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Reconceptualizing Epistemic Violence in the Post-Colonial Era: A Critical Literature Review of Madagascar's Covid-Organics Controversy

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ABSTRACT

Amidst the global search for a COVID-19 treatment, an unexpected nation proposed a breakthrough. In April 2020, Madagascar's President introduced Covid-Organics (CVO), an herbal remedy combining an established malaria treatment with traditional indigenous Malagasy knowledge. Its introduction sparked immediate enthusiasm across nearby African nations, cultivating a sense of pan-African pride. However, international health organizations quickly responded with intense criticism, rejecting the formulation over missing clinical trials and worries about the emergence of drug-resistant malaria strains. By the time peer-reviewed Phase III trials for CVO+C were published in October 2022, heavily funded and fast-tracked Western treatments had already monopolized the market, receiving results in just five months compared to CVO's two-and-a-half years. Facing systemic barriers in funding and publication, Global South nations have historically been victims of epistemic violence, where indigenous scientific knowledge is systematically delegitimized by dominant Western frameworks. Therefore, existing literature interprets epistemic violence in Africa through less morally ambiguous cases: the biopiracy of indigenous African botanical resources like the Madagascar periwinkle, hoodia cactus, Nigerian cowpea, endod berry, and the historical exploitation of Africans as involuntary medical test subjects. CVO, however, is unique because it is difficult to extract a definitive "right side" of the controversy, highlighting the need for a critical literature review to explore the parameters of intellectual discrimination. By synthesizing and critically analyzing existing debate on the topic, this paper concludes that the scope of epistemic violence should be reinterpreted not as a mere binary of Western scientific supremacy versus African intellectual sovereignty, but as the result of embedded structural asymmetry in the funding, infrastructure, and institutional authority reinforced by postcolonial hierarchy.

INTRODUCTION

"They can't admit that a country like Madagascar has come up with this formula to save the world," declared Madagascar's President Andry Rajoelina during a press conference on April 20, 2020 [1]. In the face of COVID-19, a global pandemic that had infected millions within a month of its declaration, Madagascar introduced Covid-Organics (CVO), an amber-colored herbal remedy that Rajoelina claimed

could both prevent and cure the virus within seven days [2]. Despite widespread criticism from international health authorities, including the World Health Organization (WHO), the United Nations (UN), and the U.S. Centers for Disease Control and Prevention (CDC), Rajoelina remained defiant, publicly drinking the remedy before diplomats and journalists as a demonstration of his confidence in CVO [3]. "If it was a European country that had actually discovered this remedy," he questioned, "Would there be so much doubt?" [4]

Though presented by Rajoelina as a seemingly "miracle" cure, CVO was, in reality, rooted in a long history of scientific tradition. The remedy was developed in early 2020 by the Malagasy Institute of Applied Research (IMRA), an institute founded in 1957 with a respected history of refining traditional indigenous Malagasy knowledge and herbs into pharmaceutical treatments, such as the anti-diabetic drug Madeglucyl and cancer-treating Madagascar Periwinkle [5]. The original CVO formula consisted of 62% Artemisia annua (sweet wormwood), a plant already renowned for its anti-malarial properties, combined with an undisclosed mix of herbs derived from the traditional knowledge of the Malagasy [6]. Fearing a repeat of historical epistemic violence such as the 1954 Madagascar periwinkle biopiracy scandal, the IMRA withheld the identities and exact composition of the remaining ingredients [7].

The launch of CVO sparked an immediate divide that pitted international institutions and Western media outlets who labeled it "untested" against African nations like the Democratic Republic of Congo, Equatorial Guinea, and Niger who celebrated it as a symbol of pan-African pride and scientific sovereignty [8]. As Liberia's Deputy Information Minister Eugene Farghon proclaimed: "Madagascar is an African country... Therefore we will proceed as an African nation and will continue to use our African herbs." However, this initial solidarity quickly gave way to a more critical reception following international rejection: domestic authorities like the Malagasy National Academy of Medicine warned of public health risks, regional bodies like Economic Community of West African States (ECOWAS) and West African Health Organization (WAHO) dissociated themselves from CVO, and initially enthusiastic recipient nations like Ghana, Senegal, and Tanzania restricted CVO to laboratory evaluation [9]. Meanwhile, as the WHO continued to voice their dissent of the premature distribution of CVO, the organization also partnered with the African Union in July 2020 to establish standardized, evidence-based clinical trial pathways for traditional COVID remedies [10].

Despite the WHO's efforts, the presence of an official validation pathway did not automatically level the playing field. In Madagascar, traditional medicine (fanafody gasy) is an intrinsically trusted, 2,000-year-old pillar of identity utilized by an estimated 80% of the population [11]. However, researchers in the Global South continue to face severe structural barriers, particularly in securing funding and achieving publication in high-impact, English-dominated Western journals [12]. This contrast raises the critical question of whether the Western-centric nature of international medicine and dismissal of CVO, a descendant of African traditional medicine, constitutes a form of epistemic violence: the historical delegitimization of non-Western knowledge that brands indigenous epistemology as "primitive," "witchcraft," or "quackery" [13].

The rapid emergence of Western pharmaceutical solutions ultimately overshadowed the potential of traditional medicine like CVO as a COVID-19 treatment. As highly effective mRNA vaccines developed by Pfizer-BioNTech and Moderna became widely available in late 2020 and early 2021, international attention shifted toward vaccine distribution and immunization campaigns [14]. By the time peer-reviewed Phase III trials for CVO+ were published in October 2022, fast-tracked Western treatments had already monopolized the market, securing results in just five months compared to CVO+'s two-and-a-half years [15]. Consequently, global discourse moved away from the controversy, leaving the underlying structural inequities of post-colonial science largely unaddressed.

Despite the IMRA's ultimate failure to distribute CVO+ worldwide as an effective treatment for COVID-19, the debate over its reception raises broader questions about who has the authority to define legitimate scientific knowledge. Although international skepticism towards CVO can be justified in part by the principles of evidence-based medicine and concerns for public health, its dismissal cannot be understood solely through the lens of scientific caution. Rather, as Western medicine established itself as the universal standard, assumptions of African scientific inferiority reinforced unequal standards of credibility and structural inequalities in funding, testing infrastructure, and publishing restricted Madagascar's ability to achieve international scientific validation. At the same time, it is important to be wary of offhandedly characterizing Western colonialism as a source of epistemic violence. When faced with a global health crisis, there is a fine line between ensuring the medical safety of CVO and promoting African scientific sovereignty. Therefore, this literature review uses the case study of Madagascar's CVO treatment to reinterpret the conceptual boundaries of epistemic violence within the context of global health standards against the backdrop of a raging pandemic.

THE CASE AGAINST CVO: SCIENTIFIC SKEPTICISM AND A POLITICALLY-MOTIVATED AGENDA

The most pressing cause for international alarm surrounding the distribution of CVO was the lack of formal documentation for safety or efficacy in humans. At the time of its official release on April 20, 2020, the remedy had been tested on fewer than 20 people over a period of only three weeks [16]. For a disease like COVID-19, where approximately 85% of patients recover naturally regardless of treatment, such a small sample size is considered statistically insignificant by the international scientific community [17]. These "tests" were characterized by the Malagasy government as "clinical observations" rather than randomized clinical trials (RCTs), which are the global gold standard for validating scientific research [18].

Consequently, global health authorities like the WHO and Centers for Disease Control and Prevention (CDC) voiced strong concern that CVO was an unproven treatment that should not be distributed without properly meeting these objective standards [19]. Commentaries in Western outlets frequently adopted a dismissive tone, labeling CVO an "untested natural therapy," "fake medicine," or even insinuating that it might be "quackery" [20]. This worry was echoed by the Madagascar National Academy of Medicine,

which warned that CVO was an "untested" drug that risked damaging the health of the population, particularly children [21]. Because IMRA did not disclose the composition of the remaining 38% of CVO beyond Artemisia annua, scientists were unable to validate the formula for potential synergistic toxicity or adverse drug interactions [22]. Skepticism was not confined to Western institutions; regional bodies such as the Economic Community of West African States (ECOWAS), the African Union, and the Africa CDC all refused to endorse CVO without first reviewing technical data on its safety and efficacy based on global ethical norms [23].

Perhaps the strongest scientific argument against CVO was its potential to accelerate drug-resistant malaria. Artemisia annua contains artemisinin, a key component of malaria treatments, and the WHO has long recommended against its use as an oral monotherapy due to concerns over parasites developing resistance to the treatment [24]. Experts like Kevin Marsh of the University of Oxford and Stony Brook University pharmacologist Dr. Arthur Grollman emphasized that even if artemisinin were effective against COVID-19, using it for this purpose would potentially sacrifice the world's primary defense against malaria for an unproven viral treatment [25]. However, researchers like Philip Bejon of the KEMRI-Wellcome Trust Research Programme countered that the risk of accelerating artemisinin resistance may be overstated, as African pharmacies have long sold artemisinin over-the-counter, resistance has not spread widely in Africa, and the dosage of artemisinin present in herbal preparations remains unclear [26].

Global skepticism toward CVO intensified as President Rajoelina, acting as the remedy's primary marketer, promoted it through televised demonstrations and social media rather than peer-reviewed journals [27]. The tonic's sleek, soft-drink-like branding led analysts to view it as a "political stage act" intended to bolster Rajoelina's popularity amidst Madagascar's chronic economic and political instability [28]. Concerns of political overreach expanded when the government mandated CVO for schoolchildren and launched the company Pharmalagasy to commercialize the remedy as "CVO+" capsules, raising questions about who gets to profit from widespread use of CVO [29]. This political lens suggested that the Malagasy government used optimistic Pan-African rhetoric under the "Africa rising" narrative to shield CVO from the scrutiny of the scientific community, a move that fundamentally undermined its medical credibility.

STRUCTURAL INEQUALITIES AGAINST THE TESTING AND DEVELOPMENT OF CVO

A primary barrier to the international validation of CVO was the significant disparity in research and development (R&D) funding between the Global North and Global South. While the United States launched Operation Warp Speed with an initial $10 billion budget to fast-track vaccine candidates like Moderna and Oxford/AstraZeneca before their clinical trials were even complete, Madagascar simply did not have the "financial muscle" to make risky investments at this scale [30]. As researchers noted, even promising studies on Artemisia in other geographical locations were often halted due to a lack of funding,

illustrating how global scientific developments are heavily influenced by those with the power to fund them [31].

Furthermore, IMRA scientists faced situational obstacles in clinical trial infrastructure. To meet the global gold standard for Phase III randomized clinical trials, researchers require large-scale datasets and thousands of participants [32]. Ironically, Madagascar's early success in controlling the virus through lockdowns resulted in a lack of sufficient patients to run such controlled studies [33]. In late April 2020, Madagascar had only 121 confirmed cases, making it statistically impossible to meet these requirements [34]. "What can we do?" asks Dr. Charles Andrianjara, Director General of the IMRA [35]. "We don't want more people getting sick, just so we can do more tests."

The perceived "legitimacy" of a medical discovery is also shaped by publishing and professional accreditation, which remain firmly established in the Global North. As Dr. Reggemore Marongedze, historian at the University of Zimbabwe, noted in "A Critique of Epistemic Hegemony and Intellectual Begging," African researchers often found themselves functioning as "hunter-gatherers" of raw data, while the Global North remained the site for processing that data into "consumable intellectual resources" [36]. Validation was typically sought through publication in "high-impact" international journals located in Europe and the United States [37]. This epistemic hierarchy meant that unless an African discovery were to be endorsed by these specific Western institutions, it would often be dismissed as "unscientific," as was the case with CVO.

In July 2020, the WHO made a direct effort to combat these structural obstacles by partnering with the Africa CDC and the African Union Commission to establish a 25-member Regional Expert Advisory Committee on Traditional Medicine for COVID-19 (REACT) [38]. Composed of experts from across Africa, this committee provided independent scientific advice, created technical protocols for Phase III clinical trials, and advised countries on the safety, efficacy, and quality of their traditional medicine therapies [39]. After the Phase III clinical trials for CVO+ made possible by this support concluded in March 2021, the WHO announced in July that REACT would evaluate the data and issue an independent scientific opinion [40]. Yet, the WHO never issued a further statement or follow-up, even when these trial results were peer-reviewed and released in October 2022. CVO+'s ultimate fate—abandoned in regulatory limbo—reflects the very systemic barriers Mutombo et al. highlighted in 2023 as routine obstacles to African traditional medicine research: laborious administrative processes, limited funding, lack of involvement of knowledge holders (healers), and weak intellectual property protections [41].

The issue was not simply that Madagascar "lacked evidence," but rather that Madagascar lacked the ability to produce the type of evidence demanded by global health authorities. The dismissal of CVO thus exemplifies how structural inequalities restrict the ability of the Global South to attain international recognition for scientific discoveries, regardless of the potential merit of its research. This creates a persistent cycle of marginalization that perpetuates Western dominance of global scientific research, despite Global South nations' efforts to push traditional medicine into the spotlight. Though initiatives

like REACT represent a constructive shift toward integrating traditional remedies, significant structural barriers remain before Global South knowledge systems achieve true epistemic equity.

COLONIAL LEGACIES AND A HIERARCHY OF MEDICAL KNOWLEDGE

Modern global health is rooted in colonial hierarchies of medicinal epistemology. As Dr. Francis Adyanga Akena, Associate Professor of Education at Kabale University, puts it, "European colonizers have defined legitimate knowledge as Western knowledge, essentially European colonizers' ways of knowing, often taken as objective and universal knowledge" [42]. As such, the post-colonial medicinal world had already pre-established a sort of "epistemological imperialism," where Western knowledge was the universal standard and indigenous practices were dismissed as "primitive" [43]. This institutional hierarchy was exemplified when, after international health organizations officially denounced CVO, African nations like Ghana, Senegal, and Tanzania swiftly withdrew their initial enthusiasm for the remedy.

The dismissal of CVO similarly reflected enduring colonial assumptions regarding African intellectual capacity. Imperial propaganda often branded Africa as a "Dark Continent" incapable of making meaningful scientific discoveries, a narrative that persisted despite a long history of pre-colonial biomedical expertise [44]. All the while, snake bites, life-threatening wounds, coughing, influenza, barrenness, impotence, and mental problems were treated on the continent prior to the 19th century [45]. However, lasting biases from the colonial period suppressed these histories, creating a dominant perception that Africans lack intellectual autonomy [46]. According to Rewai Makamani, Associate Professor at the Namibia University of Science and Technology, this dynamic created a "master-servant" relationship in which the Global North often has the power to make decisions for the health of Africans without consulting Africans themselves [47].

In July 2021, the WHO released a statement on the clinical trial of CVO+, acknowledging Madagascar's progress into Phase III clinical trials while reiterating that there was still "no specific antiviral treatment whose safety and effectiveness are proven to treat COVID-19." The WHO also congratulated the researchers for "conducting the clinical trial in compliance with national regulations and the proposed research protocol," a subtle rebuke to President Rajoelina's premature promotion of CVO the previous year [48]. By that time, though, COVID-19 vaccination campaigns were already well underway, with the Pfizer-BioNTech and Moderna vaccines administered under Emergency Use Authorization to hundreds of millions of people worldwide [49]. In the urgency of a global pandemic, Western countries with established research infrastructure and funding obtained fast-tracked approval, while traditional knowledge like CVO remained subject to the slower process of clinical trial after clinical trial. Even with the WHO's support via REACT and access to clinical trial infrastructure, CVO+ took two-and-a-half years to receive Phase III trial results, while Western formulas like Pfizer-BioNTech's BNT162b2 and Moderna's mRNA-1273 took a mere five months [50]. By the time Malagasy researchers published the peer-reviewed Phase III trial results in October 2022, global interest had waned, and the study met near-complete silence from the same international media that was so quick to criticize it two years earlier.

Although the trial demonstrated statistically significant clinical improvement without serious adverse effects, the complete lack of acknowledgement from international health bodies left the remedy sidelined while Western pharmaceuticals continued to dominate global health [51].

DISCUSSION

Ultimately, evidence-based medicine remains indispensable to global health, and initial international skepticism toward the launch of CVO was scientifically justified given its lack of sufficient evidence and the Malagasy government's premature promotion of the remedy. However, CVO+'s failure to be widely integrated as a curative COVID-19 treatment does not invalidate the broader questions raised by its reception: who has the authority to define "legitimate" scientific knowledge? Whose medical innovations receive the resources and recognition necessary for validation? And how can global health maintain scientific rigor while addressing historical inequalities in knowledge production?

Indeed, subsequent laboratory testing in September 2021 by researchers at the Max Planck Society demonstrated that the plant extracts in CVO did exhibit in vitro (in glass/petri dish) antiviral activity against COVID at concentrations that did not harm cell viability [52]. Furthermore, animal model safety assessments published in 2023 verified that CVO is not toxic, safe for short- and long-term usage, and exceptionally rich in natural antioxidants [53].

Most importantly, the long-awaited peer-reviewed, WHO-sponsored paper evaluating Phase III clinical trials for Madagascar's improved capsule version of CVO, CVO PLUS CURATIF (CVO+C), was published by Rakotosaona et al. in the Archives of Clinical and Biomedical Research (October 2022) [54]. Designed as a randomized, double-blind, placebo-controlled trial, the study evaluated non-hospitalized adult patients with mild-to-moderate, PCR-confirmed COVID-19 [55]. The primary outcome was defined as clinical cure, measured by complete symptom resolution and viral clearance confirmed via RT-PCR [56]. The trial reported an 87.1% curative efficacy in the CVO+C group compared to placebo, alongside a statistically significant reduction in median recovery time from 21 days in the placebo group to 14 days in the treatment arm, with zero patients in the CVO+C group progressing to severe disease [57]. The authors applied standard comparative statistical methodology (using chi-squared tests for categorical outcomes and log-rank tests for time-to-recovery Kaplan-Meier analyses) to conclude that CVO+C was both safe and effective for mild-to-moderate cases [58].

However, a rigorous appraisal of the study design reveals several methodological constraints that limit its legitimacy within international regulatory frameworks. First, the total sample size of 276 patients is relatively small for a Phase III trial, limiting the statistical power necessary to detect rare adverse events or assess efficacy across diverse patient subgroups [59]. Second, the trial suffered a high attrition rate of 18.6%, introducing potential attrition bias if dropping out was correlated with treatment side effects or lack of efficacy [60]. Third, the study lacked independent replication; its findings have not been verified by external, multi-center trials outside of Madagascar, which remains a key requirement for international

bodies like the WHO or FDA [61]. Finally, the study was constrained by significant resource-driven limitations, including insufficient funding for chest CT scans to monitor lung pathology, genomic sequencing for SARS-CoV-2 variant identification, and deep immunological profiling [62]. Thus, even when backed by the WHO via REACT, significant structural barriers still remain for African traditional medicine to be deemed scientifically legitimate. While this trial marked a landmark milestone for integrating traditional medicine into formal clinical research, its validation remained sidelined by the global health community, as only one media outlet, News Medical, ever reported on it [63].

In light of these findings, we must not fall into the trap of reducing the CVO debate to a binary between Western neocolonial oppression and the African strive for scientific sovereignty, or a binary between evidence-based scientific standards and CVO's initial lack thereof. Epistemic violence in global health should not be conceptualized merely as an outright suppression of non-Western knowledge, but rather as a structural asymmetry in how scientific legitimacy is established, credentialed, and funded. The various methodology limitations of CVO's phase III clinical trial exemplify this very structural asymmetry. Rather than concluding that phase III results fail to legitimize CVO, it is important to consider that, if abundant and systematic support were offered, CVO testing could potentially yield results that substantially support its efficacy.

Epistemological scholars such as Miranda Fricker and Kristie Dotson highlight that epistemic wrongs manifest when dominant institutions set unequal standards of credibility or operate within linguistic and conceptual frameworks that systematically undervalue alternative ways of knowing [64]. In medication-related issues, this means recognizing that while clinical rigor cannot be compromised during a public health crisis, the material and technical infrastructure required to produce "acceptable" clinical evidence remains heavily skewed toward Global North interests [65]. Global South researchers consequently face severe structural barriers, ranging from an acute lack of Good Laboratory Practice (GLP) certified facilities and high-tech diagnostic equipment to systemic exclusion from international research grants and high-impact publishing networks [66].

Furthermore, redefining this space requires active vigilance against "elite capture," where the decolonization agenda is co-opted by Global North actors who appropriate the language of decoloniality to maintain their institutional dominance [67]. This paradox is laid bare by findings showing that almost 75% of academic literature discussing the decolonization of global health is authored by scholars in North America and Europe, while only 22% of first authors are affiliated with institutions in low- and middle-income countries [68]. To truly achieve epistemic justice, decolonial agency must be returned to the Global South. The WHO's establishment of REACT (Regional Expert Advisory Committee on Traditional Medicine for COVID-19) was a strong first step in the right direction, as by funding and supporting clinical trial protocols to empower African scientists to generate universally acceptable clinical evidence without compromising patient safety, it provided a pathway to fast-track the local manufacturing and commercialization of safe, validated traditional therapies. However, as noted by African researchers Polydor Ngoy Mutombo et al. and Augustine Anayochukwu Onyeaghala et al., these institutional efforts continue to be hampered by severe funding shortages for large-scale trials and slow, laborious

bureaucratic processes, where national ethics committees can take between 8 and 72 weeks to review clinical protocols [69].

CONCLUSION

Definitively determining whether the international treatment of Madagascar's Covid-Organics constitutes a case of epistemic violence remains complex, as it sits right at the intersection of legitimate scientific skepticism and deep-seated structural inequalities in Global South research infrastructure. The global health community should not abandon evidence-based medicine in favor of challenging hierarchies of knowledge rooted in colonial histories, but rather work toward a more equitable application of both standards. Building on existing literature, redefining epistemic violence in global health emergencies requires shifting agency to the Global South, investing in decentralized, locally led research infrastructure, and funding mechanisms that empower Global South scholars on their own terms.

FOOTNOTES

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