

**Abstracts (Poster Presentation)****Anti-oxidant Activities of a Thai Remedy  
in Worayokasan Scripture**

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**Abstract**

**Introduction:** Plant antioxidants have an important role in the prevention of many age-related diseases. A Thai medical remedy consists of 3 herbs: *Terminalia chebula* fruits (TC), *Cyperus rotundus* rhizomes (CR) and *Tinospora crispa* vines (TIC), following Worayokasan scripture. In the previous studies, polyphenolic TC, methanol CR and ethanolic TIC extracts had free radical scavenging activity. These results support the use of the remedy and the herbal compounds for reducing free radicals.

**Objectives:** To investigate ethanolic and water extracts of the remedy and its plant ingredients on anti-oxidant activities and capacities.

**Methods:** The remedy (RM) was macerated with 95% ethanol (RME) or water decoction (RMW). Dry TC, CR and TIC plants were extracted with the ethanol maceration (TCE, CRE and TICE, respectively) or water decoction (TCW, CRW and TICW, respectively). All extracts were measured anti-oxidant activities by DPPH, FRAP and ABTS+ radical assays, and anti-oxidant capacities by total phenolic (TPC) and total flavonoid (TFC) contents.

**Results:** RME and RMW had the anti-oxidant activities by DPPH method ( $EC_{50} = 11.00$  and  $53.49$   $\mu\text{g/mL}$ , respectively), ABTS assay ( $EC_{50} = 41.66$  and  $34.06$   $\mu\text{g/mL}$ , respectively) and FRAP values ( $220.78$  and  $228.84$   $\text{mg Fe}^{2+}/\text{g}$  of extract, respectively), and had anti-oxidant capacities by TPC ( $48.16$  and  $64.95$   $\text{mg GAE/g}$  of extract, respectively) and TFC ( $116.56$  and  $134.06$   $\text{mg QE/g}$  of extract, respectively). Moreover, TCW showed very strong DPPH ( $9.43$   $\mu\text{g/mL}$ ) and ABTS ( $11.40$   $\mu\text{g/mL}$ ) activities and the highest TPC ( $142.15$   $\text{mg GAE/g}$  of extract). TCE and CRE had the highest FRAP value ( $467.14$   $\text{mg Fe}^{2+}/\text{g}$  of extract) and TFC ( $182.30$   $\text{mg QE/g}$  of extract), respectively.

**Conclusions:** The remedy and the three herbal extracts had antioxidant activities and capacities. Thus, they could be used for reducing and preventing oxidation.

**Keywords:** *Terminalia chebula* Retz., *Cyperus rotundus* L., *Tinospora crispa* L., Anti-oxidant activity

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