

## *Enterographa praepallens* (Lichenes, Opegraphaceae), an Overlooked Species of Maritime Lichen in Japan

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The crustose lichen, *Enterographa praepallens* (Nyl.) Redinger in the family Opegraphaceae is reported for the second time in Japan on the basis of specimens collected on maritime rocks in Chiba Pref. and Shizuoka Pref., central Honshu. The type specimen of this species (H-Nyl 4592) contains two obviously different elements, of which the saxicolous one can be considered as the holotype from Moji, Kyushu. The other is a corticolous specimen from Sri Lanka cited by Nylander (1900).

On a collecting trip to Izu Peninsula in March 1993, I found a saxicolous species of lichen growing on seaside rocks. The same lichen species was also collected at Chôshi, central Japan in August 1993. The lichen is identified as *Enterographa praepallens* (Nyl.) Redinger, which is little known by Japanese lichenologists, though it was described by Nylander (1890) as *Stigmatidium praepallens* on the basis of a specimen from Kyushu, southwestern Japan. A description of the species with taxonomic remarks and figures is provided in the present paper.

### Materials and Methods

Specimens preserved in the following herbaria were used for the present study: Natural History Museum and Institute, Chiba (CBM) and University of Helsinki (H).

Air-dried materials were examined with the naked eyes or under a dissecting stereoscope for describing external morphology. For anatomical observation, sections were made with the aid of a razor blade under

the dissecting stereoscope. Lactophenol cotton-blue (abbreviated as LPCB) preparations were used for anatomical drawings and describing anatomy except for descriptions of color which were taken from GAW (glycerol:ethanol:water = 1:1:1) preparations.

***Enterographa praepallens*** (Nyl.) Redinger, Feddes Rept. **43**: 66 (1938). = *Stigmatidium praepallens* Nyl., Lich. Jap.: 84 (1890). = *Chiodecton praepallens* (Nyl.) Vainio, Bot. Tidsskr. **29**: 370 (1909). Holotype: Japan, Kyushu, "Mozi, saxicola" (H-NYL 4592 p.p.).

External Morphology: Thallus epilithic, rimulose, well cracked especially in the center, smooth, pale brownish gray with pinkish, yellowish or greenish tint, dull, lacking prominent hypothallus. Ascomata lirelliform, almost simple to repeatedly branched, immersed in the thallus, lacking prominent exciple; disc slightly concave to almost plane, frequently convex when post-mature, pale yellowish brown, sometimes pink-tinted, semipellucid, epruinose, usually 0.5–1 mm long and 0.05–0.1 mm (sometimes

0.25 mm) wide.

**Anatomy:** Thallus hyaline, rather variable in thickness, lacking prominent cortex, containing numerous hyaline crystals (scattered or in cluster, up to 30  $\mu\text{m}$  in diameter), composed of linear hyphae; the hyphae branched and anastomosing, variously orientated, ca. 2  $\mu\text{m}$  thick, with lumina 1  $\mu\text{m}$  wide; phycobiont belonging to *Trentepohlia*, more or less uniformly scattered. Prominent exciple lacking. Subhymenium hyaline, containing no crystals, 50–55  $\mu\text{m}$  thick. Hypothecium sometimes distinct (up to 90  $\mu\text{m}$ ), hyaline, containing no crystals, more or less stained blue with LPCB. Epithymenium hyaline, with or without granules. Hymenium hyaline, 85–100  $\mu\text{m}$  thick; paraphyses branched and anastomosing, almost even in thickness, ca. 2  $\mu\text{m}$  thick. Asci clavate, ca. 50 $\times$ 10  $\mu\text{m}$ , non-amyloid. Spores 8 in each ascus, hyaline, narrow-ellipsoidal or acerose, acute to rounded at both ends, (3–)5–7-septate, 21–31 $\times$ 2.5–4  $\mu\text{m}$ , with cylindrical lumina.

**Habitat:** On maritime rocks. Obviously above the *Verrucaria* belt. Abundant on rather shaded vertical face of boulder at Chôshi.

**Distribution:** Known only from Japan. Sri Lanka (Nylander 1900) is excluded from the range as noted below.

**Specimens examined:** Japan. Honshu. Chiba-ken, Chôshi-shi, Kurobae, on vertical face of rocks at partly shaded sites in splash zone, H. Harada (13614) and I. Kärnefelt (CBM); Shizuoka-ken (Izu Peninsula), Shimoda-shi, Tsumeki-zaki Point, 5 m alt., on seaside rock, 29 March 1993, H. Harada 13395 (CBM).

**Remarks:** Although H-NYL 4592 is indicated as “CaCl<sup>+</sup>, *Stigmatidium propallens* Nyl., 0,020–23 and 0,003 (with drawing of two spores), Japonia, Mitso, Mozi, Silicicola, E. Almquist, 20/X 1879” with black ink on the packet, it contains obviously two different elements, namely, saxicolous and corticolous specimens. The saxicolous specimen consists of two pieces of rock covered with the thallus of *Enterographa*. The

morphology of this lichen agrees well with the protologue of *Stigmatidium praepallens*, excepting the spore septation as discussed below in detail. The corticolous specimen is glued on a paper, on which the following handwriting with black ink can be read: “CaCl<sup>+</sup>, *Stigmatidium propallens* Nyl., Ceylon, Point de Galle, E. Almquist 1979/xii.” It is apparently the specimen on which Nylander’s report of *S. praepallens* from Sri Lanka (Nylander 1900) is based. On the other hand, only a specimen collected in Japan was cited in the original description of *S. praepallens*. Thus, only the saxicolous specimen contained in H-NYL 4592 can be considered to be the holotype.

When Nylander (1890) described *Stigmatidium praepallens*, he reported 5-septate spores for it. However, 6-septate spores (Figs. 2D–E) as well as 5-septate (Figs. 2F–G) and less septate spores were found in the holotype. In the specimen from Chôshi, a great number of asci with spores were found, and the spores were not only 5- to 6-septate but also 7-septate. They are narrow-ellipsoidal to acerose and acute or rounded at both ends. As far as examined, spores with rounded ends are 5 to 7 septate and have more or less thickened walls. In contrast, those with acute ends are 5- to 7-septate or less septate and do not seem to be thick-walled.

Although spores are usually straight in the present species (Figs. 2L and P), they are often slightly curved or sigmoid in LPCB preparations (Figs. 2D–I, M and Q). They might be easily bent or curved under the pressure of the surrounding asci or hymenium.

The disc width is very variable in this species. In the holotype (Figs. 1A–B), it is usually about 0.05 mm wide in dry condition, but is very rarely about 0.25 mm wide (only one disc found). The specimen from Izu (Figs. 1C–D) is very similar to the holotype in this respect. In the specimen from Chôshi (Figs. 1E–H), there are many discs about 0.25 mm wide which are mostly found in thicker parts of the thallus. These wider discs are usually flat to convex, frequently

elevated (Fig. 1G) together with the underlying thallus which more or less folds up (Fig. 1H). At least some of the wider discs seem to be post-mature, since few

asci and spores are found there.

*Enterographa praepallens* was recorded from Sri Lanka by Nylander (1900, as *Stigmatidium*

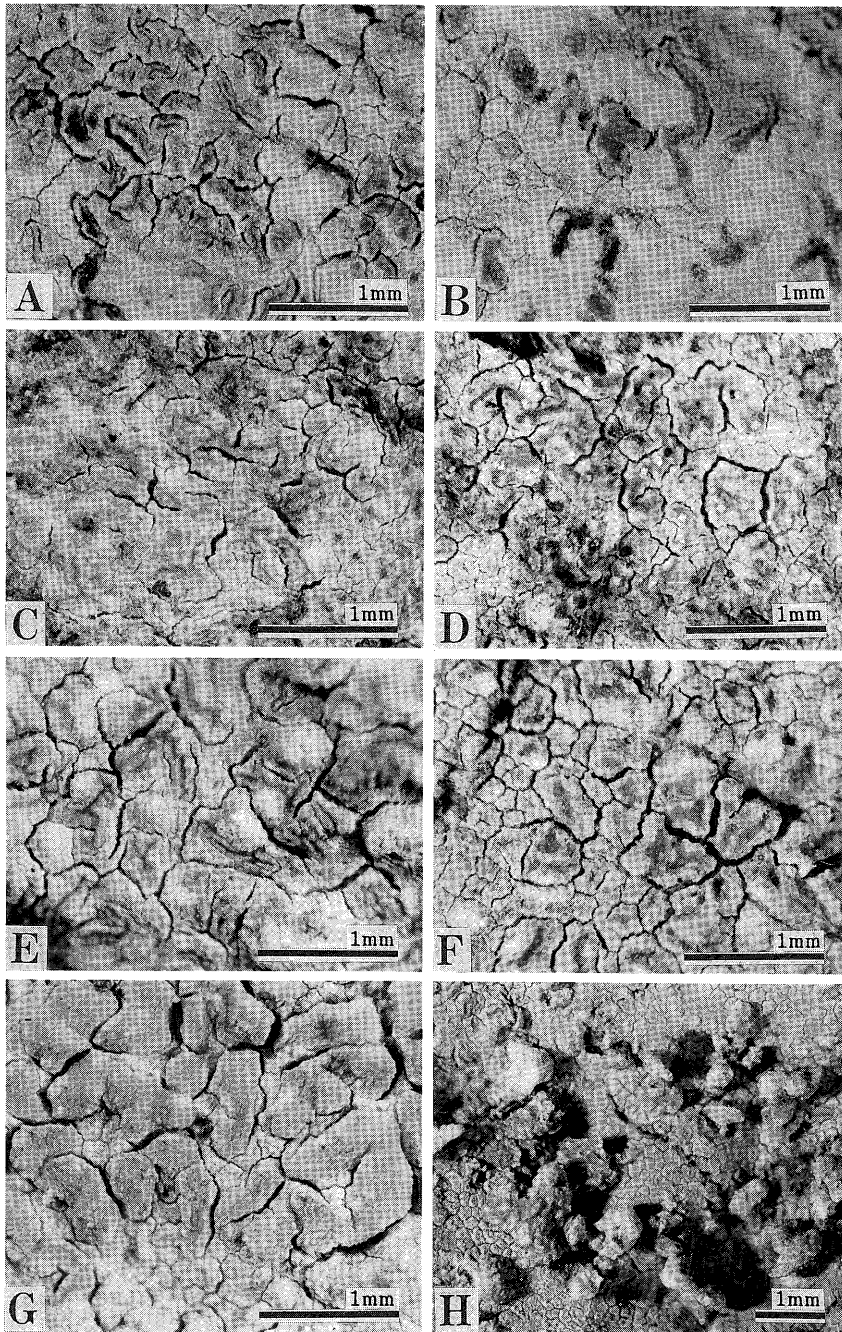


Fig. 1. Habit of *Enterographa praepallens* (A–B, holotype; C–D, Harada 13395; E–H, Harada 13614. A–H, air-dried materials).

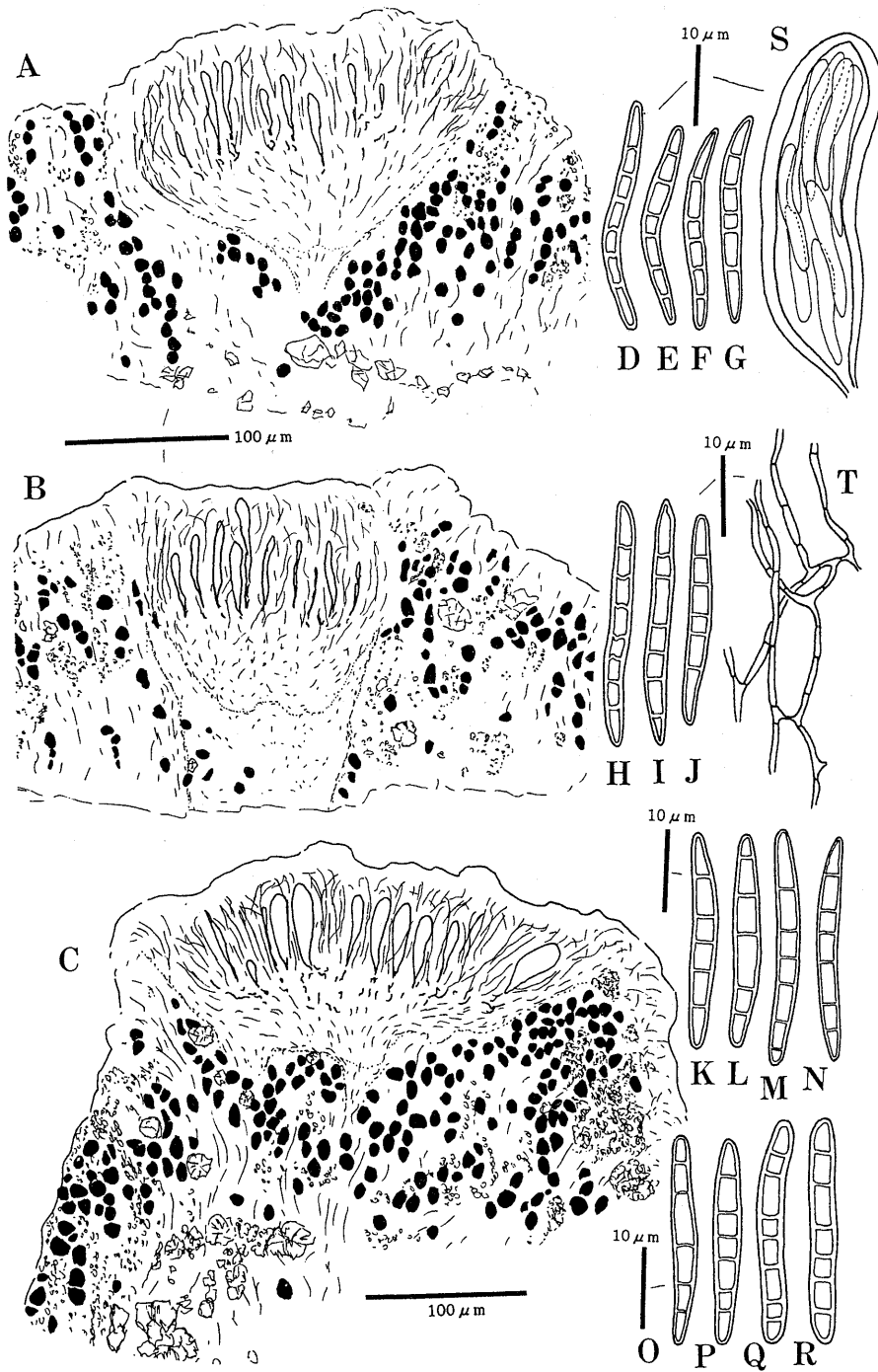


Fig. 2. Anatomy of *Enterographa praepallens*. A–C, cross sections of ascomata. D–R, spores (D–F, in sections of the same ascoma as Fig. 2A; similarly H–J same as 2B, and K–N same as 2C; O–R, in section). S, ascus with immature spores. T, paraphyses. A–R, LPCB preparations; S–T, squashed preparation in LPCB. A, D–G, S–T, holotype; B–C, H–R, Harada 13614.

*praepallens*), apparently based on the corticolous specimen contained in the packet of H-NYL 4592 as noted above. In this specimen, two species of lichens with lirelliform apothecia can be recognized. The one has blackish disc and obviously belongs to *Arthonia dispersula* which was reported as a mixture with *S. praepallens* by Nylander (1900). The other is too fragmentary to observe the detailed morphology, though it can be considered to belong to *Enterographa*. Judging from the reddish brown disc, it might belong to the *E. anguinella* group rather than *E. praepallens*. Therefore, *E. praepallens* should be excluded from the lichen flora of Sri Lanka. At present, thus, *E. praepallens* can be considered to be endemic to Japan,

原田 浩：海岸に生育する地衣類 *Enterographa praepallens* の再発見

1879年に九州の門司で採集された標本を基に記載されて (Nylander 1890) 以来、日本からは全く報告のなかった地衣類 *Enterogarpha praepallens* (Ny1.) Redinger を再発見した。採集地は伊豆半島南部と千葉県銚子市で、いずれも海岸の岩上に生育していた。垂直分布から言うと、潮間帯から飛沫帯下部に位置するアナイボゴケ帯より上部にあたる。

タイプとされる標本 (H-NYL 4592) には、岩

being known only from Kyushu and Honshu.

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Literature cited

- Nylander W. 1890. Lichenes Japoniae. 122pp. Paul Schmidt, Parisii.  
 ——— 1900. Lichenes Ceylonenses et additamentum ad Lichenes Japoniae. Opus posthumum. Acta Soc. Sci. Fenn. 26(10): 1-33.

上生のものと樹皮着生のものが含まれている。岩上生のものは門司産のタイプである。樹皮着生のものはスリランカ産であり、E. Almquist 採集による標本をもとにスリランカの地衣類フロラを Nylander (1900) がまとめた時にタイプ標本と一緒にされてしまったと考えられる。従って、H-NYL 4592 のうち門司産の岩上生の地衣を holotype とみなすのが妥当と思われる。