

Morphology and Taxonomic Placement of *Polyopes clarionensis* Setchell *et* Gardner (Halymeniaceae, Rhodophyta)¹

M. Kajimura

Marine Biological Station, Shimane University, Kamo, Saigo, Oki-gun, 685 Japan

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Abstract

The morphology of the little-known red alga *Polyopes clarionensis* Setchell *et* Gardner (Halymeniaceae) was studied. The development of the female and male reproductive systems is reported for the first time. *Polyopes clarionensis* conforms to the concept of the genus *Prionitis* in that the thallus is rigid, the ampullar system of the auxiliary cell is simple and representative of the 'Grateloupia-type', and tetrasporangia are formed in sori rather than in nemathecium. The combination *Prionitis clarionensis* (Setchell *et* Gardner) Kajimura is proposed.

The species of *Prionitis* most similar to *P. clarionensis* is *P. divaricata* (Okamura) Kawaguchi, which differs in having flabellate fronds, segments compressed throughout except for the short cylindrical stipe and reproductive organs generally restricted to subapical portions in the ultimate segments of the thallus.

Introduction

Polyopes clarionensis was described by Setchell and Gardner (1937) on the basis of a single tetrasporophyte collected at Clarion Island in the Revilla Gigedo Islands, Mexico, by John Thomas Howell on 24 March 1932. No collections from the Pacific coast of North America have subsequently been reported for this species, but Dawson (1954: 267, footnote) attributed to it two collections from Oahu, Hawaiian Islands, one consisting of cystocarpic plants, the other a spermatangial plant. Dawson (1959), in accordance with the generic treatment of Kylin (1956), transferred *P. clarionensis* Setchell *et* Gardner to *Carpopeltis*, but without studying the reproductive morphology of either the type or the Hawaiian collections. In connection with my study (Kajimura 1990) of a new species of *Polyopes* (*P. hawaiiensis* Kajimura), I have studied the reproductive morphology exhibited by the three collections of *P. clarionensis*. The results of this study, which support the transfer of this species to *Prionitis*, are presented in this paper.

Material and Methods

The following collections were used in this study:

- (1) Mature female or cystocarpic specimens, mouth of Bellows Field Creek, Oahu, *leg.* M. S. Doty (*Dawson 11850*), 6 December 1952 (UC 1058768 and wetstack jar 520, vial 9);
- (2) Mature male specimen, Laniloa Point, Oahu, *Dawson 11927*, 30 May 1953 (UC 1099644 and wetstack jar 525, vial 8);
- (3) Tetrasporophyte, Sulphur Bay, Clarion Island, Revilla Gigedo Islands, Mexico, *J. T. Howell 462a*, 24 March 1932 (CAS 236505 in UC, holotype). Small pieces of thallus etc.

Small pieces of thallus were stained with a 1% aqueous solution of aniline blue acidified with acetic acid (9 : 1 v/v) for 10–20 minutes and sectioned with a freezing microtome. Sections were mounted in a 50% aqueous solution of rice syrup acidified with acetic acid (33 : 1 v/v).

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