

# Antioxidative Activities of Extracts of *Dimocarpus longan* Seeds

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## ABSTRACT

In this study, fresh longan seeds and dried longan seeds were extracted by heat reflux extraction with various solvents (water, methanol, 50% ethanol, ethyl acetate), and the effect of solvent on the antioxidant capacity of the extract was investigated. Main tests included: (1) determination of antioxidant contents of total polyphenols and flavonoids; and (2) analysis of antioxidant activity including DPPH radical scavenging capacity, ferrous ion chelating ability, reducing power, superoxide anion scavenging ability, and ABTS cation scavenging ability. The antioxidant capacities of the standards of BHA, EDTA-Na, and gallic acid were compared with those of the extracts. For the content of total polyphenols, the extract of fresh longan seeds by 50% ethanol had the highest level, reaching 98.2 mg/g, and the extract by ethyl acetate has the lowest content (only 5.81 mg/g). The extracts of dry longan seeds by 50% ethanol and by ethyl acetate contained 87.9 mg/g and 89.0 mg/g of total polyphenols, respectively. The extracts of fresh and dried longan seeds by ethyl acetate contained 16.3 mg/g and 51.7 mg/g of total flavonoids, respectively. Experimental results showed that the extraction rates for fresh longan seeds by 50% ethanol reached 12.9%, being the highest, and the rate for dried longan seeds also by 50% ethanol reached 14.8%, being the highest. On the evaluation of antioxidant activity for fresh longan seeds, the DPPH radical scavenging capacity reached 99% for the extract by ethyl acetate at a concentration of 1.0 mg/mL. The extract by ethyl acetate at a concentration of 2.0 mg/mL had the highest chelating ability reaching 84.9%. The extract by 50% ethanol at a concentration of 0.1 mg/mL had an ABTS radical scavenging ability of 95%. The extract by 50% ethanol at a concentration of 2.0 mg/mL had a relative reducing power of 110.8% compared with the standard. On the evaluation of antioxidant activity for dried longan seeds, the DPPH radical scavenging capacity reached 95% for the extract by 50% ethanol at a concentration of 0.5 mg/mL. The chelating ability reached 85.2%, being the highest, for the extract at a concentration of 1.0 mg/mL. The ABTS radical scavenging ability for the extract by 50% ethanol at a concentration of 0.1 mg/mL reached 53.0%, being higher than that of the standard. The relative reducing power reached 108.5% compared with the standard for the extract by 50% ethanol at a concentration of 2.0 mg/mL. Based on the results of this investigation, the extracts of dried longan, especially extracted by 50% ethanol, showed better antioxidant capacities. The findings of this investigation can be used in the development of functional foods.

Keywords : longan、 hot reflux extraction、 determination of flavonoids、 determination of total polyphenols、 antioxidant capacity

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