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Polyphenol profiles of barley sprouts at different growth stages and investigation of their anti-oxidative effects

Woo Duck Seo, Kyung Hye Seo, Mi-Ja Lee, Hyeon Jung Kang, Kwang-Sik Lee, Song-Min Oh and Sun Lim Kim
Crop Foundation Division, Republic of Korea

This study was the first to investigate polyphenol profiles and antioxidant properties in BS at different growth stages and cultivar. The isolated compounds were identified as 3-O-Feruloylquinic acid, Lutonarin, Saponarin, Isoorientin, Orientin, Isovitexin, Isoscoparin-7-O-[6-sinapoyl]-glucoside, Isoscoparin-7-O-[6-feruloyl]-glucoside, Isovitexin-7-O-[6-sinapoyl]-glucoside and Isovitexin-7-O-[6-feruloyl]-glucoside using UPLC-PDA-ESI/MS analysis. Among them, compound 2-6 had a good ability to reduce free radicals in 1, 1-Diphenyl-2-picrylhydrazyl (DPPH) radical scavenging activities with IC₅₀ values of 20.7-74.9 μ M and 2-azino-bis-(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) radical cation scavenging activities with IC₅₀ values of 5.7-32.0 μ M (Compared with quercetin as positive control, IC₅₀=26.0 and 23.6 μ M, respectively). Furthermore, compound (2, 4 and 5) pre-treatment cells were diminished Reactive Oxygen Species (ROS) and increased cell viability without cytotoxicity. We validate this by showing that saponarin (SA) is as inhibitor of ROS. The richest cultivar for SA was found to be the Keunabbori cultivar. The most abundant SA in barley sprout showed 62-75% of the total polyphenols content at every stage. These results are valuable to determine the optimal times of harvest to obtain the highest yield of polyphenols.

Biography

Woo Duck Seo has completed his PhD from Gyeong Sang National University and Postdoctoral studies from Korea Institute of Radiological & Medical Science. He has published more than 35 papers in reputed journals and has been serving as an Editorial Board Member of repute.

swd2002@korea.kr

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