

Jutamas Songsang 2011: Antioxidant Activity and Active Compounds of Some *Curcuma* Species in Thailand. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Yingyong Paisooksantivatana, Ph.D. 63 pages.

Several species of *Curcuma* have been widely used as food, spice, health supplement and traditional folk medicine in many countries of Asia, including Thailand. Pharmacologically, its extracts have been tested against bacteria and fungal, antioxidant, anticancer, and antiinflammation activity. In the present study, 9 species i.e. *C. longa* L., *C. zedoaria* Roscoe, *C. aromatica* Salisb., *C. aeruginosa* Roxb., *Curcuma* 'Waanchakmodluk 1', *Curcuma* 'Waanchakmodluk 2', *Curcuma* 'Haroinang', *Curcuma* 'Khamindum' and *C. mangga* Valetton&Zijp. were used for screening bioactivity and antioxidant activity. The experiments had been done at Laboratory of Horticulture, Faculty of Agriculture, Kasetsart University, Thailand and Department of Biological and Environmental Science, Faculty of Agriculture, Yamaguchi University, Japan. The antioxidant activities of the extracts were assayed with DPPH (2,2-diphenyl-1-picrylhydrazyl) compare to ascorbic acid. The IC_{50} values vary within the range of 3.16 ± 0.27 to 240 ± 20.00 mg/ml. The total curcuminoids content vary from 0.012 ± 0.09 to 13.164 ± 0.44 mg/g DW. The content of curcumin, bis-demethoxycurcumin and demethoxycurcumin analyzed by HPLC vary within range of 87.551 ± 5.31 to 0.003 ± 0.00 , 74.261 ± 6.87 to 0.004 ± 0.00 and 20.229 ± 2.29 to 0.004 ± 0.00 mg/g DW, respectively. The results suggested that the contents of three major curcuminoids in different herbs varied significantly. Furthermore the total phenolic content was found in the range of 6.71 ± 0.36 to 58.62 ± 5.81 (mg/g DW). *C. longa* has the highest contents of curcuminoids and natural antioxidants among other species studied in this work.

Student's signature

Thesis Advisor's signature