

## *Thelidium japonicum*, A New Species of the Lichen Family Verrucariaceae from Japan

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**Abstract** *Thelidium japonicum* Harada (Lichenes, Verrucariaceae) is described as new on the basis of specimens from Chiba-ken, central part of Japan. This is the second species of this genus in Japan.

**Key words** : Lichenes, taxonomy, Verrucariaceae, *Thelidium*.

The lichen genus *Thelidium* is characterized by crustose thallus and transversely septate spores within the Verrucariaceae. Only one species, *Thelidium minimum* (Massal. ex Koerb.) Arn. has been reported from Japan (Nylander 1890, originally as *Verrucaria minima* Massal.). Recently I have collected three specimens of another species of *Thelidium* in Chiba-ken, central part of Japan. This species is described below as new: *Thelidium japonicum* Harada.

### *Thelidium japonicum* Harada sp. nov.

(Figs. 1 & 2)

Affinis *Thelidium minutulum* sed paries peritheci denigratus.

*Typus*. Japan, Honshu, Chiba-ken, Chiba-shi, Aoba-chô, 20 m alt., on pebbles beside the building of Natural History Museum and Institute, Chiba, 28 April 1990, coll. H. Harada no. 10260 (Natural History

Museum and Institute, Chiba-holotypus; HIRO-isotypus).

*External morphology*. Thallus distinct to almost lacking, grass green or greenish brown, pale to a little dark, dull, areolate or granulose, but more or less continuous in the central part, more or less thin. Areolae ca. 0.1 mm across. Hypothallus usually not found, but found between adjacent thalli, gelatinous, black, somewhat glossy. Perithecia abundant, scattered, hemispheric, or horizontally flattened, sometimes constricted at the base, with or without thalline cover in the lower part, 0.1-0.2 mm wide at the base, very dark brown to almost black, smooth or a little rough, dull or a little glossy; ostiolar part pale to dark brown, distinct or indistinct. Pycnidia not seen.

*Anatomy*. Perithecial walls absent in the bottom, almost black in the outer part (20-25 µm

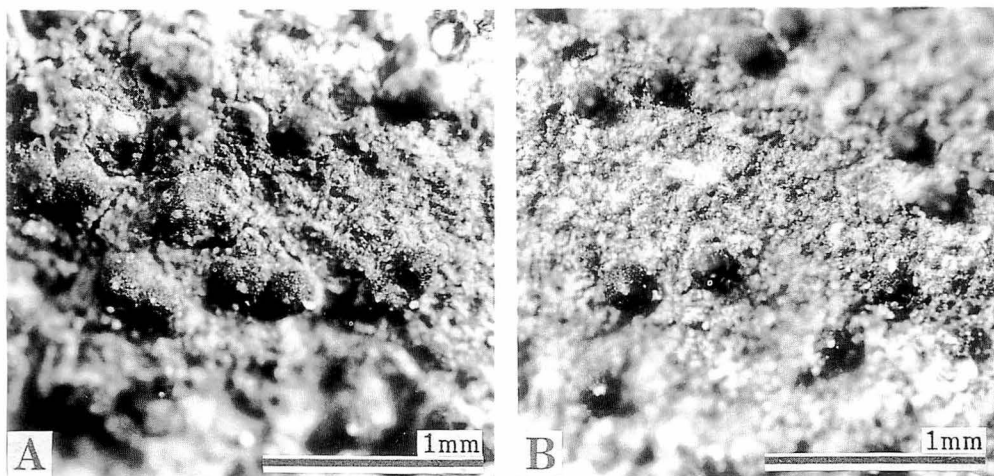
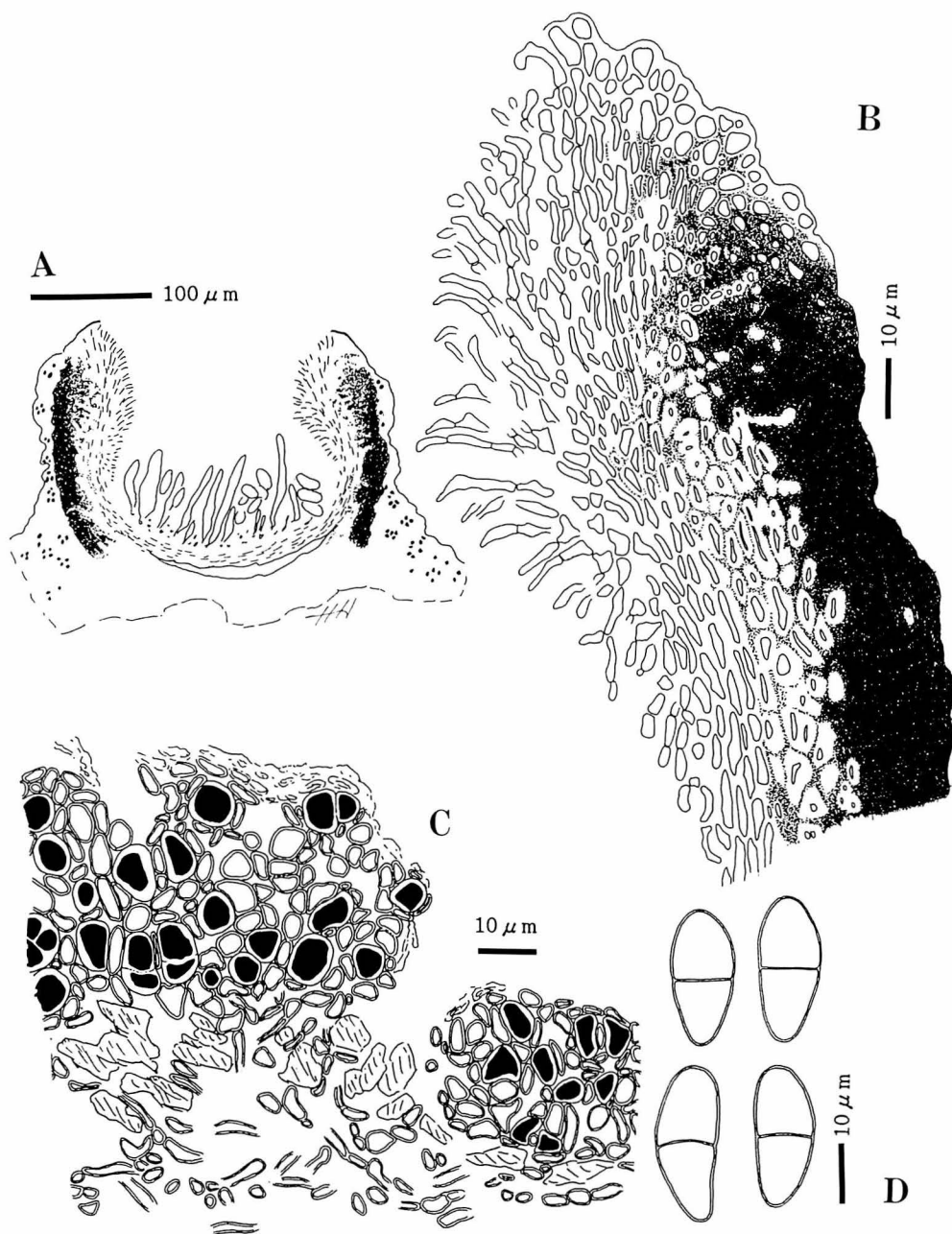


Fig. 1. Habit of *Thelidium japonicum* (holotype; air-dried material).



**Fig. 2.** Anatomy of *Thelidium japonicum* (holotype; in lactophenol cotton-blue). A, vertical section of perithecium. B, perithecial wall in vertical section. C, vertical section of thallus. D, spores.

thick), almost hyaline in the inner part (10–15  $\mu\text{m}$  thick), more or less brown around ostiole. Asci clavate, 85 $\times$ 25  $\mu\text{m}$ , bitunicate. Spores 8 in each ascus, 2-celled, hyaline, thin-walled (up to 1  $\mu\text{m}$  thick), 17–26 $\times$ 8–12  $\mu\text{m}$ .

*Habitat.* On pebbles, pieces of roof tiles or concrete on the ground at slightly shaded sites in the warm temperate zone.

*Range.* Japan (central Honshu).

*Variation.* Forms of the thalli vary from almost granulose to almost smooth and continuous, even for those on one piece of roof tile of a single specimen (Harada no. 9142). The tile piece is covered by more than twenty thalli of *Thelidium japonicum* on the upper side. Most of the thalli are granulose to areolate and never smooth on the surface. However, thalli near the end of the piece of roof tile tend to be continuous and smooth on the surface. Furthermore, some thalli on lateral sides of the roof tile, also show more or less continuous forms. The difference in forms of thallus may depend on the age of thallus or some subtle differences in microhabitat.

Another specimen was collected at the same locality, on the same day, on pieces of concrete (Harada no. 9279). Thalli of this specimen also tend to be continuous. The thalli are greenish brown in contrast to those of the former specimen (Harada no. 9142) which are grass green for the most part. The difference is probably caused by the difference in degree of exposure to the sunlight.

*Additional specimens examined.* Japan, Honshu, Chiba-ken, Chiba-shi, Inohana, 20 m alt., on pieces of concrete, coll. H. Harada no. 9142 & 9279 (Natural History Museum and Institute, Chiba; NMW).

*Remarks.* This species is closely related to *Thelidium minutulum* Koerb. in having protruded and exposed small (usually up to 0.2 mm in diam.) perithecia, two-celled and usually 20–25  $\mu\text{m}$  long

spores, and saxicolous habit. However, these two species can be easily distinguished when the vertical sections of perithecia are compared: the perithecial walls are almost black in *T. japonicum*, but dark brown and never black in *T. minutulum*.

### Acknowledgments

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### Reference

Nylander, W. 1890. Lichenes Japoniae. 122pp. Paul. Schmidt, Parisiis.

### 日本産アナイボゴケ科地衣類の一新種

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千葉県産の標本に基づき、地衣類アナイボゴケ科の一新種として *Thelidium japonicum* Harada を記載した。本種は次の形質を持つことからヨーロッパ産の *Thelidium minutulum* (Massal. ex Koerb.) Arn. に最もよく似る。つまり両種とも (1) 被子器がほぼ完全に地衣体から裸出し、(2) 半球形から球形に近く、(3) 小形である (直径0.1–0.2 mm)。しかし、子器の縦断切片を顕微鏡で観察すると、*T. minutulum* では暗褐色であるのに対し、*T. japonicum* では完全に黒化することから、両者は明らかに異なる。本新種は、Nylander (1890) が *Thelidium minimum* を神戸から報告したのに次いで、日本産 *Thelidium* 属に関する2種目の報告となる。