

Comparative assessment of phenolic compounds and antioxidant properties related to the harvest times from the leaves of Korean barley (*Hordeum vulgare L.*) cultivars

Woo Duck Seo, Sik-Won Choi, Kwang-Sik Lee, Mi Ja Lee, Hyun Young Kim, Hyeon Jung Kang and Sun-Lim Kim
National Institute of Crop Science, Republic of Korea

This research was the first to investigate changes in phenolic profiles and antioxidant capacities from the leaves of various barley cultivars through four different harvest times. Ten phenolics were characterised as hydroxycinnamic acid, orientin, isoorientin, and isovitexin derivatives using UPLC-PDA-ESI/MS and nuclear magnetic resonance (NMR), especially, luteonarin (2) and saponarin (3) were the predominant constituents (71–75%) with significant differences in cultivars and harvest times. The highest average phenolic content was found with 2671.8 mg/100 g on 23 days after sowing, whereas the lowest was 1400.8 mg/100 g on 56 days. The radical scavenging abilities also exhibited considerable differences in the 80% methanol extracts (40 µg/ml), depending upon the phenolic contents. Interestingly, isoorientin (5) and orientin (6) possessed potent antioxidant effects with IC₅₀ values of 20.7±1.1 and 27.5±7.3 µM (DPPH) as well as 5.7±0.3 and 8.2±0.3 µM (ABTS), respectively. Our results may be useful information to determine the optimal harvest time (mid-April) of barley leaves.

Biography

Woo Duck Seo has completed his PhD from Gyeongsang National University and Postdoctoral studies from Korea Institute of Radiological & Medical Sciences. His researches focus on the analyses of natural product from crop source and test of biological assay such as metabolic syndrome.

swd2002@korea.kr

Notes: