**Ozone symptoms in the field: reality or a misunderstanding?**

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The capacity of ozone to produce visible symptoms on tree leaves has been probed in a large number of experiments in controlled and semi-controlled conditions. Based upon these evidences, the assessment of visible symptoms in field conditions has been experienced within a pan-European (ICP-Forests) program. The assumptions for such assessment are: (i) although ozone symptoms were experimentally reproduced on a limited number of plant species, these results can be extended to all species found in the field; (ii) all plant species subjected to ozone show a similar response at structural and anatomical level; (iii) such response can be evaluated and validated regardless the species and the environmental condition where they live. All these assumption were not demonstrated, and there is a large uncertainty about the reliability of such field surveys. Moreover, problems related to the heterogeneity of the foliar responses within a same species, the aspecificity of many symptoms and the role of confounding factors have been highlighted in several previous research papers.

In this presentation we propose that the Mediterranean environmental conditions can produce the same condition leading to foliar symptoms, and ozone can be considered only an “additive” factor. Symptoms derive from an hypersensitive response (HR) triggered by the accumulation of reactive oxygen species (ROS). ROS are produced in chloroplasts by the photosynthetic process both at the PSII and PSI sites. High light radiations produce an over-excitation that cannot be disposed of by the physiological photochemical and non-photochemical de-excitation processes. The combination of high light and drought (with consequent stomatal closure and lack of CO2 as target for photochemical processes) increase such over-excitation. In our opinion this situation is *per se* sufficient to produce some alleged “ozone symptoms”, for ex. foliar bronzing subsequent to the degeneration of plasmatic cellular components. This situation can be further exacerbated by rain pulses during the summer season: a suddenly stomatal opening could, in fact, lead to ozone uptake. In leaves subjected to strong oxidative pressure, the uptake of a moderate dose of ozone can trigger a cascade of consequences including widespread foliar symptoms.

We conclude that foliar symptoms are not produced by a “critical” dose absorbed by leaves, by the “marginal” dose that allow to overcome the oxidative pressure that can be tolerated by leaves.