琉球大学学術リポジトリ

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メタデータ	言語: English 出版者: 琉球大学21世紀COEプログラム 公開日: 2009-04-16 キーワード (Ja): キーワード (En): 作成者: Kato, Aki, Baba, Masasuke, Suda, Shoichiro メールアドレス: 所属:
URL	http://hdl.handle.net/20.500.12000/9816

PG-10 **A systematic study of crustose coralline alga *Neogoniolithon brassica-florida* (Corallinales, Rhodophyta) in the Ryukyu Islands**

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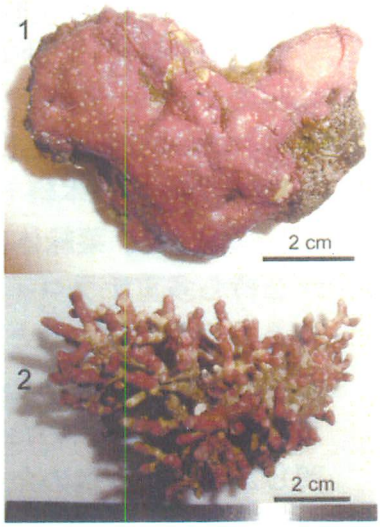
Crustose coralline algae, a cosmopolitan group of calcifying algae, are distributed from the Arctic to the tropics. They play roles as important reef-building organisms or settlement or morphogenetic inducers for marine invertebrates including abalones, corals, and sea urchins, and are paleoclimatological indicators.

In the Ryukyu Islands, approximately 20 crustose coralline algal species have been reported in eight genera from three families. However, the taxonomic revisions of these species have not been conducted yet. *Neogoniolithon brassica-florida*, mainly distributed in the tropical to warm temperate region of the Indo-Pacific Ocean, has been merged with *N. fosliei*, *N. frutescens*, and *N. laccadivicum* as forms of this species. In the Ryukyu Islands, *N. fosliei* and *N. frutescens* had been reported previously, although they have been regarded as *N. brassica-florida*. Therefore, in order to confirm whether *N. brassica-florida* is a single genetic entity, phylogenetic analyses using *N. fosliei*, *N. frutescens*, and their related species were carried out.



Neogoniolithon brassica-florida
1. crustose (*N. fosliei*)

In our phylogenetic tree, *N. brassica-florida* was polyphyletic and separated into *N. fosliei* and *N. frutescens*. *N. fosliei* and *N. frutescens* distinctly formed crustose and fruticose clades, respectively. Therefore, the circumscription of *N. brassica-florida* is not appropriate.

Neogoniolithon fosliei was divided into three clades, which were distinguished by morphological features such as thallus structure and dimensions of conceptacle (reproductive organ). Although one clade appeared to be morphologically similar to the type specimen of *N. fosliei*, previous studies on the type specimen were not sufficient for us to define our specimens in this clade as exactly *N. fosliei*.

Considering that *N. fosliei* and *N. frutescens* were genetically related to respective fruticose and crustose clades, it is merited to provisionally recognize that fruticose and crustose forms of *N. brassica-florida* are different species, until the circumscription of *N. fosliei* becomes clear.