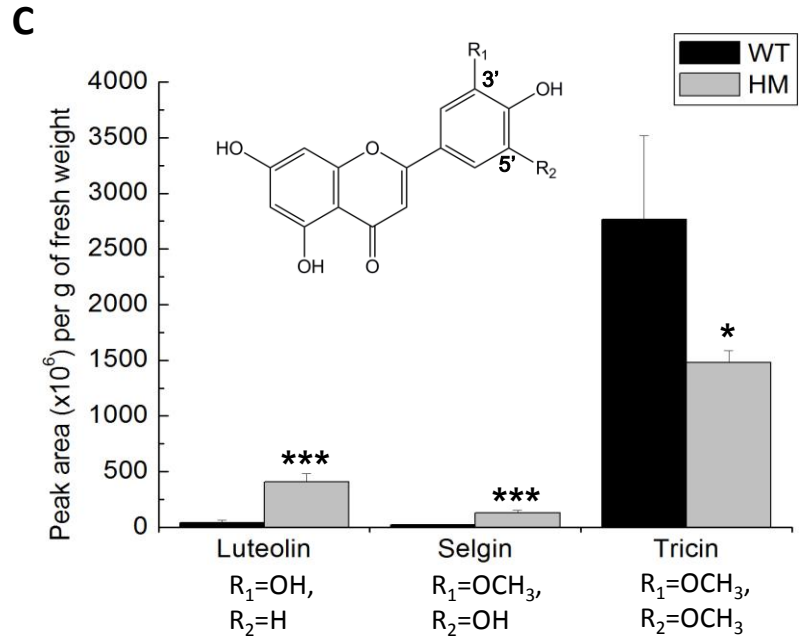
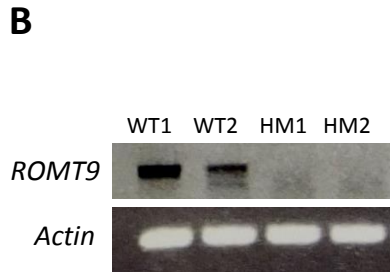
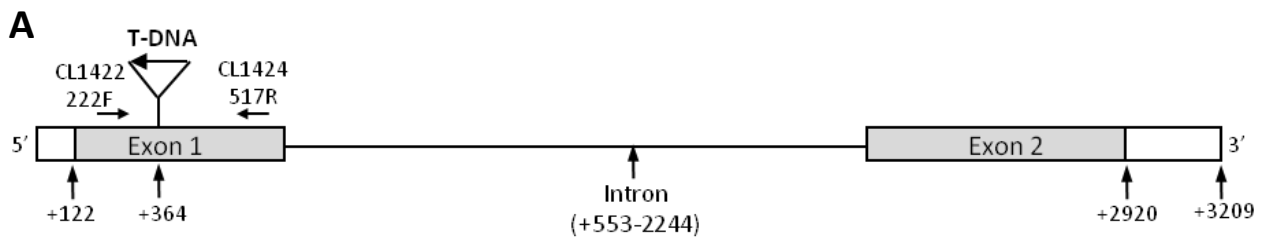
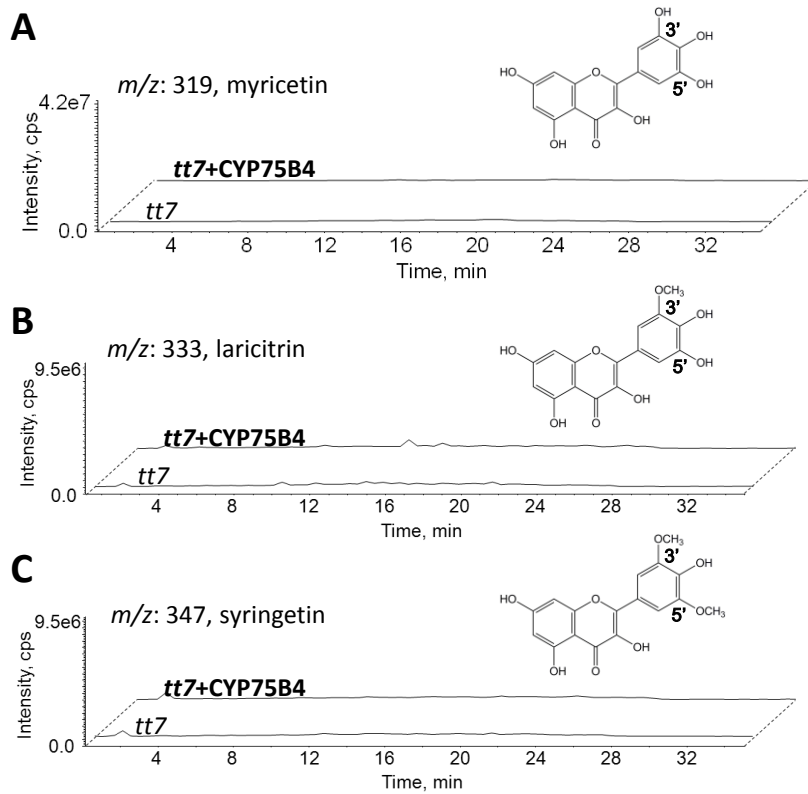


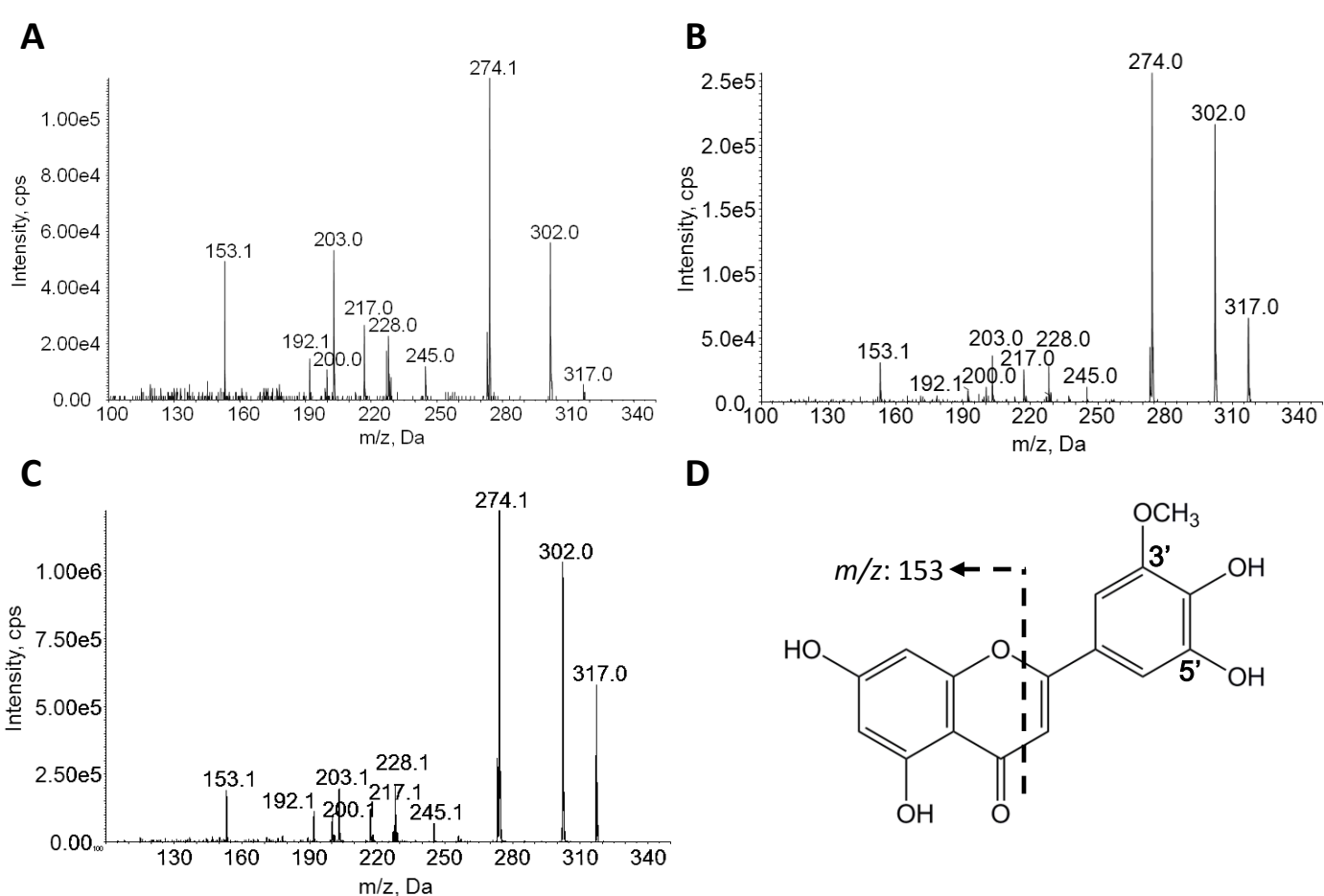
Supplementary Figure S1. Transgenic analysis of CYP75A11 in *Arabidopsis tt7* mutants. A, Expression of CYP75A11 did not restore the accumulation of proanthocyanin in seed coats or red anthocyanin under nitrogen stress in *tt7* mutants. (scale bar = 1 mm). B and C, Expression of CYP75A11 did not result in the accumulation of 3'- and 3', 5'-modified flavonols in transgenic *tt7* plants. LC-MS chromatograms are representatives of at least three independent experiments.



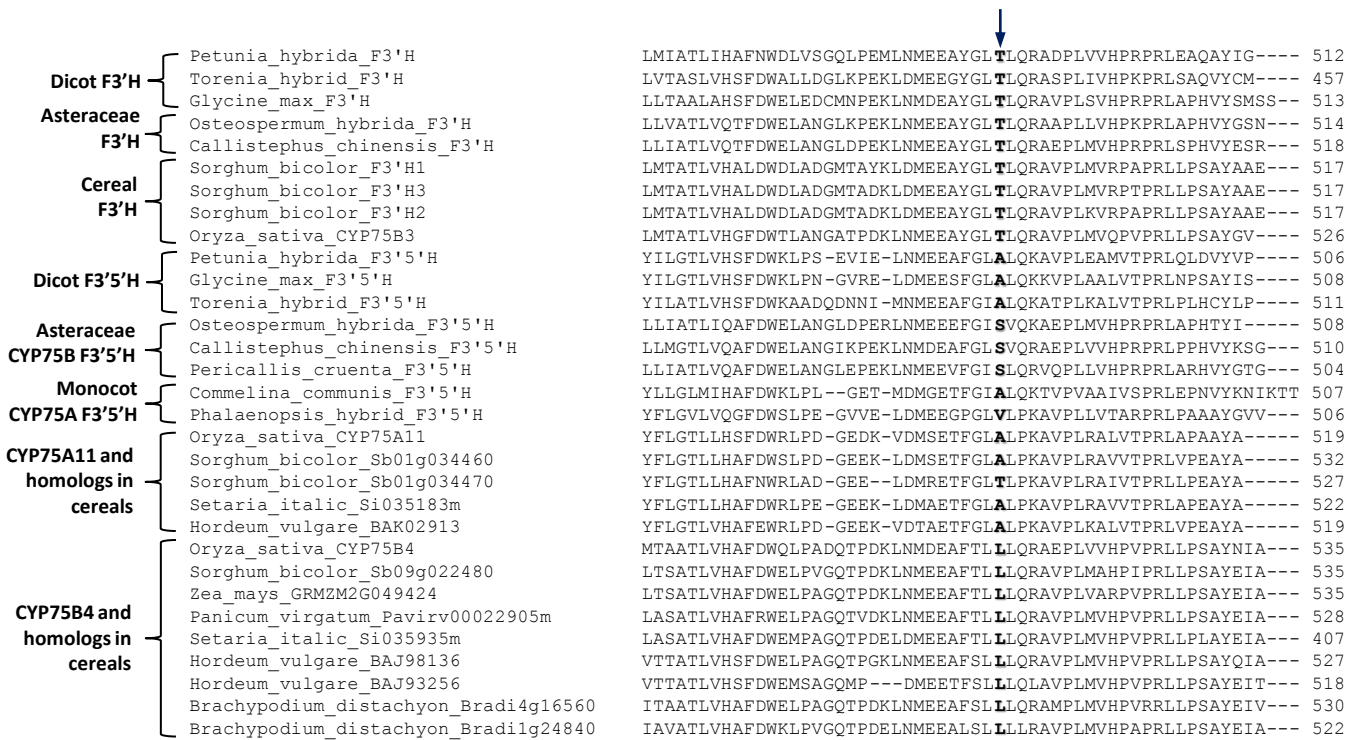
Supplementary Figure S2. Analysis of the rice *ROMT9* T-DNA insertion mutant. A, Gene structure of *ROMT9* (*Os08g06100*) and the site of T-DNA insertion in the mutant. B, RT-PCR expression analysis using primers CL1422+CL1424 as indicated in A. C, Relative levels of apigenin, selgin, and tricrin in acid-hydrolyzed extracts of HM and WT seedlings as determined by LC-MS. Error bars represent standard deviation (n = 5, *P < 0.05, ***P < 0.001 by Student's *t*-test).



Supplementary Figure S3. LC-MS analysis of 3', 5'-modified flavonols in CYP75B4-expressing *Arabidopsis tt7* mutants. The transgenic *tt7* plants did not accumulate A, myricetin, B, laricitrin or C, syringetin. LC-MS chromatograms are representatives of at least three independent experiments.



Supplementary Figure S4. Identification of selgin ions (m/z 317) from different sources in this study. MS/MS fragmentation patterns of the major peak at m/z 317 detected in A, acid hydrolyzed extracts of CYP75B4 + CYP93G1 co-expressing *Arabidopsis* plants (Fig. 3C), B, CYP75B4 enzyme assays using chrysoeriol as a substrate (Fig. 4A), and C, selgin generated by the tricetin + ROMT9 reaction (Fig. 4A). D, Structure and fragmentation scheme of selgin. Other major fragments include $[M+H-CH_3-CO]^+$ (m/z 274) and $[M+H-CO]^+$ (m/z 302).



Supplementary Figure S5. Multiple sequence alignment of CYP75A and CYP75B sequences (C-terminal region). The alignment was performed by ClustalW2. The typical Thr of F3'Hs (arrowed) is substituted by Ala in the dicot F3'5'Hs or by Ser in the Asteraceae CYP75B F3'5'H sequences. In CYP75B4 and related sequences, it is replaced by a Thr to Leu substitution.