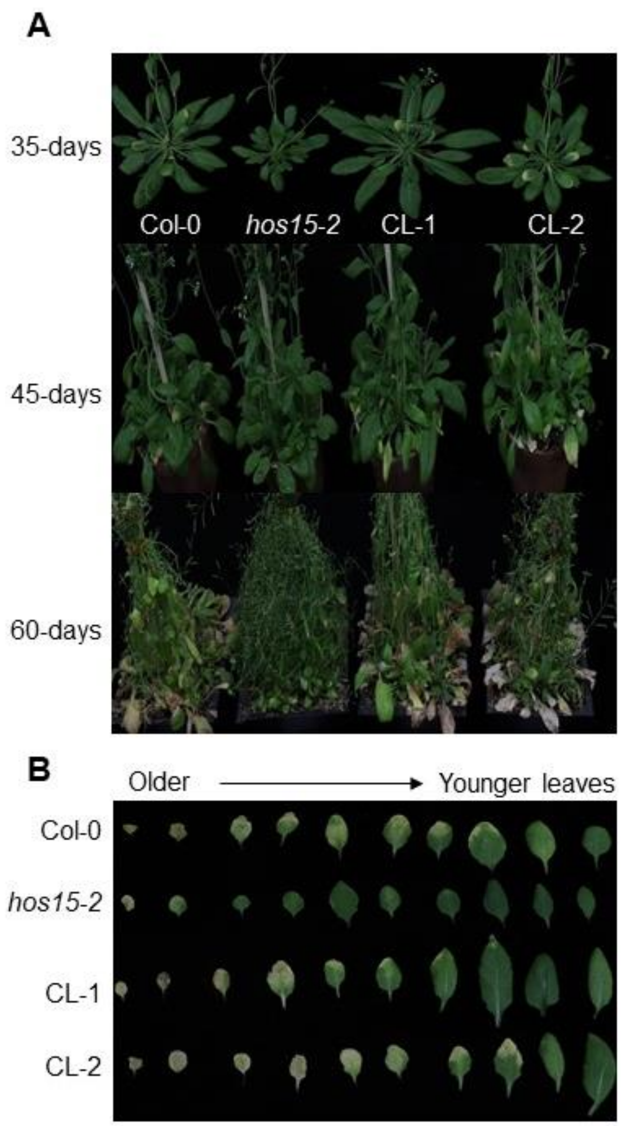
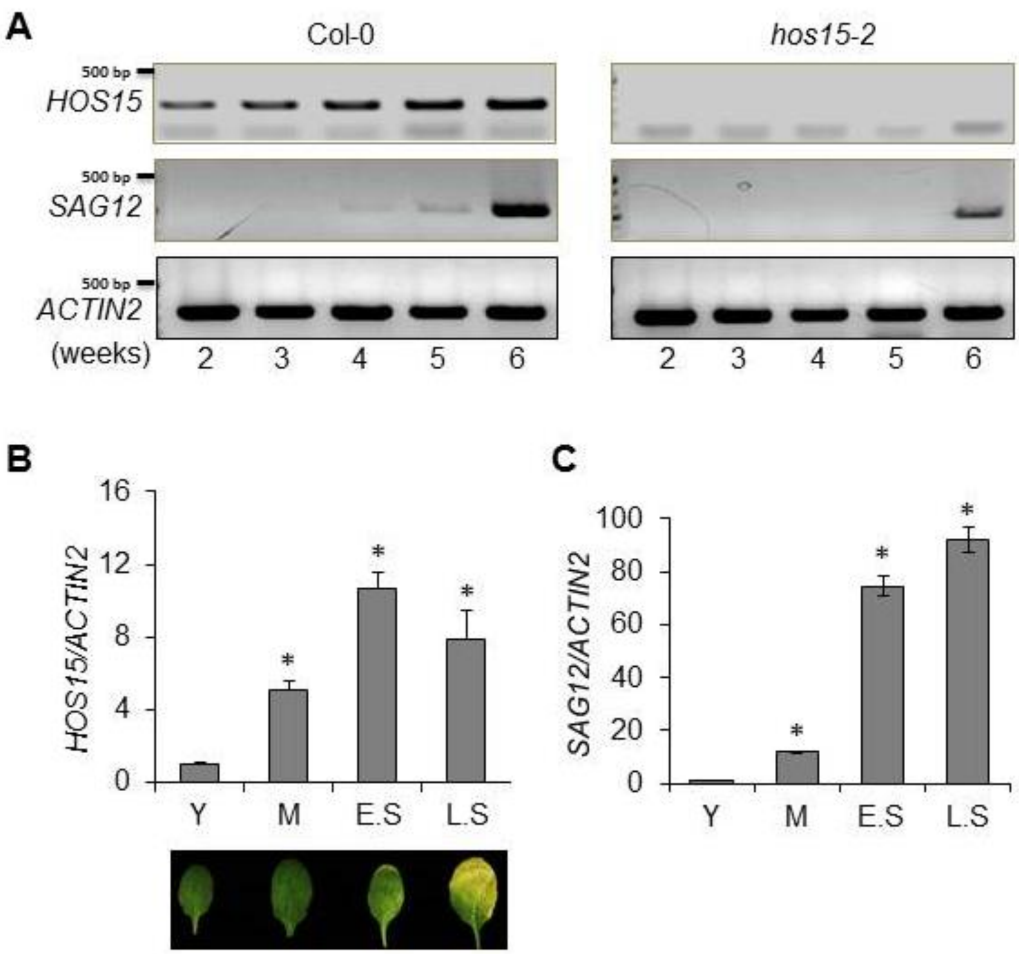
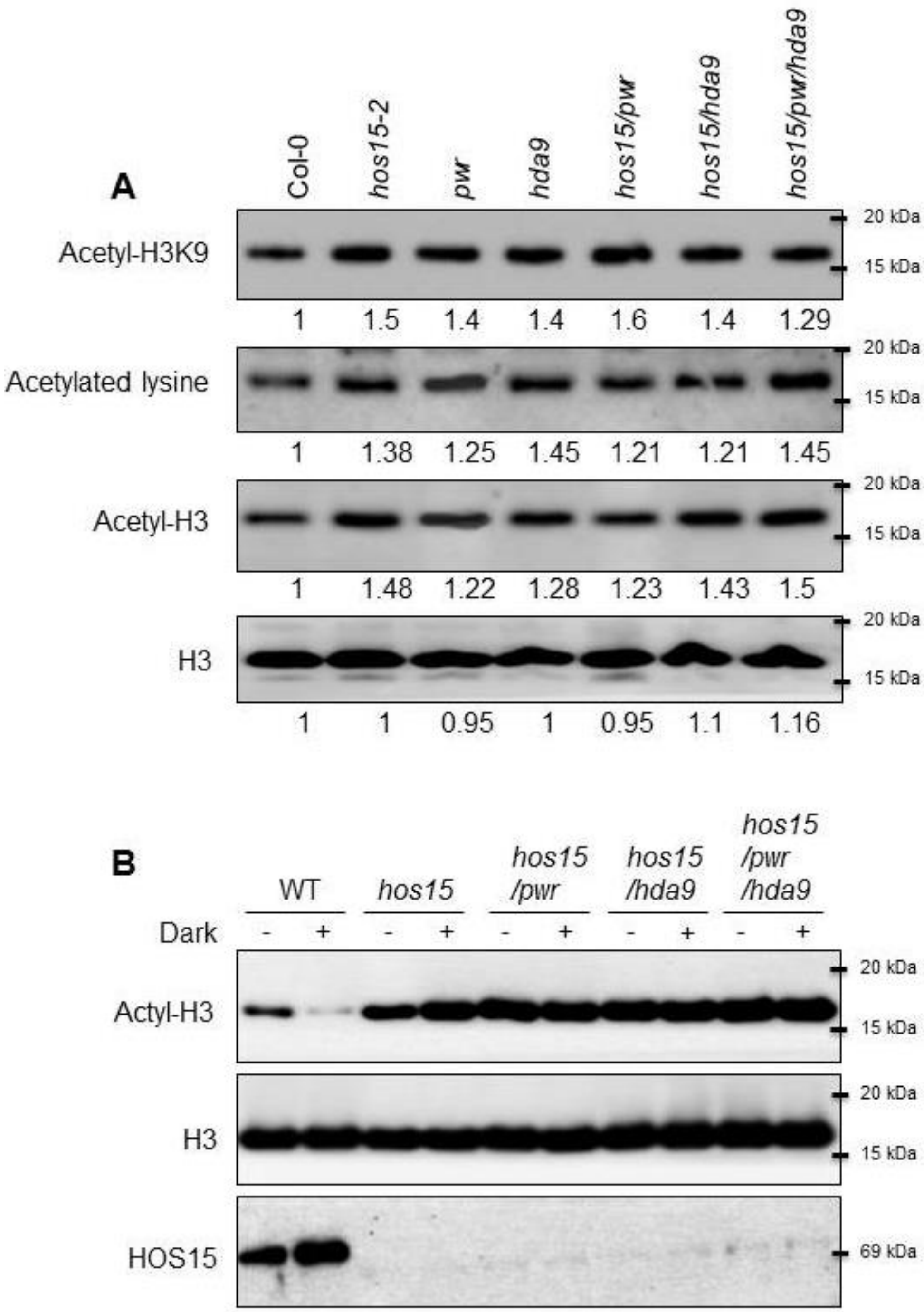
## *Supplementary Material*



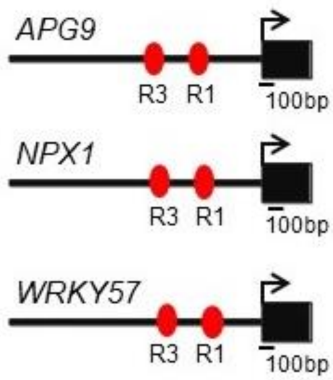

**Supplementary Figure 1. (ref. to Figure 1A/B).** HOS15 mediates senescence in an age-dependent manner. (A) HOS15 positively regulates plant senescence in an age-dependent manner. Phenotypic analysis of Col-0 (WT), *hos15-2,* and two complemented lines (HOS15::HOS15/*hos15-2*), CL-1 and CL-2, after 35, 45, and 60 days of germination. The seeds of Col-0, *hos15-2*, CL-1, and CL-2 were grown on MS medium for 12 days and then transferred to soil. (B) Rosette leaf phenotypes of Col-0, hos15-2, CL-1, and CL-2 plants after 45 days of germination. The rosette leaves ($3^{rd}$-$12^{th}$ leaves) were arranged according to their age (from older to younger leaves).




**Supplementary Figure 2. (ref. to Figure 1A,B).** HOS15 mediates senescence in an age-dependent manner. (A) The mRNA expression analysis of HOS15 and SAG15 genes in Col-0 and *hos15-2* plants in an age-dependent manner. Seeds of Col-0 (WT) and loss-of-function HOS15 (*hos15-2*) plants were grown on MS medium, and 12-days-old seedlings were transferred to soil. The 3rd and 4th rosette leaves of both plants were sampled according to the mentioned ages (2-6-weeks-old 3rd and 4th rosette leaves) for RNA extraction and cDNA synthesis. Transcript levels of HOS15 and SAG12 were analyzed using qRT-PCR. ACTIN2 was used as the internal control. (B and C) The expression of HOS15 and SAG12 was analyzed by qRT-PCR according to their age (Y=Young, M=Mature, ES=Early Senescence, and LS=Late Senescence) in Col-0 plants. ACTIN2 was used as the normalization control. Error bars represent the SD of three independent biological replicates. Significant differences were tested using Student's *t*-test (*P < 0.05).




**Supplementary Figure 3. The HOS15-PWR-HDA9 complex participates equally in histone deacetylation during senescence. (A)** Comparative analysis of H3 acetylation status during early senescence. The nuclear proteins of Col-0 (WT), *hos15-2, pwr,hda9, hos15pwr, hos15hda9, and hos15pwrhda9* mutants were extracted from early senescent leaves. Anti-H3, Anti-AcH3, Anit-H3K9, anti-AcK antibodies were used for H3 analysis. Anti-H3 antibody was used as the loading control. Each experiment was repeated three times with similar results. In the bottom of each blot band intensities have been calculated using image J software. **(B)** HOS15 together with HDA9 and PWR regulates dark-induced senescence by affecting H3 acetylation status. 12-day-old seedlings of Col-0 and *hos15-2* plants were treated with 4 days of darkness, and then nuclear proteins were extracted. H3, AcH3 and HOS15 antibodies were used for WB. H3 was used as the loading control.




**Supplementary Figure 4. HOS15 associates with APG9, NPX1 and WRKY57 promoter regions.** (A) schematic representation of the APG9, NPX1 and WRKY57 promoter and amplicon regions (R1 and R3) for Chip-qRT-PCR. These regions are modified from Chen et al. 2016, mentioned as P1, P2 and P3 (here P2=R1 and P3=R3). Primer positions are indicated with R1 and R3. The arrow indicates the transcription start site.

**Supplementary Table 1. Primers used in the study**

| PRIMER SEQUENCE | |
|---|---|
| SAG12-F | CAGCTGCGGATGTTGTTG |
| SAG12-R | CCACTTTCTCCCCATTTTG |
| SAG29-F | CTGTTTTCGCTGCCCCTC |
| SAG29-R | ACAGCCCTAGTACGAATCCCAC |
| ORE1-F | ACGTGCCGATGGTACAAAGGTTC |
| ORE1-R | TCTTGGTCGGAGAAGCAGGTCAC |
| CAB1-F | GCAAGGACCCGTGAACTAGAA |
| CAB1-R | TCCGAACTTGACTCCGTTTC |
| RCBS1A-F | CGCTCCTTTCAACGGACTTA |
| RCBS1A-R | AGTAATGTCGTTAGCCTTGC |
| ACTIN2-F | AACCACTATGTTCTCAGGCATCG |
| ACTIN2-R | CCTGGACCTGCCTCATCATACT |
| HOS15-F | GATGGCCAAGCAAGAATCTG |
| HOS15-R | TCCTGTAGGGCTCCATCTGA |
| WRKY57- R1-F | CACTGCACTTTAACGGGTTTCAAAGT |
| tssWRKY57- R1-R | GATCGGCGAGAGAAGTAGTGATAAGAG |
| tssNPX1- R1-F | AGCTCTCGATCTAGGGTTTTCC |
| tssNPX1- R1-R | CTCAACGGCAATTGGCAAAAA |

| | |
|---|---|
| tssAPG9- R1-F | AGAAGAGGAAGAGAACTCGTGAT |
| tssAPG9- R1-R | TTGATGCTTTGGAGTTTGGAGT |
| WRKY57- R3-F | GTCGGTGGCAGTTGGAGTAA |
| WRKY57- R3-R | ACGTGAGACGCTTTTTGACC |
| ACTIN7 F CHIP | CGTTTCGCTTTCCTTAGTGTTA |
| ACTIN7 R CHIP | AGCGAACGGATCTAGAGCTC |
| APG9- R3-F | AGGTGATTTGCATTGTGGATGCT |
| APG9- R3-R | CGATTGGCCAAAACAGCCG |
| NPX1- R3-F | TCCACCAGGAAATCAGTTCCATA |
| NPX1-R3-R | ATCGGTGCTACTTCGAAAGGG |