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Preliminary phytochemical screening and antibacterial activity of *Eclipta prostrata*

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Herbs, minerals and metals are used in the preparation of Siddha drugs. *Ecliptaprostrata* (Family - *Asteraceae*; Tamil - venkarisalai; Sinhala - ranvankikirinda) is used in the preparation of Anjanam (eye ointment) for eye diseases and in the preparation of hair oils. Hepato-protective, cytotoxic and antioxidant properties of *E. prostrata* plant extracts have been reported previously. Anti-microbial activity of leaf extract of *E. prostrata* has been evaluated against *Escherichia coli*, *Bacillus subtilis*, *Pseudomonas aeruginosa*, *Klebsiella pneumoniae* and *Staphylococcus aureus* previously.

In Siddha Medicine, the whole plant is used in the preparation of medicines. Thus the aim of the study was to screen *E. prostrata* for phytochemicals and evaluate the antibacterial activity of the decoction and ethanolic extract of the whole plant. *E. prostrata* was tested against *S.aureus*(ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853), *E. coli* (ATCC 25922) and *Enterococcus faecalis* (ATCC 29212). Qualitative phytochemical analysis was done to test for the presence of phytochemicals. The antibacterial activity was evaluated by using the standard cut well diffusion method with Nutrient Agar as the medium, Ethanol alone was used as control. The diameter of the zone of inhibition (ZOI) was measured after incubation. Replicates were made for the entire procedure.

The ethanolic extract possesses tannins, flavanoids, steroids, cardiac glycoside, alkaloids and terpenoids. The decoction contains phlobatannins, cardiac glycoside, alkaloids and terpenoids. The ethanolic extract showed a larger ZOI than the decoction for both Gram positive as well as Gram negative bacteria. Both decoction and ethanolic extract showed inhibitory activity against *S. aureus*, *P. aeruginosa* and *E. coli* (ZOI: 14±0.23 mm – 34±0.12 mm). The ethanolic extract showed inhibitory activity against *E. faecalis*, which was not seen with the decoction. The reason of this may be the presence of more phytochemicals in the ethanolic extract. The ethanolic extract of *E. prostrata* has antimicrobial potential against microorganisms (*S. aureus*, *P. aeruginosa*, *E. coli* and *E. faecalis*), which cause infections in man. Future studies to determine the full spectrum of activity and active compounds are indicated.

Keywords: Antibacterial activity, phytochemical screening, *Eclipta prostrata*.