

# Propagation and Culture of Lip Fern, *Cheilanthes myriophylla* Desv.

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*Cheilanthes*, commonly known as lip fern, is a genus consisting of about 180 species of small rock-loving ferns widely distributed in temperate and tropical regions. Philip Munz (1959) lists fourteen species of *Cheilanthes* in California, mostly xerophilous ferns that inhabit limestone slopes and crevices and rocky walls. The generic term is derived from the Greek *cheilos*, lip or margin, and *anthos*, flower, in reference to the marginal sori.

*Cheilanthes myriophylla* Desv. is a little-known species with a habitat range from Mexico to Peru (Graf, 1976). In California the species was found in cultivation at the University of California Botanical Garden, Berkeley, on a shaded, west-facing slope. In this environment the plant grew to 14 to 16 inches tall and was considered sufficiently attractive in form and color and so delicate in texture as to warrant further investigation as a potential new pot plant.

As part of a research project at the University of California, Davis, sporulating fronds of this species were collected in January 1980 and transported to the Department of Environmental Horticulture. The nutrient-agar method of spore germination, after that of Tjosvold (1978) and Hoshizaki (1976), was used. This method was thought to be superior to soil germination because it facilitated spore dispersal and prevented contamination by algae and bacteria.

Sterile agar medium used was a double strength Hoagland's No. 2 solution with Bacto-Agar added at a concentration of 2 grams per liter. Covered glass petri dishes, 6 inches in diameter, were filled with hot medium to a depth of approximately 2 centimeters, and cleaned spore applied when the temperature dropped to 50° C (122° F). The plates were covered immediately and placed under fluorescent lights at 150 foot-candles and 22° C (72° F).

Schedule of Production of  
*Cheilanthes myriophylla* Desv. Plants

Date	Procedure/ growth stage	Time Interval
1/29/80	Spore sown	
2/12/80	Prothallia present	Propag- ation, 11 weeks
3/5/80	First true leaves	
4/22/80	Transplanted to flats	
6/6/80	Transplanted to six- packs	Greenhouse 60°, 26 weeks
7/28/80	Transplanted to 4 in	
10/15/80	Ready for sale as 4 in	
11/13/80	Transplanted to 1 gal	12 weeks
2/10/81	Ready for sale as 1 gal	

When the young sporophyte was 1 to 2 centimeters tall, transplanting was carried out by gently lifting the young ferns from the semisolid agar medium with tweezers and placing them in flats of U.C. mix. After soaking with a mist nozzle, the flats were covered with glass plates for two to three weeks until the ferns became established.

During the entire period, the plants were watered with a liquid-feed half-strength Hoagland's solution. No insect or disease problems were encountered. On several occasions a few plants were omitted during watering and underwent desiccation, resulting in complete curling of lower fronds and marginal curling of central fronds. Remarkably, if the drought stress was not prolonged, irrigation returned the plant to full turgidity with damage to only a few or perhaps none of the lower fronds.

The production schedule summarized in the table was that followed at

Davis and is not considered to be of maximum efficiency. Due to labor limitations, both the six-pack and 4-inch-pot plants were left longer than would be optimal in a commercial operation. This may have extended production time as much as four weeks or more.

As of March 1981, 13 months after the initial sowing of spore, full-grown ferns of great beauty were produced. These ferns were, in our opinion, extremely marketable.

According to Graf (1976) and Hoshizaki (1976), these ferns should be adaptable as sun-loving indoor plants and as patio and landscape plants in subtropical regions where frosts and subfreezing temperatures are rare. This information was substantiated by the continued growth, although with fronds greatly reduced in length, of this species in Davis outside under lath from November to March.

## Literature cited

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