

Antimicrobial Activity of *Flueggea leucopyrus* Willd (Katupila) Leaf Extracts against Some Common Milk Pathogens

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Abstract

Flueggea leucopyrus Willd is a natural herbal plant native to Sri Lanka with great ayurvedic therapeutic potential, and this study assessed the antimicrobial activity of methanolic extracts of *F. leucopyrus* Willd against some common milk pathogens including *S. aureus* (ATCC 25923), *P. aeruginosa* (ATCC 27853), *Salmonella* spp., and *E. coli* (ATCC 25922). Agar well diffusion assay was implemented for the assessment of in-vitro antibacterial potency. The Minimal Inhibitory Concentration (MIC) was determined using the agar broth macro dilution technique as well as Minimal Bactericidal Concentration (MBC) was also performed. The 400 mg/ml extract showed the highest antibacterial activity against *S. aureus* with a zone of inhibition (ZOI) of 28.0 ± 1.0 mm ($p > 0.05$) without significantly altering from the positive control, gentamicin (28.3 ± 0.6 mm). A ZOI of 27.0 ± 1.0 mm, which was higher than that of the positive control (26.7 ± 0.6 mm) was exhibited against *E. coli* at a concentration of 400 mg/ml, did not differ significantly ($p > 0.05$) from the control. Inhibition zones were also observed for concentration of 200, 100, 50, and 25 mg/ml against *S. aureus* and *E. coli*, but significantly lower ($p < 0.0001$) compared to controls. Only the 400 mg/ml extract inhibited the growth of *Salmonella* spp. ZOIs were also observed against *P. aeruginosa* with the concentration of 400, 200, and 100 mg/ml but comparatively low. The mean MBC values ranged from 16.7 mg/ml to 400 mg/ml, with values against *S. aureus*, *P. aeruginosa*, *Salmonella* spp., and *E. coli* were 16.7 ± 7.2 mg/ml, 66.7 ± 28.9 mg/ml, 400 ± 0.0 mg/ml, and 20.8 ± 7.2 mg/ml, respectively. These preliminary observations demonstrate the effective antimicrobial activity of Katupila as a natural antibacterial agent for milk and milk products and suggest the prospect of using them in drugs to treat infectious illnesses caused by the tested microorganisms.

Keywords: *Antimicrobial activity, Flueggea leucopyrus willd, Common milk pathogens*