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Comparison of antioxidant activities in Korean black soybean landraces

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Abstract

Black soybean with the anthocyanin in the seed coat is known to have higher antioxidant activity than the yellow soybean. This study was carried out to evaluate antioxidant activity of 231 Korean black soybean landraces which conserved at RDA gene bank. Antioxidant activities were measured using DPPH, TPC, TFC, ABTS, and FRAP assay. DPPH showed wide variations, ranging from 16.4 to 200.4(IC_{50}). TPC, TFC, ABTS, and FRAP were ranged from 0.8 to 13.2 mg gallic acid equivalent/g (mg GAE/g), 0.15 to 0.82 mg quercetin equivalent/g (mg QE/g), 2.0 to 8.3 mg ascorbic acid/g (mg ASC/g) and 0.2 to 3.1 mg ASC/g, respectively. Among 231 Korean black soybean landraces, IT177715 showed the highest antioxidant activity in DPPH assay. In TPC, TFC, ABTS, and FRAP assays, IT274975, IT274551, IT167725, and IT178047 showed the highest antioxidant activity, respectively. In Relative Antioxidant Capacity Index (RACI), IT178047 showed the highest antioxidant activity, while IT177197 the lowest. This study will be able to provide useful data to select black soybean landraces with high antioxidant activity.

Keywords: Antioxidant capacity, Black soybean, Korean landrace, RACI

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