

DAVIS EXPEDITION FUND
REPORT ON EXPEDITION/PROJECT

Expedition/Project Title: Taxonomy and Phylogeny of the complex thalloid family Cleveaceae

Travel Dates: March 2009

Location: Spain

Group Member(s): Sumudu Rubasinghe

Group Leader: Dr. David Long

Aims: Collection of specimens for the PhD project: Taxonomy and Phylogeny of the complex thalloid liverwort family Cleveaceae

OUTCOME (not less than 300 words):-

See attached report

Final Report for the Davis Expedition Fund

**Taxonomy and Phylogeny of the complex thalloid liverwort family
Cleveaceae**

Sumudu Rubasinghe - May 2009

Introduction

Cleveaceae Cavers is a family of complex thalloid liverworts in the phylum Marchantiophyta, class Marchantiopsida and the subclass Marchantiidae (Crandall-Stotler, *et. al*, 2009). It is characterised by the presence of simple epidermal pores with thickened radial walls, ventral scales of thallus with a single, tapering, ill-defined appendage, air chambers of thallus without assimilatory filaments, capsule wall with well defined annular bands and its irregular dehiscence. Three genera are currently recognized in the family; *Athalamia* Falc. (syn. *Clevea*) with 12 to 15 species, *Sauteria* Nees 2 to 6 species and *Peltolepis* Lindb. with 1 or 2 species. *Athalamia* is the type genus of the family. All three genera of the family are primarily distributed in the northern hemisphere except for two species which are distributed in the southern hemisphere (Shimizu, and Hattori, 1954; Schuster, 1992; Cavers, 1911).

Objectives

Molecular studies on the three genera, suggests there may be four not three in the family Cleveaceae, and even the European species of the genus *Athalamia* may be placed in the wrong genus. Fresh material of *Athalamia hyalina*, *Sauteria alpina* and *Peltolepis quadrata* were collected from Switzerland last year. The main aim of the field trip to Spain was to collect fresh material of *Athalamia spathysii* for molecular analysis and also to study this species in the field to understand the phenology and the precise ecology, and to make good quality photographs.

Results

Sites where *A. spathysii* was collected:

1. El Valle (Albercia de Toires) (142 m) – north facing slope, under rock over hang
2. Sierra Cabrera (1600 – 246 m) – south side of Cortijo Grande, north-facing slopes, under moist shady rock sledges.
3. South of Rodalquilar (Cabo de Gata) (242 m) – under shady boulder
4. Barranco de Requena (252 m) – under boulders near stream

Conclusions

The field excursion at Spain was very successful and *Athalamia spathysii* was collected from known localities as well as from several new sites. DNA has already been extracted from collected material and subjected to phylogenetic analysis. Preliminary results suggest that this species is related to the other European species, *Athalamia hyalina*. Herbarium specimens prepared will be deposited in the Royal Botanic Garden Edinburgh. They will be used to write a detailed description of the species and for preparation of drawings and photographs.

Acknowledgements

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