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**Total Polyphenol and Flavonoid Content and Antioxidant Activity
of Extracts of Chinese wolfberry (*Lycium chinense* P. MILL) Fruit**

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Objectives

Chinese wolfberry is a plant belonging to the family Solanaceae, is regarded in traditional oriental medicine as a medical plant for eternal youth and long life, a tonic to reduce the risk of arteriosclerosis and essential arterial hypertension (Yeh et al., 2008). Therefore, in the present study, the antioxidant activity of Chinese wolfberry was evaluated by scavenge DPPH free radicals, and measure a total polyphenol and flavonoid content.

Materials and Methods

oPreparation of plant extracts : Fresh plant fruits were rinsed with water and freeze dried immediately. Dried plants were ground in a chilled mortar. The powder sample was extracted with ethanol (10ml of 95% ethanol/g of plant) at room temperature for 24h. The extracts were filtered, followed by rotary evaporator under 50°C. The concentrated extracts were dissolved in a 95% ethanol and kept on the dark at -4°C.

oDetermination of total phenolic content : Total phenolic content of extracts was determined according to the Folin-Ciocalteu method (Kähkönen *et al.*, 1999). 700 ul of Folin-Ciocalteu reagent was added to 50 ul of extract and stirred vigorously by vortex and left to stand for 3min. Then, 100 ul of 10% sodium carbonate solution was added and the solution was made up to 1 ml with distilled water, mixed thoroughly, and left to stand at room temperature for an hour. Absorbance was measured at 725 nm and tannic acid was used as a standard in different concentrations (0, 25, 50, 100, 200 and 500 mg/100g).

Results

In this study, the ethanol extracts of Chinese wolfberry analyzed relative the total polyphenol and flavonoid contents, free radical scavenging, antioxidant enzymes. The extract of Chinese wolfberry exhibited the higher polyphenolics (65.53 ug/ml) and total flavonoid content (6.20 ug/ml), the low free radical scavenging activity (RC50 value; 528.32 ug/ml) than BHT (106.4 ug/ml), synthetic antioxidant.

Table 1. Total polyphenol and total flavonoid content from ethanol extracts of Chinese wolfberry (*Lycium chinense* P. MILL) Fruit

Sample	Total polyphenol ($\mu\text{g/ml}$)	Total flavonoid ($\mu\text{g/ml}$)
Chinese wolfberry	65.53 \pm 2.73	6.02 \pm 2.65

† All values are expressed as mean \pm SD of triplicate determinations.

Table 2. DPPH radical scavenging activity of Chinese wolfberry (*Lycium chinense* P. MILL) Fruit. Their activities were compared with synthetic antioxidants, Vitamin C and BHT.

DPPH radical scavenging activity	
Sample	RC ₅₀ † (ug/mL)
Chinese wolfberry	528.32 \pm 0.23
Vitamin C	\leq 25
BHT	106.4 \pm 0.16

† All values are expressed as mean \pm SD of triplicate determinations.

‡ Extract concentrations, which show 50% DPPH radical scavenging activity, were determined by interpolation.

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