Title: Response of specific leaf area to nutrient addition and competition release in *Cistus ladanifer* L.

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Abstract: Specific leaf area (SLA) is one of the most important plant traits. Variation in SLA reflects strategies of plants to obtain resources in response to diverse environmental conditions. Within a species, sun-exposed individuals usually present lower SLA values than shaded ones. In addition, SLA has been reported to increase with experimental nitrogen supplementation. The aim of this study is to understand SLA variation among individuals of the same population of *Cistus ladanifer* L. a typical Mediterranean shrub species. To assess this, we tested the short-term response (11 months) of 100 adult individuals to increased nutrient availability and different levels of intra-specific competition. Specifically, we conducted a factorial field experiment with four treatments: (**1**) Control (no nutrient addition and no neighbor removal); (**2**) nutrient addition (400 kg/ha of controlled release NPK fertilizer) and neighbor removal; (**3**) neighbor removal only; and (**4**) nutrient addition only. We collected a total of 50 leaves per individual and measured both leaf area and leaf dry weight to calculate the SLA. Our hypothesis was that individuals would decrease SLA in response to the competition release treatment, and that would increase SLA in response to the nutrient addition treatment. However, we found that the release from competition did not affect SLA values, although leaf area and leaf weight were slightly affected. No significant effect was detected for the nutrient addition treatment. Nevertheless, the interindividual variation in SLA responded to both treatments in a way that led to a significant decrease in variation among individuals in this functional trait compared to the control group.

Keywords: *Cistus ladanifer*; competition; functional leaf traits; nutrients; SLA