Identification of Molecular Markers associated with Fatty Acid Profile of Soybean Seed Oil. (C07-rajcan214522-Oral)

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Abstract:

Soybean is a major oil crop in the world. Modification of fatty acid profile of soybean oil has great current and future application value for both food and nonfood purposes. There are five major fatty acids in soybean seed oil. The elevation of stearic acid (C18:0) is desirable, especially when soybean oil is used for making some food products such as margarine. The objective of this study was to study the inheritance of C18:0 and, to map the gene(s) involved in the regulation of C18:0 levels in soybean oil using molecular markers. High C18:0 mutants developed by the University of Guelph were used as parents to develop segregating populations for this study. The inheritance pattern from an F2 population showed a one gene dominance segregation ratio of 3 low : 1 high stearic acid level. This genetic model was confirmed by identification of one locus on the soybean Linkage Group (LG) B2 being strongly associated with the trait. More than 70% of the phenotypic variation in stearic acid is accounted for by this locus. We believe the gene regulating the desaturation step from C18:0 to oleic acid (C18:1) in the fatty acid biosynthesis pathway maps in this locus because it is also highly associated with C18:1 level.

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