

Heavy metals and pathogenic bacteria detected in fermented cassava dough and attiéké sold in Ouagadougou, Burkina Faso

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Abstract:

Attiekie, a local processed cassava roots took place in population dietary habit. This widely consumed street vended attiéke is sometimes contaminated by chemical compounds and bacteria due to the growth soil and poor hygiene during processing. This study was carried out to assess the heavy metals and microbial contamination of fermented dough and attiéke sold in Ouagadougou, Burkina Faso. A total of 60 samples of fermented cassava dough and attiéke were collected and tested by flame atomic absorption spectrometry for contamination by cadmium, lead and aluminum. Contamination by *Escherichia coli*, coliforms, *Staphylococcus aureus* and *Salmonella* spp. was carried out by microbiological standard methods. Dough samples means contamination by lead, cadmium and aluminum levels were respectively of 0.738, 0.006 and 1.011 mg/kg and 0.393; 0.003 and 0.492 mg /kg for attiéke. *Staphylococcus aureus* was detected in all samples with an average load of 1.80×10^4 CFU.g⁻¹ in the dough and 1.49×10^4 CFU.g⁻¹ in the attiéke. Thermotolerant coliforms were detected in 15% of the dough samples with an average load of 0.015×10^2 CFU.g⁻¹. *Salmonella* was not detected. Contamination of dough and attiéke indicated a need of awareness on cassava, good agricultural and good hygienic practices during cassava processing into attiéke.

Keywords: Microbiological quality, Chemical compounds, Cassava, Dough, Awareness.

Biography

David Dieni Ibonye, a Burkinabe national, was born on December 31, 1980, in Tourouba, Sourou Province, Burkina Faso, and currently resides in Ouagadougou. He boasts a multifaceted professional background, holding degrees in Agronomy and Agrifood Industry Engineering, along with a Bachelor's degree in Phytosanitary Risk Management. From 2016 to 2023, Ibonye served as the Head of the Phytosanitary Control Station at the Ministry of Agriculture,

overseeing quality and packaging standards for agri-food products and pesticides. Simultaneously, he pursued a Ph.D. in *Biochemistry, Microbiology, and Molecular Biology* at *Universite Joseph KI-ZEBO*, now in his fourth year. Ibonye is a prolific author, contributing numerous articles and delivering presentations at scientific conferences. His previous roles include Head of Study and Planning Services (2008-2010), Provincial Supervisor of Permanent Agricultural Surveys (2011-2013), Agricultural Technical Supervision Zone Head, Agricultural Management Consultant, and Public Revenue Manager at Ouaga Railway Station (2013-2016). He is also actively engaged in politics and has held the position of Secretary General of the Progressive National Party (PPN) since 2015.

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