

Phytochemical and antimicrobial investigation and comparison between young and mature *Psidium guajava* leaves extract

ABSTRACT

Ethnomedicinal properties of *Psidium guajava* L., or also known as guava leaves has been known since years ago. Nowadays, a lot of guava leaves-based products emerge in industries such as tea and cosmetic. The aims of this study are to examine and compare the variation in the phytochemical constituent as well as the antimicrobial efficacy of young and mature leaves extract. Phytochemical analysis shows the presence of phenol, tannin, terpene, saponin, and flavonoid in the mature leaves methanolic extract. A similar result was obtained in the young leaves extract but no saponin was detected. Total phenols content in young and mature leaves were determined at a total of 31.2 mg and 162 mg GA/g. Both leave extract was carried out to determine the antimicrobial properties by tested against two Gram-positive bacteria (*Staphylococcus aureus* and *Bacillus cereus*) and one gram-negative bacteria (*Salmonella enterica*) through the disk-diffusion method by employing 40 μ L of leaf extract solution per disk. Based on the observation, both young and mature extracts exhibited inhibitory activity (<6.0 mm) against the tested bacteria with different sensitivity. At the concentration of 10 mg/mL, mature leaves extract shows higher efficacy on *S. enterica* and *B. cereus* where the inhibitory zone was measured at 9.3 mm and 7.8 mm, respectively, compared to young leaves which is not sensitive to *S. aureus* but the inhibitory zone on *B. cereus* around 7.2 mm while *S. aureus* at 7.2 mm higher than mature leave extract. This can be concluded that the *P. guajava* mature leave displayed the best to applied as medicinal purposes as its high variety of phytochemical content and high efficacy as antimicrobial activity.