



Research article

In vitro comparison of pharmacological properties of *Syzygium jambos*, *Syzygium malaccense* and *Syzygium samarangense* species in Sri Lanka, extracted with different solvents

Chamali Madhushika, Dinusha N. Udukala *

College of Chemical Sciences, Institute of Chemistry Ceylon, Rajagiriya, Sri Lanka.

Received on: 20/11/2020, Revised on: 07/12/2020, Accepted on: 12/12/2020, Published on: 01/01/2021.

*Corresponding Author : Dinusha N. Udukala, College of Chemical Sciences, Institute of Chemistry Ceylon, Sri Lanka.

Email id: dinusha@ichemc.edu.lk

Copyright © 2021 Dinusha N. Udukala *et al.* This is an open access article distributed under the terms of the Creative Commons Attribution Non Commercial-Share Alike 4.0 International License which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Keywords: Antioxidant, Antibacterial, Anti-diabetic, Solvents, Alpha amylase, *Syzygium*.

Vol. 8 (1): 08-13, Jan-Mar, 2021.

Abstract

Syzygium jambos (SJ), *Syzygium malaccense* (SM) and *Syzygium samarangense* (SS) are dicotyledonous species with a high distribution density in the wet zone of Sri Lanka. The leaves, barks and seeds are utilized in traditional medicine to treat different diseases. Despite their prevalence, few studies have been conducted in Sri Lanka to screen the bioactive ingredients.

Therefore a comparative study was performed for the first time to investigate the antioxidant, anti-diabetic and antibacterial activities of leaves, fruits and seeds of the three species. Extraction was carried out with hexane, ethyl acetate, methanol and water at room temperature. DPPH free radical scavenging assay, alpha amylase inhibition assay and agar well diffusion method were used for analysis.

Highest antioxidant activity was observed in SS methanol seed extract with a maximum percentage inhibition value of $92.07 \pm 0.77\%$ at $34.0 \mu\text{g/mL}$ concentration. A noticeable alpha amylase inhibitory activity was seen in SS methanol leaf extract with a maximum percentage inhibition value of $83.10 \pm 1.22\%$ at 2.30 mg/mL concentration. Hexane extract of SJ leaves depicted the highest inhibition zone, against *Escherichia coli* which was $21.5 \pm 2.5 \text{ mm}$ whereas hexane seed extract of SS showed the highest inhibition zones against the bacterial strains *Bacillus subtilis* and *Staphylococcus aureus* which was $20 \pm 1 \text{ mm}$ in diameter.

Significant antibacterial activity of SS and SJ seeds were noted against the selected strains for the first time through this study. Due to the appreciable antioxidant, antibacterial and alpha amylase inhibitory activity, these species could be a principal source in nutraceutical and pharmaceutical products.