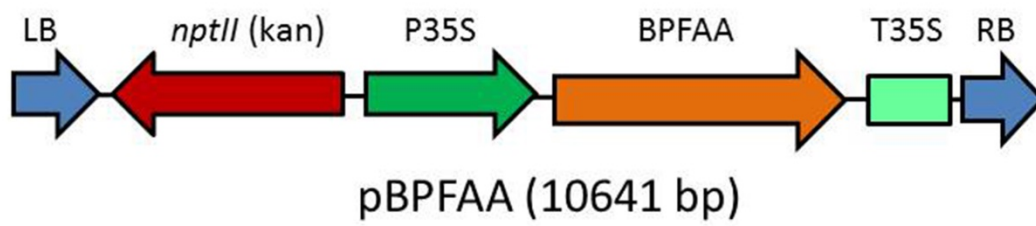
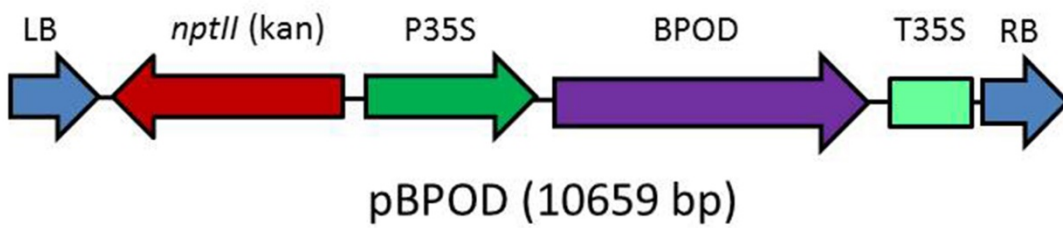


a



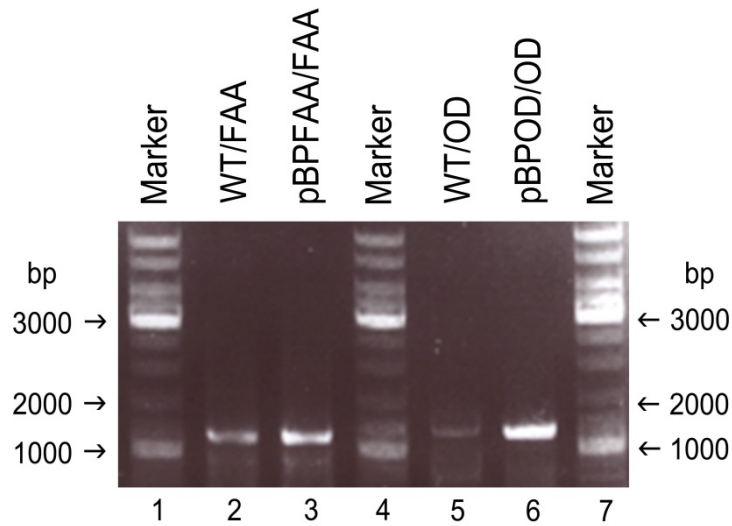
b



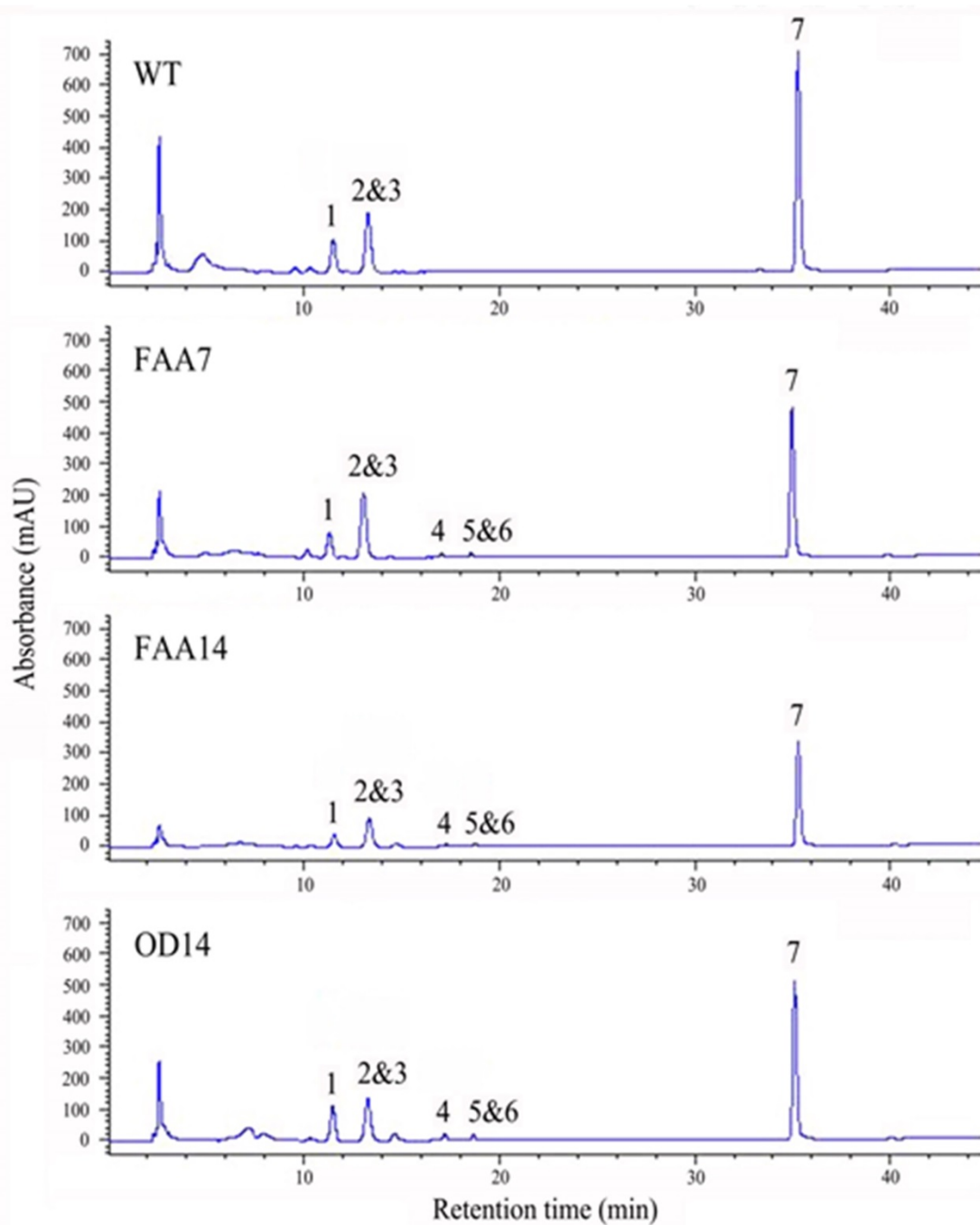
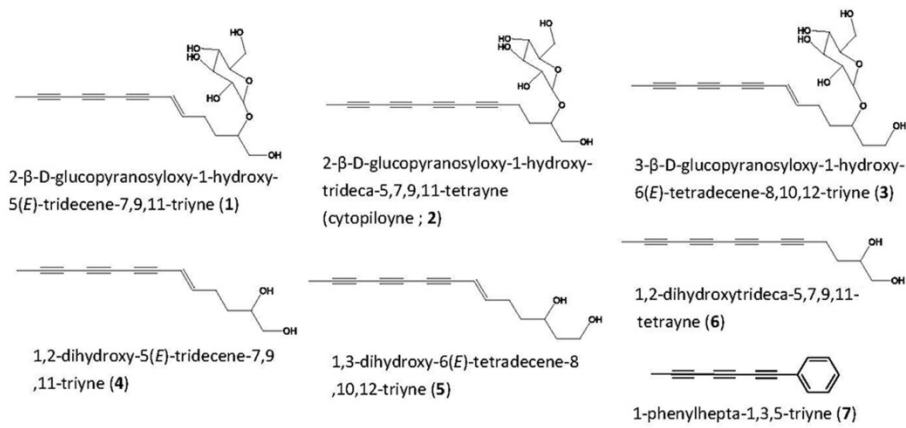
Supplementary Figure S1. Construction of expression vectors for plant transformation. (a) pBPFAA. (b) pBPOD.



Supplementary Figure S2. Typical photos demonstrating shoot regeneration under selection medium and then plant regeneration of transgenic *Bidens pilosa* plants by transforming two expression vectors and *Agrobacterium*-mediated method. Panels (a) and (c): transgenic FAA lines; panels (b) and (d): transgenic OD lines; panel (e): transgenic plants together with wild-type plants were grown in greenhouse. Mature flower from a transgenic plant is shown in a small panel at (e).



Supplementary Figure S3. Examination of PCR products between genomic DNA and cDNA for *FAA* and *OD* genes in *Bidens pilosa*. Plasmids pBPFAA and pBPOD were used as cDNA template, PCR was carried out using specific *FAA* (*FAA-F* and *FAA-R*) and *OD* (*OD-F* and *OD-R*) primers to amplify full-length regions of *FAA* (1134 bp) and *OD* (1152 bp), and compared with PCR products of genomic DNA isolated from wild-type *B. pilosa* var. *radiata*.



Supplementary Figure S4. Representative HPLC profiles of WT and a few randomly selected transformants. Chemical structures for seven polyacetylenic (PA) compounds have been determined by NMR spectroscopy as previous report [8]. The UV detection wave length was set at 245 nm. Retention times for PA compounds **1** (11 min), **2&3** (co-eluted at 13 min), **4** (17 min), **5&6** (co-eluted at 18 min) and **7** (35 min) were determined as previously described [4,8,48].

Supplementary Table S1. Primers used for this study.

Primer	Sequence (5'→3')
35S Pro-F1	TGA TAT CTC CAC TGA CGT
FAA-r2	CAA AGT GAA CAC TCG AC
FAA-F	ATG GGT GCA GGT GGC CGG
FAA-R	TTA AAA CTT ATG GTA CCA
OD-F	ATG GGT GCA GGC GGG CGA
OD-R	TCA TAT GTT ATT ACG GTA CCA A
Kan-F	ATG ATT GAA CAA GAT GGA
Kan-R	TCA GAA GAA CTC GTC AAG
qFAA-F2	GCA TGC TCG GTG TGC TTT AC
qFAA-R2	GCC CCT TTG ATC CAG TTC CA
qOD-F3	AAC TCT AAC CCT TGG CTG GC
qOD-R3	AAC CCA TTC ACC ACG AGC AA
qL2-F	CAT CAT GTG GTA AAG GTC GTA ATG
qL2-R	CGC TTA TGA CCT CCC CCT CTA
cOD-f1	GGT CAT AGC CCA CGA GTG CGG
cOD-f2	CTA TGA CCG CTT CGC ATG CCA
cOD-r1	CCT GTG TTC GAG TGG TGG CG
cOD-r2	GGC ATT GTT GAG AAC AGA TGG TG
cFAA-f1	GAA TGC GGT CAC CAC GCC TAT
cFAA-f2	AAC CAC TTC GAT CCA TTA AG
cFAA-r1	AGA GAG ATG GGT GTG GTG ATT
cFAA-r2	CCA AAG TGA ACA CTC GAC CAG