

Table S1. Summary of olive transformation experiments.

| Plasmid | Inoculated explants | Transgenic lines recovered | Transformation rate (%) | Conversion rate (%) |
|-------------|---------------------|----------------------------|-------------------------|---------------------|
| p35S-OeHPL | 1817 | 9 | 0.5 | 16.8 ± 6.6 |
| pRNAi-OeHPL | 2231 | 11 | 0.5 | 35.9 ± 7.2 |

Data on conversion rate refers to five selected lines for each plasmid.

Table S2. Effect of the manipulation of *13-HPL* gene expression in chlorophyll fluorescence kinetics.

| | Genotype | | |
|---|-------------|-------------|-------------|
| | Control | S7 | i11 |
| Fv/Fm | 0.77±0.01 | 0.77±0.05 | 0.78±0.01 |
| α ($\mu\text{mol electrons}/\mu\text{mol photons}$) | 0.068±0.008 | 0.078±0.009 | 0.080±0.017 |
| ETR _m ($\mu\text{mol electrons}/\text{m}^2\text{s}$) | 47.3±9.7 | 52.3±8.9 | 50.6±9.3 |
| E _k ($\mu\text{mol photons}/\text{m}^2\text{s}$) | 689.8±140.3 | 666.7±58.3 | 694.4±63.4 |

Data correspond to mean±SD.

Table S3. Content of main volatile compounds in leaves of transgenic *13-HPL* olive plants.

| Compound | Genotype | | | | |
|-------------------------------|-----------------|-----------------|-----------------|------------------|------------------|
| | Control | S5 | S7 | i3 | i11 |
| Pentanal | 5.0 ± 4.5b | 8.9 ± 1.7ab | 4.2 ± 2.7b | 14.8 ± 11.8ab | 23.7 ± 11.7a |
| Pentan-2-one | 0.0 ± 0.0c | 0.0 ± 0.0bc | 0.0 ± 0.0bc | 0.3 ± 0.1ab | 0.4 ± 0.3a |
| Pent-1-en-3-one | 3.1 ± 0.6c | 1.4 ± 0.2c | 3.8 ± 0.5c | 1636.4 ± 228.0a | 1038.0 ± 327.1b |
| (<i>Z</i>)-Pent-2-enal | 0.1 ± 0.0b | 0.0 ± 0.0b | 0.1 ± 0.1b | 2.6 ± 1.1a | 1.0 ± 0.6b |
| (<i>E</i>)-Pent-2-enal | 2.2 ± 0.6b | 1.5 ± 0.1b | 3.5 ± 0.7b | 1164.6 ± 279.9a | 816.1 ± 292.0a |
| Pent-1-en-3-ol | 4.6 ± 1.2c | 3.8 ± 1.4c | 4.5 ± 1.6c | 4611.7 ± 1285.8a | 2934.2 ± 434.6b |
| Pentan-1-ol | 0.7 ± 0.2b | 1.5 ± 0.4ab | 1.0 ± 0.3b | 1.6 ± 0.4ab | 3.1 ± 1.6a |
| (<i>E</i>)-Pent-2-en-1-ol | 0.0 ± 0.0b | 0.0 ± 0.0b | 0.0 ± 0.0b | 11.5 ± 4.7a | 8.8 ± 2.0a |
| (<i>Z</i>)-Pent-2-en-1-ol | 0.1 ± 0.1c | 0.1 ± 0.1c | 0.0 ± 0.0c | 306.0 ± 80.2a | 151.6 ± 33.9b |
| Σ C5 | 15.8 ± 7.5c | 17.3 ± 3.8c | 21.1 ± 5.9c | 7749.6 ± 1892.0a | 4976.8 ± 1103.8b |
| Hexanal | 1.7 ± 0.6a | 2.4 ± 0.4a | 1.6 ± 0.3ab | 0.2 ± 0.1c | 0.7 ± 0.5bc |
| (<i>E</i>)-Hex-3-enal | 0.4 ± 0.1b | 0.5 ± 0.2ab | 0.6 ± 0.1a | 0.0 ± 0.0c | 0.0 ± 0.0c |
| (<i>Z</i>)-Hex-3-enal | 362.7 ± 202a | 234.3 ± 61.2a | 489.1 ± 111.7a | 0.8 ± 0.3b | 0.8 ± 0.4b |
| (<i>Z</i>)-Hex-2-enal | 1.1 ± 0.5b | 1.2 ± 0.3b | 2.3 ± 0.2a | 0.0 ± 0.0c | 0.0 ± 0.0c |
| (<i>E</i>)-Hex-2-enal | 6.1 ± 1.8b | 12.4 ± 5.5a | 10.7 ± 2.5ab | 0.1 ± 0.1c | 0.4 ± 0.1c |
| Hexyl Ac | 51.1 ± 10.6a | 31.7 ± 2.6b | 53.5 ± 7.0a | 16.1 ± 1.8c | 14.5 ± 2.2c |
| (<i>Z</i>)-Hex-3-en-1-yl Ac | 2622.2 ± 264.8b | 4086.4 ± 101.3a | 2427.5 ± 102.4b | 98.3 ± 16.9c | 72.8 ± 28.4c |
| (<i>E</i>)-Hex-2-en-1-yl Ac | 6.3 ± 3.3a | 8.1 ± 6.4a | 6.8 ± 2.9a | 2.8 ± 0.5a | 4.4 ± 1.2a |
| Hexan-1-ol | 0.1 ± 0.1a | 0.1 ± 0.0a | 0.1 ± 0.0a | 0.0 ± 0.0a | 0.0 ± 0.0a |
| (<i>E</i>)-Hex-3-en-1-ol | 0.0 ± 0.0ab | 0.0 ± 0.0ab | 0.0 ± 0.0b | 0.1 ± 0.0ab | 0.1 ± 0.0a |
| (<i>Z</i>)-Hex-3-en-1-ol | 21.2 ± 7.8c | 141.9 ± 26.7b | 430.0 ± 69.5a | 0.1 ± 0.2d | 0.2 ± 0.0d |
| (<i>E</i>)-Hex-2-en-1-ol | 2.6 ± 0.5b | 3.0 ± 0.6b | 4.0 ± 0.6a | 0.0 ± 0.0c | 0.0 ± 0.0c |
| Σ C6 | 3075.5 ± 213.6b | 4521.9 ± 95.0a | 3426.2 ± 184.7b | 118.6 ± 0.8c | 93.9 ± 1.1c |

Contents are given in ng/g FW. Data correspond to mean±SD. Within each row, means with different letters indicate significant differences by Tukey test at $P = 0.05$.

Figure S1

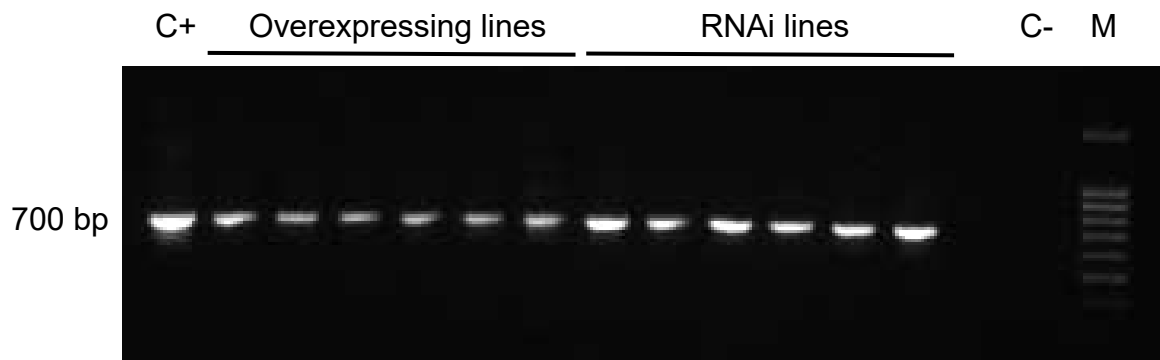


Fig. S1 PCR amplification of a 700 bp DNA fragment of *nptII* gene from genomic DNA isolated from leaves of the different transgenic *13-HPL* olive plants. C+: plasmid p35S-OeHPL; overexpressing and RNAi lines: each lane correspond to an independent transgenic line; C-: DNA from non-transformed plants; M: molecular weight marker.

Figure S2

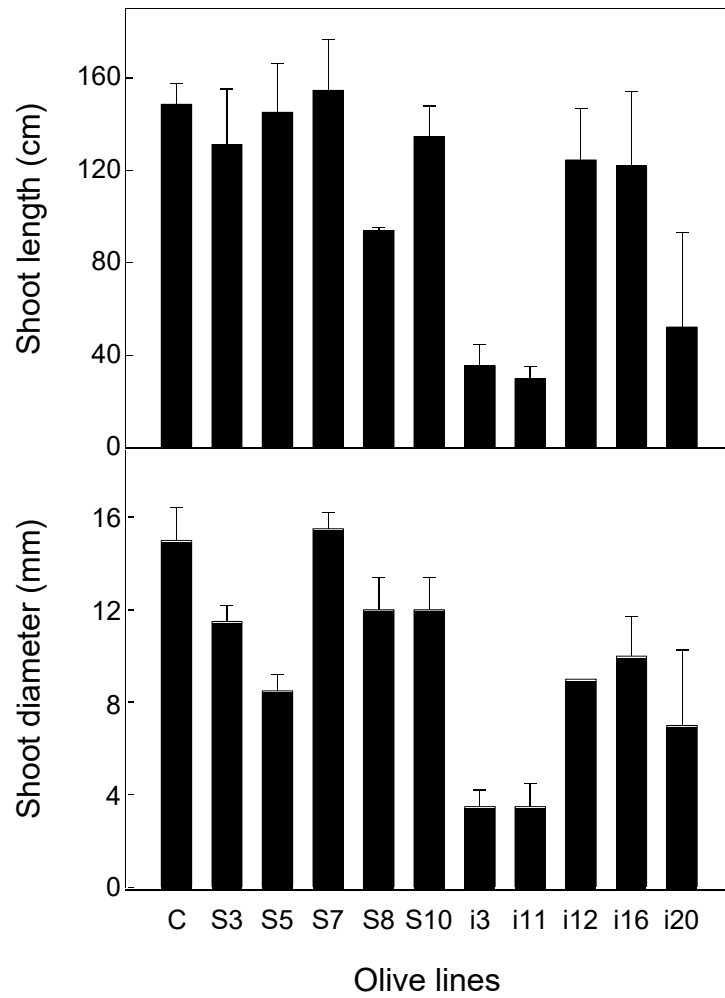


Fig. S2 Shoot length and diameter in control and transgenic *13-HPL* olive plants. Data were obtained after 24 months growing in a confined greenhouse under natural daylight and temperature. Values correspond to mean \pm SD (n=6).

Figure S3

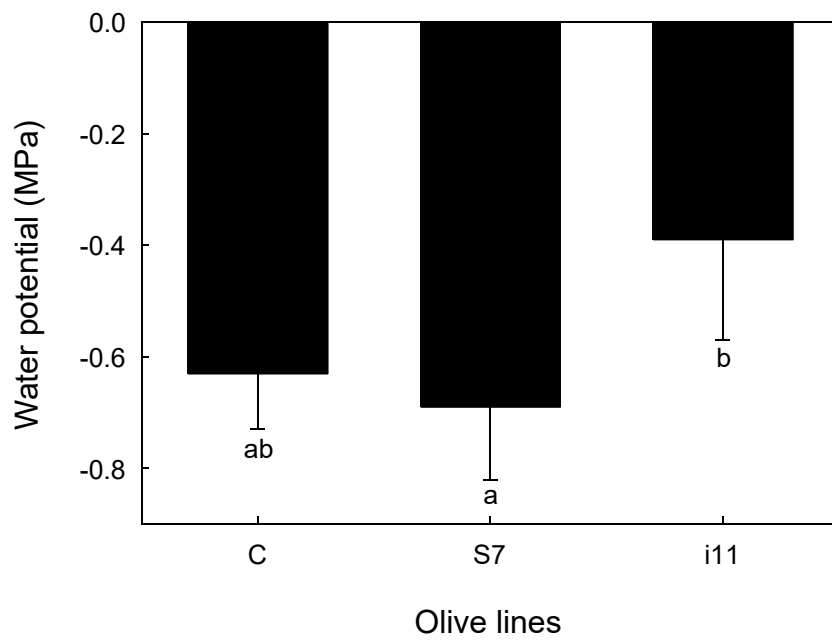


Fig. S3 Effect of the manipulation of *13-HPL* gene expression in shoot water potential. Water potential was measured at midday in plants that were watered at field capacity the day before. Bars with different letters indicate significant differences by Tukey test at $P = 0.05$.