

Poster

Antibacterial activity of Thai medicinal plants against *Propionibacterium acnes*

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Introduction. Acne vulgaris is a chronic inflammatory skin disorder that involves the pilosebaceous follicles and comedone. It is produced by hyperkeratosis, which retains keratin and sebum, and the main microorganism involved is *Propionibacterium acnes*. For many years, antibiotics have been used to treat acne vulgaris, however, antibiotic resistance has been increasing in prevalence within the dermatologic setting [1]. To overcome the problem of antibiotic resistance, medicinal plants have been extensively studied as alternative treatments. In the present study 18 medicinal plants, which have been traditionally used as antibacterial and anti-inflammatory agents, were examined for antibacterial activity against *P. acnes*. The plant that exhibited the strongest effect was subjected to isolation of the active compound using bioassay-guided isolation.

Objectives. To screen antibacterial activity of Thai medicinal plants against *P. acnes* and purify the active compound from the plant extract that showed the strongest antibacterial activity.

Methods. Ethyl acetate and methanol extracts of 18 Thai medicinal plants were tested for antibacterial activity against *P. acnes* using disc diffusion and broth dilution methods [2]. Bioassay-guided isolation of the plant extract was performed by silica gel vacuum chromatography, Sephadex LH-20 gel filtration chromatography and silica gel column chromatography.

Results. The results from the disc diffusion method exhibited that 16 plant extracts were capable of inhibiting the growth of *P. acnes*. Based on a broth dilution method, the ethyl acetate extract of *Alpinia galanga* rhizome showed the strongest antibacterial effect, with MIC and MBC values of 0.156 and 0.312 mg/ml, respectively. On the basis of bioassay-guided isolation, the ethyl acetate extract of *A. galanga* was purified to afford an antibacterial active compound, which was identified as 1'-acetoxychavicol acetate (1'-ACA). 1'-ACA had a strong inhibitory effect on *P. acnes* with MIC and MBC values of 0.062 and 0.250 mg/ml, respectively.

Conclusion. *A. galanga* extract would be an interesting material for further study on an alternative treatment of acne. In addition, 1'-ACA may be recommended as the indicative marker for standardization of *A. galanga* extract.

Keywords: *Alpinia galanga*, 1'-acetoxychavicol acetate, Acne vulgaris

Selected References

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