

RECOVERY OF ACETONE RINSED LICHEN THALLI OF *CLADONIA FOLIACEA*

Cladonia foliacea zuzmótelepek regenerálódása acetonus kezelést követően

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The optimal period for applying acetone (best for extraction and shortest possible for avoiding detrimental effects), was established for dry lichen thalli rinsed in acetone following the methods by Solhaug and Gauslaa applied in 2001. Secondary lichen substances (usnic and fumarprotocetraric acids) were analysed by HPTLC and HPLC, the detrimental effect of acetone was tested by chlorophyll fluorescence measurement. The optimal duration for acetone rinsing proved to be around 1–2(–5) days in the samples collected in summer. The determined Fv/Fm values of *Cladonia foliacea* remained relatively high even after 1024 hours compared to any of the 12 species studied previously. A seasonal difference between summer and winter collected thalli was found. According to our results the thalli collected in winter are more sensitive to acetone rinsing. Therefore the summer period – when lichens are more frequently in dry condition and therefore photosynthetically active for a shorter period – is more advantageous for collecting samples for transplantation experiments combined with acetone rinsing. Higher concentrations of usnic acid and fumarprotocetraric acid were found in winter samples than in summer ones. The considerable variability is possibly due to a natural variability among the samples (substance content among and within thalli) and partly to the preparation methods. However, homogenised (lyophilised, then ground) samples showed no difference in usnic acid content if extracted for 15, 30, 40 or 50 minutes.

The thalli re-placed in controlled field condition after acetone rinsing experiments were observed monthly. The digital images showed serious damage already after 1–2 months at most of the treated thalli. Samples were investigated after a 6 months recovery period. The results confirm the advantage of summer collecting. Though both winter and summer collected samples rinsed in acetone less than 16/32 hours showed similar, good vitality based on Fv/Fm measurements, however photosynthetically active parts of thalli were smaller in case of winter collected samples.

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