

Note on the marine algal flora of the Oki Isls. VI.¹

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Acrochaetium scinaiae Dawson (Acrochaetiaceae, Rhodophyta) is reported as a new entry not only to the present writer's algal list of the Oki Islands in the Sea of Japan but also to the marine algal flora of Japan.

Results of the present writer's detailed observations on the morphology of this taxon have led him to retain the species name of *Acrochaetium scinaiae*.

Key Index Words: marine algal flora, the Oki Isls.

Introduction

The present writer has reported 391 spp. in 84 families and 196 genera of marine benthic algae from the Oki Islands to date since 1970, which include 33 spp. in 5 families and 15 genera of Cyanophyta, 67 spp. in 18 families and 21 genera of Chlorophyta, 89 spp. in 21 families and 47 genera of Phaeophyta, 202 spp. in 40 families and 113 genera of Rhodophyta (Hagihara, Hirose and Kajimura 1970; Hirose and Kajimura 1973; Kajimura 1975a–1987b).

The present writer, this time, could add one more new entry *Acrochaetium scinaiae* not only to his algal list of the Oki Islands but also to the marine algal flora of Japan.

RHODOPHYTA
FLORIDEOPHYCEAE
NEMALIALES
ACROCHAETIACEAE

Acrochaetium scinaiae Dawson

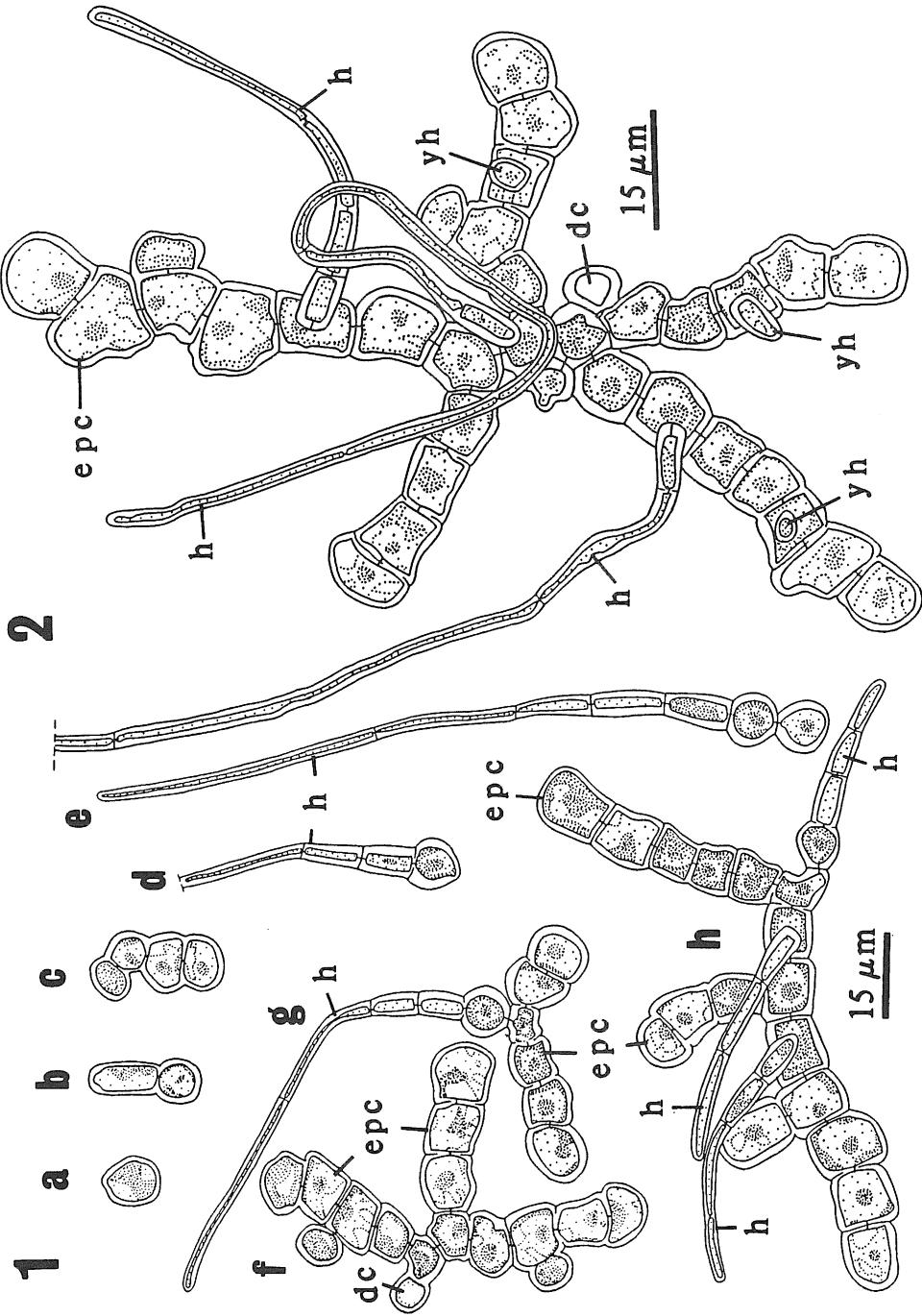
Allan Hancock Foundation Publ. Occ. Pap. 7, pp. 3–4, Figs 11–12, 1949.

Habitat: Epiphytic or endophytic in the gametophytes of *Scinaia* spp., at the depth of 25 m off Tsudo, the Oki Islands, on April 18, 1979. OS-9917: Deposited in the Herbarium, Department of Botany, University of California, Berkeley.

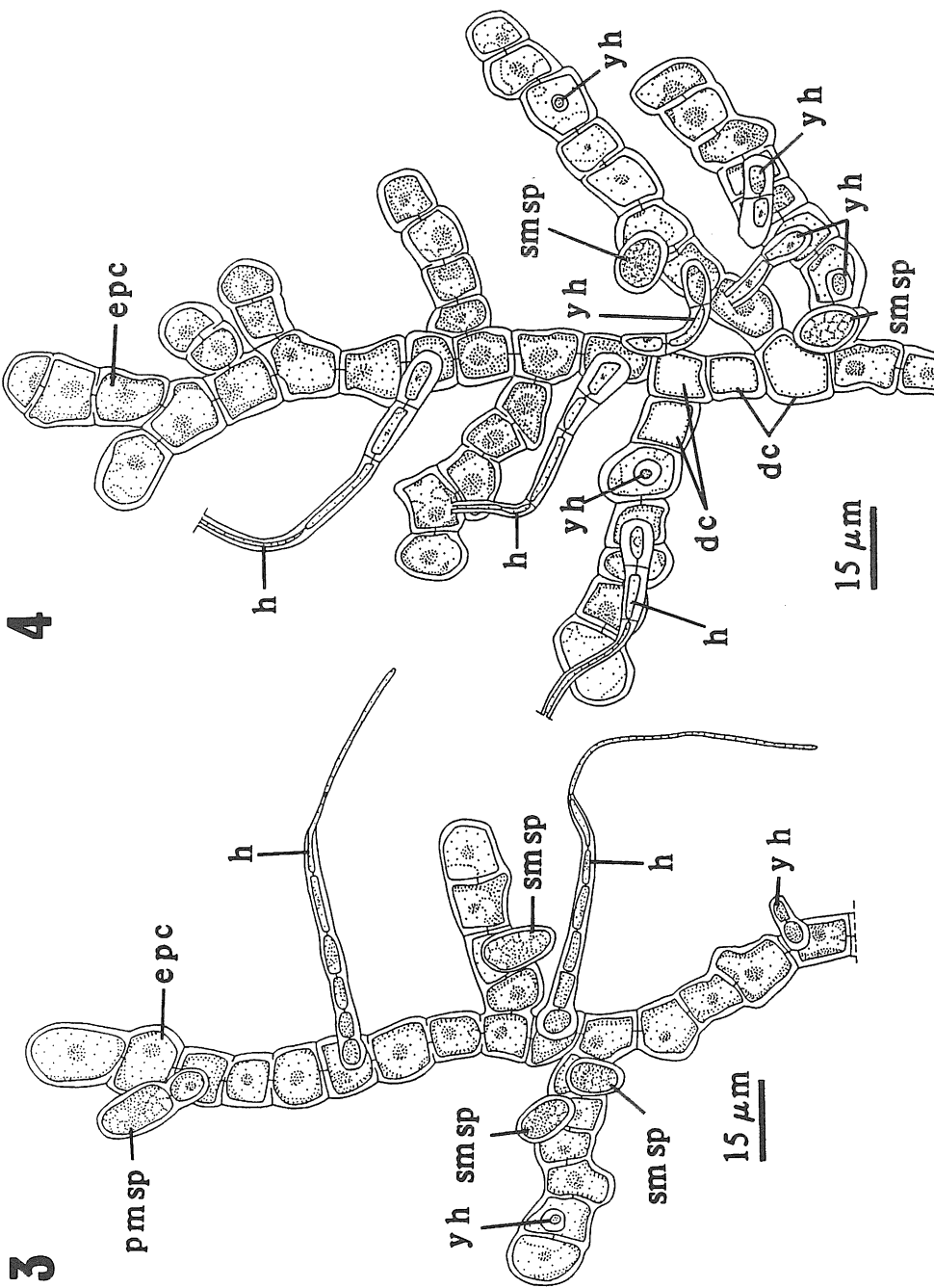
Abbreviations used in Figures

dc dead cell

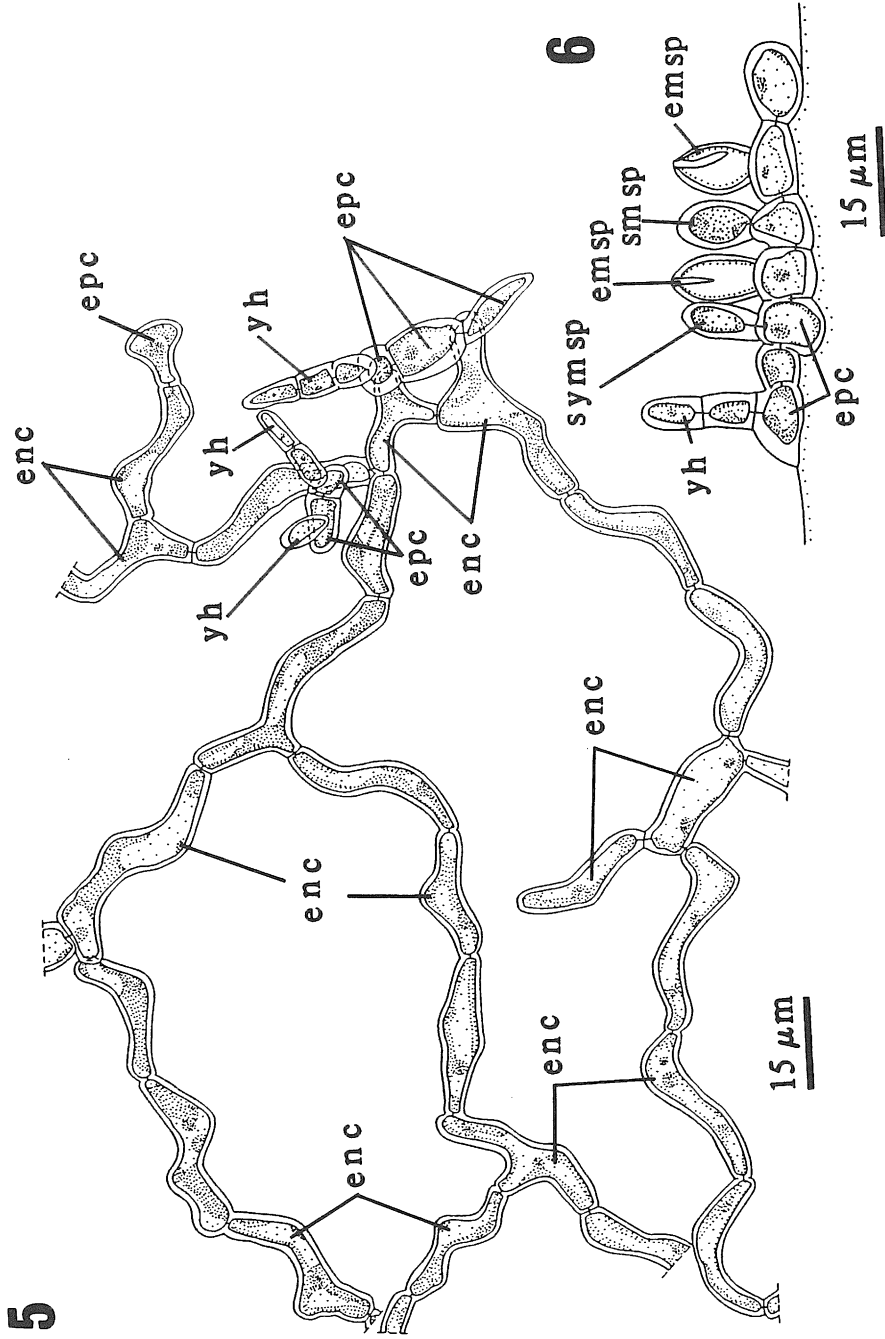
¹ Contribution No. 39 from Oki Marine Biological Station, Shimane University.



Figs 1-2. *Acrochaetium scinaiae*.
Fig. 1. Germination stages (a-g) and an epiphytic young plant (h) in surface view.
Fig. 2. An epiphytic sterile plant in surface view.



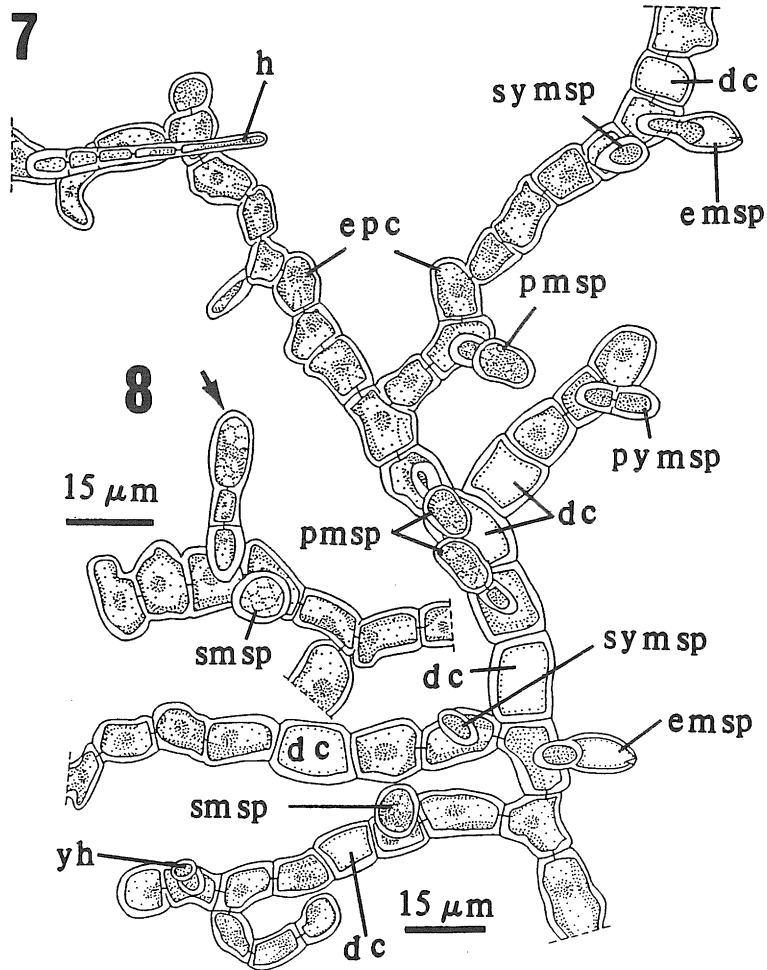
Figs 3-4. *Acrochaetium scinaiae*.
Fig. 3. Part of a mature epiphytic thallus in surface view, showing one pedicellate and three sessile monosporangia formed on the epiphytic branch cells.
Fig. 4. Part of a mature epiphytic thallus in surface view showing habit.



Figs 5-6. *Acrochaetium scinaiae*.

Fig. 5. Part of an endophytic thallus with some epiphytic cells in surface view showing habit.

Fig. 6. Part of a mature epiphytic thallus in optical section, showing one mature and two empty sessile monosporangia.



Figs 7-8. *Acrochaetium scinaiae*.

Fig. 7. Part of a mature epiphytic thallus in surface view, showing three mature, two empty pedicellate and one mature sessile monosporangia.

Fig. 8. Part of a mature epiphytic thallus in surface view, showing a mature monosporangium with two-celled pedicel (arrow) and a sessile one.

emsp	empty monosporangium
enc	endophytic cell
epc	epiphytic cell
h	hair
pm sp	pedicellate monosporangium
pym sp	possible pedicellate young monosporangium
sm sp	sessile monosporangium

symsp possible sessile young monosporangium
 yh possible young hair

Vegetative structure:

Thalli consist of irregularly and sparsely branched filament, are epi-endophytic in deep-water species of *Scinaia*, irregular in shape, attain the length of 2 mm, and are pink or pale red in color. Some are entirely epiphytic (Figs 2-4, 7) but others are partially epiphytic and endophytic (Fig. 5). The epiphytic cells are flat, 5-15 μm wide, 5-20 μm long, usually tetra to hexagonal, but terminal cells are roundish in surface view (Figs 1f-h, 2-4, 7). Branches fuse each other often. Epiphytic branches sparsely bear multicellular simple long hairs which arise singly from epiphytic cells (Figs 1d-e, g-h, 2-4, 7). Chloroplasts are parietal, large, laminate, and one per cell, have one but, sometimes two pyrenoids. Endophytic cells are cylindrical, curved variously and clavate to allantoid in shape (Fig. 5). Endophytic branches extend horizontally among the utricles and other epidermal elements of the host plants.

Monosporangia:

Monosporangia are ovovate to ellipsoidal, 10-15 μm long, 5-10 μm wide, sessile or have 1-3-celled pedicel, and arise singly from an epiphytic cell (Figs 3-4, 6-8). Most epiphytic cells bear a monosporangium at a fully mature stage often.

Spermatangia, carpogonia and carposporophyte: Not recorded.

Remarks:

Acrochaetium scinaiae is a new entry not only to the present writer's algal list of the Oki Islands but also to the marine algal flora of Japan.

A. scinaiae has been regarded as a synonym of *A. desmarestiae* Kylin (Abbott and Hollenberg 1976), however, *A. scinaiae* can be considered to be distinct from *A. desmarestiae* (Kylin 1925; Abbott and Hollenberg 1976) at the specific level fundamentally in having multicellular hairs which arise from its epiphytic cells (Dawson 1949, pp. 3-4 as "sterile or vegetative filaments which are attenuated", Fig. 12; Present study).

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