

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: Distribution of full-length LTR subtypes in land plants.

File Name: Supplementary Data 2

Description: Statistics of copy number of histones.

File Name: Supplementary Data 3

Description: Statistics of SLAF data.

File Name: Supplementary Data 4

Description: Statistics of number of SNPs and genes related to each trait.

File Name: Supplementary Data 5

Description: List of SAD and FAD2/6 genes used for phylogenetic analysis in *P. ostii* and representative plants.

File Name: Supplementary Data 6

Description: Candidate genes identified by GWAS in accordance to fatty acid biosynthesis related traits.

File Name: Supplementary Data 7

Description: List of genes related to fatty acid biosynthesis and the FPKM values during endosperm maturation.

File Name: Supplementary Data 8

Description: List of and FAD3 and FAD7/8 genes used for phylogenetic analysis in *P. ostii* and representative plants.