

ABSTRACT

Thunbergia laurifolia (Rang Chuet), a plant native to regions of South Asia, has been used by people since ages in order to treat insecticide, arsenic, alcohol and strychnine poisoning. Leaves of this plant have been found to have many bioactive compounds like phenols, flavonoids, sterols, glycosides etc. Nowadays, research is being carried out to find natural alternatives for preservatives used in food systems. Very few researches have directed their focus to the antimicrobial properties of *T. laurifolia*. In this research, three different parts of the plant – leaf, stem and rhizome – were tested for their ability to inhibit three bacteria – *Escherichia coli*, *Bacillus cereus* and *Staphylococcus aureus*. The different parts of the plant were dried, ground into fine powder and mixed with solvent to obtain crude extract. Extraction conditions were varied in terms of amount of powder used (5, 10 and 15% w/v), concentration of ethanol solvent (0, 25, 50 and 75% ethanol) and time of extraction (24, 48 and 72 hours). Agar disc diffusion method was used to test antimicrobial effect of extract with the three microorganisms by measuring inhibition zone (mm). Crude leaf extract from *T. laurifolia* was found to have the best effect in inhibiting Gram negative microbe *E. coli*, while crude rhizome extract was the most effective in inhibiting Gram positive microorganisms *B. cereus* and *S. aureus*. The highest antimicrobial activity was obtained in case of rhizome extract against *B. cereus* (7.25 ± 0.27 mm), followed by leaf extract with *E. coli* (4.67 ± 0.52 mm) and rhizome extract against *S. aureus* (4.67 ± 0.52 mm). Crude stem extract showed little to no activity against all three microorganisms. These results show that rhizome of *T. laurifolia* has good potential to be used as natural antimicrobial agent. Phenolic compounds were the major compounds responsible for the activity. Further research is essential to determine specific compounds responsible for antimicrobial activity and to improve usage in food systems.

KEYWORDS: *Thunbergia laurifolia* / antimicrobial / phenolic / crude extract