DETERMINANTS OF QUALITY OF PROPOLIS TINCTURE PRODUCED IN UGANDA

Dickson Biryomumaisho

Abstract

The use of propolis tincture (PT) as a nutraceutical product continues to grow despite uncertainties about its quality and safety for human consumption due to the absence of quality standards for the product in Uganda and globally. In the absence of quality standards for PT, the institutional framework, propolis tincture processors (PTPs) capacity, and the practices influencing its quality remain unclear. This study employed an exploratory sequential mixed-methods design to examine how institutional arrangements, PTPs' capacity, and their adherence to recommended practices affect the chemical composition of PT.

The research was conducted in Kampala, Lira, and Arua cities, which together host over 60% of Uganda's PT processors (PTPs). Data were collected through key informant interviews with regulatory and research representatives, focus group discussions with 22 purposively selected processors, and structured interviews with all 124 identified PTPs across the three cities. A total of 242 PT samples were also collected, stored at 4°C, and analyzed at the Government Analytical Laboratory. Qualitative data were analyzed thematically, while quantitative data were examined using descriptive statistics, ANOVA, chi-square tests, and ordinal logistic regression. Chemical profiling of PT samples was conducted using Gas Chromatography–Mass Spectrometry (GC-MS) to identify active compounds.

Findings showed that most PTPs were informal, small-scale actors who relied on informal norms, general East African Community food and beverage standards, and the National Beekeepers Training and Extension Manual. PTPs had low capacity and moderate adherence to recommended practices, influenced largely by infrastructure, equipment, and staffing. Furthermore, adherence to recommended practices was associated with better quality of PT in terms of chemical composition. Despite PTPs' reliance on informal norms, low capacity and moderate adherence to recommended practices, their PT had active chemical compounds known for treating fungal, bacterial, viral and inflammatory conditions.

The study recommends developing PT-specific quality standards based on existing practices, strengthening PTPs' adherence to available normative guidelines, and conducting future research to quantify chemical and microbial profiles across different processing practices.

Key words: Uganda, Propolis tincture, Processors, institutions, Capacity, adherence, practices, quality.