127.   Isolation, characterization and quantification of common enteric bacteria from edible parts of *Catha edulis* (khat) sold in the identified parts of Meru County, Kenya.

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Subtheme: Health Sciences - Climate Change and Public Health; Response and Impact of environmental changes on Health.

Abstract

This study addresses the critical issue of microbial contamination in ready-to-eat (RTE) plant produce, which has led to a rise in foodborne illnesses despite advancements in global health technologies. Particularly in developing nations, inadequate disease-outbreak surveillance systems and weak health response systems exacerbate the problem. Catha edulis, commonly known as khat, is a plant consumed for its stimulant properties. In Meru County, Kenya, khat is a significant economic crop, yet it is typically chewed raw, making it highly susceptible to microbial contamination. The entire processing chain of khat, from harvesting to selling, can introduce points of contamination, raising the risk of disease transmission. This study aims to fill the data gap regarding microbial contamination of khat in Meru County by isolating and characterizing common enteric bacteria present in khat. The research aims to provide critical data to inform public health strategies and mitigate risks associated with khat consumption. Objectives:To achieve this, the study will isolate and identify common enteric bacteria at different stages of khat processing in Meru County. It will determine the prevalence and levels of microbial contamination in khat sold in various markets within the county. Additionally, the research will assess the hygienic practices of khat handlers and their impact on contamination levels. Finally, it will provide recommendations for improving hygiene practices and mitigating microbial contamination risks associated with khat consumption. Methodology:The research will focus on Meru County, covering the entire processing chain from harvesting to selling points, in areas where khat is predomSinantly cultivated, processed, and sold. The study will include isolating and identifying enteric bacteria in khat samples, assessing handling practices, and evaluating environmental impacts on contamination levels. A detailed procedure will be followed, involving sampling khat from farms, vendors, transportation, and consumer points. Isolation of gram-negative bacteria will be conducted using selective media, followed by molecular characterization through gene sequencing. This process will help identify and quantify common enteric bacteria, providing insights into contamination sources and levels. Purpose:This study aims to provide crucial data on microbial contamination in khat, highlighting public health risks and informing strategies for improving food safety in Meru County. The findings will be instrumental in developing targeted interventions and enhancing public health responses to mitigate risks associated with khat consumption.

Keywords: *Catha edulis, Microbial Contamination, Enteric bacteria*