FIRST REPORT ON POLYSACCHARIDES OF ASTEROCHLORIS AND THEIR POTENTIAL ROLE IN THE LICHEN SYMBIOSIS

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A structural study of the carbohydrates from the aposymbiotically cultured *Asterochloris* sp., the algal symbiont of the lichen *Cladina confusa* was carried out for the first time. A xylorhamnogalactofuranan was purified and was predominated by (1→3)-linked galactofuranosyl units with sidechains in position 6 on approximately 6.4% of the units. The sidechains have galactofuranosyl units 5-*O* and 6-*O*-substituted, as well rhamnopyranosyl units 2-*O*, 3-*O* and 2,3-di-*O*-substituted. Xylose was detected only as nonreducing end units, together with galactofuranosyl units. Amylose and a β-(1→4)-xylan were also present. These polysaccharides have not been found in the symbiotic thallus of *Cladina confusa*, which contained only glucans, galactomannoglucan and galactoglucomannan. A potential role of these carbohydrates in lichen recognition proccess is also discussed.

Keywords: photobiont, *Asterochloris, Cladina confusa*, xylorhamnogalactofuranan, xylan.