

ABSTRACT

Commercial fermented milks have health benefit potential attributed to pure probiotics used as starter culture. Lactic acid bacteria (LABs) are the probiotics and promote stabilization of the gastrointestinal microecology of humans by producing secondary metabolites like lactic, acetic and propionic acid, hydrogen peroxide and bacteriocins (bactericidal proteins produced by the lactic acid bacteria). These metabolites are health benefiting. *Mursik*, an indigenous fermented milk product is consumed at households by many Kenyan communities, for example Kalenjin. The fermentation is not based on pure cultures, instead it is spontaneous. Whether the type and concentration of the probiotics in this traditionally fermented milk have the same probiotic potential as those of commercial fermented milk is not documented. This study aimed at isolating *mursik* probiotics and determining their probiotic potential. *Mursik* was obtained from informal women groups and individuals involved in small scale production and marketing in Bomet County, Kenya. Forty one (41) samples of *mursik* were collected. Probiotic isolation was done by pour plate method and the probiotic potential was done by using disc diffusion method against *Salmonella enteritica* ATCC 13076, *Escherichia coli* ATCC 25922 and *Staphylococcus aureus* isolate which were used as standard strains of public health concern. Data was analyzed using analysis of variance (ANOVA) and chi-square tests at $\alpha = 0.05$. The main probiotics isolated from *mursik* include *Lactobacillus plantarum*, *Lactobacillus fermentum*, *Lactobacillus brevis* and *Lactobacillus casei*. The metabolites produced by the isolated probiotics in broth demonstrated significant ($P < 0.05$) antibacterial effect against the standard strains used. The results obtained from this study confirm that the probiotics in *mursik*, a traditionally fermented milk product have significant potential against enteric and environmental pathogens that are of public health concern.

Key words: Mursik, probiotic, lactic acid bacteria, antibacterial activity, *Lactobacillus*.