**Supplementary Material**

**Day-length is involved in flooding tolerance response in wild type and variant genotypes of rootstock *Prunus cerasifera* L.**

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**Supplementary Figure S.1:** Effects of flooding and photoperiod on the photosynthetic assimilation (ACO2) in leaves of plum plants rootstock Mr.S. 2/5-*WT* (a, b), and its *S.1* (c, d) and *S.4* (e, f) variant genotypes. The ACO2 values were detected at 1st and 4th leaves, excepted for *WT* and *S.1* genotypes at Day 14 after flooding. Values are means ± SD of five biological replications.



**Supplementary Figure S.2:** Effects of flooding and photoperiod on the stomatal conductance (*gs*) in leaves of plum plants rootstock Mr.S. 2/5-*WT* (a, b), and its *S.1* (c, d) and *S.4* (e, f) variant genotypes. The *gs* values were detected at 1st and 4th leaf, excepted for *WT* and *S.1* genotypes at Day 14 after flooding. Values are means ± SD of five biological replications.



**Supplementary Figure S.3:** Effects of flooding and photoperiod on the internal CO2 concentration (Ci) in leaves of plum plants rootstock Mr.S. 2/5-*WT* (a, b), and its *S.1* (c, d) and *S.4* (e, f) variant genotypes. The Ci values were detected at 1st and 4th leaf, excepted for *WT* and *S.1* genotypes at Day 14 after flooding. Values are means ± SD of five biological replications.



**Supplementary Figure S.4:** Effects of flooding and photoperiod on the transpiration (E) in leaves of plum plants rootstock Mr.S. 2/5-*WT* (a, b), and its *S.1* (c, d) and *S.4* (e, f) variant genotypes. The E values were detected at 1st and 4th leaf, excepted for *WT* and *S.1* genotypes at Day 14 after flooding. Values are means ± SD of five biological replications.



**Supplementary Figure S.5:** Effects of flooding and photoperiod on the Leaf water use efficiency (LWUE) in leaves of plum plants rootstock Mr.S. 2/5-*WT* (a, b), and its *S.1* (c, d) and *S.4* (e, f) variant genotypes. The LWUE values were calculated for the 1st and 4th leaf, excepted for *WT* and *S.1* genotypes at Day 14 after flooding. Values are means ± SD of five biological replications.



**Supplementary Figure S.6**: Multigroup discriminant analysis (MDA, A) of plants of WT, S.4 and S.1 Prunus cerasifera genotypes grown under natural photoperiod (NP) and constant photoperiod (CP), both exposed to anoxic (Flo) and normoxic (Co) conditions. Principal component analysis (PCA, B) on morphological, physiological parameters and carbohydrate concentrations of the three genotypes, in the figure only the mains contributors are highlighted. **Ass-leaf1**: net CO2 assimilation of the 1st leaf (apical leaf); **CHLA**: chlorophyll *a*; **CHL-ratio**: chlorophyll *a*/*b* ratio; **CHL-tot**: total amount of chlorophylls; **Ci-leaf1**: intercellular CO2 concentration of the 1st l leaf; **Ci-leaf4**: intercellular CO2 concentration of the 4th leaf; **drop-leaf**: percentage of dropped leaves; **DW-area**: dry weight per unit of leaf area; **E-leaf1**: transpiration rate of the 1st leaf; **E-leaf4**: transpiration rate of the 4th leaf; **FR-leaf**: leaf fructose concentration; **FW-area**: fresh weight per unit of leaf area; **GL-leaf**: leaf glucose concentration; **GL-root**: root glucose concentration; **gs-leaf1**: stomatal conductance of the 1st leaf; **gs-leaf4**: stomatal conductance of the 4th leaf; **SU-leaf**: leaf sucrose concentration; **TTC-leaf**: TTC reactivity test of leaf; **TTC-root**: TTC reactivity test of root; **WUE-leaf1**: water use efficiency of the 1st leaf; WUE-leaf4: water use efficiency of the 4th leaf.