

Antimicrobial Effects of Chinese Medicinal Plants against *Propionibacterium acnes*

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INTRODUCTION

Acne vulgaris is the most common disease associated with *Propionibacterium acne*. It affects 80% of the population. *Propionibacterium acne* is commonly assumed to reside in human skin sebaceous glands. It is a Gram-positive, anaerobic bacterium and is known to naturally produce high amounts of intracellular porphyrins. Currently, anti-acne treatments are developed from a foundation of retinoids or benzoyl peroxide, frequently in combination with antibiotics. However, the low effectiveness of such treatments and increasing antibiotic resistance in treated subjects has encouraged the development of alternative therapies including those created using traditional herbal medicines. In this work, our efforts have focused on the search for alternative anti-acne treatments based on bacterial inhibiting properties attributed to Chinese herbal extracts.

METHODS

Antimicrobial properties which have been effective in mitigating *Propionibacterium acne* were examined by a disc diffusion assay, and *in vivo* anti-bacteria effects were evaluated by a Visia facial analysis system.

RESULTS AND CONCLUSIONS

Six Chinese medicinal plant extracts were employed to evaluate antimicrobial activity in relation to *Propionibacterium acne*. The results showed that some extracts could effectively inhibit the growth of *Propionibacterium acne*. Among the extracts tested, *Taraxacum formosanum* Kitamura, *Rhinacanthus nasutus*, *Ligusticum Chuanxiong* Hort, and *Terminalia chebula* Retz showed strong inhibitory effects (zone of inhibition ≥ 15 mm). Of particular note, the facial porphyrin inhibition of *Taraxacum formosanum* Kitamura and *Rhinacanthus nasutus* were significantly higher than other extracts. Taken together, our data indicated that *Taraxacum formosanum* Kitamura and *Rhinacanthus nasutus* would be viable as an alternative treatment for acne.

Key words: Acne treatment, *Acne vulgaris*, *Propionibacterium acne*, Antimicrobial activity, Chinese herbal extracts