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Short Communication
Resistance: Are there Limits to Resistance in Lichens?

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Abstract

Trebouxia photobionts of several 25–47 year old herbarium *Xanthoria parietina* specimens have been isolated and successfully cultured under controlled conditions.

Keywords: lichen, *Trebouxia*, *Xanthoria parietina*

Lichens have an astounding capacity to cope with stress in the natural environment and exploit a broad range of habitats too harsh for most other organisms (Friedmann and Galun, 1974; Hale, 1983; Kappen, 1988). In this note we show that their resistance seems to be extended to artificial stress as well.

In the course of our study on comparison between the photobionts of *Xanthoria parietina* (L.) Th. Fr. specimens from different habitats and geographical regions we isolated and succeeded to culture the photobionts of 25–47 year old *X. parietina* herbarium specimens. The herbarium material is annually fumigated with methyl-bromide for the last fifteen years and has before been maintained with naphthalene.

The *X. parietina* specimens from which the photobionts were isolated are listed below (the details are as on the original labels of the fascicles):

1. Osrtobottnia australis: Lappfjard, Perus. Ad truncum et ramos Populi tremulae prope domum Helenii. 10. VIII. 1946; leg. Arturri Railonsala; ex.: Lichenotheca Fennica.
2. Tavastia borealis: Saarjarvi, Saarikyla. Ad corticem Populi tremulae et Alni incanae. 19. VII. 1948; leg. Arvo Koskinen; ex.: Lichenotheca Fennica.
3. Ca. km südwestlich Hammamet, in Küstennähe. Flora von Tunesien. An Opuntia ficus-indica. 8-20.4.1968; leg. H. Hertel; ex.: Herbarium Hannes Hertel #8677.

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4. Finland. Regio aboensis. Kustavi, Laupunen. On sea-side rocks west of the fish refinery. October 20, 1969; leg. Reino Alava, Kalevi Alho & Unto Laine; ex.: Turku University Herbarium.

The isolation procedure and medium used were as described in Mukhtar et al., (1994). It took 4–5 weeks until revival and cell division of the *Trebouxia* isolates became apparent, whereas cell division of *Trebouxia* cells isolated from fresh thalli occurs shortly (about 3–4 days) after bringing the cells into culture.

Figure 1 shows a well established *Trebouxia* colony of one of the isolates, on 2× diluted *Trebouxia* medium (Ahmadjian, 1993). Examined with a Zeiss fluorescence microscope (BG-12 exiter filter, No. 50 barrier filter) using epiillumination optics. A Kodacolor 400 ASA film was used for photography.

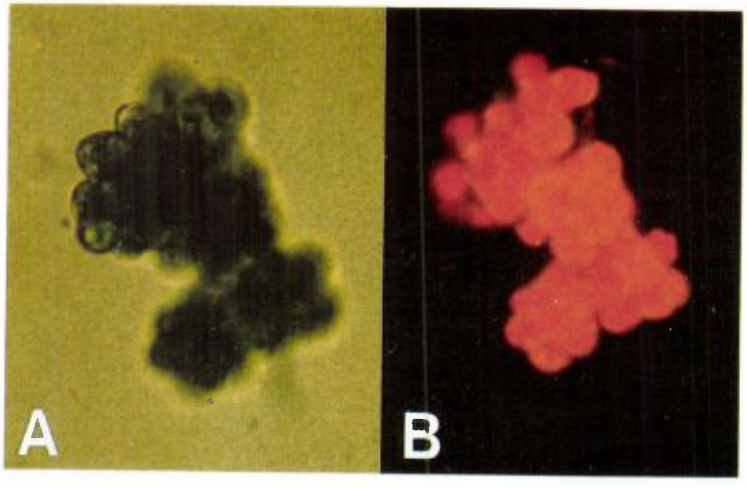

Figure 1. *Trebouxia* colony, from an isolate of *Trebouxia* from *Xanthoria parietina* (1. above): A. Bright light; B. Chlorophyll autofluorescence of A.

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