

## Polyphenol Contents and Antioxidant Properties of Medlar (*Mespilus germanica* L.)

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**Abstract:** Medlar is the fruit of *Mespilus germanica* L. in the family of Rosaceae. The present study outlines that the native medlar (*Mespilus germanica* L.) fruits an extremely rich source of antioxidants. In this study, antioxidant and antiradical property of medlar fruits were evaluated. Total phenolics and flavonoids amounts in lyophilized extract of medlar (LEM) fruits were calculated as gallic acid and quercetin equivalents, respectively. Antioxidant and radical scavenging activity of LEM were investigated using different in vitro assays including 1,1-diphenyl-2-picryl-hydrazyl (DPPH), N,N-dimethyl-p-phenylenediamine (DMPD<sup>•+</sup>), and superoxide anion radicals (O<sub>2</sub><sup>•-</sup>) scavenging activity, hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), ferric ions (Fe<sup>3+</sup>) and cupric ions (Cu<sup>2+</sup>) reducing ability, Fe<sup>3+</sup>-TPTZ reducing ability, ferrous ions (Fe<sup>2+</sup>) chelating activity as trolox equivalent. In addition, quantitative amounts of caffeic acid, ferulic acid, syringic acid, ellagic acid, quercetin,  $\alpha$ -tocopherol, pyrogallol, p-hydroxybenzoic acid, vanillin, p-coumaric acid, gallic acid and ascorbic acid in LEM were detected by high performance liquid chromatography and tandem mass spectrometry (LC-MS/MS). The presence of these antioxidant compounds can be considered as a quality parameter for edible medlar fruits.

**Keywords:** Medlar; *Mespilus germanica*; antioxidant activity; radical scavenging; trolox equivalent

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