Supplementary Material

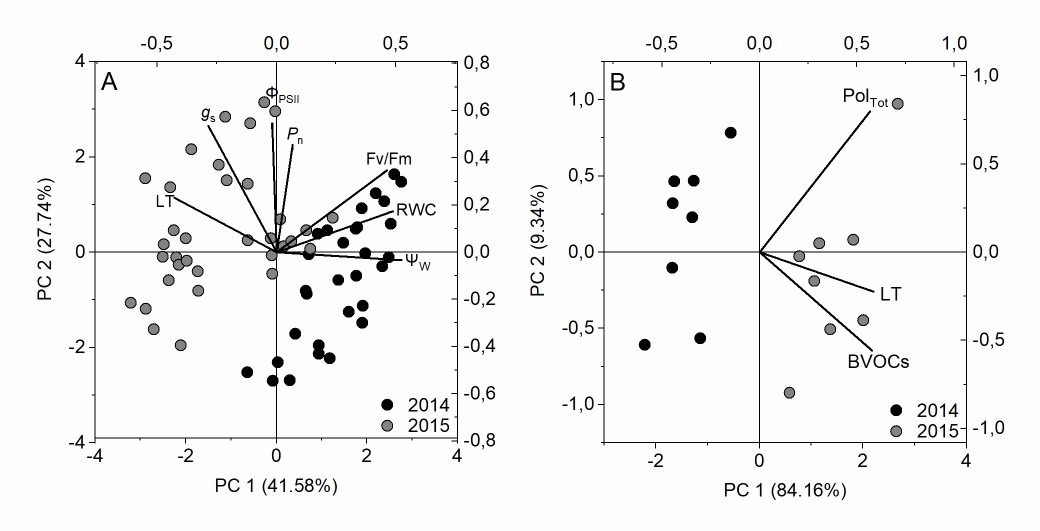
## Supplementary Tables

**Supplementary Table S1.** A) Results of the linear regression between air temperature (T) and metabolic traits of *C. incanus* leaves and B) Results of the linear regression between the leaf thickness (LT) and the other morphological leaf traits (UE = upper epidermis, PM = palisade mesophyll, SM = spongy mesophyll, LE = lower epidermis) or physiological parameters of photosynthesis (*P*n) and stomatal conductance (*g*s) of *C. incanus* leaves. R2: determination coefficient, P: significance level, (+): significant positive relationship, (-): significant negative relationship and (ns) variable not significant.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **A** | **Parameter** | **T (°C)** | **Slope** | **Intercept** | **R2** | ***p*** |
|  | ***P*n** | ns | -0.03 | 2.38 | 0.01 | ˃0.05 |
|  | ***g*s** | + | 2.70 | -31.13 | 0.14 | <0.01 |
|  | **Fv/Fm** | - | -0.01 | 1.07 | 0.46 | <0.001 |
|  | **ΦPSII** | ns | -0.003 | 0.21 | 0.01 | ˃0.05 |
|  |  |  |  |  |  |  |
|  | **RWC** | - | -2.37 | 122.43 | 0.66 | <0.001 |
|  | **ΨW** | - | -0.26 | 3.97 | 0.64 | <0.001 |
|  |  |  |  |  |  |  |
|  | **PolTot** | + | 3.47 | -22.85 | 0.52 | <0.01 |
|  | **BVOCs** | + | 16.42 | -441.60 | 0.94 | <0.001 |
|  |  |  |  |  |  |  |
| **B** | **Parameter** | **LT (µm)** | **Slope** | **Intercept** | **R2** | ***p*** |
|  | **UE** | + | 0.11 | 2.05 | 0.46 | <0.01 |
|  | **PM** | + | 0.55 | -13.66 | 0.66 | <0.001 |
|  | **SM** | + | 0.28 | 7.30 | 0.35 | <0.05 |
|  | **LE** | ns | 0.07 | -1.77 | 0.63 | ˃0.05 |
|  |  |  |  |  |  |  |
|  | ***P*n** | + | 0.01 | -0.62 | 0.35 | <0.01 |
|  | ***g*s** | + | 0.41 | -37.85 | 0.59 | <0.001 |

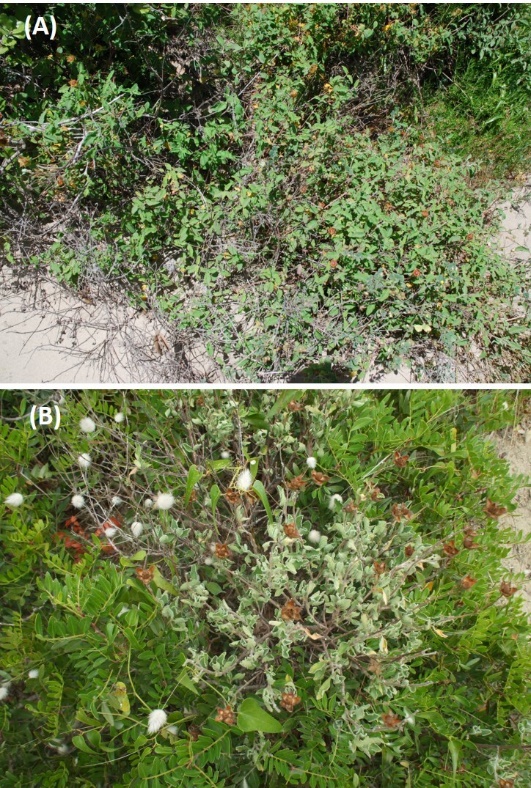


## Supplementary Figures

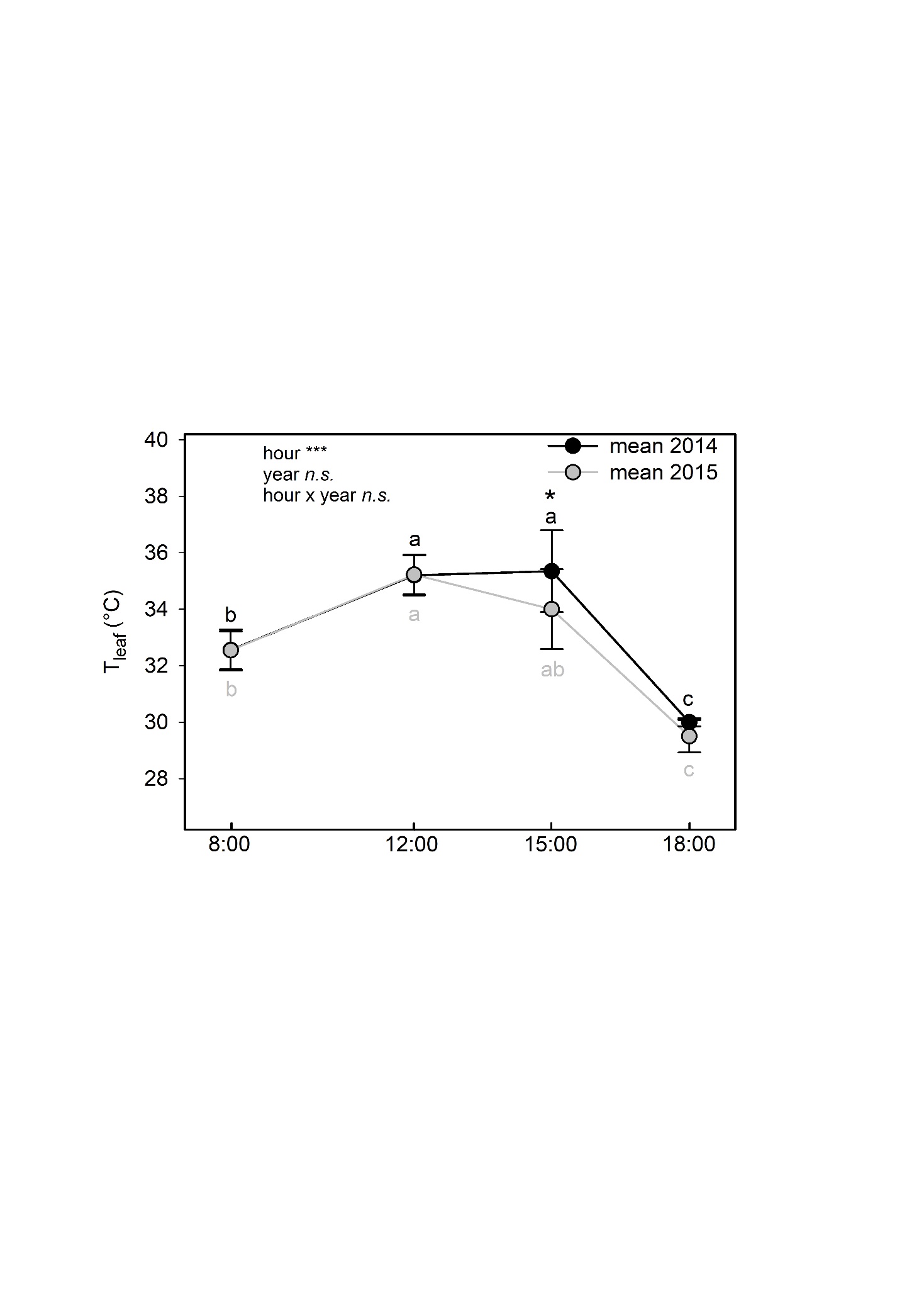
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**Supplementary Figure S1.** Bi-plot of the principal component analysis on metabolic traits of *C. incanus*: Leaf thickness (LT), photosynthesis (*P*n) and stomatal conductance (*g*s), Fv/Fm, photosystem II maximum efficiency (ΦPSII), water potential (*Ψ*w) and relative water content (RWC) (A). Total polyphenols content (PolTot), biogenic organic compounds (BVOCs) and leaf thickness (LT) (B).

**Supplementary Figure S2.** *C. incanus* naturally growing in the costal dunes of Southern Tuscany (GR). The Mediterranean shrub showed larger leaf size and a lower degree of leaf rolling in July 2014 (A) than July 2015 (B).



**Supplementary Figure S3.** Daily leaf temperatures (Tleaf) of *C. incanus* in July 2014 and 2015. *Two way* ANOVA followed byTukey's pairwise comparison was performed to compare data (means ± SD; n = 8). Letters indicate significant differences (*p* ≤ 0.05) among sampling hours for each years, whereas asterisks represent significant differences among yeas for each sampling hour, \* (*p* ≤ 0.05), \*\* (*p* ≤ 0.01), \*\*\* (*p* ≤ 0.001).

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