

Changes in Antioxidant and Whitening Activities of Buckwheat Seeds with Germination Time

Ho Bong, Boram Go¹, Seon-A Yoon¹, Young-Min Ham¹, Woo-Sam Yang²,
Yong-Hwan Jung¹ and Dae-ju Oh^{1*}

¹Biodiversity Research Institute, Jeju Technopark, Seogwipo 63608, Korea

²Agricultural Research and Extension Services, Jeju 63057, Korea

The purpose of this study was to evaluate the antioxidant and whitening action of *Fagopyrum esculentum* and *F. tataricum* buckwheat seeds depending on their germination time. In a previous study, we reported significant changes in sprout yield and phytochemical content in ethanol extracts from *F. esculentum* and *F. tataricum* seeds with increase in germination times. DPPH radical scavenging activities of *F. tataricum* increased with increasing germination time, whereas that of *F. esculentum* decreased. Next, we investigated anti-melanogenic activities of these species by estimation of melanin content and tyrosinase activity. Inhibition of melanin production in α -MSH (α -melanocyte stimulating hormone)-induced B16F10 cells by extracts from these seeds were analyzed. Among the two, *F. tataricum* extracts were characterized by higher inhibitory activity against melanin production. In addition, when B16F10 cells were incubated with L-DOPA for detection of in situ tyrosinase activity, *F. tataricum* and *F. esculentum* extracts were observed to reduce melanin production in cells. Taken together, these results indicate that extracts from buckwheat seeds could influence cellular processes via modulation of tyrosinase activity. Hence, buckwheat seeds could be utilized as whitening agents in the cosmetic industries and as therapeutics for hyperpigmentation disorders in a clinical setting.

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*(Corresponding author) E-mail: daeju@jejutp.or.kr, Tel: +82-64-720-2832