

Evaluation of *in vitro* Antibacterial Activity of Aqueous Extract of *Celtis timorensis* Span Leaves

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Celtis timorensis Span is a medicinal plant belongs to family Cannabaceae, which has been used in folk medicine to treat various types of infectious diseases, but its therapeutic effect has not been scientifically evaluated. Hence this study has designed to evaluate the *in vitro* antibacterial activity of aqueous extract of *C. timorensis* leaves against gram negative bacteria *Escherichia coli* (ATCC 25922) and *Pseudomonas aeruginosa* (ATCC 27853) and also gram positive bacteria *Staphylococcus aureus* (ATCC 25923). Cold maceration was used for extraction. Antibacterial assay was conducted using cylinder plate method and zones of inhibition respective to four concentrations (250 µg/mL, 500 µg/mL, 750 µg/mL, 1000 µg/mL) of the extract were measured. Gentamycin and sterile distilled water were used as the positive control and negative control respectively. Compared to negative control, aqueous extract of *C. timorensis* leaves exhibited a significantly positive antibacterial effect ($p < 0.05$) against *Escherichia coli* (ATCC 25922) and *Pseudomonas aeruginosa* (ATCC 27853) and a negative antibacterial effect against *Staphylococcus aureus* (ATCC 25923). Correlation study of all four concentrations showed a linear relationship implementing the zone of inhibition depends on the concentration of the plant extract ($R^2 = 0.9$). Further, Dose-Response study has revealed that *C. timorensis* leaves has a EC_{50} of 621.9 µg/mL and ~106833 µg/mL against *Escherichia coli* (ATCC 25922) and *Pseudomonas aeruginosa* (ATCC 27853) respectively. Based on this study results, it can be concluded that aqueous extract of *Celtis timorensis* leaves possess a significant antibacterial effect against gram negative bacteria.

Keywords: *Celtis timorensis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, Antibacterial activity, Leaves