Abstract

Seven different extracts, fractions and residues of Navel sweet orange (*Citrus sinensis*) peel were evaluated for their radical scavenging activity by the DPPH$^{\bullet}$ and luminol induced chemiluminescence methods. Also, the Folin–Ciocalteu method was used to determine the total phenolic content. High phenolic content and radical scavenging activities were found for the ethyl acetate fraction. Comparison was made with reference compounds, Trolox, ascorbic acid, quercetin, which are already known for their good antioxidant activity. The radical scavenging activity of the ethyl acetate fraction approached the activity of the standards.

Total phenolic content showed a small relation with radical scavenging activity. The radical scavenging activity examined with the DPPH method correlated well to values obtained by chemiluminescence.

The antioxidant activity found in the fractions of *Citrus sinensis*, should be attributed to the presence of flavonoids and other phenolic compounds. Among the various classes of flavonoids: flavanone glycosides, flavones and flavonols seem to prevail as indicated by two dimensional thin layer chromatography and color reactions. This information shows that ethyl acetate fraction of navel sweet orange peel can be used as antioxidant in food and medicinal preparations.

Abbreviations: DPPH, 1,1-diphenyl-2-picryl-hydrazyl; CL, chemiluminescence; Tro, Trolox; AscA, ascorbic acid; Que, quercetin; AA, antiradical activity; AE, antiradical efficiency; TPC, total phenol content; FRSA, free radical scavenging activity; HRSA, hydroxyl radical scavenging activity