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Identification and characterization of new high stearic acid soybean mutant induced by gamma-ray irradiation

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Soybean [*Glycine max* (L.) Marr.] seeds are the most valuable sources of vegetable oil. However, the partially hydrogenated soybean oil desirable for solid fat baking applications creates *trans* fats associated with negative health effects on blood lipids. The chemical hydrogenation can be reduced by increasing stearic acid content that is a saturated fatty acid and neutral effect on cholesterol level. This study identified new mutant genotype containing ~17% stearic acid. This mutant genotype was developed from gamma irradiation treatment with original cultivar, Ilmi containing ~3% stearic acid. The mutant contained a three base pair deletion in the 1st exon of stearyl-acyl-carrier protein desaturase (SACPD-C) gene. The deletion of three bases resulted in a protein that is missing one amino acid. This mutation could affect the function of SACPD-C gene and elevate seed stearic acid levels.