

Study on antioxidant and tyrosinase inhibiting activities of medicinal plants collected in Yunnan, China

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Objectives

The study was performed for selection of plant materials which could be utilized as antioxidant for diseases preventing and/or skin whitening materials from plant resources in Yunnan, China

Materials and Methods

- Materials : Ten medicinal plants including *Aconitum carmichaeli* Debx. (AC), *ucklandia lappa* Decne (AL, radix), *Bergenia purpurascens* (HOOK.f.et Thoms.)Engl. (BP), *Cimicifuga goetida* L. (CG), *Cynanchum otophyllum* Schneid. (CO), *Gentiana crassicaulis* Duthie ex Burkill. (GC), *Gentiana rigescens* Franch. (GR), *Ligusticum chuanxiong* Hort. (LC), *Notopterygium incisum* Ting ex H. T. Chang (NI), and *Scutellaria baicalensis* Georgi (SB) collected in Yunnan, China.
- Methods
 - Preparation of extract was conducted by extraction procedure by using ASE (accelerated solvent extractor, Dionex Co., USA) apparatus with methanol, and by evaporation of the solvent under vacuum atmosphere.
 - Antioxidant activities on DPPH radical, total ROS (reactive oxygen species), inhibitory activity on tyrosinase and total phenol content were evaluated by the methods of Bloi (1958), Reddy *et al.* (2006), Ha *et al.* (2002), and Lee *et al.* (2005), respectively.

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Results

SB extracts scavenged effectively total ROS, but BP extract showed strong antioxidant activity on DPPH radical, tyrosinase inhibitory activities, and the highest total phenol content among the plants (Table 1) and BP extract also exhibited higher scavenging activity on DPPH radical than alpha-tocopherol (Fig. 1). Then, it is suggested that BP could be utilized as antioxidant for diseases preventing and/or skin whitening materials.

Table 1. Antioxidant activity on radicals, tyrosinase inhibitory activity and total phenol content of 10 Yunnan medicinal plant extracts.

Sample	Antioxidant activities		Tyrosinase inhibitory activity (IC ₅₀)	Total phenol content (mg%) ²⁾
	DPPH radical scavenging activity (%) ¹⁾	total ROS scavenging activity (IC ₅₀)		
AC	2.0±0.38	160.7± 4.8	15.19±10.1	323.2± 2.7
AL	9.0±0.25	65.7± 5.1	17.74±3.8	307.4± 3.5
BP	93.8±0.38	30.5± 2.5	8.72±10.4	1044.2±33.4
CG	15.1±1.57	123.4± 9.3	15.91±3.3	403.9±12.9
CO	12.7±0.53	30.7±22.4	6.66±14.8	353.7± 4.6
GC	5.8±0.52	86.0± 2.0	12.85±4.1	285.8± 0.7
GR	25.6±1.25	170.4± 12.3	16.33±6.3	439.1± 8.5
LC	25.8±4.03	30.4±20.9	14.95±2.3	377.6± 2.6
NI	22.5±4.55	110.9± 15.9	16.29±5.7	369.7± 7.2
SB	32.6±1.38	19.7± 0.6	17.05±2.7	622.3±22.2
Toc	90.7±0.21	-	-	-
trolox	-	17.9± 0.6	-	-
arbutin	-	-	16.92±4.7	-

¹⁾tested at 100ppm.

²⁾tannic acid equivalent

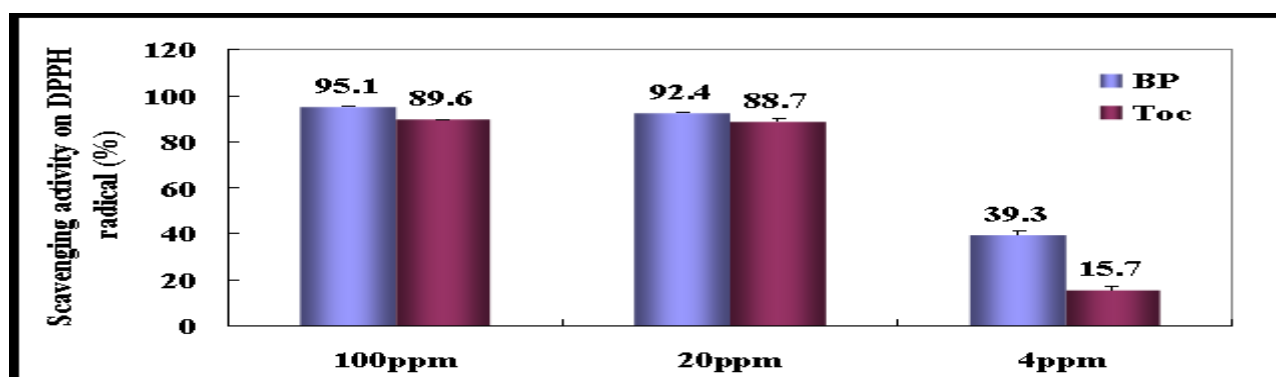


Fig. 1. Scavenging activity on DPPH radical of BP extract compared with alpha-tocopherol.