

The Mycoflora of Southern Kiusiu III*

Takashi Naito

3. *Ceriosporella Cycadis* sp. nov. (Fig. 1).

Maculis griseo-dealbatis, fusco-purpureo marginatis, paulatim magnam folii grosse partem obtegentibus; peritheciis epiphyllis, sparsis vel laxe confertis, subcutaneis, depressoglobosis, ostiolo papillatis, erumpentibus, atrofusis, membranaceo-carbonaceis, 200-300 μ diam.; ascis clavato-cylindraceis, apice rotundatis, octosporis, 65-75 \times 8-10 μ , paraphysibus distinctis filiformibus, continuis, 80-100 \times 1.5 μ ; sporidiis distichis, fusiformi-navicularibus, uniseptatis, constrictis, intracellularis grosse biguttulatis, hyalinis, utrinque adrupte minor setoso-appendiculatis, 15-17 \times 4.5-5 μ , hyalinis.

Hab. in foliis vivis *Cycadis revolutae* (Nom. Jap. Sotetsu), (Cycadaceae), Horto botanico, Kagoshima Agric. Coll., prov. Satsuma, Japonia austr., 21. Oct. 1939, leg. T. Naito.

On the leaflets of *Cycas revoluta* (Sotetsu). Causes large grayish white spots on both surfaces of the leaflets bordered by narrow dark purplish margin; perithecia scattered, blackish brown, covered by the epidermis which is raised and finally pierced, globoid or depressed globoid, ostiola papilliform, membranaceous or carbonaceous, 200-300 μ diam.; asci long clavate or cylindrical, rounded above, attenuate below, octosporous, 65-75 \times 8-10 μ , paraphyses filiform, 80-100 \times 1.5 μ , ascospores biseriata, fusiform or boat-shaped, hyaline, uniseptate, constricted, each cells 2-nucleate, with a small, hyaline, mucronate appendage at each end, 15-17 \times 4.5-5 μ . This fungus, although not so often, associated with *Ascochyta cycadina* and *Phyllosticta* sp.

This is the first report of *Ceriosporella* from Japan. Previously this genus has been reported from England, France and West India, including only several species.

4. *Caryospora austrokiusiana* sp. nov. (Fig. 2).

Peritheciis laxe sparsis, conicis, atris, semiinfossis vel superficialibus, crasse papillatis, carbonaceis, duris, ca. 400-500 μ diam., 300 μ lat., ostiolo 25-30 μ diam., ascis crasse clavatis vel elongato-ellipticis, leptodermis, brevissime et crasse stipitatis vel sessilis, semper octosporis, 135-165 \times 48-50 μ , paraphysibus filiformibus, continuis, 150-180 \times 1.5 μ ; sporidiis bi-tristichis, initio fusoido-elongatis, bilocularibus, loculis crasse uniguttatis, brunneis, dein biconicis, uniseptatis, raro versus apicem etiam septatis ideoque 2-3-septatis, granuloso-guttulatis, septo medio non vel leniter constrictis, atro-brunneis, 50-58 \times 28-35 μ .

Hab. in putamine putrescente *Cycadis revolutae* (Nom. Jap. Sotetsu), (Cycadaceae), Horto botanico, Kagoshima Agric. Coll., prov. Satsuma, Japonia austr., 25. Feb. 1939, leg. T. Naito.

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Perithecia loosely scattered, conical, adnate—superficial, carbonaceous, black, with distinct papilliform ostiolum, ca. 0.4–0.5 mm. diam., ostiole 25–30 μ diam.; asci clavate or oblong, subsessile or sessile, always octosporous, 135–165 \times 48–50 μ , paraphyses filiform 1-celled, 150–180 \times 1.5 μ ; ascospores at first elongate fusiform, brownish, 2-celled, then biconical, dark-brownish, containing one large granule in each cells, none or slightly constricted at the middle septum, rarely 1–2-septate at the ends, inasmuch occasionally 2–3-septate, 50–58 \times 28–35 μ . The two additional septa — one near each end of the spore — do not appear at first.

On old pits of *Cycas* lying on the ground. It is easily understood that this species is quite different from *Caryospora putaminum* on peach pits in various points.

5. *Gibberella Saubinetii* Sacc., Sacc. Syll. Fung. 11, p. 554, 1883; Ell. & Evh. N. Amer. Pyrenom. p. 120, 1892.

On dead floral axis of *Typha orientalis* (Nom. Jap. Ko-gama), Botanical Garden, Kagoshima Agric. Coll., prov. Satsuma, 30. Sept. 1939 (an ascus stage), leg. T. Naito. This is the new host of this fungus.

On this host the fungus shows: perithecia gregarious, confluent or cespitose, membranaceous, verrucose, ovoid or globose, papillate, purplish blue in color, 200–250 μ diam., asci clavate-lanceolate, attenuate at the base, subsessile or sessile, octosporous, 72–75 \times 14–15 μ , very thin walled; ascospores biseriata, at first sublunate, contenuous, then 3-septate, fusiform, straight or slightly curved, not constricted at the septa, 23–30 \times 5–6 μ , hyaline.

6. *Rosellinia necatrix* (Hart.) Berl., Sacc. Syll. Fung. XVII, p. 595. 1905.

On dead wood of *Photinia glabra* (Nom. Jap. Kanamemochi), (Rosaceae), Botanical Garden, Kagoshima Agric. Coll., prov. Satsuma, 26. Mar. 1948, leg. T. Naito. This is a new host plant of this fungus.

On this host the fungus shows: perithecia gregarious or crowded, depressed globose, erumpent, the lower part sunken in the wood, 1.5–1.8 mm., diam., almost covered at first, except the conic-papilliform, black ostiolum, with a tomentoseous coat of a dull reddish-purple or brick-color, but at length bare and black; asci cylindrical, long stipe, octosporous, 200–300 \times 7–8 μ ; paraphyses abundant, filiform, 250–350 \times 2 μ ; ascospores uniseriate, fusiform-cymbiform, contenuous, 42–52 \times 7–8 μ , dark brownish in color.

7. *Dothidea Sambuci* (Pers.) Fr., Fr. Sum. Veget. Scand. II, p. 386, 1849; Sacc. Syll. Fung. 11. p. 639, 1883; Ell. & Evh. N. Amer. Pyrenom. p. 611, 1892.

On dead twigs of *Citrus Aurantium*, var. *poonensis* (Nom. Jap. Ponkan), (Rutaceae), Botanical Garden, Kagoshima Agric. Coll., prov. Satsuma, 3. Oct. 1939, leg. T. Naito.

Stromata gregarious, frequently two or several standing together, mostly confluent, orbicular or elongated, erumpent, flat pulvinate, black, containing chambers—perithecia — arranged around the edge of stroma, nearly globose, 80–110 μ diam.; asci oblong

cylindrical, rounded above, attenuated below, octosporous, $55-66 \times 10-12 \mu$ (Original description $75-85 \times 12-15 \mu$), no paraphysate; ascospores biseriate or partly uniseriate, one celled and hyaline when immature, but finally become uniseptate and olive-brown in color, oblong subclavate, lower cell a little narrower, slightly constricted at the septum, $17-20 \times 8-9 \mu$ (original description $18 \times 7-8 \mu$). This species is new to Japan.

8. *Ascochyta cycadina* Scalia., Sacc. Syll. Fung. XVIII, p.350, 1906.

On the leaflets of *Cycas revoluta* (Nom. Jap. Sotetsu), Botanical Garden, Kagoshima Agric. Coll., prov. Satsuma, 27. Sept. & 21. Oct. 1939, leg. T. Naito.

Causes whitened spots, almost always with purplish margins. Pycnidia epiphyllous, black dot-like, loosely grouped, globose, $100-300 \mu$ diam., ostiole protruded roundish, $12-15 \mu$ diam., parenchymatous texture, dark olive colored; conidia oblong, cylindrical, obtuse at both ends, 2-celled, frequently basal cell subacuted, slightly constricted at septum, dilute citreous yellow, $7-12 \times 3-4 \mu$. This fungus is new to Japan.

9. *Septoria Scrophulariae* Peck., Sacc. Syll. Fung. III, p. 534, 1884.

On the living leaves of *Scrophularia Oldhami* (Nom. Jap. Gomanohagusa), (Scrophulariaceae), Botanical Garden, Kagoshima Agric. Coll., prov. Satsuma, 29. Sept. 1937, leg. T. Naito; 2. Jul. 1938, leg. T. Naito; 28. May 1943, leg. T. Naito.

Causes peculiar, subcircular, dark-purplish spots, which starts from the lower leaves of the host plant. The spots are gradually increasing in size to 5-8 mm. diam., later white or cinereous speck appears in the center with concentric zones, punctate with minute black dots, mostly appearing on the upper surface of the white specks. When two or more spots are formed close together they coalesce, becoming irregular large spots. The original diagnoses of this fungus were somewhat imperfectly given. The writer's observations are as follows.

Pycnidia simple, black, erumpent or subepidermal, globose, ca. $130-180 \mu$ diam., ostiole ca. 30μ diam.; conidia cylindrical, filiform, slightly curved, 3-septate, terminal cell subacute, basal one cylindrical, $30-50 \times 1.5-2 \mu$, hyaline.

This is surely identical with the fungus reported first in North America, as a new fungus parasitic on the leaves of *Scrophularia nodosa* (Nom. Jap. Oh-hinanousutsubo).

10. *Cercospora erigeronicola* sp. nov (Fig. 3).

Maculis versiformis, elongatis, demum confluentibus, supra brunneis vel sordide atrobunneis, infra candidibus, caespitulis hypophyllis, gregariis, candidis, saepe nervis circumscriptis, dein confluentibus, densioribus; conidiophoris fasciculatis, cylindratis, saepe flexis, sursum inaequaliter denticulatis, 1-septatis, $48-80 \times 5-5.5 \mu$, hyalinis; conidiis cylindratis-obclavatis, utrinque obtusulis vel apice leniter attenuatis, leniter curvulis, 2-5-septatis, minuteque guttulatis, non constrictis, $50-115 \times 5-5.5 \mu$, hyalinis.

Hab. in follis vivis *Erigerontis linifolii* (Nom. Jap. Arechinogiku), (Compositae), Uyearata, Kagoshima, prov. Satsuma, Japonia austr., 11. Jul. 1938, leg. T. Naito.

In many ways, this species is closely related to *Cercospora cana* (Pers.) Sacc. on *Erigeron canadensis* (Nom. Jap. Himemukashiyomogi) and *E. annuus* (Nom. Jap. Himejoon), but it differs in having much longer, septate conidiophores and more longer conidia.

11. *Cercospora Oxalidis* sp. nov. (Fig. 4).

Maculis solitariis amphigenis suborbicularibus, 5-15 mm. diam., superne atro-brunneis, inferne brunneo-griseis; caespitulis hypophyllis, erumpentibus, subhemisphaericis, 20-50 μ diam., conidiophoris minoribus, brevioribus, simplicibus, continuis, 5-7 \times 2 μ , hyalinis; conidiis acicularibus, vel filiformibus, sursum flagellatis, tenuis, leniter geniculatis, 1-7-septatis, non constrictis, 60-130 \times 1.5-2 μ , hyalinis.

Hab. in foliis vivis *Oxalidis violacea* (Nom. Jap. Murasaki-katabami), Horto botanico, Kagoshima Agric. Coll., Satsuma, Japonia austr., 15. Jul. 1938, leg. T. Naito; Ins. Amami-Oshima, Liukiu Archipelago, 5. Jan. 1939, leg. T. Naito; Ins. Miyako-jima, Liukiu Archipelago, 6. Jan. 1940, leg. T. Naito; Iso, prope Kagoshima, 28. Jun. 1941, leg. T. Naito; Uyearata, Kagoshima, 18. Jun. 1942, leg. T. Naito.

Causes dark brown spots of various shapes about 5-15 mm. in diam. The spots appear on both sides of the leaves, but on the under surface they are drab or grayish in color. This is due to the conidiophores and conidia scattered over the surface of the fertile area. It is of special interest because the fertile area is surrounded by a region which is at first somewhat translucent and then rotten. Later the fertile part marked out, and finally the whole of the involved area drops out, leaving a large hole. In moist or rainy conditions the rotting of leaf tissue seems to be more encouraged and the leaves die out entirely.

The host plant is one of the most injurious weeds of farm and garden in Southern Kiusiu. It is very reasonable to suppose that the occurrence of this disease is indirectly profitable to our gardening.

12. *Cercosporina Aleuritidis* (Miyake) Sacc., Miyake, Tokyo Bot. Mag. vol. 26, no. 303, 1912; Sacc. Syll. Fung. XXV. p. 902. 1931.

On *Aleurites Fordii* (Nom. Jap. Shina-aburagiri), (Euphorbiaceae), College Forest, Kagoshima Agric. Coll., prov. Satsuma, 27. May 1936, leg. T. Naito; 27. Oct. 1937, leg. T. Naito.

Nom. Jap. "Aburagiri no Kappan-byo" (Brown spot disease of *Aleurites*) nom. nov.

A great many young plants mostly 2-3-years old, were injured in the College Forest, which is located in the southern part of Kagoshima City. The disease, has been observed first in May on the leaves and in autumn also on the fruits. The spots appear on both sides of the leaves. On the upper surface these spots are usually along the nervures of

leaves, irregular polygonal chestnut-blackish brown, but on the under surface they are somewhat yellowish dark-brown. The spots on the seriously affected leaves become gradually confluent often forming large roundish or irregular blackish brown patches, 5–20 mm. in diam. and finally the diseased leaves turn yellow and fall to the ground. When the fruits are attacked the spots are orbicular, darkish brown or dark bordered with a brown periphery, and later develop gray mould from the center, which occasionally appears in concentric zones. Inasmuch no sound seeds are produced from the diseased fruits.

In 1912 I. Miyake described a new fungus parasitic on *Aleurites cordata*, which had been collected at Sangteh, Hunan in China, under the name of *Cercospora Aleuritidis* Miyake. Later the name was changed by Saccardo in 1931 to *Cercosporina Aleuritidis* (Miyake) Sacc., owing to its colorless conidia.

In 1937 the writer and H. Yamamoto researched carefully about the causal fungus on the host plant, *Aleurites Fordii*, which cultivated in the College Forest.

Comparison of the measurements of the causal fungus observed in China and Japan.

	Size of conidiophores	Number of conidiophores in a bundle	Number of septa
Miyake (China)	20–40 × 4	4–5	2–3
Naito & Yamamoto (Japan)	10–76 × 4–5 (mostly 20–50 × 4–5)	8–16	2–3
	Size of conidia	Number of septa	
Miyake (China)	40–90 × 4–5	4–8	
Naito & Yamamoto (Japan)	20–220 × 3.5–5 (mostly 30–120 × 4–5)	1–16 (mostly 3–9)	

It is probable that the causal fungi in question occurring in China and Japan are the same species. Although, the writer has no chance to examine about the species of China, he came to conclusion that they belong to the same species. According to the various factors, especially those of environmental conditions, the measurements of the fungus will be more or less different; so small such a differentiation may always be little value in distinguishing the species, as commonly recognized. Still more, it is also popularly known that the host plant *Aleurites* is not the native of Japan, but introduced from China in late of Yedo-period, owing to its economical values. Possibly the host plant in China is also the same species *Aleurites Fordii* as in Japan.

At present, the disease is not so widely distributed and the injury not very serious; so it is desirable to eradicate it before it spreads to other localities.

13. *Cercospora Asteris* sp. nov. (Fig. 5).

Maculis amphigenis, irregularibus, orbicularibus vel confluentibus, ca. 5–10 mm. diam., superne brunneis, inferne brunneo-griseis vel sordide griseis; caespitulis hypophyllis, erumpentibus, densiuscule effusis, subhemisphaericis, ca. 20 mm. diam., conidiophoris minoribus, simplicibus, continuis vel 1-septatis, curvulis, dilute olivaceis, $10-30 \times 3 \mu$, conidiis obclavato-cylindraco-filiformibus, tenuis, obtusis vel apice leniter attenuatis, rectis vel leniter flexuosis vel paulo undulatis, dilutissime olivaceis, 3–10-septatis, non constrictis, intracellularis biguttulatis, minuteque granulosis, $50-120 \times 3 \mu$.

Hab. in foliis vivis *Asteris leiophylli* (Nom. Jap. Yamashirogiku), (Compositae), Toso, Kagoshima, prov. Satsuma, Japonia austr., 20. Nov. 1937, leg. T. Naito.

As there appears to be no other similar *Cercospora* on *Aster* so far described, this species is here given as new.

14. *Cercospora kirishimensis* sp. nov. (Fig. 6).

Maculis solitariis, amphigenis, orbicularibus vel irregularibus, supra atro-brunneis, infra olivaceo-brunneis, 5–10 mm. latis, caespitulis pierumque hypophyllis, laxe dispersis, conidiophoris minoribus, simplicibus, apicem versus breviter denticulatis, continuis vel 1–2-septatis, pallide olivaceis, $20-40 \times 2.5-3 \mu$, conidiis obclavato-acicularibus vel cylindraco-linearibus, 3–5-septatis, rectis vel parum curvatis, ad basim rotundatis, sursum attenuatis, $80-115 \times 2.5-3 \mu$, dilutissime olivaceis.

Hab. in foliis vivis *Perillulae reptans* (Nom. Jap. Suzukoju), (Labiatae), Monte Kirishima, in umbrosis silvaticis, ca. 1200m. alt., prov. Osumi, Japonia austr., 31. Oct. 1937, leg. T. Naito; 24. Sept. 1939, leg. T. Naito; 14. Oct. 1940, leg. T. Naito. This species is different from *C. Perillae* in various points.

15. *Cercospora Phrymae* sp. nov. (Fig. 7).

Maculis amphigenis, internerviis, irregularibus vel subrotundatis, saepe confluentibus, fusco-brunneis, inferne livaceo-fuscis, ca. 5–8 mm. latis; caespitulis hypophyllis, erumpentibus, paulo densiuscule effusis, conidiophoris plerumque bina vel complura e stomatibus emergentibus, dilute brunneis, 1–3-septatis, noduloso contortis, $15-40 \times 3-3.5 \mu$; conidiis obclavato-cylindracois, rectis vel curvulis, 2–5-septatis, raro 7–8-septatis, supra subatenuatis, non constrictis, $25-85 \times 2.5-3 \mu$, dilutissime brunneis.

Hab. in foliis vivis *Phrymae longifoliae* (Nom. Jap. Nagaba-haedokuso), Horto botanico, Kagoshima Agric. Coll., prov. Satsuma, Japonia austr., 9. Sept. 1944, leg. T. Naito.

The writer understands that this species is racially related to *Cercosporella exilis*, occurring on *Phryma leptostacya* (Nom. Jap. Haedokuso) in North America.

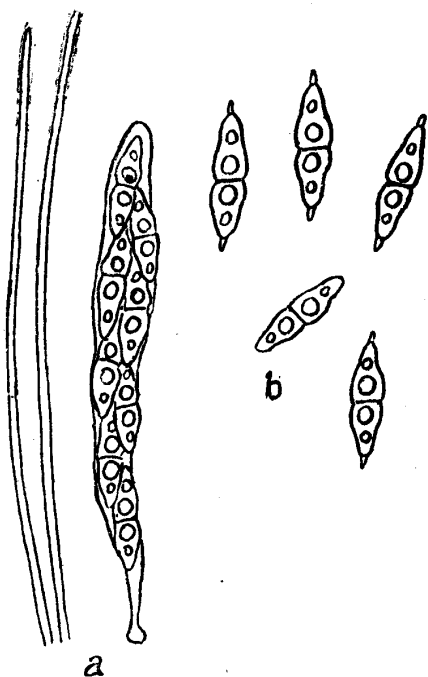


Fig. 1. *Ceriosporella Cycadis* sp. nov.
a. Ascus and paraphyses.
b. Ascospores.

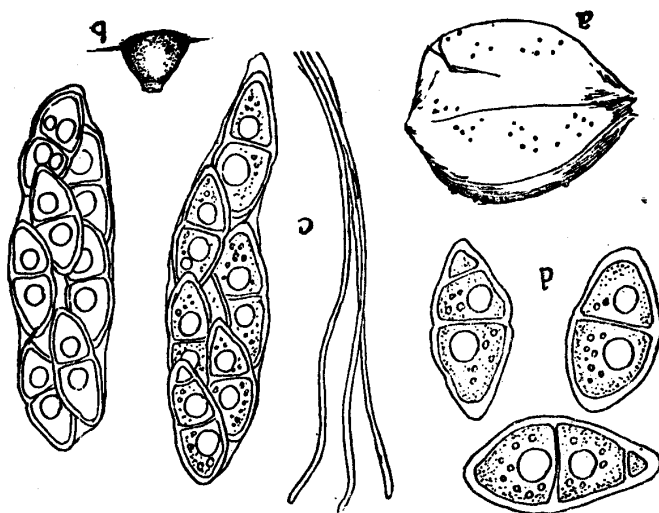


Fig. 2. *Caryospora austrokiusiana* sp. nov.
a. Perithecia on *Cycas* pits (nat. size).
b. Perithecium enlarged.
c. Asci and paraphyses.
d. Ascospores.

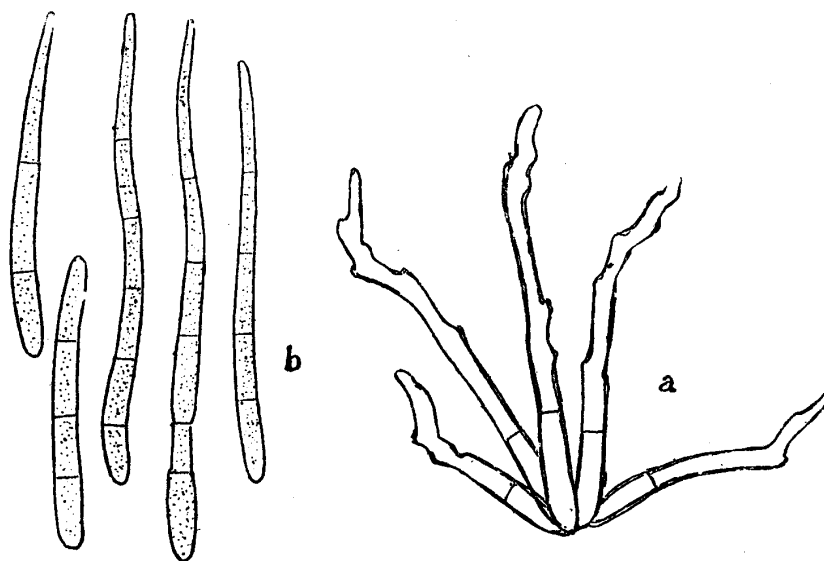


Fig. 3. *Cercospora erigeronicola* sp. nov.
a. Conidiophores.
b. Conidia.

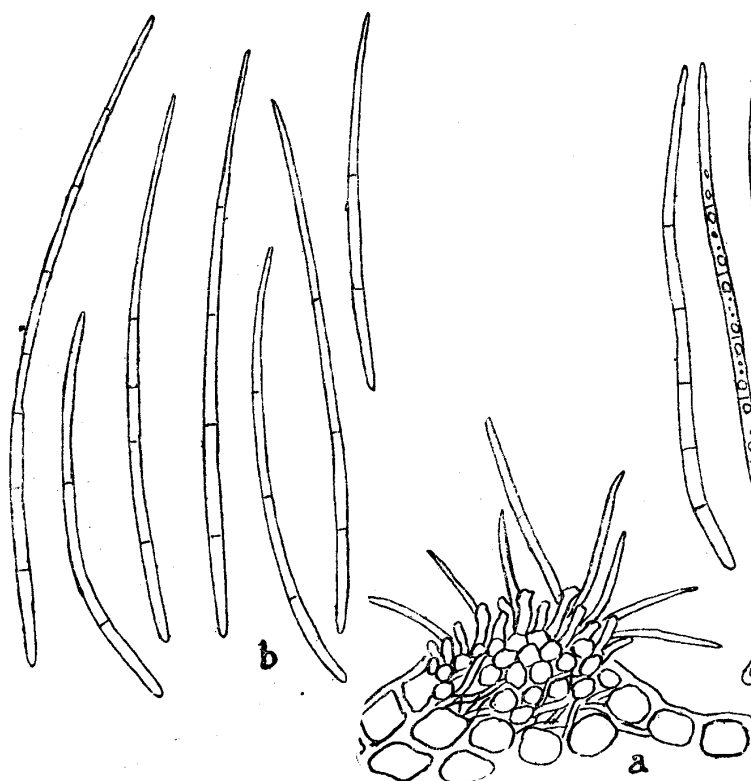


Fig. 4. *Cercospora Oxalidis* sp. nov.
a. Conidiophores and young conidia.
b. Conidia.

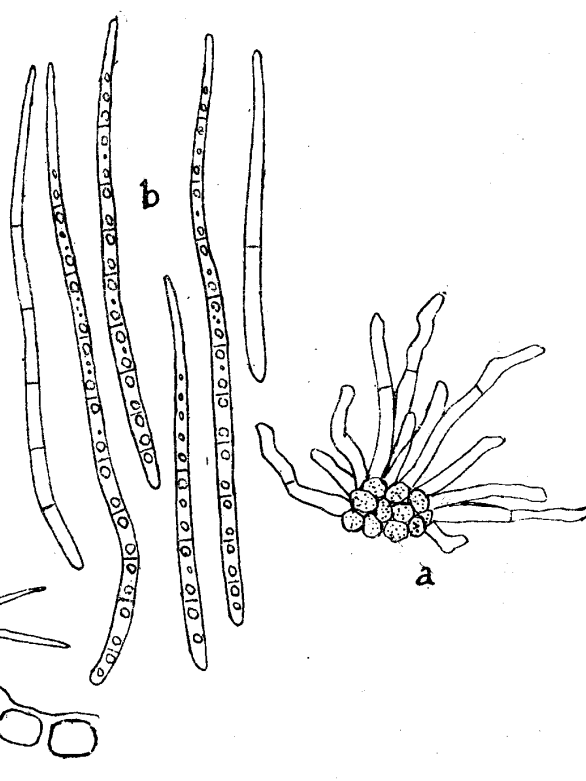


Fig. 5. *Cercospora Asteris* sp. nov.
a. Conidiophores.
b. Conidia.

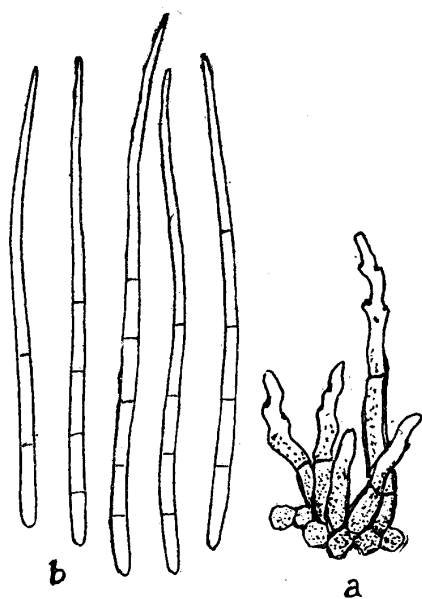


Fig. 6. *Cercospora kirishimensis* sp. nov.
a. Conidiophores.
b. Conidia.

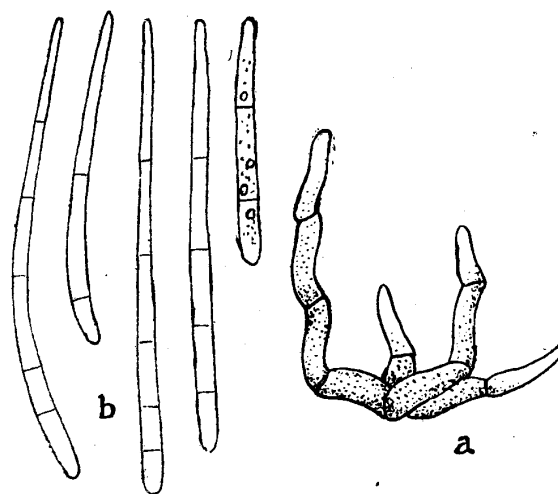


Fig. 7. *Cercospora Phrymae* sp. nov.
a. Conidiophores.
b. Conidia.