

**Antioxidant and Antityrosinase Activity Evaluation of the Ethanolic Extracts, Obtained from Five *Curcuma* spp.** (Poster)

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**Introduction**

Antioxidant, antityrosinase activity and total phenolic content of ethanolic extracts obtained from five *Curcuma* spp.; *Curcuma xanthorrhiza* Roxb. (Wan-chak-mot-luk ; CI), *Curcuma zeadoaria* (Berg.) Roscoe. (Kamin-oy ; CII), *Curcuma aromatica* Salisb. (Wan-nang-kam ; CIII), *Curcuma* sp. (Mahaprab ; CIV), *Curcuma* sp. (Kanthamala ; CV) were conducted. The antioxidants are claimed the biological active in protecting the body, the skin collagen and elastic tissue against damaging by reactive oxygen species. Most of the antioxidant potential in herbs is due to the redox properties of phenolic compounds, act as reducing agents, hydrogen donors and singlet oxygen quenchers. Tyrosinase is known to be a key enzyme for melanin biosynthesis in plants and animals. Tyrosinase inhibitors therefore can be clinically useful for the treatment of some dermatological disorders, associate with melanin hyperpigmentation. It envisaged to be used in cosmetics for whitening, depigmentation, anti-aging and anti-wrinkle.

**Objectives**

To study the antioxidant activity, the antityrosinase activity and the total phenolic content of ethanolic extracts, obtained from five *Curcuma* spp.

**Methods**

The rhizomes of five *Curcuma* spp. from Kanchanaburi province (Thailand) were dried at 40 °C and extracted with ethanol at room temperature. The antioxidative activity was assessed by using the 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical scavenging assay [1], compared with BHT and Trolox. The total phenolic content was measured by Folin-Ciocalteu method. The antityrosinase activity was determined by the dopachrome method using L-DOPA as the substrate [2]. These studies are based on spectrophotometry analysis.

**Results**

The concentration of antioxidants to quench DPPH radical ( $EC_{50}$ ) of CI = 2.03 ug/ml, CII = 3.12 ug/ml and CV = 5.48 ug/ml were not significantly different from Trolox ( $EC_{50}$  = 1.03 ug/ml) and BHT ( $EC_{50}$  = 2.33 ug/ml). The total phenolic content of five *Curcuma* spp were ranging from 3.41 g/100 g to 9.06 g/100 g of dry weight. The concentration inhibitory effect ( $IC_{50}$ ) of CI and CIV significantly showed potent inhibition on dopa oxidase activity of mushroom tyrosinase (antityrosinase activity). The  $IC_{50}$  of CI and CIV were 56.54 ug/ml and 67.12 ug/ml respectively. Others exhibited low to moderate inhibition activities.

**Conclusion**

The results of the present work reveal that, the ethanolic extract of CI possessed the highest antioxidant and antityrosinase activity. Whereas others exhibited low to moderate inhibition activities. Therefore, it would be interesting to do further studies of CI as skin-whitening and anti-wrinkle agents.

**Keywords:** antioxidant, antityrosinase, *Curcuma* spp.

**Selected references**

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