**WATER RELATIONS AND PHOTOSYNTHETIC EFFICIENCY IN THE TRIPARTITE LICHEN *Peltigera Britannica* AND ITS ISOLATED PHOTOBIONTS**

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The relationship between thallus water content and photosynthetic efficiency in lichens has been deeply investigated in the last decades. Recently, measurements of water potential (Y) isotherms have raised as a novel approach to assess the lichen water status. Recent studies have demonstrated that water relations in lichens are species-specific, and that the drop of photosynthetic efficiency becomes steeper at Y below the turgor loss point (Ytlp). Moreover, lichens and isolated photobionts seems to have different water relations, causing a shift of the drop of the photosynthetic efficiency towards more negative Y in the thallus *vs* the isolated photobionts. Nevertheless, these results were obtained only in one species with green algae as photobionts and more studies are needed to assess whether this phenomenon can be generalized. In this light, we present a comparative analysis of water relation parameters and maximum PSII efficiency (measured as Fv/Fm) in the tripartite lichen *Peltigera britannica* and its isolated photobionts, the green algae *Coccomyxa* spp. and the cyanobacterium *Nostoc* sp. Y isotherms were analysed to measure the osmotic potential at full turgor (π0), Ψtlp and the bulk modulus of elasticity (ε). Lobes with *Coccomyxa* sp. showed a better capability in maintaining cell turgor than lobes with *Nostoc* sp. (lower π0 and Ψtlp). Moreover, π0 and Ψtlp were higher in isolated photobionts than in thalli, while ε was lower. Fv/Fm gradually decreased along with Ψ drop in lobes with *Coccomyxa* sp. and in *Coccomyxa* isolated cultures, whereas it abruptly dropped to values close to 0 both in lobes with the *Nostoc* sp. and in *Nostoc* isolated cultures, at Ψ close to Ψtlp. Our results demonstrated that lichens and isolated photobionts exhibit different water relations and that Ψtlp represents a critical threshold below which photosynthetic efficiency in lichens and isolated photobiont significantly drops.