

Vipada Kantayos 2011: Antioxidant Activities and Chemical Constituents of Some *Zingiber* Species in Thailand. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Yingyong Paisooksantivatana, Ph.D. 83 pages.

The present study aims to determine the antioxidant activities, total phenolic and total curcuminoid content of ethanolic extracts of ten species of *Zingiber* using DPPH and ABTS assays compared with L-ascorbic acid. The result showed that the extract from *Zingiber officinale* had the highest antioxidant activities calculated in IC_{50} (the concentration of an antioxidant at with 50% inhibition of free radical activity), 4.26 mg mL⁻¹ and 7.04 mg mL⁻¹ for DPPH assay and ABTS radical scavenging assay. Based on the Folin-Ciocalteu method, the total phenolics content, ranges from 2.30 to 7.70 mgGAE g⁻¹ of dry weight. There relationships between antioxidant activities determined by DPPH assay, and by ABTS assay were highly correlated with total phenolic content, ($r = 0.812$; $P < 0.01$) and ($r = 0.814$; $P < 0.01$). The extracts from *Zingiber montanum* and *Zingiber* 'Plai-chompoo' showed the highest and lowest of total curcuminoids content, 2.69 % (w/w), and 0.033 % (w/w), respectively. [6]-gingerol was found in *Zingiber officinale* and *Zingiber cornubraceatum* with the concentrations of 271.12 and 65.56 ppm. The extracts from *Zingiber* oil, *Zingiber montanum* exhibited the highest content of terpinen-4-ol. However, the *Zingiber* plant have the significantly high levels of antioxidants and is a new potential source of active compounds.

Student's signature

Thesis Advisor's signature