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ANTIMICROBIAL ACTIVITY OF THE COMPOUND SELINA-1,3,7(11)-TRIEN-8-ONE

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Eugenia uniflora L. (Myrtaceae) popularly known as pitanga, it´s a fruit native to Brazil, occurring in the Northeast, Central-West, Southeast, and South regions, as well as in other countries in South and Central America. The species is widely valued for its therapeutic properties, associated with bioactive components derived from secondary metabolism, which have antioxidants, antimicrobial, antiviral, and other activities. The essential oil from the leaves of *E. uniflora* is predominantly composed of sesquiterpene compounds, including selina-1,3,7(11)-trien-8-one and selina-1,3,7(11)-trien-8-one oxide. In this study, the compound selina-1,3,7(11)-trien-8-one was isolated from the essential oil of *E. uniflora* leaves obtained from local markets. The compound was isolated by fractionation in a silica gel 60 chromatographic column accompanied by thin-layer chromatography of silica gel 60 HG/254, and its structure was determined by nuclear magnetic resonance using a Bruker DRX–400 spectrometer. The antimicrobial activity of the compound was evaluated using the broth microdilution assay, standardized by the Institute for Clinical and Laboratory Standards. The microorganisms used in the study were *Escherichia coli* ATCC 25922, *Pseudomonas aeruginosa* ATCC 27587, *Staphylococcus aureus* ATCC 29213, *Enterococcus faecium* ATCC 6569, and *Candida albicans* ATCC 13231. The compound was solubilized in Tween 20 and then diluted in an appropriate culture medium, added to a microplate at a maximum concentration of 1000 µg/mL, followed by serial dilutions to approximately 7.8 µg/mL. The dilutions were performed so that the maximum concentration of Tween 20 did not exceed 0.3%. The compound selina-1,3,7(11)-trien-8-one had a more pronounced antifungal action, with a minimum inhibitory concentration against C. albicans of 62.5 µg/mL. Regarding antibacterial action, MIC values of 125 and 250 µg/mL were observed for *E. faecium* and *S. aureus*, respectively. Against *E. coli* and *P. aeruginosa*, inhibition was similar at 500 µg/mL for both species. The compound selina-1,3,7(11)-trien-8-one, present in pitanga essential oil, has antimicrobial potential that had not yet been reported, showing that even well-known plant species can harbor molecules of interest to human health.

Keywords: *Eugenia uniflora, pitanga, essential oil, sesquiterpene.*