621/E2/Poster

Investigation of antioxidant, antimicrobial properties and presence of flavonoids in *Syzygium caryophyllatum*(L.) Alston

P.H. Udeshika,[1*] C. Hettiarachchi,[1] and P.N. Punyasiri[2]

[1]*Faculty of Science, University of Colombo, Colombo 03,*
[2]*Nature's Beauty Creations Ltd, P.O. Box 1, Puswelhena, Millewa, Horana*

Antioxidant and antimicrobial sources of natural origin are of great interest in the food and pharmaceutical industries. When considering natural sources, plants and herbs play a major role. This study was conducted to investigate the antioxidant and antimicrobial properties of extracts of different parts of *Syzygium caryophylatum* (Heen dan) and to investigate the presence of three main flavonoids Quercetin (Q), Kaempferol (K) and Myricetin (M) in those extracts. Ethanol and methanol extracts were prepared from leaves, bark, and seeds of Heen dan. The antioxidant properties were investigated by 2,2-diphenyl-1-picrylhydrazyl (DPPH) scavenging assay. Out of all the samples tested, methanol extract of Heen Dan bark showed the lowest IC_{50} value for the DPPH assay. All other extracts have higher IC_{50} values than the Heen Dan bark methanol extract, but most of them are less than 15 µg/ml, implying considerable antioxidant activity. Reverse phase high performance liquid chromatography (RP-HPLC) was carried out for all crude extracts and for acid hydrolyzed extracts with the aim of identifying quercetin, kaempferol and myricetin and they were not present in all extracts at measurable concentrations. Antimicrobial activity was tested against three bacteria, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and *Escherichia coli*, using the agar well diffusion assay. The ethanol extract of Heen Dan bark showed the highest antibacterial activity against *S. aureus*. The ethanol extract of seed showed the highest antibacterial activity against *E. coli*. The minimum inhibitory concentration (MIC) of each extract against each microorganism was tested by agar dilution assay. When comparing all MIC values methanol and ethanol extracts of seed and bark have the lowest MIC values against *P. aeruginosa* and *S. aureus,* which indicated the highest activity. Taken together, the results showed that *Syzygium caryophylatum* (Heen dan) could be a potential source of material with antibacterial and antioxidant properties.

E-mail: hasanthi_uoc@yahoo.com