

Antimicrobial efficacy of *Curcuma aromatica* L. extract and *Morus alba* L. extract against *Propionibacterium acnes*, *Staphylococcus epidermidis* and *Staphylococcus aureus* (Poster)

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Introduction

The quest for medications and cosmetic measures to combat acne continues to be major research and development initiative in the pharmaceutical and personal care industries. Mainstream medicine is increasingly receptive to the use of antimicrobial and other drugs derived from plants.

Objectives

1) To conduct comparative testing of antimicrobial activities of 2 plants; *C. aromatica* L. extract (I) and 50 % *M. alba* L. extract (II) against 3 bacteria: (1) *P. acnes* (2) *S. epidermidis*, commonly detected in acne lesions and (3) *S. aureus* a pathogenic bacteria common causes skin infections. 2) To determine the minimal inhibitory concentrations (MICs) of the selected one. 3) To determine the anti-tyrosinase activity and antioxidative activity which are used for skin whitening and anti-aging respectively.

Methods

The antimicrobial activities of *C. aromatica* L. extract (I) and 50 % *M. alba* L. extract (II) against 3 bacteria: (1) *P. acnes* (2) *S. epidermidis* and (3) *S. aureus* were evaluated by disc method. Each was determined the minimal inhibitory concentrations (MICs) by agar dilution method. The antioxidative activity was assessed by using the 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay. The antityrosinase activity was determined by the dopachrome method using L-DOPA as the substrate. These studies are based on spectrophotometry analysis.

Results

The (I) exhibited more active against the 3 bacteria than (II). The MICs of the (I) against (5 strains) of *P. acnes* were 5 mg/ml and against both staphylococcus species showed similar level of sensitivities with MICs ranging from 5 to 10 mg/ml. It revealed that the (I) possessed anti-tyrosinase activity ($IC_{50} = 410.82$ ppm) and antioxidants ($EC_{50} = 21.60$ ppm).

Conclusion

The results indicate that *C. aromatica* L. extract provides enhanced antimicrobial action against 3 bacteria (*P. acnes*, *S. epidermidis* and *S. aureus*). It showed efficacious tyrosinase inhibition, an enzyme that participates in melanogenesis, thereby interfering melanin formation which induced lightening of the skin tone. It also exhibited potential antioxidative activity that showed potent anti-aging activity. The extract would potentially benefit in the management of acne as well as in reducing post-acne scarring, pigmentation and blemishes. However advanced studies of its phytochemical compound identification, anti-inflammatory activity and toxicological studies should be conducted.

Keywords: *P. acnes*, *S. epidermidis*, *S. aureus*, *C. aromatica* L., *M. alba* L., antimicrobial

Selected references

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