

Wut Wutithamawech 2014: Antibacterial Potential of Thai Medicinal Plants.
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Ethanol and hexane extracts of twenty Thai medicinal plants were screened *in vitro* for antibacterial activity against *Bacillus cereus*, *Escherichia coli* and *Staphylococcus aureus* using disc diffusion method. The ethanol extracts of *Clerodendrum inerme* (L.) Gaertn., *Combretum qudrangulare* Kurz, *Psidium guajava* L., and *Stephania venosa* (Blume) Spreng. showed antibacterial activity against all three pathogens tested. Based on minimum inhibitory concentration (MIC) of these four medicinal plant extracts, the ethanol extract of *C. inerme* demonstrated the highest antibacterial potency. The determination of MIC and minimum bactericidal concentration (MBC) of the extract using microdilution method showed that such extract had MIC for *B. cereus*, *E. coli*, and *S. aureus* of 0.039, 0.312 and 0.156 mg/ml, respectively, and MBC for *B. cereus*, *E.coli*, and *S. aureus* of 0.039, 0.625 and 0.312 mg/ml, respectively. Polyphenolic compounds presented in the ethanol extract of *C. inerme* roots included saponins, flavonoids, and alkaloids. The ethanol crude extract of *C. inerme* roots was subsequently used in developing a *C. inerme* antibacterial gel. Carbopols Ultrez 10 was used as a gel base. The crude extract was added into the gel base at different concentrations. Determination of MBC of the gel product at 3- and 30- min exposure time against *B. cereus*, *E. coli* and *S. aureus* was carried out. It was found that the treatment of 5 mg *C. inerme* extract/100g gel for 30 min was effective as it showed killing activity on all three pathogens; it killed 99.8% *B. cereus*, 94% *E. coli* and 99.2% *S. aureus*. This study also confirmed the potential of Thai medicinal plants as ingredients for medicines to be used in the Thai traditional medical practice.

Student's signature

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