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Full Text

α-Glucosidase Inhibitory and Antioxidant Activities of Different Ipomoea aquatica Cultivars and LC–MS/MS Profiling of the Active Cultivar (Article)

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Abstract   ∨ View references (41)

The present study was designed to investigate the effect of Ipomoea aquatica extracted using water and methanol at various concentrations on the total phenolics, antioxidant capacity, and α-glucosidase inhibitory activities. Three I. aquatica cultivars were used in this study including the upland type with narrow leaves (K-11), low-land aquatic types with broader shaped leaves (K-25), and bamboo-shaped leaves (K-88). The results revealed that 70% methanol extract of K-11 showed higher total phenolic content and α-glucosidase inhibitory and antioxidant activities than the other two cultivars. The phytochemical constituents in the active extract K-11 were analyzed by means of liquid chromatography coupled with diode array detection and electrospray tandem mass spectroscopy. Eighteen compounds were detected of which 13 were tentatively identified as quercetin-3-O-sophoroside, quercetin-3-O-glucoside, quercetin-3,7-di-O-glucoside, nomilinic acid glucoside, 4,5-di-O-caffeoylquinic acid, 3,5-di-O-caffeoylquinic acid, luteolin-7-glucoside and 3,4,5-tricaffeolquinic acid, fatty acid together with quercetin, and tricaffeoylquinic acid derivatives. Practical Applications: Antioxidants protect the human body against infections and degenerative diseases by inhibiting and scavenging free radicals. The present study showed that all methanol extracts of I. aquatica are rich in polyphenols in which 70% methanol extract showed highest in vitro antioxidant and α-glucosidase inhibitory activities. Knowledge about the antioxidant and α-glucosidase inhibitory activities of I. aquatica will promote its usage as a functional food, and it can be utilized as an antioxidant sources in food industry. © 2016 Wiley Periodicals, Inc.

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Indexed keywords

Engineering controlled terms: Agents   Carbohydrates   Extraction   Fatty acids   Flavonoids   Free radicals   Liquid chromatography   Mass spectrometry   Methanol   Phenols

Compendex keywords   Alpha glucosidase   Anti-oxidant activities   Antioxidant capacity   Degenerative disease   Diode array detection   Inhibitory activity   Tandem mass spectroscopy   Total phenolic content

Engineering main heading: Antioxidants

Cited by 1 document

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