

Supplement

Figures

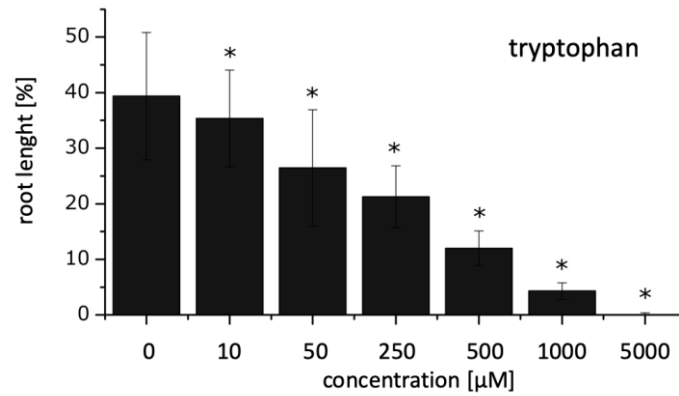


Figure 1. Determination of the tryptophan concentration where the seeds did not germinate any more. Shown are the relative root lengths 17 days after incubation on different tryptophan containing media. The results are calculated based on the control plants without any treatment to make them better comparable between different experiments. Significant differences of $p < 0.05$ in comparison to the control plants are labeled with *. Data are mean values of $N > 50 \pm SD$. The data are from the same experiment as in Fig. 1.

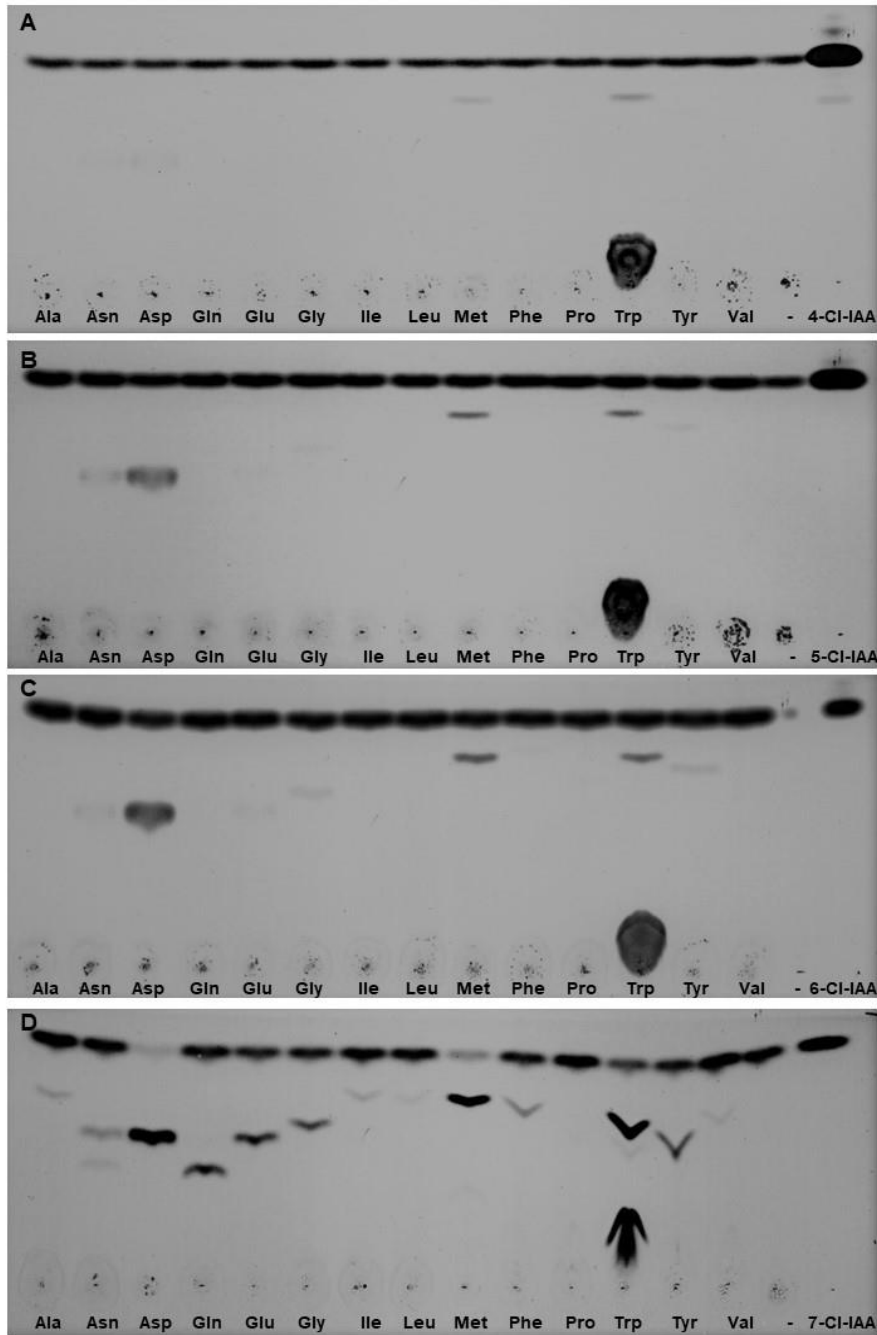
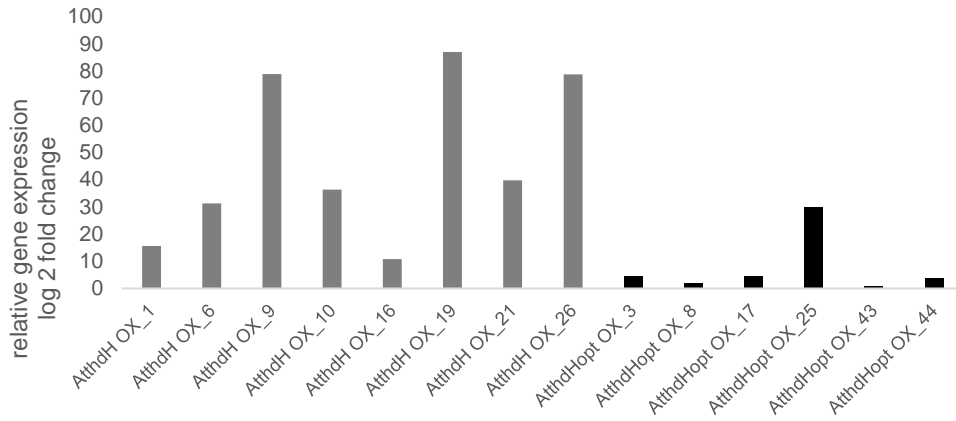
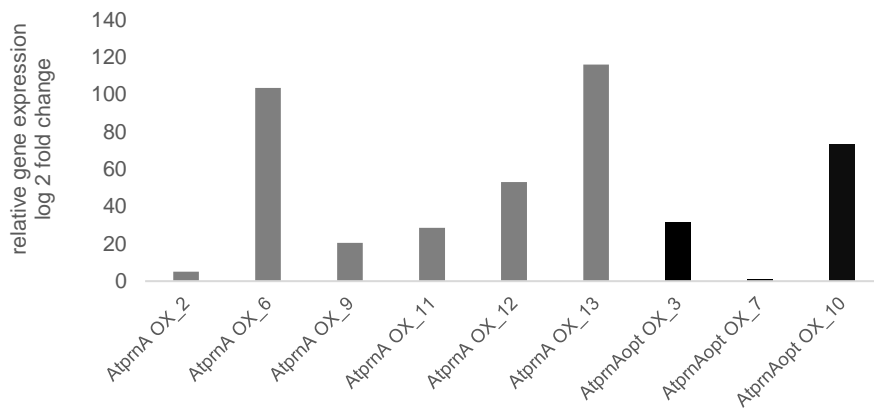


Figure 2. TLC plates of the *In vitro* production of chlorinated IAA amino acid conjugates. Shown are the different produced chlorinated IAA-conjugates with AtGH3.3 and different chlorinated IAAs as substrates in an *in vitro* experiment. **A:** 4-Cl-IAA, **B:** 5-Cl-IAA, **C:** 6-Cl-IAA, **D:** 7-Cl-IAA. The upper bands correspond to the unconjugated chlorinated auxin (standards are on the right lane), the conjugates are the bands additionally formed. For Trp, the amino acid itself gives a reaction with the reagent, so three spots are visible.



(A)



(B)

Figure 3. qRT-PCR analysis of the relative gene expression of different *A.thaliana* lines which are expressing the tryptophan 6-halogenase (A) and the tryptophan 7-halogenase (B) genes. The corresponding reference gene was *AtYLS8*. The normalization was done with the line transgenic with the lowest expression level (expression =1). The x-axis describes the individual line names as given in the Materials and methods section.

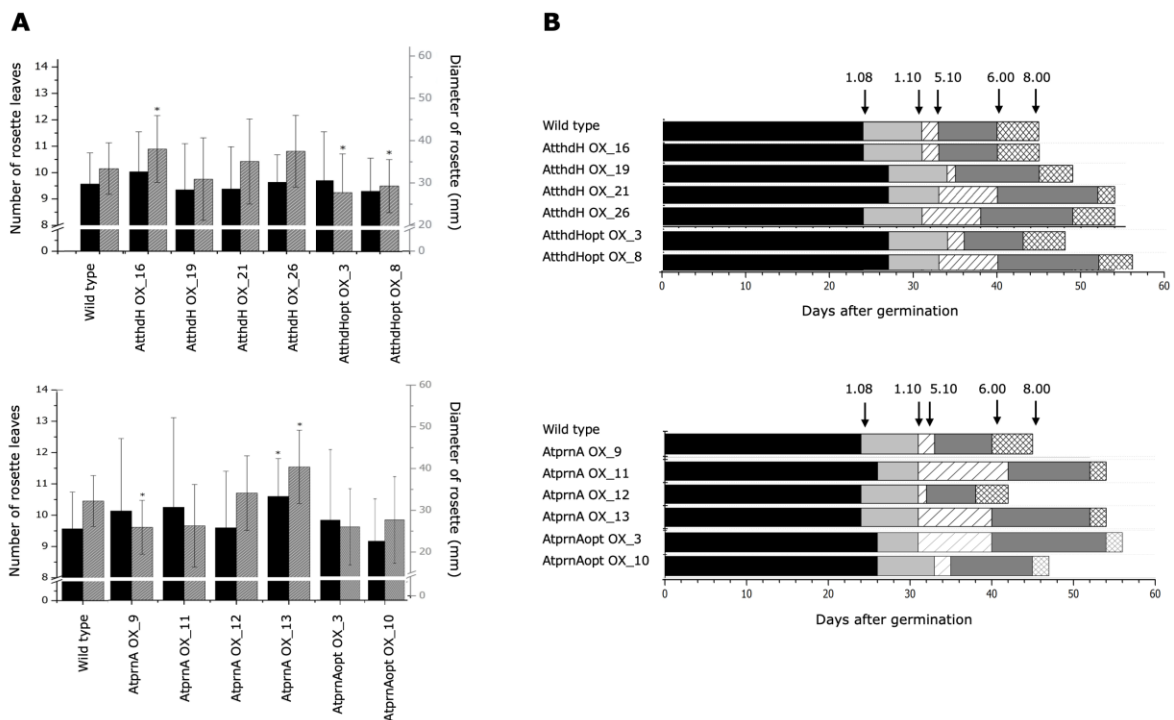


Figure 4. A: Numbers of rosette leaves (black histograms) and diameter of the rosettes (grey histograms) of different transgenic *Arabidopsis thaliana* lines in comparison to wild type plants after ca 30 days after germination. Significant differences of $p < 0.05$ in comparison to wild type are labeled with *. $N > 30$. B: Phenotypical analysis according to Boyes et al. [35]. Indicated are the developmental stages of 8 leaves (1.08), 10 leaves (1.10), bud formation (5.10), flowering (6.00) and pod formation (8.00). The days after germination where plants were entering the respective developmental time point are marked by arrows. The respective category was reached when 66% of the examined plants had the same growth characteristic. $N > 30$. The x-axis (A) and y-axis (B) describes the individual line names of different *A. thaliana* lines which are expressing the tryptophan 6-halogenase (*thdH*) and the tryptophan 7-halogenase (*prnA*) genes as given in the Materials and methods section and are the same as in Figure S2.

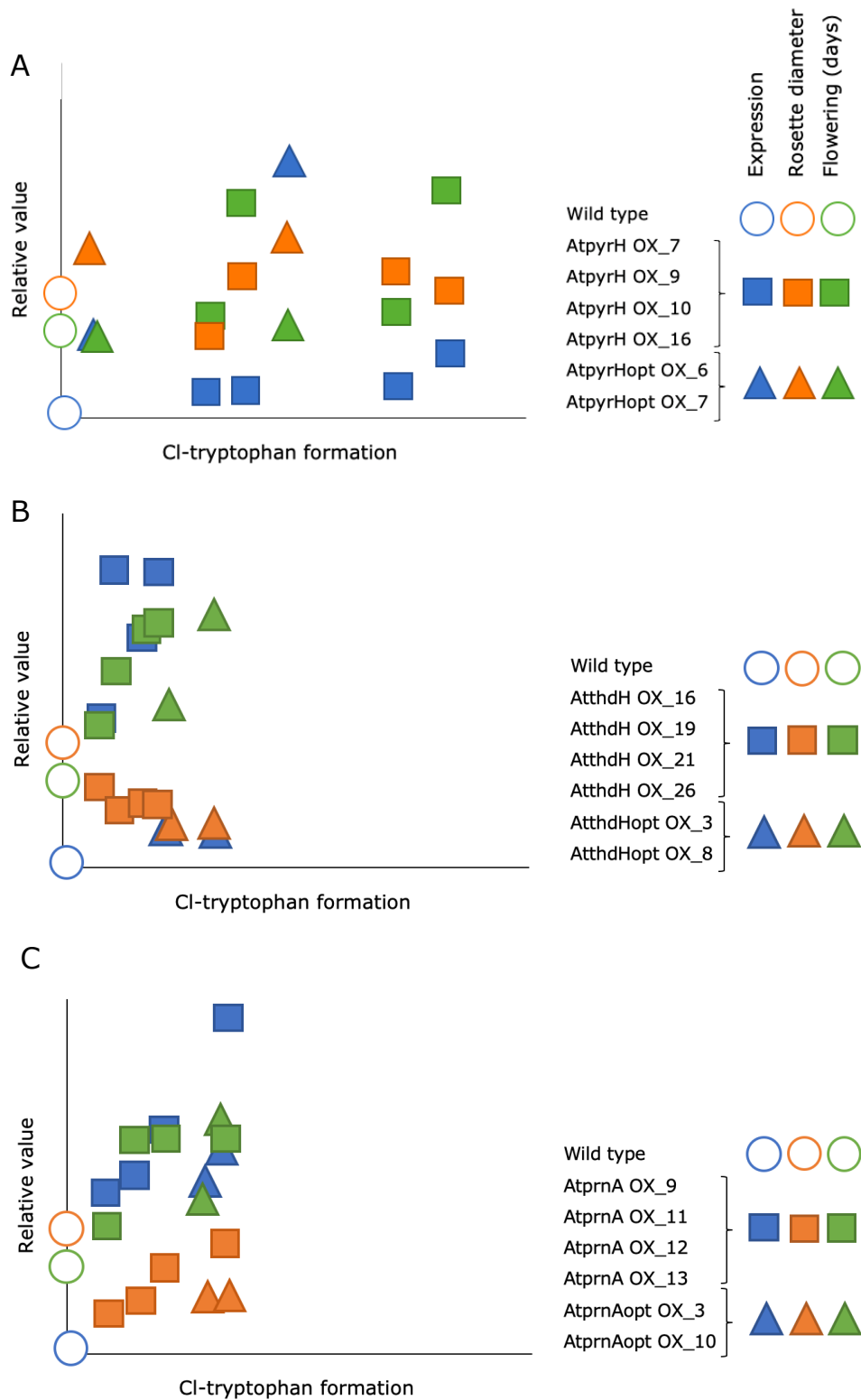


Figure S5. Correlation between halogenase expression (blue), rosette diameter (orange), days to flowering (green) and synthesis of 5-Cl-tryptophan for four lines of pyrH expressing *A. thaliana* plants and two lines with codon optimized construct (A). The expression of the halogenase gene resulted always in the formation of Cl-tryptophan, but there was neither a correlation in the amount synthesized nor in phenotypes. For the two other halogenase genes expressed in *A. thaliana*, thdH (B) and prnA (C) there was also no correlation found between phenotypes, transcription and Cl-Trp production (see also Figures 4, 5, S2, S3).

