Assessment of Safety Performance in Banana Alcoholic Beverage Processing Factories in Rwanda

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Abstract

Statement of the problem: Traditional banana alcoholic beverages produced in Rwanda are still contaminated by microorganisms such as *E. coli*, *Staphylococcus aureus*, and total coliforms and *Bacillus cereus*. The microbial contamination may lead to unsafe products, illness, mortality and limit the products on markets, lower market value, and reduced employment and livelihood. This study aimed to apply customized diagnostic tool to gain an insight into the performance of food safety in traditional banana alcoholic beverage factories as an evidence based to support the selection of suitable interventions for improvement to assure sustainability and meet growing market of traditional banana beverages. Methodology: Literature search was used to identify context factors, quality assurance and control activities that influence safety of banana alcoholic beverages and validated by stakeholders through interview and observation. Data were collected in eleven factories in Kigali city and four provinces of Rwanda using questionnaire/checklist. Data analysis was performed using Microsoft Office Excel. Findings: All factories have shown to operate in relatively high-risk context (score2-3), most of control activities were at basic level (score1) whereas assurance activities were at relatively average level (score1-2) which resulted into poor food safety performance (score1). Key factors contributing to poor performance were traditional processing methods, inadequate technical staff, lack of capital resources, people behaviour toward food safety, inadequate supporting document system, inadequate sanitation program, poor hygienic design of equipment and building. Conclusion: Modern food safety practices can't be applied in traditional food processing factories due to traditional methods and equipment, low level of science-based knowledge related to processing technology, food safety and hygiene. Therefore, there is a need to design modern equipment that are easy to clean and disinfect to replace traditional ones, to train technical staff on processing technology, safety and hygiene, and to change behaviours towards making decisions based on scientific knowledge.

Image

Overall mean scores of food safety performance indicators of all surveyed factories

Food safety output	Overall scores of factories	
	BBAB	*Urwagwa*
Factors	2.2	2.3
Control activities	0.4	0.5
Assurance activities	0.7	1.3
Overall mean scores	**0.6 (1)**	**0.8 (1)**

Publications

1. Hamilton, P., Aurimar, F. B., & Getulio, K. A. (2018). Critical factors of success for quality and food safety management: Classification and prioritization. *Universal Journal of Industrial and Business Management,* 6(2), 30-41. https://doi.org/10.13189/ujibm.2018.060202
2. Ledo, J., Hettinga, K. A., & Luning, P. A. (2020). A customized assessment tool to differentiate safety and hygiene control practices in emerging dairy chains. *Food Control, 111*, 107072. https://doi.org/10.1016/j.foodcont.2019.107072
3. National Industrial Research and Development Agency. (2017). *Technology audit: Banana wine value chain assessment*. Retrieved from https://www.nirda.gov.rw/uploads/tx_dce/NIRDA.2017._Banana_wine_value_chain_report_04.pdf
4. Njage, P. M. K., Opiyo, B., Wangoh, J., & Wambui, J. (2018). Scale of production and implementation of food safety programs influence the performance of current food safety management systems: Case of dairy processors. *Food Control, 85*, 85-97. https://doi.org/10.1016/j.foodcont.2017.09.015
5. Rwanda Standards Board. (2018). *Focus on standardization in the banana and plant beverages sector*. Retrieved from http://www.rsb.gov.rw/fileadmin/user_upload/files/pdf/Standards_Journal_June_2018_Issue_13.pdf

Photograph



Biography (150 word limit)

Mrs. Grace IRAKIZA holds MSc in Food Quality Management from Wageningen University and Research, the Netherlands. By completion of her BSc in Food Science and Technology, she awarded as best female academic performer in University of Rwanda, 2010. She has authored two scientific papers published in scientific journal. She has four conference paper publications. She won two research grants from International Foundation for Science, 2018 and National Council of Science and Technology, 2019. She is a member of National Quality Champion team as a national trainer and adviser in Food Quality Management. She is a Technical Committee member in Rwanda Standard Board assigned in development of National Standards. She worked as Biotechnology Researcher and Industrial Standard specialist in National Industrial Research and Development Agency. Since 2019, she is working in Dabela Foods Ltd as a Researcher/consultant in agro-processing area. Currently, she is a PhD candidate in Makerere University.

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