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The Contribution of Polyphenols to Antioxidative Activity in Common Buckwheat and Tartary Buckwheat Grain

[Toshikazu Morishita](#)¹⁾, [Hiroyasu Yamaguchi](#)¹⁾ and [Konosuke Degi](#)¹⁾

1) Institute of Radiation Breeding, National Institute of Agrobiological Sciences

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Abstract: We examined the contribution of polyphenols to the antioxidative activity in the grains of common buckwheat “Hitachi akisoba” (H) and “Kanto No.1” (K) and in those of Tartary buckwheat “Rotundatum” (R) and “Pontivy” (P). The antioxidative activity in the 80% ethanol extracts was 16.4 and 15.3 $\mu\text{mol-Trolox g}^{-1}$ DW in H and K, respectively, and 52.9 and 57.4 $\mu\text{mol-Trolox g}^{-1}$ DW in R and P, respectively. These extracts were analyzed by HPLC. In common buckwheat, (-)-epicatechin, (-)-epicatechingallate, and rutin were confirmed. The (-)-epicatechin content was 20.2 and 15.6 mg 100 g^{-1} DW, and those of rutin were 13.6 and 12.2 mg 100 g^{-1} DW in H and K, respectively. (-)-Epicatechin accounted for about 13 and 11% of the total antioxidative activity in H and K, respectively, and rutin about 2% in both varieties. Since each polyphenol accounted for only about one fifth of the total antioxidative activity, the existence of unknown antioxidants was suggested. In Tartary buckwheat, rutin quercitrin, and quercetin were confirmed. The rutin content was 1808.7 and 1853.8 mg 100 g^{-1} DW, in R and P, respectively. Rutin accounted for about 90 and 85% of the total antioxidative activity in R and P, respectively. Accordingly, rutin appears to be the major antioxidant in Tartary buckwheat.

Keywords: [Antioxidative activity](#), [Common buckwheat](#), [Contribution](#), [Polyphenol](#), [Tartary buckwheat](#)



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