the socio-economic impact of COVID-19 on Africa. Based on this, **a working Group has been established to investigate Africa's indigenous knowledge for prevention and control of emerging diseases like COVID-19.**

This working group is mandated to investigate Africa's indigenous knowledge for preventing and controlling emerging infectious diseases on the continent like Covid-19, Lassa fever and Ebola.

II. Actions and Interventions:

The intervention to be considered under this working group was developed after intensive consultation among its members and it is designed to address the following areas:

a. Traditional medicine intervention to Covid-19 pandemic, this is through:

I. Compiling a compendium of plants through a systematic review of literature on published works on antiviral medicinal plants with view to selecting potent plants for large scale biopharmaceutical production *(Short term goal)*;
II. Identifying quinolines alkaloid analogues from local medicinal plants in Africa used in treating fever and flu indigenous to Africa, and testing their efficacies against COVID 19, Ebola and Lassa fever *(Long term goals)*;
III. Identifying already licensed African based herbal products for boosting the immune system and engaging in clinical trials against COVID 19, Lassa fever and Ebola "by determining, establishing and codifying an Afro-standard for herbal extracts, products and derived supplements which meets or exceeds international standards" *(Short term goal)*.

b. Posting Community Prevention Measures Covid-19 Pandemic, this is through:

I. Proposing a community strategic guideline for prevention of COVID 19 as well as Lassa and Ebola in rural and semi urban Africa *(Short term goals)*;
II. Producing standard operating procedures (SoPs) for the production, efficacy, safety and quality control for the use of hand sanitizers in Africa. Hand sanitizers production that have broad spectrum for DNA and RNA viruses (SOPs and usage and safety) *(Long term goals)*;
III. Identifying selected antiseptic plants and locally-sourced materials to produce disinfectants for hand sanitizers; standardization for manufacturers of hand sanitizers taking in to consideration production from locally available materials in Africa (from Africa's unique bio-cultural diversity) efficacy, safety, and availability *(short term goal)*;
IV. Working out the production of simple face masks with the precise filter size with appropriate filter size for filtration of COVID 19 *(Long term goals)*;
V. Screening the selected antiviral plants visa–a- vis standard controls against COVID 19 using proxy models and running randomized control clinical trials on extracts and products found to be effective in vitro *(Long Term goals)*;
VI. Developing unique afro-centric policy briefs and policy guidelines for the integration model for integrated hospitals in Africa that combine Orthodox and Complementary medicine *(Long term goals)***.**

The following table shows the interventions and actions that to be outsourced:

SN	Intervention	Action
a.I	Compile a compendium of plants to select potent plants for large scale biopharmaceutical production for the treatment and management of COVID 19,	• A systematic review of literature on published works on antiviral medicinal plants on regional bases considering the AU geopolitical regions "North, East, South, West and Central regions". • Analyze and compare data on antiviral medicinal plants through a synthesis of the most promising plants with antiviral

	Ebola and Lassa fever.	activity and indigenous and native to African regions. • Select potent plants for large scale biopharmaceutical production for the treatment and management of hemorrhagic fevers and COVID-19. • Development an African compendium of antiviral medicinal plants.
a.II	Identify quinolines alkaloid analogues from local medicinal plants used in treating fever and flu indigenous to Africa and test their efficacies against COVID 19, Ebola and Lassa fever.	• Setup a research consortium to identify the quinoline derivatives from medicinal plants used in treating fever and flu indigenous • Examine their efficacies against COVID 19, Ebola and Lassa fever.
a.III	Identify already licensed African based herbal products for boosting the immune system and engage in clinical trials against COVID 19, Lassa fever and Ebola.	• Development of questionnaire relevant bodies, institutes and organizations for information collection on already licensed products for boosting the immune system; • Analyzing the information and examining safety and efficacy for medicinal applications; • Development of clinical trial schemes for the potential drugs and biopharmaceuticals that are in agreement with WHO Operational guidance: Information needed to support clinical trials of herbal products and the Guidelines for clinical study of traditional medicine in the WHO Africa region. • The potential products/drugs to be introduced for clinical trials.
b.I	Propose a community strategic guideline for prevention of COVID- 19 as well as Lassa and Ebola in rural and semi urban Africa	• Development of community strategic guidelines for prevention of COVID- 19 as well as Lassa and Ebola in rural and semi urban Africa; • Validation of the Guideline.
b.II	Produce standard operating procedures (SoPs) for the production, efficacy, safety and quality control for the use of hand sanitizers in Africa	• Develop invitro antimicrobial evaluation procedures using E coli, Staphylococcus aureus, and Coliforms as efficacy index for hand sanitizers. Specific In vitro antiviral testing using cell cultures line of viruses including SARS COV- 2 • Alcohol testing and impurities using Gas Chromatography (GC)
b.III	Identify selected antiseptic plants and locally source materials to produce disinfectants for hand sanitizers using locally available materials in Africa.	• Hand sanitizers production that have broad-spectrum for DNA and RNA viruses (SOPs and usage and safety); • Development of technical guidelines on the production of handmade sanitizers from antiseptic plants; • Development of technical guidelines on water purification system.
b.IV	Work out the production of simple face masks with the precise filter size with a community strategy for the prevention of COVID 19 as well as Lassa and Ebola.	• Determine Best choices for face masks: Pillow cases, fabrics, tightly knitted fabrics , e.g. 100 % cotton for making local face masks in comparison to 0.02 micron size surgical masks are 90% efficient in filtering such as KN95 and N95 • Using Optical microscopic study of surface morphology and filtering efficiency of face masks made and used in Africa for optimal efficiency • Using Gas Liquid Porometer to reliably measure Pore Size and distribution for falter media used in face masks • Develop evidence based scientific tools to guide and produce efficient face mask • Develop Standard operating procedures for use, reuse and discard
b.V	Screen the selected antiviral plants visa –a- vis standard controls against COVID 19 using proxy models and run randomized control clinical trials on extracts and products found to be effective in vitro	• Develop protocols for in vitro testing on SARS Cov- 2 via cell culture lines • Evaluate the ability of extracts to promote pDC survival in the context of COVID 19 infection: Human pDCs isolated from healthy donors will be infected with SARS COV- 2 and cultured in the presence and absence of extracts. Viral replication and type I interferon production will be evaluated by RT-PCR. • Isolate and characterize the biologically active components responsible for the anti-COVID 19 and immunomodulatory properties of extracts. Extracts from each potent plant shall be determined to promote anti-COVID or immunomodulatory properties will be fractionated and characterized by LC-MC. • Clinical trial protocols following WHO guidelines shall be

		developed for and appliedy following anti COVID/antiviral products for wider clinical trial evaluation across Africa.
b.VI	Develop policy brief and policy guideline for the Integration model to be used by integrated hospitals in Africa that combine Orthodox and Complementary medicine	• Development of the guideline • Validation of the Guideline.

III. Stakeholder Analysis – Internal and External:

In this part, stakeholders are defined to be "A stakeholder is an individual, group or organization who is impacted by the outcome of a project. They have an interest in the success of the project, and can be within or outside the organization that is sponsoring the project. Stakeholders can have a positive or negative influence on the project, its objectives and overall goals". Generally, stakeholders can be divided into *internal stakeholders* which refers to the individuals and parties within the organization that have a direct impact on the project, while, *external stakeholders* represent outside parties, which affect or get affected by the business activities and have an indirect impact on the project. The following table also explains the different types of stakeholders.

Stakeholder Categories:

For the purpose of the ASRIC STI Intervention to Covid-19 via an afro-centric response, the analysis for the stakeholders involved is presented as follows:

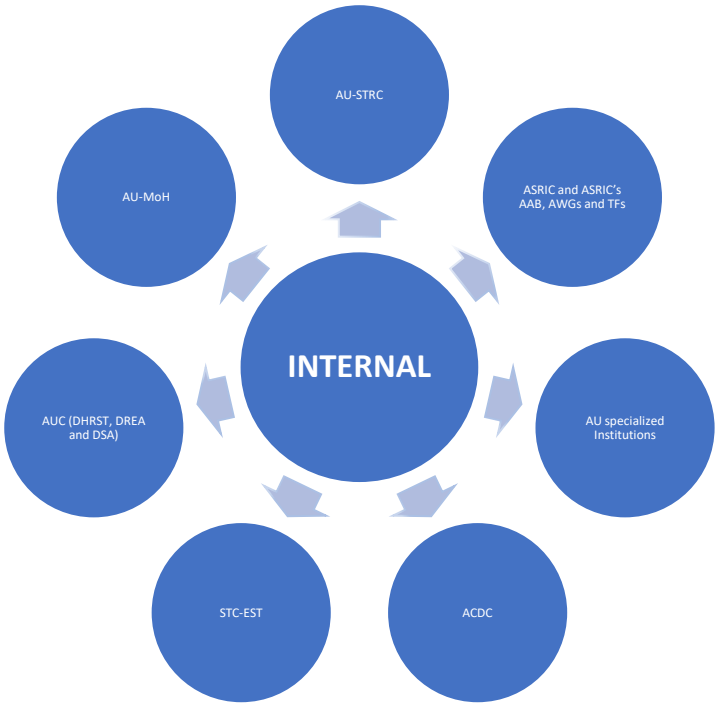

Figure 1. Internal stakeholders

Figure 2. External stakeholders

Stakeholder Mobilization and engagement is imperative to ensure that the output is widely appreciated and that it will benefit the targeted groups and communities. This is also to ensure the active participation of the stakeholders in all the project steps, as such they will be more committed to the dissemination and implementation of the projects output and recommendations.

There are several strategical cost-effective solutions, ways and tools on how to mobilize stakeholders both online and offline such as a website; activities on social media; newsletters, basic dissemination materials; articles; events, workshops, and conferences.

The stakeholders generally need to be well informed about the ASRIC and its COVID-19 Intervention and its working group on Africa's indigenous Knowledge for Prevention and Control of Emerging Infectious Diseases on the continent like COVID-19: Utilizing an Afro-centric Response. This includes its mandate, objectives and values, the progress so far achieved and how they can contribute to the ongoing discussion on its challenges and targets. Applying good practice principles is important.

There is a need to disclose early with the aim of providing relevant information to targeted stakeholders in advance. At a minimum, we need to explain the next steps and be clear about which project elements are fixed and which can be changed or improved upon, based on consultation and participatory inputs. Objective information needs to be disclosed to the extent possible, and to be open about ASRIC and its workings.

IV. Conclusion:

This document presents the interventions and actions of the ASRIC's Africa's indigenous Knowledge for Prevention and Control of Emerging Infectious Diseases on the continent like COVID-19: Utilizing an Afro-centric Response. With the support of stakeholders, the working group will be in position to deliver its mandate timely and precisely. In addition, the working group needs to work closely with the ASRIC Secretariat to ensure the participation of stakeholders in all the project process. This document would be improved in due course where necessary.

V. References:

Rohwerder, Brigitte (2020) Secondary impacts of major disease outbreaks in low- and middleincome countries https://assets.publishing.service.gov.uk/media/5e6237e6e90e077e3b483ffa/756_Secondary_impacts_of_major_disease_outbreak__in_low_income_countries.pdf

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