

## Antibacterial activity of decoction and methanolic extract of the fruit of *Piper longum* against selected pathogens

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*Piper longum*, called as "Tippili" in Tamil and Sinhala and long pepper in English, is a medicinal plant that belongs to the family *Piperaceae*. The fruits and the roots of *P. longum* are used as a decoction for acute and chronic bronchitis, fever and cough. Antimicrobial activity of the methanol extract of the fruit of *P. longum* has been reported against *Staphylococcus aureus*, *Enterococcus faecalis*, *Streptococcus pneumoniae*, *Bacillus megatarium*, and four Gram negative bacteria, *Pseudomonas aeruginosa*, *Vibrio cholerae*, *Shigella dysenteriae* and *Salmonella typhi*.

The objective of the current study was to determine the antibacterial activity and minimum inhibitory concentration (MIC) of decoction and methanolic extract of *P. longum* against *S. aureus* NCTC 6571, *P. aeruginosa* NCTC 10662, *E. coli* NCTC 10418 and 5 clinical MRSA isolates.

The fruit of *P. longum* was used to prepare a decoction and the methanolic extract was obtained using a Soxhlet extractor. Screening of antibacterial activity was performed using the cut well diffusion method and the MIC was determined by agar dilution method for the above mentioned bacterial isolates. Each experiment was carried out in triplicates. The decoction of *P. longum* showed antibacterial activity against *S. aureus* (Methicillin sensitive and resistant) by both methods. In the agar dilution method, the decoction demonstrated activity against *S. aureus* at 1/40 dilutions. Antibacterial activity could not be demonstrated against *E. coli* and *P. aeruginosa* using the cut well method, although inhibition of *P. aeruginosa* was shown at 1/10 dilution with the agar dilution method. The methanolic extract showed the inhibition activity against *S. aureus*. Mean and SD of the diameter of zone of inhibition (ZOI) of decoction ranged from 16.5 ± 0.8 mm to 21.0 mm ± 0.7 mm, the diameter of ZOI of methanolic extract ranged from 13.00 mm ± 0.00 to 14.00 ± 0.00 mm against *S. aureus*. MIC of methanolic extract was 5 mg/mL for *S. aureus*. The methanolic extract did not show activity against *P. aeruginosa*. However, the decoction showed activity against *P. aeruginosa* at 1/10 dilution by the agar dilution method.

The antibacterial activity of *P. longum* against *S. aureus*, both Methicillin sensitive and Methicillin resistant, warrants further exploration to include toxicological investigations.

**Key words:** *Piper longum*, antibacterial activity, *S. aureus*, *E. coli* and *P. aeruginosa*.

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