



Food fraud amid COVID-19 in Sub-Saharan Africa: A challenge of the present

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Dear Editor,

In Sub-Saharan Africa (SSA), lack of oversight and a wide range of informal markets have made it challenging to regulate food fraud. Recently, the integrity of food consumed by over 900 million people in SSA has attracted global attention, despite the dearth of statistical evidence. Nonetheless, various research groups in SSA and news reports from this region make out that the level of food fraud is enormous. In a COVID-19 pandemic era where the issue of food security has taken center stage [1], toxic rice and grains, gamalin-poisoned fish (as a result of killing fish by poisoning water with gamalin), formaldehyde-treated fish, formalin-treated meat, and fake Coca-Cola have been on the menu for millions of victims of food fraud in SSA. Expectedly, the disruption caused by the COVID-19 pandemic will continue to impact the possibility of many food fraud risks [2]. As pointed out, the dearth of statistical evidence shows the difficulty involved in obtaining evidence of food fraud incidence or pinpoint food fraud trends in the SSA region. Moreover, there is an acknowledged need to carefully interpret the available evidence on reported cases [3]. Fortunately, in recent years, due to publicity on social media and web-based media platforms, more cases of food fraud are coming to light. However, until African nations, supported by the global community (governments worldwide, World Bank, and United Nations) collectively agree that strict action is paramount, can we then expect to hear more about the shocking food systems in Africa, particularly in Sub-Saharan Africa.

The emergence of COVID-19 meant that the little attention accorded to food malpractices across SSA diminished, as strengthening health systems became the top agenda. Being an economic-driven activity (food fraud), the economic downturns of COVID-19 has, undoubtedly, fueled the fire of food fraud. Across Kampala, Uganda, many butchers were reportedly using an embalming substance called formalin to dispel flies and make meat seem deceptively fresh. This resulted in an indefinite closure of butchers in a middle of the pandemic [4]. Wild meat is also affected. In Congo, Cameroon, and Uganda, hunters use formalin to stop kills from decomposing until they return to their village after a hunting

expedition lasting several days [5]. Even smoked fish is not immune to the fraud in food systems across SSA. Some fish saleswomen in Cameroon use leftover fabric from tailors to smoke the fish [5]. This is considered a pocket-friendly alternative to buying woods and using firewood for smoking fish. Across SSA, accelerating ripening in fruits is another scandalous practice for many fruit vendors. Phytosanitary products such as Ethrel are normally applied to pineapple, plantain, and banana to make them appear perfectly ripe [5]. Since many consumers believe pineapple, plantain, and banana are not ripe if it isn't yellow, using Ethrel is to make, them appear yellowish hue. Although this chemical is approved for use in the right dosage, it has been abused by some vendors who use excessive amounts.

In Ethiopia, sodium benzoate is used to improve the shelf life of a staple (flatbread) known as *injera* from three days to ten days [6]. Though the safety of the chemical was supported by the Ethiopian Food and Drug Authority (EFDA) [6], traders, in a trial and error process, are using this chemical unlawfully and unprofessionally by adding excess amounts to the detriment of consumers' health [7]. This fraudulent activity is profit-driven, aimed to only prolong the shelf life of *injera* beyond ten days, with no regard for safety and quality. There are so many policies and standards across countries in SSA, however, implementation has been failing. Furthermore, there have been cases of plastic rice and adulterated salt across SSA, particularly in the western region [8]. In Ghana, cases of palm oil dyed with Sudan IV have emerged [9]. Unlike sodium benzoate whose safety is approved in Ethiopia, Sudan IV (an agent used to dye shoe polish and waxes red) is not permitted in foods due to its carcinogenic properties [10]. With the pandemic still largely at hand, it is imperative to mandate and tighten checks at entry points, borders, hotels, formal and informal food vendors, shops, and abattoirs. Also, health-seeking habits should be embedded in the consumers through adequate sensitization, in both rural and urban areas [11]. However, carrying out the needed supply-chain checks has been tougher for businesses and regulators due to the pressures of the COVID-19 pandemic. These challenges are

Abbreviations: Sub Saharan Africa, SSA; Ethiopian Food and Drug Authority, EFDA; Good Manufacturing Practice, GMP; Good Laboratory Practice, GLP; Good Hygiene Practice, GHP; Hazard Analysis and Critical Control Points, HACCP.

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expected to continue for as long as the pandemic does, thus, highlighting the need for key suppliers to remain vigilant.

In a COVID-19 pandemic, where production lines, labor conditions, and transport networks have all been under pressure, the smooth delivery of legitimately produced food has also been disrupted. Unfortunately, this has given fraudsters new opportunities to close the supply gap with substandard or adulterated food. It is, therefore, imperative to continue testing and verifying food following the same internationally approved standards (quality management system, the HACCP system (Hazard Analysis & Critical Control Points), and detailed prerequisite programmes such as Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), and Good Hygiene Practice (GHP) that have formed the pillar of food safety practices for years. There is an acknowledged need to invest massively into these extremely powerful technologies to increase the frequency of analytical testing and malpractice detection. Interestingly, some technologies available to actualize this are very sophisticated and becoming more advanced. For instance, by exploring a food's unique intrinsic signature via a multi-isotopic and multi-element analysis technique, food scientists can gain significant insights into the origins, properties, and production methods of a particular food. If countries in SSA can invest in this technology, food regulatory bodies can use a small sample to evaluate whether a food adhered to the required quality standards. Also, through this way, it is possible to identify the provenance of food or whether the product's correct geographic origin corresponds with its labeling, by studying the isotopic percentages of hydrogen, carbon, oxygen, nitrogen, and sulfur in a food sample. Similarly, this technology can be used to detect illegal substances used by food fraudsters to adulterate, bulk up, dilute, or alter the flavor of food.

None of the policies and standards across countries in SSA has truly hindered fraudsters from attempting to exploit the pandemic as an opportunity to infiltrate the supply chain with adulterated products. Nonetheless, these techniques (multi-isotopic and multi-element analysis) can help, to a reasonable extent, in ensuring that substandard food products are rooted out and the offenders held accountable. As the COVID-19 pandemic is expected to continue for some time, reporting and whistle-blowing procedures need to be accessible to everyone in the supply chain. Equally, tracking of trends in supply, demand pressures, and changes in commodity price need improvement. Using all the techniques available to keep vigilant and prevent food fraud, the government in SSA can ensure that the quality and traceability of food are reliable, even as the uncertainties of the current catastrophe slowly crumble away.

Declaration of competing interest

The authors have no competing interests to declare.

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