

Natural Variation of Fatty Acid Desaturase Gene Affects Linolenic Acid Content and Starch Pasting Viscosity in Rice Grains

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Supplementary Figures S1-S3

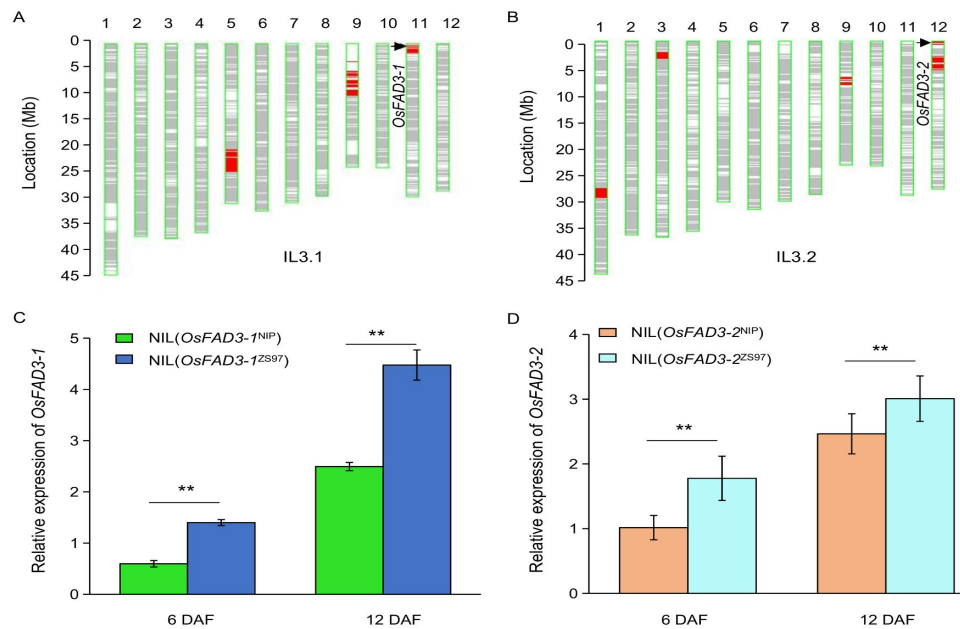


Figure S1. Graphic genotype of IL3.1 and IL3.2 and expression analyses of *OsFAD3-1* and *OsFAD3-2* in the spikelets of the near-isogenic lines (NIL). (A, B) Graphic genotype of IL3.1 and IL3.2. (C, D) Expression analyses of *OsFAD3-1* and *OsFAD3-2* in the spikelets of 6 DAF and 12 DAF (day after flowering). The *Ubiquitin* as an internal reference. Values are means \pm SD (n = 3 replications). Significance is indicated by *t*-test. **, P < 0.01.

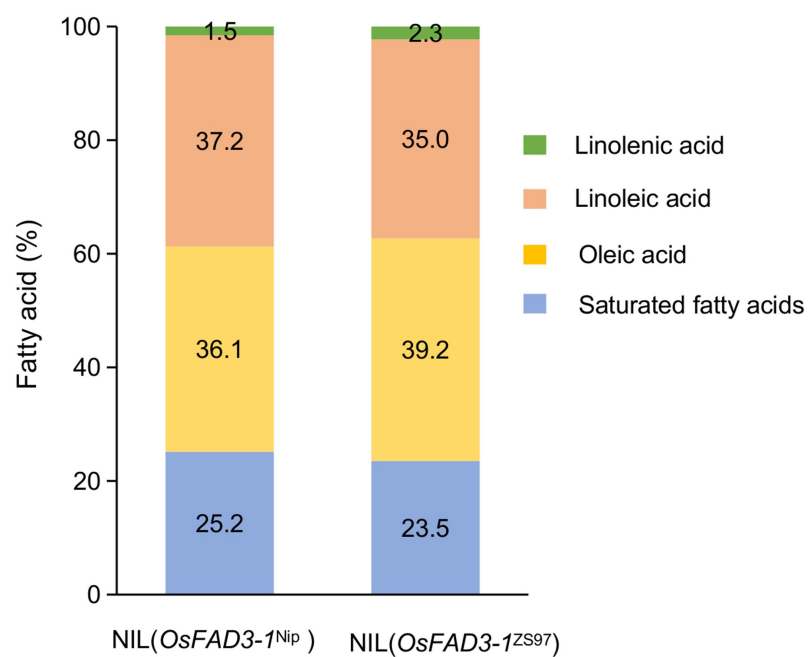


Figure S2. Relative contents of fatty acid compositions in the embryos of NIL (*OsFAD3-1^{Nip}*) and NIL (*OsFAD3-1^{ZS97}*).

A

Nip : GCTAGTTTTACGTATGGGGCTGGTTAGCTGTAATGCGCTACATATATGTTATTAGTATTG:-418
 ZS97: GCTAGTTTTACGTATGGGGCTGGTTAGCTGTAATGCGCTACATATATGTTATTAGTATTG:-415

Nip : TAGGCAAATGAGTATGGAGTAGTAACAAATAGTAGTATGGATTTTGTGTAATAGAGATGG:-358
 ZS97: TAGGCAAATGAGTATGGAGTAGTAACAAATAGTAGTATGGATTTTGTGTAATAGAGATGG:-355

Nip : AGGGAGGACGGTTTAATTGAGGAGGCAAGAGAATCCAAAAAGCATAAGCGTGTGGTGTG:-298
 ZS97: AGGGAGGACGGTTTAATTGAGGAGGCAAGAGAATCCAAAAAGCATAAGCGTGTGGTGTG:-295

Nip : GTGATGAAATGGGAAGGAAGGAGCAGAGGAGGCCTATAAATAGGGACATAGCAAAGCAAA:-238
 ZS97: GTGATGAAATGGGAAGGAAGGAGCAGAGGAGGCCTATAAATAGGGACATAGCAAAGCAAA:-235

Nip : GGGGGCAGGCCGCACACAGCACAGGAGGAGGAGCTTGCTTTCCTTCCTTCCTTCCTTCCT:-178
 ZS97: GGGGGCAGGCCGCACACAACACAGGAGGAGGAGCTTGCTTTCCTTCCTTCCTTCCTTCCT:-183

Nip : GGGTTGGGTTTGGGTTTGCCTTGCAGGCCATCCATCGCATTCGCGTTCCGAGGCACAAAC:-118
 ZS97: GGGTTGGGTTTGGGTTTGCCTTGCAGGCCATCCATCGCATTCGCGTTCCGAGGCACAAAC:-123

Nip : CAAACACCTCCCCCTCAAATTTCTCTTTCTTGTCTCTTCTCCCTTTCCGCCTCGCCTCGCT:-58
 ZS97: CAAACACCTCCCCCTCAAATTTCTCTTTCTTGTCTCTTCTCCCTTTCCGCCTCGCCTCGCT:-63

Nip : GCCAAA-----GCTTCACAAATCACAAATCGGAATCAGATCCACCACGACACGGCGGCGG:-3
 ZS97: TCGCTGCCTTCGCTTCACAAATCACAAATCGGAATCAGATCCACCACGACACGGCGGCGG:-3

Nip : CA:-1
 ZS97: CA:-1

B

NIP : MAASATQEADCKASEDARLFFDAKPPPPFRIGDVRAAIPAHCWRKTPRLRSLSYVARDLLI:60
 ZS97: MAASATQEADCKASEDARLFFDAKPPPPFRIGDVRAAIPAHCWRKTPRLRSLSYVARDLLI:60

NIP : VAALFAAAASIDLAWA--WPLYWAAQGTMEFWALFVLGHDCGHGSFSDSAMLNNVVGHL:120
 ZS97: VAALFAAAATRIDVSVAWA--WPLYWAAQGTMEFWALFVLGHDCGHGSFSDSAMLNNVVGHL:120

NIP : LHSFILVPYHGWRISHRTHHQNHGHIERDESWHPITEKLYWQLETRTKKLRFLLPFTLLA:180
 ZS97: LHSFILVPYHGWRISHRTHHQNHGHIERDESWHPITEKLYWQLETRTKKLRFLLPFTLLA:180

NIP : FVPYLVYRSPGKTGSHFLPSSDLFSPKEKSDVIVSTTCWCIMISLLVALACVFGPVPVLM:240
 ZS97: FVPYLVYRSPGKTGSHFLPSSDLFSPKEKSDVIVSTTCWCIMISLLVALACVFGPVPVLM:240

NIP : LYGVPLYLVFVMWLDLVTYLHHHGHNDLPWYRGEESYLRGGLTTVDRDYGWINNIHHDIG:300
 ZS97: LYGVPLYLVFVMWLDLVTYLHHHGHNDLPWYRGEESYLRGGLTTVDRDYGWINNIHHDIG:300

NIP : THVIHHLFPQIPHYHLVEATKAARPVLGRYYREPEKSGPLPLHLFGVLLRSLRVDHFVSD:360
 ZS97: THVIHHLFPQIPHYHLVEATKAARPVLGRYYREPEKSGPLPLHLFGVLLRSLRVDHFVSD:360

NIP : VGDVYYYQTDHSLNGTDWAEDAKHK:385
 ZS97: VGDVYYYQTDHSLNGTDWAEDAKHK:385

Figure S3. Comparison of sequence variation of *OsFAD3-1* in the varieties Nipponbare (NIP) and Zhenshan 97 (ZS97). (A) Promoter sequences, showing the 8-bp and 5-bp indels in red font letters; (B) Amino acid sequences of *OsFAD3-1*; The amino acid changes are indicated by red letters.