

日本産Acrasiales II

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The Acrasiales in Japan II*

Hiromitsu HAGIWARA**

On the course of studies on the Acrasiales in Japan, a new species of *Polysphondylium* was isolated. The descriptions and some observations on the slime mould are presented here as the second report.

Samples

Three isolates of the slime mould have been obtained in total. Two, No. 168 and No. 177, were obtained from the leaf mould and surface soil collected in the forest dominated by *Taxus cuspidata* SIEB. et ZUCC. var. *umbraculifera* MAKINO (*Kyaraboku*) near the top of Mt. Daisen (1,713 m in altitude), Tottori Pref., in October of 1971. Third strain, No. 284, was isolated from the leaf mould and surface soil collected in the forest dominated by *Buxus microphylla* SIEB. et ZUCC. var. *suffruticosa* MAKINO (*Tsuge*) near the top of Mt. Koshi (862 m in altitude), Fukuoka Pref., in May of 1972. These strains were cultured at room temperature (about 15~30°C) on hay-infusion agar plates with a suspension of *Escherichia coli* and on non-nutrient agar plates streaked with pre-grown bacterial cells.

The strains examined are kept in the incubation room of the National Science Museum, Tokyo.

Type specimen is preserved in TNS (the Herbarium of National Science Museum, Tokyo).

9. *Polysphondylium candidum* HAGIWARA, sp. nov. (Figs. 1~5)

Sorocarpi solitarii vel gregarii, typice recti vel proni, interdum procidui. Sorophora alba, pellucida vel impellucida, e basibus clavatis oriunda, gradatim attenuata, cum apicibus acutis; sorophora prima plerumque 0.35~8.25 mm longa, basibus 12~50 μ m crassis, apicibus 3~5.5 μ m crassis; sorophora secunda 1~6 a sorophoris primis racemoso-ramosa, 1~11 in racemo solitario, plerumque 170~380 μ m longa. Sori albi, opaci, globosi; sori terminales 40~155 μ m in diametro; sori laterales 30~115 μ m in diametro.

Sporae hyalinae, pellucidae, elongato-ellipsoidae, plerumque 7.8~11.6 \times 3.6~5.8 μ m, leves.

HABITAT: In foliorum humo et solo summo in silvis, Tottori et Fukuoka, Japan.

TYPUS: Cultura No. 168, in Octobro, 1971 segregata.

* The present work is a continuation of the previous one which was published under the title, "The Acrasiales in Japan. I" in Bull. Natl. Sci. Mus. Tokyo 14: 351~366, 1971.

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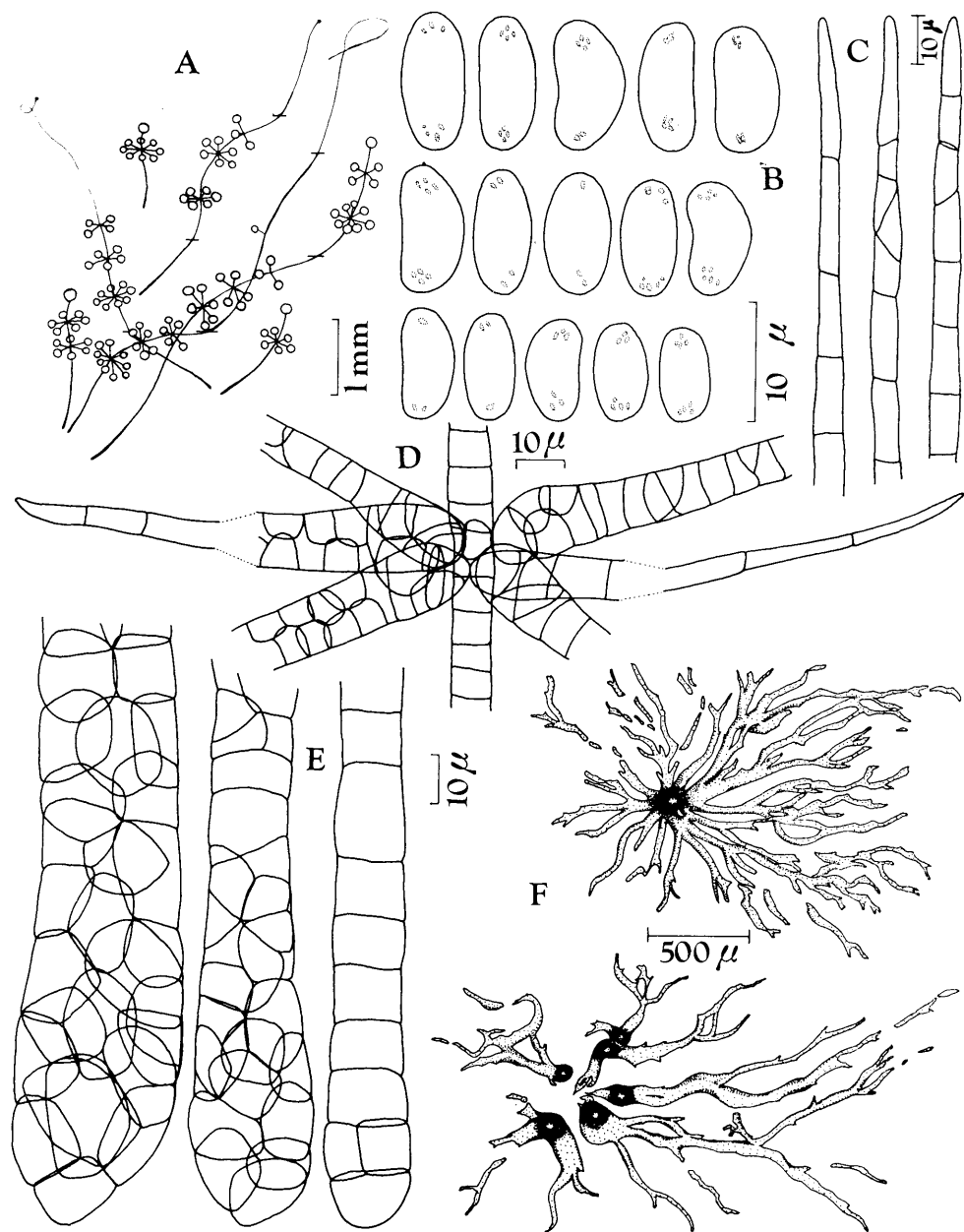


Fig. 1. *Polysphondylium candidum* HAGIWARA: A. Mature sorocarps; B. Spores; C. Tips of sorophores; D. Branching; E. Bases of sorophores; F. Pseudoplasmodia.

Sorocarps are robust in appearance, white, solitary or gregarious, and erect, inclined or prostrate. They are not phototropic. Whorls vary in number from 1 to 6 and the number of secondary stalks are from 1 to 11 in a whorl. Branching is orderly better than that of *P. pallidum* examined by the author. Primary and secondary stalks are clavate at the bases and are generally pointed at the tips as those of *P. pallidum*. Primary stalks are more or less sinuous and mostly 0.35~8.25 mm long, fluctuating between 0.3~14.3 mm depending upon such conditions as rising immediately or as rising after prostrating on the agar plates and upon the density of aggregated cells. Their bases are 12~50 μm in width and tip cells are 3~5.5 μm . Secondary stalks are mostly 170~380 μm with a mean of 237 μm . Sori are globose and vary greatly in diameter depending upon the degree of dryness. Terminal sori are 40~155 μm in diameter and lateral sori are 30~115 μm .

Spores are oblong ellipsoid in shape. The size, which was measured by using materials mounted in distilled water, is 5.2~13.2 \times 2.8~7.4 μm with a mean of 9.5 \times 4.5 μm and mostly 7.8~11.6 \times 3.6~5.8 μm . The ratio of length to width is 1.2~3.0 and mostly 1.6~2.6. The size and the ratio of length to width of spores are shown in Table 1 in comparison with those of one strain (No. 44) of *P. pallidum*. Spores of *P. pallidum* (No. 44) are shown in Fig. 6.

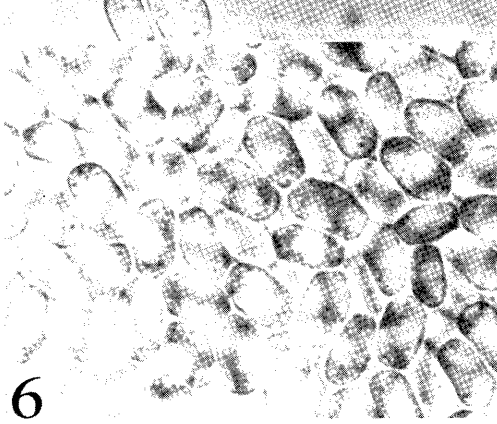
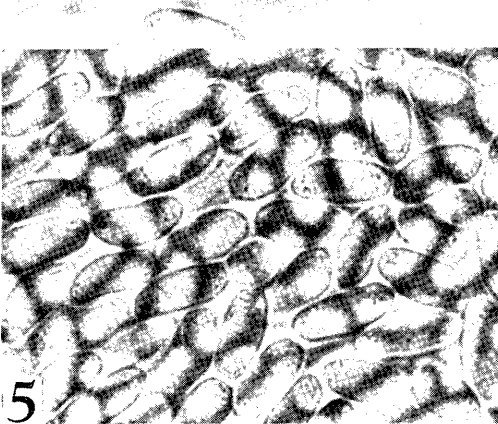
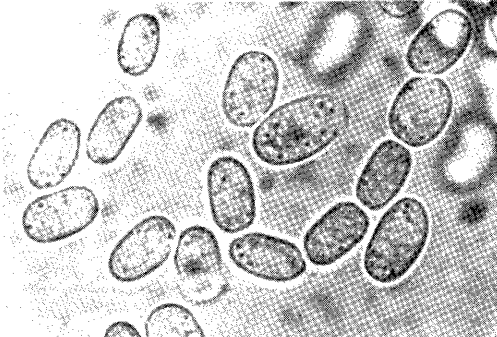
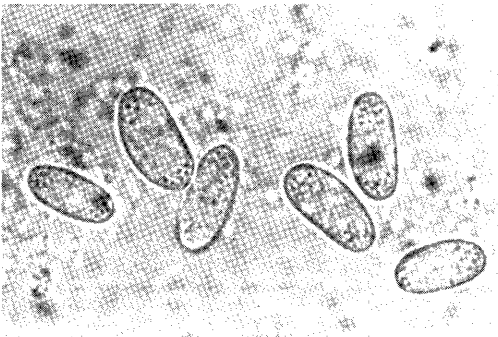
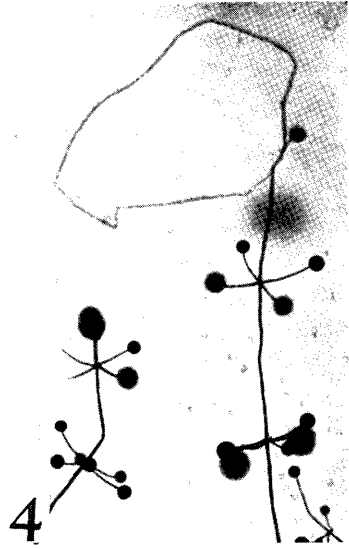
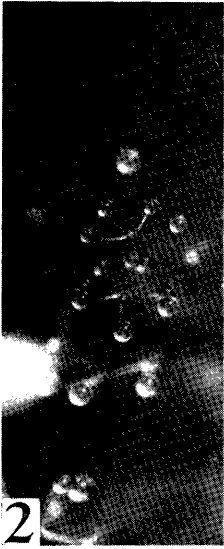
Up to the present three species belonging to the genus *Polysphondylium* have been described; viz. *Polysphondylium violaceum* BREFELD (1884), *P. pallidum* OLIVE (1901) and *P. album* OLIVE (1901). *P. violaceum* is clearly different from the present species in having purplish sorocarps in maturity. Another two species are closely related to the present

Table 1. Number of records in the range of the size and the length/width ratio of spores (*Polysphondylium candidum*)

Length in μm	Strain Nos.			cf. <i>P. pallidum</i> Strain No. 44	Length/Width	Strain Nos.			cf. <i>P. pallidum</i> Strain No. 44
	168	177	284			168	177	284	
5~6	1	1	0	46	1.2-1.4	0	1	4	2
6~7	0	2	2	175	1.4-1.6	5	1	9	36
7~8	20	11	10	76	1.6-1.8	25	19	30	123
8~9	111	98	56	2	1.8-2.0	82	65	60	108
9~10	113	121	115	1	2.0-2.2	102	78	62	26
10~11	47	58	83	0	2.2-2.4	68	86	71	5
11~12	7	9	28	0	2.4-2.6	17	41	47	0
12~13	1	0	5	0	2.6-2.8	1	8	15	0
13~14	0	0	1	0	2.8-3.0	0	1	2	0
	300	300	300	300		300	300	300	300

Table 2. Comparison of spore-size in *Polysphondylium pallidum*, *P. album* and *P. candidum*

Species Name	Observer	Spore-size	Mount Solution
<i>P. pallidum</i>	E.W. OLIVE (1902)	5~6.5 \times 2.5~3 μm	glycerin (?)
<i>P. album</i>	E.W. OLIVE (1902)	4~5.6 \times 2.5~3 μm	glycerin (?)
<i>P. pallidum</i>	H. HAGIWARA (1971)	mostly 5.8~8.0 \times 3.2~5.0 μm	distilled water
<i>P. candidum</i>	H. HAGIWARA (1972)	mostly 7.8~11.6 \times 3.6~5.8 μm	distilled water



species but are distinguishable by the size of spores as shown in Table 2.

The following notes on the author's observations will be worthy to add;

1. The present species produced neither "microcysts" nor "macrocysts".
2. It is an interesting phenomenon related to the differentiation of spores and stalks that in maturity some primary stalks bear terminal sori usually, others make themselves lengthened longer and eventually bear smaller sori at the tips, others fail to bear sori at the tips of the lengthened stalks (Figs. 1, A & 2~4). It seems to be affected by the culture conditions.
3. No strain of *Polysphondylium pallidum* was isolated from the same area where No. 284 was obtained, but only one strain of *P. pallidum* (No. 179) was isolated from the same area where No. 168 and No. 177 were obtained.

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References cited

1. HAGIWARA, H. (1971) The Acrasiales in Japan I. Bull. Natl. Sci. Mus. Tokyo **14**: 351~366.
2. OLIVE, E.W. (1901) A preliminary enumeration of the Sorophoreae. Proc. Am. Acad. Arts Sci. **37**: 333~344.
3. ——— (1902) Monograph of the Acrasieae. Proc. Boston Soc. Nat. Hist. **30**: 451~513, pl. 5~8.

和 文 摘 要

日本産 Acrasiales II

萩原博光

Polysphondylium 属の1種を新種と判定し, *Polysphondylium candidum* HAGIWARA の学名を与え, 記載した。本種は, 昭和46年10月に鳥取県大山において開催された日本菌学会採集会の際に採集したところの, 大山山頂附近のキャラボク自然林内の落葉層を含む土壌より分離された。同種はさらに, 翌年5月に採集したところの福岡県古処山山頂付近のツゲ自然林内の土壌からも得られた。

Polysphondylium candidum は, *P. pallidum* および *P. album* と同様に白色の子実体を形成するが, それらよりも大きい孢子を持つ点で明らかに区別できる。

Figs. 2~5. *Polysphondylium candidum* HAGIWARA.

Fig. 2. A mature sorocarp. ×35.

Fig. 3. A migrating pseudoplasmodium and three mature sorocarps. ×30.

Fig. 4. Two mature sorocarps; one is usual and another has the sorophore of which the terminal portion is lengthened. ×30.

Fig. 5. Spores. ×1,460.

Fig. 6. Spores of *Polysphondylium pallidum* OLIVE. ×1,460.