**DETERMINATION AND METABOLOMIC INTERPRETATION OF THE MOLECULAR FINGERPRINT OF *Ramalina farinacea* AND *Trebouxia* spp.PHYCOBIONTS BY NEAR INFRARED SPECTROSCOPY (NIRS)**

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Near infrared spectroscopy (NIRS) is a well-known analytical technique in the fields of chemistry and pharmacy, thanks to its many properties: accurate, fast, inexpensive and safe for both the operator and the environment since no preparation of the sample or reagents are needed. The complexity of NIR spectra makes them a true molecular fingerprint of each sample. The potential applications in biology range from metabolomics and phenotyping, to taxonomy, which could be extremely useful for the advancement in Lichenology. The objectives of this work are to characterize the NIRS global molecular fingerprint (GMD) of thalli of *Ramalina farinacea,* and axenic cultures of *Trebouxia jamesii, Trebouxia* sp. TR9and *Asterochloris erici*. For this purpose, thalli were collected from El Escorial (Madrid, Spain). Phycobionts were grown on discs of sulphuric acid treated cellulose (baking paper) or agar. After 21 days of growth the spectra were measured. Among the results, peaks corresponding to lipids (1195-1215 nm), proteins (2100-2200 nm), unsaturated fatty acids (2100-2170 nm) and carbohydrates (1740-1800 nm) have been identified in the spectra of either fresh or desiccated organisms. One of the limitations of this work is the limited reports on biological applications of NIRS as well as the need for advanced mathematical models for complex spectra comparison. In conclusion, NIRS is an extremely fast and unexpensive technique for metabolomic and phenotypical characterization of lichens and aeroterrestrial microalgae. This study was funded by grants from: Ministerio de Economía y Competitividad CGL2016-79158-P); PROMETEO/2017/039 Excellence in Research (Generalitat Valenciana, Spain).