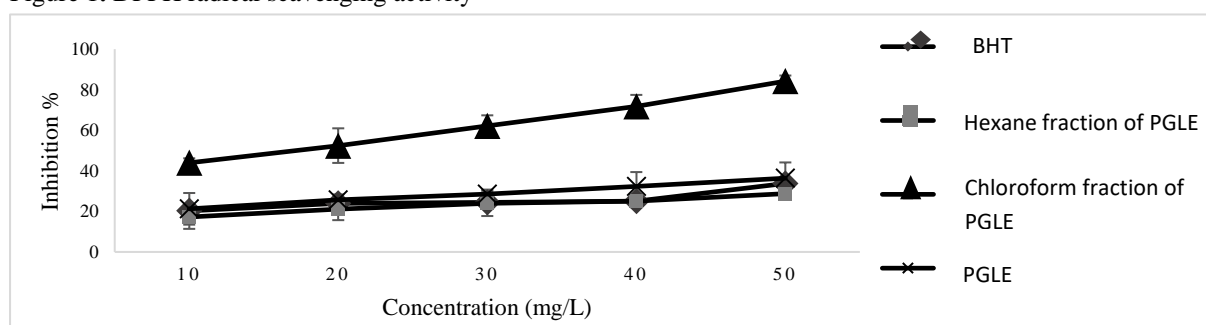


Determination of Antioxidant and Antimicrobial Activities of *Psidium guineense* Sw. Leaf Extracts Fractioned Based on Polarity

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Psidium guineense Sw. is a guava species distributed in South America, some parts of Africa and South Asia including Sri Lanka. Our previous studies have shown that *Psidium guineense* Sw. leaves contain 195.25 ± 9.56 mg g⁻¹ phenolic substances and 70 % ethanolic extract of *P. guineense* Sw. Leaves (PGLE) improve the oxidative stability and microbial shelf life of vanilla cake. PGLE may contain highly polar as well as medium and low polar phenolic substances. Therefore, antioxidant activity and antimicrobial activity of the further fractionated portions by chloroform and hexane of PGLE on food spoilage bacteria were determined. For this purpose, PGLE was obtained by solvent extraction and solvents of PGLE and different fractions were evaporated and reconstituted in 10 % ethanol. The antioxidant activities of solvent fractions, BHT and PGLE measured using DPPH radical scavenging assay are given in Figure 1.

Figure 1. DPPH radical scavenging activity



The antimicrobial activities of PGLE, chloroform fraction of PGLE and hexane fraction of PGLE were determined using MTT (3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay for four microbial strains, two gram negative; *Escherichia coli* and *Salmonella typhimurium* and two gram positive; *Bacillus cereus* and *Staphylococcus aureus*. Ethanol from the extracts was maintained at 1% in the antimicrobial assays. PGLE showed the higher antimicrobial activity towards gram positive bacteria with LD₅₀ values of 190.4 ± 20.2 mg/L for *Staphylococcus aureus* and 305.4 ± 22.4 mg/L for *Bacillus cereus* than gram negative bacteria with LD₅₀ of 444.9 ± 13.0 mg/L for *Escherichia coli* and 508.6 ± 64.7 mg/L for *Salmonella typhi*. Streptomycin and chloramphenicol were used as positive controls. No antimicrobial activity was observed for chloroform and hexane fractions of PGLE in the four bacterial strains tested. The results of the present study suggest that phenolic compounds with medium polarity may be mainly responsible for antioxidant activity while phenolic compounds with high polarity may be responsible for antimicrobial activity.

Keywords: *Psidium Guineense* Sw., Guava, Antimicrobial Activity

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