

Isao YOSHIMURA*: **Notes on *Gymnoderma
melacarpum*, comb. nov.****

吉村 庸*: *Gymnoderma melacarpum* について**

Wilson (1890) originally described *Phyllis* as a monotypic genus based on *Phyllis melacarpa* Wils.; however, *Phyllis* Wils. is illegitimate because it is a later homonym of *Phyllis* L. (1753) [vascular plant]. Thus Wilson (1891) validly introduced the new name *Neophyllis*; however, most lichenologists have not correctly recognized this taxon. On the sheet of the type collection preserved in British Museum (Natural History), London (BM), the following annotations were given: "the plant, however, is the sterile structured thallus of *Cladonia* with a parasitic *Lecidea*" by J.M. Crombie, and "this seems to be juvenile *Spaherophorus australis* with a pyrenocarpous parasite" by J. Murray. Zahlbruckner (1926) considered *Neophyllis* as an uncertain genus probably related to *Gymnoderma*. Jahns (1970) compared the thallus of *Neophyllis* with that of *Gymnoderma coccocarpum* and found that they resembled each other; he said "Trotz dieser Ähnlichkeit kann eine Entscheidung ohne Kenntnis der Fruchtkörper nicht getroffen werden. Es muss also bleiben, ob *N. melacarpa* eine eigene Art ist oder nicht." Taxonomically it seems necessary to decide whether *Neophyllis* is congeneric with *Gymnoderma* and to clarify the diagnostic characters of *Neophyllis melacarpa*.

Recently Dr. Y. Asahina handed me a specimen from Tasmania, which seems to be a related species of *Gymnoderma*. After examination, the Tasmanian specimen proved to be identical with the Australian *Neophyllis melacarpa* (see Lich. exsic. Colorado no. 246). Later the identification was.

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confirmed by an examination of the type material of *Neophyllis melacarpa*. All of the above specimens (including the type) were examined both morphologically and chemically.

Morphology. Since the Tasmanian specimen had well-developed apothecia, I was able to study the structure of apothecia and podetia as well as the thallus. The very short podetia of *Neophyllis melacarpa* develop on tips of elongated squamules, and are solid and lack symbiotic algae. Spores of this species are simple. These attributes are the same as those which characterize *Gymnoderma*, and I consider that the monotypic genus *Neophyllis* Wils. is congeneric with *Gymnoderma* Nyl.

Although the general habit of attachment to the substratum is more like that of *Gymnoderma insulare* and *G. coccocarpum*, rather than *G. lineare*, the squamulose thallus of *Neophyllis melacarpa* is corticate on both dorsal and ventral sides as is the case in *Gymnoderma lineare*. The primary squamules (to 1.5 mm long) of *Neophyllis melacarpa* are much smaller than those of *Gymnoderma lineare* (10-15 mm), and more irregularly branched. Podetia of *Neophyllis melacarpa* are very indistinct and originate on tips of

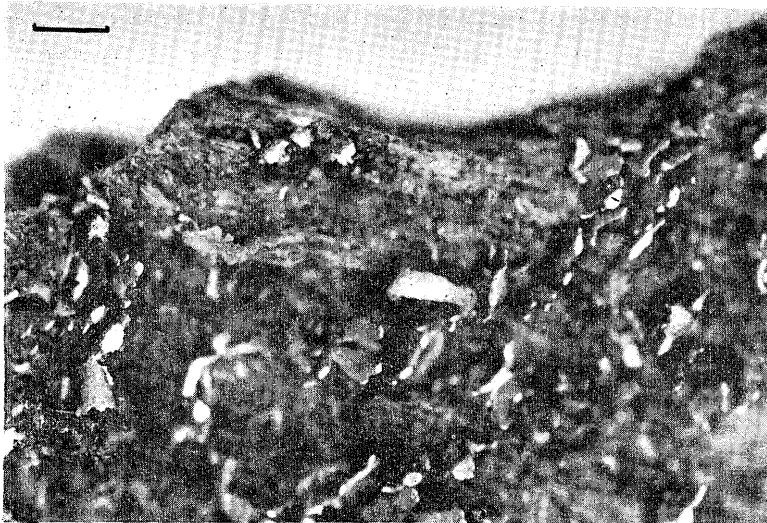


Fig. 1. *Gymnoderma melacarpa* (Wils.) Yoshim.
Specimen from Tasmania (Bratt 2177). Scale 1 mm.

the thallus, which is more elongated than the thallus without apothecia, while those of *Gymnoderma lineare* originate from the margin and ventral surface of primary squamules, which are externally similar to those without apothecia.

Chemistry. In the present investigation, crystals in GE solution and spots on the chromatograms yielded by *Neophyllis melacarpa* material, including the type, were compared with those of *Cladonia grayi* Merr., which contains grayanic acid. The results indicate that *Neophyllis melacarpa* contains grayanic acid. This acid is not present in any of the other species of *Gymnoderma*. As reported by Yoshimura and Sharp (1968), *Gymnoderma lineare* contains protolichesterinic acid and atranorin, and *G. insulare* contains atranorin and didymic acid. Although crystals of grayanic acid in GE solution are somewhat similar to those of didymic acid, the final identification of grayanic acid was made by microcrystal test under crossed nichols and by thin layer chromatography, using the methods de-

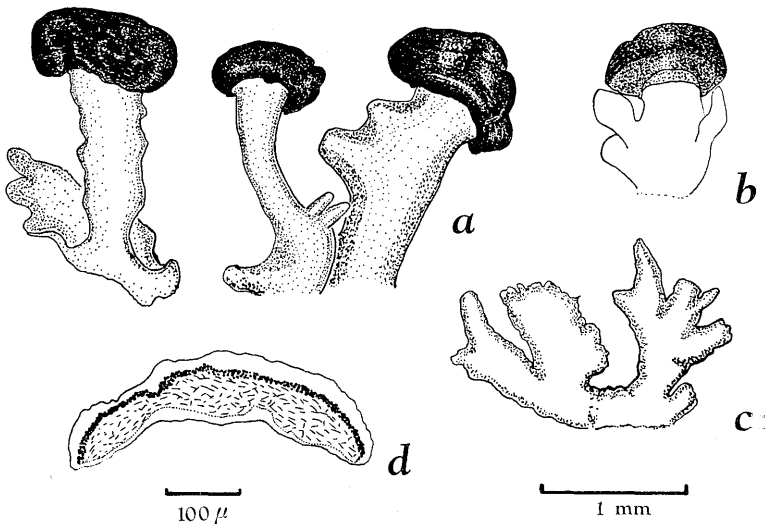


Fig. 2. *Gymnoderma melacarpum* (Wils.) Yoshim.

a. Elongated thalli with apothecia. b. Apothecia with short podetia on the tip of thallus. c. Primary thallus without apothecia. d. Diagram of cross-section of primary thallus showing dorsal and ventral cortices. Specimen from Tasmania (Bratt 2177).

scribed by Yoshimura and Sharp (1968).

Nomenclature. I consider that *Neophyllis* Wils. [1891] is congeneric with *Gymnoderma* Nyl. [1863]. However, the generic name *Gymnoderma* Nyl. is a later homonym of the fungal genus *Gymnoderma* Humb. ex Steud. [1824], based on the pre-starting point name *Gymnoderma* Humb. (Fl. Friberg. Spec. 109, 1793) which is of uncertain application (Donk, Taxon 6: 72, 1957) and has not been adopted by any recent authors. In contrast, the generic name *Gymnoderma* Nyl. has been used continuously for a genus of lichens. On the other hand, *Neophyllis* Wils. has only been applied to a single Australian species and this taxon has been variously interpreted in the past; the name *Neophyllis* is unfamiliar to most lichenologists as a genus of the Cladoniaceae although it has been listed in catalogues of lichen names. In order to avoid having to introduce the unfamiliar generic name *Neophyllis* for this well-known widespread genus of lichens, it is necessary to conserve Nylander's name against the name *Gymnoderma* Humb. ex Steud. as proposed by Hawksworth & Yoshimura (1973).

Subdivision of the genus. As discussed above, *Neophyllis* is congeneric with *Gymnoderma* Nyl., and *Neophyllis melacarpa* is clearly distinct from the other species of *Gymnoderma*. In this paper I propose that *Neophyllis melacarpa* be transferred to *Gymnoderma* as a distinct species. Of the four species of *Gymnoderma*, *G. melacarpum* and *G. lineare* may be combined into a section by the presence of both dorsal and ventral cortices in the primary thallus, while the other two, *G. coccocarpum* and *G. insulare* can be united into another section by the presence of only the dorsal cortex in the primary thallus. I consequently present the following taxonomic system for *Gymnoderma*:

Gymnoderma Nyl., Synop. Lich. 2: 26 (1863), nom. cons. prop.

Type species: *Gymnoderma coccocarpum* Nyl. (originally the only species).

Sect. ***Gymnoderma***

1. ***Gymnoderma coccocarpum*** Nyl., Synop. Lich. 2: 26 (1863).
2. ***Gymnoderma insulare*** Yoshim. & Sharp, Amer. Journ. Bot. 55: 638 (1968).

Sect. ***Neophyllis*** (Wils.) Yoshim., comb. nov.

Neophyllis Wils., Journ. Linn. Soc. London, Bot. 28: 372 (1891). [Basionym] ≡ *Phyllis* Wils., Victorian Naturalist 6: 68 (1890), non Linn. 1753.

Type species: *Neophyllis melacarpa* (Wils.) Wils. [*Gymnoderma melacarpum* (Wils.) Yoshim.] (originally the only species).

3. ***Gymnoderma melacarpum*** (Wils.) Yoshim., comb. nov. (Fig. 1, 2)

Phyllis melacarpa Wils., Victorian Naturalist 6: 68 (1890). [Basionym] \equiv *Neophyllis melacarpa* (Wils.) Wils., Journ. Linn. Soc. London, Bot. 28: 372 (1891).

Holotype: Australia, Victoria, F.R.M. Wilson (BM).

Primary thallus squamulose, small, sublinear, irregularly or somewhat pinnately lobed, rounded at the apex, sinuous at the margins, with both dorsal and ventral cortices, 1-1.5 mm long, ca. 0.5 mm broad, 0.1 mm thick; lobules often develop from the dorsal surface or marginal side of primary thalli, dorsal side pale brownish-brown to olive-green in herbaria, ventral side cream-colored. Thallus with apothecia ca. 1-2 mm long, simple, more or less cylindrical. Podetia very indistinct, ca. 0.1-0.3 mm long, not hollow, with a continuous cortex like that of the primary thallus, not hollow, without symbiotic algae.

Apothecia on the podetia, or almost sessile on tips of the elongated thallus, blackish brown to black, small, to 0.7 mm broad; spores simple, ellipsoid, $5-13 \times 4-7 \mu$.

Thallus and medulla, K-, KC-, P-; grayanic acid present.

Other specimens examined. AUSTRALIA. New South Wales: Briaid-wood District, Southern Tableland, *W. A. Weber & D. McVean*, distributed as Lich. Exsic. Colorado, no. 246, in NICH. TASMANIA. Awi River, 500 ft. alt., *G. C. Bratt 2177*, in hb. Sato no. 911.

Habitat. On bark of trees.

Distribution. Australia (Victoria, New South Wales) and Tasmania. First record from Tasmania.

4. ***Gymnoderma lineare*** (Evans) Yoshim. & Sharp, Amer. Journ. Bot. 55: 639 (1968).

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オーストラリア及びタスマニア産の *Neophyllis melacarpa* について研究した。極めて短小な子柄が基本葉体の先端から生じ、常に中実であることから *Neophyllis* 属はツブミゴケ属と同じであること、また基本葉体の背面と腹面に皮層があり、全体が極めて小さいことと、グレイアノン酸を含むことからツブミゴケ属のすでに知られた他の3種と違うので、ツブミゴケ属の独立種として移籍した。

また、ツブミゴケ属4種は腹面の皮層の有無で2つの節に分けられる。*Gymnoderma melacarpum* は北米の *G. lineare* とともに新たに *Neophyllis* 節に入れた。日本産の *G. insulare* はヒマラヤなどに分布する *G. coccocarpum* とともに *Gymnoderma* 節に属する。

なお、ツブミゴケ属の学名である *Gymnoderma* Nyl. (1863) は菌類の属 *Gymnoderma* Humb. ex Steud. (1824) と同名 (later homonym) であるが、菌類の *Gymnoderma* Humb. ex Steud. はすでに Donk が指摘したように正体不明の属で、発表されたあとだれも使用していないので、地衣類の属名の *Gymnoderma* Nyl. を保留することを提案中である。

正 誤 (Errata)

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	Pl. X	—	Mituii	Mitui
	Pl. XI	—	Mituii	Mitui