

Antimicrobial activity of *Cinnamomum impressicostatum* and *C. pubescens* and bioassay-guided isolation of bioactive methyl-cinnamate

Abstract

The air dried barks of *Cinnamomum impressicostatum* and *C. pubescens* were separately and sequentially extracted with hexane, chloroform and methanol and assayed against five bacteria and four fungi by disc diffusion method. The hexane and chloroform extracts of the plants strongly suppressed the growth of the four fungi but range from moderate to weak towards bacteria. The methanol extracts only displayed weak activity on some of these organisms. Based on these results, further work was carried on bioassay-guided isolation of active extracts of *C. impressicostatum* and *C. pubescens* and on both occasions the active component was identified as (E)-methyl cinnamate. Other compounds were also isolated and identified as safrole, (E)-piperonylprop-2-enal, β -sitosterol, (E)-piperonylprop-2-enol and cinnamic acid. The structures of the compounds were established by spectroscopic method and comparison with literatures. (E)-methyl cinnamate exhibited strong growth inhibition towards four of the fungi *Saccharomyces cerevisiae*, *Candida lipolytica*, *C. albicans*, *Microsporum canis* with inhibition zone ranging from 24.5 to 19.8 mm. The compound is also capable of suppressing the growth of bacteria *Bacillus cereus*. It is proposed that the excellent antifungal activities of the hexane and chloroform extracts of *C. impressicostatum* and *C. pubescens* correlate with the presence of (E)-methyl cinnamate as the major component.

Keyword: *Cinnamomum impressicostatum*; *Cinnamomum pubescens*; Bioassay-guided; Antimicrobial; (E)-methyl cinnamate