**MORPHOLOGY AND PHENOTYPIC PLASTICITY OF THE MICROALGA *Diplosphaera* sp. ASSOCIATED WITH *Buellia zoharyi* LICHEN THALLI**

Salvador Chiva\*; César Daniel Bordenave; Patricia Moya; Eva Barreno

Botánica, ICBIBE, Fac. CC. Biológicas, Universitat de València, C/ Dr. Moliner, 50. 46100-Burjassot, Valencia, Spain; \*E-mail: salvador.chiva@uv.es

An improved assessment of organismal diversity in lichens has been possible by applying environmental DNA metabarcoding analyses which corroborate the concept of lichen thalli as a potential source of green microalgae diversity and variability. *Diplosphaera spp.* microalgae have been reported as main phycobionts in several Verrucariaceae; therefore, even though its best known mode of life is as a lichen symbiont, it can also be found associated with the surface of lichens. In this study, a *Diplosphaera* strain isolated from *Buellia zoharyi* was subjected to different treatments to test the described phenotypic plasticity assigned to *Stichococcus*-like organism cultivated under different conditions. The strain was cultivated under these different conditions: a) standard conditions: 18°C, 16:8 h light in 3N-BBM+V, b) poor conditions: 18°C, 16:8 h light in BBM, c) rich conditions: 18°C, 16:8 h light in 3N-BBM+GC; low temperature: 8°C, same conditions as d) standard, e) poor and f) rich. Ultraestructural observations were performed using light microscopy at three weeks old cultures. The response to these different conditions was characterized using pulse-modulated chlorophyll fluorescence measurements. Cellular morphology of the strain seems not to be affected by the temperature and the elongated shape is maintained at both low and standard temperatures. However, culture media composition clearly affects the morphology and rich media showed the bigger and more elongated cells. According to the chlorophyll fluorescence measurements, Fv/Fm values were higher at low temperatures (d, e, f) than at standard conditions (a, b, c) and showed a significant decrease in rich+18ºC conditions (c). We hypothesized the combination of rich media and high temperatures can lead to cell damage. Our results confirmed the characteristic phenotypical plasticity of the genusand highlight the importance of microscopic analyses of the different cell morphologies for their accurate description and characterization. Funding: PROMETEO/2017/039(GVA).