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Antioxidant Effect of Fractional Extracts from *Gastrodia elata Blume*

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[Introduction]

Recently, plant and plant-derived products are treated a part of the healthcare system by applying the bioactive phytochemicals. This study was investigated to evaluate the DPPH, ABTS radical scavenging rate and nitrite scavenging activity from *Gastrodia elata Blume* fractional extracts. Antioxidant activity substances in food play an important role as a health-protecting factor. This study was focused to evaluate of antioxidant activity of *Gastrodia elata Blume* in the different fractional extracts solvent for biological search on plant-based antioxidant agents.

[Materials and Methods]

The rhizome of *Gastrodia elata Blume* were freeze-dried, and then ground to a fine powder. Each sample powder was stored at -20°C for experiments. The concentrated extract was partitioned between hexane and water. The aqueous layer further fractionated with methyl chloride, ethyl acetate and butyl alcohol. Four solvent fractions (hexane, methyl chloride, ethyl acetate and butyl alcohol) were collected and concentrated using vacuum rotary evaporator. The spectrophotometric analysis of DPPH and ABTS scavenging activity of *Gastrodia elata Blume* was determined according to the method described previously (Brand-Williams *et al.*, 1995; Re *et al.*, 1999). The nitrite scavenging activity was determined according to a method using Griess reagent.

[Results and Discussions]

The extract of *Gastrodia elata Blume* had the highest DPPH activity in ethyl acetate partition layer and while water partition layer showed the lowest DPPH activity. That is, the activity of DPPH showed a significantly higher activity in ethyl acetate partition layer compared with the other fraction at concentration ranging from 0.5 mg·mL⁻¹ to 10 mg·mL⁻¹. The extract of ethyl acetate partition layer showed the highest ABTS activity, and while water partition layer showed a relatively low activity at all tested concentrations. The ABTS radical scavenging activity was progressively increased in a dose-dependent manner. The nitrite scavenging activity from different fractional extracts of *Gastrodia elata Blume* were affected by pH. The water extract was significantly less effective than was hexane, methylene chloride, ethyl acetate, and butyl alcohol extracts. At a pH of 1.2, the scavenging effect of all of the extracts tested observed higher than that of the other two pH ranges(pH 4.2 and pH 6.0). These analyses indicate that there is a linear relationship between DPPH and ABTS radical scavenging activity.

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