ABSTRACT

Phytochemical screening coupled with antioxidant and anti-glycation activities of methanol and acetone extracts of three different plant species of *Eucalyptus* i.e. *E. camaldulensis, E. tereticornis and E. microtheca* was determined using standard protocols including total phenolic content, total flavonoid content, lipid peroxidation in linoleic acid system, NO radical scavenging assay, and HPLC analysis. The results showed significant correlation between the phytochemical constituents determined in both the extracts through HPLC and their activity through *in vitro* chemical analysis. The main compounds identified in *E. tereticornis* include caffeic acid and resveratrol. Higher value of TPC of methanol extract (183±0.3 mg GAE g^{-1}) of *E. tereticornis* can be attributed to the higher percentage of peak area (14.48%) as compared to peak area (2.912%) of caffeic acid determined through HPLC in acetone extract. Moreover, the HPLC analysis of *E. microtheca* showed it to possess resveratrol, p-coumaric acid, umbelliferone and ellagic acid. The TPC of acetone extract of *E. microtheca* was higher (198±0.9 mg GAE g^{-1}) to that of methanol extract. In case of *Eucalyptus camaldulensis*, the phytochemicals identified include ellagic acid, p-coumaric acid, ferulic acid and rutin in case of methanol extract whereas resveratrol was identified in acetone extract. TPC of methanol extract of *E. camaldulensis* was found to be higher (174±1.5 mg GAE g^{-1}) than TPC of acetone extract (156±0.5 mg GAE g^{-1}) of the same plant. But the data obtained from TFC of these extracts showed methanol extract to possess higher total flavonoid content (39.1±0.3 mg CE g^{-1}) than acetone extract (15.0±0.1 mg CE g^{-1}). Accordingly, the methanol extract of *E. camaldulensis* showed higher antiradical potential in correlation with the higher TPC both in linoleic acid (55.76±3.5% inhibition) as well as nitric oxide radical scavenging assays (67.3±3.5%) along with higher anti-glycation activity.