**TOGHETER BUT DIFFERENT: NEW EVIDENCE OF A DIFFERENT WATER STATUS BETWEEN THE PHOTOBIONT LAYER AND THE THALLUS DURING DEHYDRATION**

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Lichen photobionts play a pivotal role in a lichen as they provide the carbohydrates that sustain the symbiosis. Hence, the relationship between thallus water content and photosynthetic efficiency of photobionts is of paramount importance. In a recent study on *Flavoparmelia caperata* and its isolated photobiont, *Trebouxia gelatinosa*, it was shown that the latter loses cell turgor and experiences a subsequent decrease of the maximum PSII efficiency (measured as *Fv/Fm*) at water potentials (Ψ) less negative than in the intact lichen thallus. To verify if this phenomenon occurs in other species, a comparative analysis of water relation parameters and chlorophyll *a* fluorescence (Chl*a*F) was carried out during dehydration on the lichens *F. caperata*, *Lobaria pulmonaria* and *Xanthoria parietina* and their isolated photobionts, i.e. *T. gelatinosa, Symbiochloris reticulata* and *T. decolorans*, respectively. Ψ isotherms and Chl*a*F were analysed to obtain the osmotic potential at full turgor, Ψ at turgor loss point (Ψtlp), the bulk modulus of elasticity, and the *Fv/Fm* trend upon Ψ decrease. All water relation parameters differed between lichens and isolated photobionts. Notably, Ψtlp was less negative in isolated photobionts than in lichens. Ψ values corresponding to 20% (Ψ20) or 50% (Ψ50) decrease of *Fv/Fm* were proposed as novel proxies relating the lichen water status to the photosynthetic efficiency of photobionts. Both Ψ20 and Ψ50 did not differ between *F. caperata* and *T. gelatinosa*, whereas Ψ20 differed of-5.5 MPa and -3.44 MPa in *L. pulmonaria* and in *X. parietina*, respectively, in respect to their isolated photobionts. The shift of Ψ20 towards more negative Ψ values in lichens *vs* their isolated photobionts suggests that *Fv/Fm* starts to decrease at more negative Ψ in lichen thalli, supporting the recently formulated hypothesis that during dehydration the photobiont layer of a lichen has a different water status than the surrounding thallus.