ABSTRACT

Access to clean and safe water remains a global challenge, particularly in rural and underserved communities. This study investigates the antibacterial potential and pH stability of the MoriPure tablet, a natural water purification tablet formulated from *Moringa oleifera* and *Melaleuca alternifolia* extracts. The antibacterial efficacy of MoriPure was evaluated using a disk diffusion test against *Escherichia coli* (*E. coli*), comparing its inhibitory activity to that of chlorine tablets. Results indicate that the MoriPure tablet exhibited moderate bacterial inhibition, with an average zone of inhibition of 9 mm, compared to 20,7 mm observed for chlorine tablets. Additionally, pH analysis showed that the MoriPure tablet maintained the water's pH within a safe range, ensuring that it does not alter drinking water's natural acidity or alkalinity. While not as potent as a chlorine-based disinfectant, the MoriPure tablet offers an eco-friendly and biodegradable alternative for water treatment. The findings highlight the potential of this natural formulation as a sustainable and cost-effective method for water purification. Future research should focus on enhancing its antimicrobial properties and assessing its effectiveness in real-world applications.

Keywords: *Moringa oleifera*, *Melaleuca alternifolia*, MoriPure tablet