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Volume 41, Issue 2, 1 April 2017, Article number e12303 $\alpha$ -Glucosidase Inhibitory and Antioxidant Activities of Different Ipomoea aquatica Cultivars and LC-MS/MS Profiling of the Active Cultivar (Article)Lawal, U.<sup>a</sup>, Leong, S.W.<sup>b</sup>, Shaari, K.<sup>b</sup>, Ismail, I.S.<sup>b</sup>, Khatib, A.<sup>c</sup>, Abas, F.<sup>ab</sup>  <sup>a</sup>Department of Food Science, Faculty of Food Science and Technology, Universiti Putra Malaysia, Serdang, Selangor, Malaysia<sup>b</sup>Laboratory of Natural Products, Institute of Bioscience, Universiti Putra Malaysia, Serdang, Selangor, Malaysia<sup>c</sup>Department of Pharmaceutical Chemistry, Faculty of Pharmacy, International Islamic University Malaysia, Kuantan, Malaysia

## Abstract



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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  $\alpha$ -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  $\alpha$ -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-sophorose, 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-tricafeoylquinic 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  $\alpha$ -glucosidase inhibitory activities. Knowledge about the antioxidant and  $\alpha$ -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.

## Reaxys Database Information

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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](#)ISSN: 01458884  
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