

## Shigeo KAWAGUCHI and Michio MASUDA: The status of *Chondrus punctatus* SURINGAR (Rhodophyta) from Japan

*Key Index Words:* *Chondrus punctatus*; *Gigartina punctata*; *Halymeniaceae*; *Rhodophyta*; taxonomy.

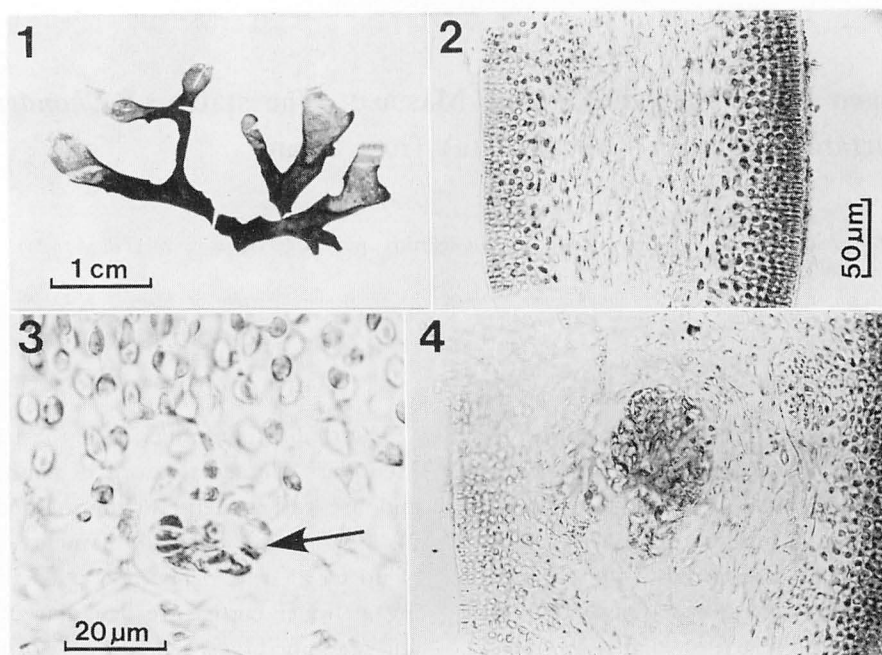
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*Chondrus punctatus* was first described by SURINGAR (1867) on the basis of specimens collected in Japan by TEXTOR, although no indication of the locality was given. HARIOT (1891) transferred it to *Gigartina* based solely on its vegetative structure. However, this alga lacks specially-developed cystocarpic papillae and the cystocarp is formed within the thallus. The presence of cystocarpic papillae is a distinctive feature of foliose species of *Gigartina sensu stricto* which excludes *Iridaea* and *Rhodoglossum* from *Gigartina* circumscribed by KIM (1976). OKAMURA (1902) stated that *Gigartina punctata* (SURINGAR) HARIOT was probably referable to tetrasporangial plants of *Chondrus ocellatus* HOLMES or to the genus *Grateloupia*. OKAMURA (1916) reiterated its questionable status. Since then, the alga has not been mentioned in the literature. SURINGAR (1867), however, antedates HOLMES (1896), in which the name *C. ocellatus* was published. Re-examination of the original specimens of *C. punctatus* is thus needed.

The holotype specimen of *Chondrus punctatus* deposited in the Rijksherbarium, Leiden (L 940.285.313) was examined on loan with the kind help of Dr. W.F. PRUD' HOMME VAN REINE. This specimen lacks the lower portion (Fig. 1). Some sections were made by hand using a scalpel (Feather No. 15) under a dissecting microscope.

The thallus is multiaxial in construction. Medullary filaments consist of slender cells and are rather densely intermeshed (Fig. 2). Anticlinal cortical filaments consist of up to 10 cells. The 5-6 cells constituting an inner cortex are irregular in shape and are joined by secondary pit-connections between adjacent cell rows. This layer grades into an outer cortex of small, roundish, isodiametric, 4-5 cells without secondary pit-connections between adjacent cell rows. The specimen has ampullary cell clusters of accessory nature on which a carpogonial branch is produced (Fig. 3). The ampulla is formed from an inner cortical cell. A roundish, compact cystocarp is formed deep inside the thallus (Fig. 4) and it lacks the enveloping pericarpial filaments found in species of *Gigartina* (MIKAMI 1965).

The presence of ampullary structures distinguishes the alga in question from both *Chondrus* and *Gigartina* and places it in the Halymeniaceae (CHIANG 1970, KRAFT 1977). It is therefore necessary to compare *C. punctatus* with known species of the Halymeniaceae in Japan. *Chondrus punctatus* is most similar in gross morphology to *Grateloupia imbricata* HOLMES and *Carpopeltis prolifera* (HARIOT) KAWAGUCHI et MASUDA of the 41 species of this family known to date from Japanese waters (YOSHIDA *et al.* 1985). In *G. imbricata*, however, the



Figs. 1-4. *Chondrus punctatus* SURINGAR. 1. Holotype specimen deposited in Rijksherbarium, Leiden (L 940.285.313). 2-4. Longitudinal sections of the holotype: 2, showing the thallus structure; 3, showing a carpopogonial ampulla (arrow); 4, showing a cystocarp. Scale in Fig. 2 applies also to Fig. 4.

branches are crowded and overlap each other (HOLMES 1896) and the inner cortical cells are larger and more irregular than in *C. punctatus* (KAWAGUCHI, unpubl.). *Carpopeltis prolifera* has an internal structure similar to that of *C. punctatus*, while the reproductive structures are mostly confined to the upper part of a single thallus or to the proliferations (KAWAGUCHI and MASUDA 1984). This is not the case in *C. punctatus*. Thus the alga in question is ascribed to neither of them. The small, fragmentary specimen in addition to its unknown locality makes it very difficult to determine the exact nature of the alga. We therefore propose that *Chondrus punctatus* SURINGAR be treated for the present as being of unknown generic status.

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川口栄男・増田道夫：紅藻 *Chondrus punctatus* SURINGAR について

日本の材料に基づいて記載された *Chondrus punctatus* SURINGAR [= *Gigartina punctata* (SURINGAR) HARIOT] の所属を明らかにする目的で、正基準標本を調査した。その結果、本藻には造果枝を含む二次的な細胞枝叢 (ampulla) 及び藻体内に埋在する小形の嚢果が認められた。本藻はスギノリ科 Gigartinaceae ではなく、ムカデノリ科 Halymeniaceae に属することが明らかになった。しかし、本藻を日本で現在までに報告されているムカデノリ科の種と比較検討したところ、正基準標本が断片的であること及びその採集地が不明であることから、そのいずれとも特定し得なかった。本藻の分類学的取り扱いは、現在のところ、極めて困難である。従って、今後その分類学的位置が確定されるまでは、*C. punctatus* の名の使用は控えるべきとの結論に達した。(060 札幌市北区北10条西8丁目 北海道大学理学部植物学教室)