




UV4Plants

1st Network Meeting
of UV4Plants,
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for Plant UV Research

abstract book





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Effects of UV radiation and rainfall reduction on carbon and nitrogen levels in a Mediterranean shrub community before and after a controlled fire

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This study assesses the role of UV radiation on C and N cycles of a Mediterranean shrubland before and after a fire, and whether this role can be altered by water availability. In a field experiment, naturally growing vegetation was subjected to UV-A+UV-B exclusion, UV-B exclusion or near-ambient UV-A+UV-B exposure in combination with two precipitation regimes (natural or reduced rainfall), along with an experimental fire around the middle of the three years of the study. Different parameters related with C and N levels were measured at soil (0-5 and 5-10 cm), litter and plant level throughout the experiment. UV-A exposure increased soil moisture whereas UV-A+UV-B stimulated soil respiration under reduced rainfall. At 5-10 cm depth, but only before the fire, UV-A exposure increased soil β -glucosidase activity, while UV-A+UV-B reduced it. Mainly under reduced rainfall, plant exposition to UV-B increased foliar C content before the fire and $\delta^{15}\text{N}$ in *Arbutus unedo* after the fire. These findings suggest contrasting UV-A and UV-B effects on C and N cycles, often mediated by precipitation levels, together with a homogenizing effect of the perturbation.

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