



The Exhaustive Study for the Antioxidant & Antibacterial Potential of Clove (*Syzygium Aromaticum*) and Cinnamon (*Cinnamomum Verum*)

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ABSTRACT: Methanolic extracts of dried and powdered samples of Clove (*Syzygium aromaticum*) and Cinnamon (*Cinnamomum verum*) were analyzed for their total phenolic content (TPC), Total Antioxidant Capacity (TAC) using DPPH assay, ABTS assay and FRAP assay. The extracts were also analysed for their antibacterial activity against a gram positive bacteria (*Staphylococcus aureus*) and a gram negative bacteria (*Escherichia coli*). Finally GCMS studies of the methanolic extracts were done in order to identify the major active constituents present in them responsible for its antioxidant and antibacterial activity. Clove showed higher values of TPC which was calculated in terms of Gallic acid Equivalent (GAE). DPPH assay and ABTS assay both involved radical scavenging capacity and were calculated as % reduction. DPPH assay showed 86% reduction in activity after 1 hr and 94 % reduction after 24 hrs for clove extract while cinnamon extract showed 73% reduction after 1 hr and 88 % reduction after 24 hrs of analysis. ABTS assay showed 88.6% reduction after 1 hr and 93% after 3 hrs of analysis for clove extract while cinnamon extract showed 81.8 % after 1 hr and 88.9% after 3 hrs. FRAP values were calculated in terms of mM concentration of FeSO₄. Clove showed FRAP values equivalent to 4.746 mM of FeSO₄ while cinnamon showed 4.679 mM of FeSO₄. Antibacterial studies showed ZOI of 15 mm each against both the bacterial species at concentration of 0.5 mg/ml which was compared with a positive control i.e., Chloramphenicol. GCMS studies showed high % of eugenol, isoeugenol, Caryophyllene and eugenyl acetate in clove extract. Cinnamon extract showed the presence of cinnamaldehyde, p-methoxy cinnamaldehyde, coumarin and cadinol. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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