

Comparison of Ultrasonic Extraction with Conventional Extraction Methods of Phenolic Compounds in Longan (*Euphoria longana* Lamk.) Seed

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ABSTRACT

Three different extraction methods – hot water (HWE), ethanol (EE) and ultrasonic-assisted water extraction (UAE) – were evaluated for extraction of phenolic compounds in longan (cultivar Edor) seed. The findings indicated that longan seed extracts contained three major phenolic compounds, analyzed by HPLC, including gallic acid, corilagin and ellagic acid. The content of total polyphenolic compounds and antioxidant activities was determined using the Folin-Ciocalteu method and the DPPH assay, respectively. Longan seed extraction by HWE contained the highest yield, total polyphenol content and antioxidant activities (42.80%, 41.250mg gallic acid/g and $IC_{50} = 0.017$ mg/ml, respectively). UAE produced a higher yield than EE, but lower than HWE, with the lowest extraction time. Moreover, gallic acid content (16.55 mg/g) and corilagin content (35.62 mg/g) extracted by UAE were higher than those of HWE and EE. Ellagic acid content obtained from UAE was significantly ($P < 0.05$) higher than that from EE, but not significantly different from that of HWE. The application of UAE could provide an alternative method for extraction of photochemical from longan seeds.

Keywords: Longan extract, Phenolic compound, Antioxidant activity, Extraction method

INTRODUCTION

Longan (*Euphoria longana* Lamk.) is a subtropical fruit widely grown in northern Thailand and is found in Southeast Asia, China and Taiwan. Longan can be consumed as fresh and processed products (Rangkadilok et al., 2005), such as canned longan in syrup and dried fruit, as well as used in cuisine. Most longan, Edor cultivar, is commercially grown for the dried fruit market, either as dried pulp or dried whole fruit. This fruit is said to invigorate the heart and spleen, nourish the blood and have a calming effect on the nervous system; moreover, dried longan is often used as an herbal medicine to cure stomach pain, febrifuge, and as an antidote for poison (Prasad et al., 2009a). Longan has been reported to have pharmacological properties, such as reducing contraction of the blood ves-