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Antibacterial Activity and Preliminary Phytochemical Screening of *Zizyphus mauritiana* Leaves.

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Zizyphus mauritiana is a medicinal plant belonging to the Family of Rhamnaceae, commonly known as Indian Jujube, Elandai in Tamil, and Masan in Sinhala. In Siddha Medicine, a decoction of leaves and bark of *Z. mauritiana* are used in the treatment of diarrhea, dysentery and piles. The leaves are applied as paste on infected wounds. The aim of the study was to evaluate the antibacterial activity of a decoction and ethanolic extract of the leaf against *Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922) and *Enterococcus faecalis* (ATCC 29212), and to screen the phytochemicals of leaf. The antibacterial activity was evaluated by using the standard cut well diffusion method with Nutrient Agar (NA) as the medium, while a control was maintained. The diameter of the zone of inhibition (ZOI) was measured after incubation. Replicates were made for the entire procedure. Qualitative phytochemical analysis was carried out to examine the presence of tannins, saponins, cardiac glycosides, terpenoids, flavonoids, steroids, and alkaloids. Decoction of the leaves showed antibacterial activity against *S. aureus* and *P. aeruginosa* with ZOI of 11 ± 0.18 mm and 11 ± 0.23 mm respectively. The Ethanolic extract showed activity against all tested gram positive and gram negative organisms, with the ZOI ranged from 12 ± 0.20 mm to 17 ± 0.19 mm. Degree of antibacterial activity of ethanol extract of the leaves was higher than that of decoction among the bacteria tested. Saponins, terpenoids, and cardiac glycosides were present in both leaf extract and decoction, while tannins were observed only in ethanol leaf extract. Extraction of bioactive compounds depended on the type of solvent used and the method of extraction. The activity guided fractionation of the leaf extract would be helpful to discover the antimicrobial profile of the extract.

Keywords: Antibacterial activity, Phytochemical screening, *Zizyphus mauritiana* leaves.