

Notes on some plant inhabiting fungi collected at Hahajima, Bonin Islands

by

Takao KOBAYASHI* and Takashi OKAMOTO**

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Summary : Twenty eight diseased plant materials on 18 plant species belonging to 16 families were collected at Hahajima Island, Bonin Islands, Japan on August 21 of 1998 and March 6 of 2000. As the causal agent of these diseases, 24 fungi were identified. Among them 5 were described as new species. They are *Ascochyta miscanthi* Tak. KOBAYASHI (TK) et T. OKAMOTO (TO) on *Miscanthus sinensis* var. *condensatus*, *Cercospora japonica* NAKASHIMA, TK et TO on *Commelina bengalensis*, *Microsphaeropsis boninensis* TK et TO on *Dracaena draco*, *Mycosphaerella tarennicola* TK et TO on *Tarenna subsessilis* and *Phyllosticta boninenses* TK et TO on *Paederia scandens*. Besides these, 7 fungi, such as *Ascochyta papiricola* TASSI on *Cyperus alaternifolius*, *A. vitalvae* BR. et HARIOT on *Clematis terniflora* var. *boninensis*, *Fusicoccum vagans* (SPEG.) Tak. KOBAY. et T. OKAMOTO on *Monstera deliciosa*, *Pestalotiopsis toxica* (ELLIS et EVERH.) SUN et GE on *Psidium guajava* and on *Terminalia catappa*, *Phomopsis mangiferae* AHMAD on *Mangifera indica*, *Phomopsis papayae* FRAGOSO et CIFERRI on *Carica papaya*, *Phyllosticta anacardiacearum* AA on *Mangifera indica*, were newly added to the Japanese fungous flora. Moreover, 7 fungi were added to the Bonin mycoflora. They are *Coleosporium eupaderiae* L. GUO, *Colletotrichum capsici* (SYDOW) BUTLER et BISBY, *Fusicoccum aesculi* CORDA, *Pestalotiopsis adusta* (ELLIS et EVERH.) STEYAERT, *Pseudocercospora paederiicola* NAKASHIMA et Tak. KOBAY., *Pseudocercospora oxalidis* (GOH et HSIEH) BRAUN and *Septoria pastinacina* SACC.

Key Words : Plant inhabiting fungi, Hahajima, Bonin Islands, new species, mycoflora

1. Introduction

The junior author stayed twice at Hahajima, Bonin Islands (Fig. 1), in August 1998 and in March 2000. During this period he collected 28 diseased plant materials belonging to 16 families and brought them to the Laboratory of Tropical Plant Protection, Tokyo University of Agriculture (TUA). He prepared the slide specimens and dried plant specimens of these diseased materials, for identification of the causal fungi by the senior author. From Bonin Islands, about 150 plant inhabited fungi have been recorded mainly by HARADA (1979)¹⁾, HARADA and KATUMOTO (1981)²⁾, KATUMOTO and HARADA (1979)³⁾, SATO *et al.* (1991)⁴⁾. In this study, 24 fungi were identified from 18 plant species. Among them, 20 fungi including 5 new species will be added to the mycoflora of Bonin Islands. These results may

contribute to our ability to discuss and compare the total geographic flora of plant inhabited fungi in the subtropical islands of Japan.

2. Materials and methods

(1) Locality and date of collection

Hahajima is one of the 2 main islands of Bonin Islands and locates about 1,000 km south from Tokyo, Lat. 26° 80' N, and Long. 142° 10' E. (Fig. 1). It is 21 km² and Mt. Chibusa standing 463 m above the sea level as the highest mountain in Bonin Islands.

Collection of the diseased plant materials was carried out on August 21st, 1998 and on March 6th, 2000 by the junior author.

(2) Mycological study

Diseased plant materials were photographed, then

* Department of International Agricultural Development, Faculty of International Agriculture and Food Studies, Tokyo University of Agriculture

** Department of International Agricultural Development, Faculty of Agriculture, Tokyo University of Agriculture (Present address : Higashi-muro Region Agricultural Improvement and Extension Center, Wakayama Prefecture)

inserted between old newspapers, and pressed for a week. Each diseased material was hand-sectioned, mounted with Shear's mounting fluid on a glass slide, and then sealed with hyaline manicure liquid. Measurement, sketch and photograph of fruit-bodies in these slide specimens were taken under the optical microscope.

3. Results and enumeration of the fungi identified, with some notes

As a result of this study, 24 fungi causing 28 plant diseases on 19 plant species belonging to 16 families were identified. As shown in Table 1, 12 fungi including 5 new species were newly added to Japanese mycoflora. Type specimens of newly described species have been preserved in Mycology and Forest Pathology Herbarium (TFM:FPH) of Forestry and Forest Products Research Institute (FFPRI), Matsunosato, Tsukuba, Ibaraki Prefecture. The other specimens have been preserved in Laboratory of Tropical Plant Protection, TUA.

(1) *Ascochyta miscanthi* Tak. KOBAYASHI et T. OKAMOTO, sp. nov. Fig. 2, a and b; Plate 1: a

Maculis in foliis vivis, brunneis vel coccineo-brunneis, fusoides, in longitudinem 5–10 mm longis,

dein amplificatum; pycnidiis immersis, dein erumpentibus, brunneis vel atro-brunneis, globularibus, 125–135 μm diam., 115–120 μm altis; conidiis hyalinis, bicellularibus, fusoides, 7–8.5 \times 2.5–3.5 μm .

Leaf spots are brown to reddish brown, fusiform, 5–10 mm at major axis, then enlarged and coalesced forming large long blighted lesions. Pycnidia immerse at first, then erumpent breaking through the epiderm, globular, brown to dark brown, 125–135 μm in diam. and 115–120 μm in height. Conidiogeous cells line as innermost hyaline layer of pycnidial wall, and are ampulliform. Conidia are hyaline, 2-celled with a median septum, fusoid, 7–8.5 \times 2.5–3.5 μm in size.

Holotype: on dried leaves of *Miscanthus sinensis* var. *condensatus* (HACK.) MAKINO (Japanese name: Hachijo-susuki), March 6, 2000, by T. OKAMOTO (TO) (TFM:FPH-7612).

Disease name: Violet eye spot (Murasaki-ganhan-byo in Japanese).

Note: No species of *Ascochyta* has been found on *Miscanthus*. Recently, *Ascochyta* sp. has been isolated from the living leaves of *Miscanthus sinensis* as a symbiotic fungus (GOHBARA *et al.*, 2002)⁵. However, no mycological detail of this fungus was described. Therefore, the present fungus is treated as a new species.

(2) *Ascochyta papyricola* TASSI

Fig. 2, b and c; Plate 1, b

Leaf spots are pale brown to grayish brown and eye-like fusiform, becoming enlarged and coalesced forming large leaf blight in age. Small black dots, which are the upper part of pycnidia of the causal fungus, are densely produced as irregular patches on the blighted lesions. Pycnidia immerse at first within leaf tissue, then erumpent breaking through the epiderm, subglobose, 86–120 μm in diam. and 96–110 μm in height, with brown to dark brown wall which is composed of textura porrecta and 7–12 μm thick. Conidiogeous cells are formed on innermost layer of the pycnidial wall, hyaline, subglobose to ampulliform. Conidia are 2-celled with median septum, hyaline, fusoid, often inaequilateral, 7–11 \times 2–3.5 μm in size.

Host: *Cyperus alternifolius* L. (Japanese name: Shurogayatsuri), February 28, 2000, by TO.

Disease name: Gray leaf blight (Haiiro-hagare-byo in Japanese).

Note: This is the first record of *Ascochyta papyricola* TASSI from Japan. On *Cyperus* plants, 4 species of *Ascochyta* have been known. Among them, *Ascochyta cypericola* R.K. UPADHYAY *et al.* (1991)⁶ and *A. cyperiphthora* POMELLA et BARRETO (1997)⁷ are distinctly different from the present fungus by their larger size of 2 to

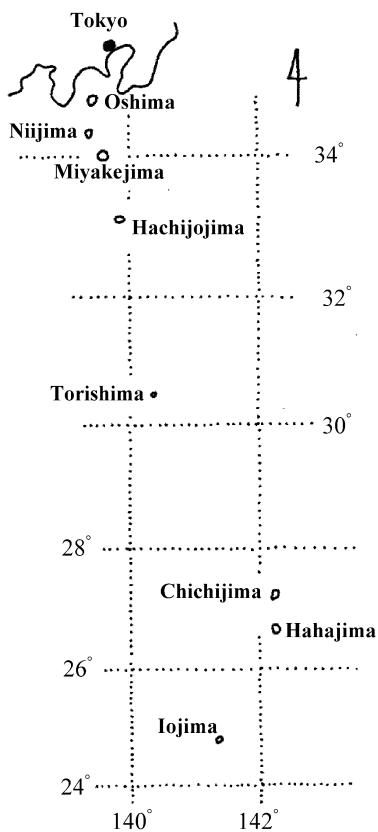


Fig. 1 Location of Hahajima, Bonin Islands

Table 1 List of plant diseases and their causal fungi collected in Hahajima, Bonin Islands

Host plant			Disease name	Fungus species
Family	Species	Japanese name		
Agavaceae	<i>Dracena draco</i>	Ryuketsuju	Red blight	<i>Microsphaeropsis boninensis</i> *
Anacardiaceae	<i>Mangifera indica</i>	Mango	Brown leaf spot	<i>Phyllosticta anacardiacearum</i> **
"	"	"	Gray leaf blight	<i>Phomopsis mangiferae</i> **
Araceae	<i>Monstera deliciosa</i>	Horaiho	Gray leaf blight	<i>Fusicoccum vagans</i> **
Caricaceae	<i>Carica papaya</i>	Papaya	Phomopsis leaf blight	<i>Phomopsis papayae</i> **
Combretaceae	<i>Terminalia catappa</i>	Momotamana	Pestalotia disease	<i>Pestalotiopsis toxica</i> **
Commelinaceae	<i>Commelina bengalensis</i>	Maruba-tsuyukusa	Cercospora leaf spot	<i>Cercospora japonica</i> *
Cucurbitaceae	<i>Cucumis sativus</i>	Kyuri	Brown leaf blight	<i>Fusicoccum aesculi</i> ***
Cyperaceae	<i>Cyperus alternifolius</i>	Shurogayatsuri	Gray leaf blight	<i>Ascochyta papyricola</i> **
Gramineae	<i>Eccoilopus cotulifer</i>	Abura-susuki	Rust	<i>Puccinia miyoshiana</i>
"	<i>Miscanthus sinensis</i>	Hachijo-susuki	Violet eye spot	<i>Ascochyta miscanthi</i> *
"	var. <i>condensatus</i>			
"	<i>Pleioblastus simonii</i>	Medake	Leaf blight	<i>Phoma</i> sp.
Guttiferae	<i>Calophyllum inophyllum</i>	Terihaboku	Phomopsis leaf blight	<i>Phomopsis</i> sp.
Musaceae	<i>Musa cavendishii</i>	Sanjaku-banana	Sigatoka disease	<i>Mycosphaerella musicola</i>
Myrtaceae	<i>Psidium guajava</i>	Banjiro(Guaba)	Anthracnose	<i>Colletotrichum gloeosporioides</i>
"	"	"	Pestalotia disease	<i>Pestalotiopsis toxica</i> **
Oxalidaceae	<i>Oxalis corymbosa</i>	Murasaki-katabami	Brown spot	<i>Pseudocercospora oxalidis</i> ***
Passifloraceae	<i>Passiflora edulis</i>	Kudamono-tokeiso	Anthracnose	<i>Colletotrichum capsici</i> ***
"	"	"	"	<i>Colletotrichum gloeosporioides</i>
"	"	"	Circular spot	<i>Septoria pastinacina</i> ***
Ranunculaceae	<i>Clematis terniflora</i>	Munin-sen'ninso	Brown spot	<i>Ascochyta vitalbae</i> **
"	var. <i>boninensis</i>			
Rubiaceae	<i>Paederia scandens</i>	Hekuso-kazura	Rust	<i>Coleosporium eupaderiae</i> ***
"	"	"	Anthracnose	<i>Colletotrichum gloeosporioides</i>
"	"	"	Pestalotia disease	<i>Pestalotiopsis adusta</i> ***
"	"	"	Phomopsis leaf blight	<i>Phomopsis</i> sp.
"	"	"	Grayish brown spot	<i>Phyllosticta boninense</i> *
"	"	"	Angular spot	<i>Pseudocercospora paedericola</i> ***
"	<i>Tarenna gracilipes</i>	Sima-gyokushinka	Brown spot	<i>Mycosphaerella tarennicola</i> *

* New species, ** New record from Japan, *** New record from Bonin Islands.

3-celled conidia (7.5–22×4–6µm and 10–15.5µm, respectively). On the other hand, *Ascochyta papyricola* TASSI (in SACCARDO, 1902⁸); PUNITHALINGAM, 1988⁹) and *A. cyperi-ochracei* PUNITHALINGAM (1988)⁹ have quite similar sizes of 2-celled conidia (7–11×2.5–3µm and 7–10×2–3µm) to the present fungus. Distinguishing point between these two species is indistinct even if the authors referred to the notes by PUNITHALINGAM. Therefore, the present fungus was identified as *Ascochyta papyricola* TASSI, the species older than *A. cyperi-ochracei* PUNITH., by its identical characteristics described above. It has been recorded from Italy (PUNITHALINGAM, 1988⁹); SACCARDO, 1902⁸) and Cuba (URTIAGA, 1986)¹⁰. *Cyperus alternifolius* is a new host for this species.

(3) *Ascochyta vitalbae* BR. et HARIOT

Fig. 2, e and f; Plate 1, c

Leaf spots are pale brown to grayish brown, sub-circular to irregular, 5–10 mm in diam. Pycnidia immerse at first, then erumpent breaking through the epiderm, globular, brown to dark brown, 95–120µm in diam. and 83–120µm in height. Conidiogeous cells line as innermost hyaline layer of pycnidial wall, and are ampulliform. Conidia are hyaline, 2-celled with a median septum, elliptic to boat-shaped, 9.5–14.5×2.4–4.3µm in size.

Specimen examined : *Clematis terniflora* var. *bonin-*

ensis (HAYATA) TAMURA (Japanese name : Munin-sen'ninso), March 10, 2000, by TO.

Disease name : Brown spot (Kappan-byo in Japanese)

Note : This is the first record of *Ascochyta vitalbae* BR. et HARIOT from the outside of type locality, France. On *Clematis* plants, 7 species of *Ascochyta* have been known, namely *A. aquilegiae* (ROUM. et PAT.) SACCARDO (BUCHANAN, 1987)¹¹, *A. clematidina* THÜMEN (in SACCARDO, 1884¹²), *A. davidiana* KÁBAT et BUBÁK (in SACCARDO, 1906¹³), *A. dolomitica* KÁBAT et BUBÁK (in SANDU-VILLE *et al.*, 1970¹⁴), *A. indusiata* BRES. (in SACCARDO, 1899¹⁵), *A. vitalbae* BR. et HAR. (in SACCARDO, 1892¹⁶), *A. vitalbicola* MAIRE (1937)¹⁷. The present fungus was identified as *A. vitalbae* recorded from Europe, based upon its accordance with the morphological characteristics of the latter. *Clematis terniflora* var. *boninensis* is a new host for this species.

(4) *Cercospora japonica* NAKASHIMA, Tak. KOBAYASHI et T. OKAMOTO, sp. nov.

Fig. 2, g and h; Plate 1, d

Maculis in foliis vivis, brunneis vel griseo-brunneis, suborbicularibus, 3–5 mm diam, saepe confluentibus; stromatibus praecipue hypophyllis, primo intraepidermalibus, dein erumpentibus, pseudoparenchymaticis, brunneis vel olivaceis, 32–60µm diam; conidiophoris fasciculatis, erectis vel sigmoideis, brunneis, 0–2-septatis, 36–112×4–6µm, cicatricis incrassatis; con-

idiis singularibus, interdum 1-2-catenulatis, cylindricis, sursum attenuatis, basi truncatis etiam hilo distinctis, pallide brunneis vel pallide olivaceis, 2-15-septatis, $36-166 \times 2-4.5 \mu\text{m}$, laevibus.

Leaf spot are rounded, brown to grayish brown, 3-5 mm in diam. Stroma are mainly hypophyllous, olive brown, $32-60 \mu\text{m}$ in diam. Conidiophores are simple, straight or sigmoid, brown, 0-2-septated, $36-112 \times 4-6 \mu\text{m}$, with thick or ring-like scars releasing conidia. Conidia are single or often chained 2 or 3, cylindric, at first hyaline with distinct scars at both ends, at maturity pale brown to pale olive, truncate with thick or ring-like scar at the basal end and tapering to the tip without scar, $36-166 \times 2-4.5 \mu\text{m}$, mostly $50-90 \times 2.5-4.5 \mu\text{m}$ in size, 2-15-septated, smooth.

Holotype : *Commelina bengalensis* (Japanese name : Maruba-tsuyukusa), March 6, 2000, by TO (TFM : FPH-7613).

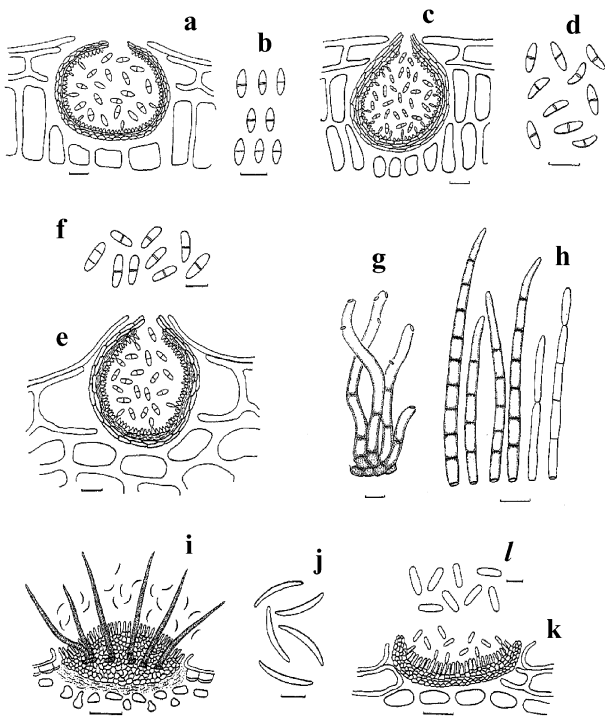


Fig. 2 a and b : *Ascochyta miscanthi* (a : Pycnidium, b : Conidia); c and d : *Ascochyta papyricola* (c : Pycnidium, d : Conidia); e and f : *Ascochyta vitalbae* (e : Pycnidium, f : Conidia); g and h : *Cercospora japonica* (g : A part of stroma and conidiophores, h : Conidia with thick scar); i and j : *Colletotrichum capsici* (i : Acervulus with setae, j : Conidia); k and l : *Colletotrichum gloeosporioides* (k : Acervulus and conidia, l : Conidia). (Scale bars : i and k = $50 \mu\text{m}$; c and e = $20 \mu\text{m}$; a, b, d, f~h, j and l = $10 \mu\text{m}$).

Additional specimens : *Commelina communis* L. (Japanese name : Tsuyukusa) - Momozono, Nishino-omote, Tanegashima Is., Kagoshima Pref., Oct. 19, 1997, by T. KOBAYASHI and C. NAKASHIMA ; Kasari-cho, Oshima-gun, Amami-Oshima Is., Kagoshima Pref., Oct. 20, 1997, by E. IMAIZUMI (EI) and C. NOMI (CNo) ; Sumiyo-son, Oshima-gun, Amami-Oshima Is., Kagoshima Pref., Oct. 21, 1997, by EI & CNo.

Disease name : Cercospora leaf spot (Hanten-byo in Japanese).

Note : Six species of *Cercospora* have hitherto been described on *Commelina* plants (POLLACK, 1987¹⁸). Among them *C. commelinae* (*commelynae*) KALCHBR. et COOKE was excluded from the genus *Cercospora*. According to CHUPP (1953)¹⁹, it does not belong to *Cercospora* but belongs to *Septoria*. *Cercospora maracasensis* R.E.D. BAKER et W.T. DALE (1951²⁰, CHUPP, 1953¹⁹) was transferred to the genus *Pseudocercospora* as *P. maracasensis* (BAKER et DALE) DEIGHTON (1976²¹). The other 4 species, *Cercospora commelinicola* CHUPP ex BRAUN (CHUPP, 1953¹⁹; BRAUN 1995²²), *C. nudiflorae* CHUPP (1953)¹⁹, *C. benghalensis* CHIDARWAR (1959)²³ and *C. commelinae-salicifoliae* A.K. KAR et M. MANDEL (1974)²⁴, have distinct conidial scars on their conidiophores, and seem to belong to the genus *Cercospora* sensu stricto. However, the present fungus apparently differs from these 4 *Cercospora* species in its mainly hypophyllous fruitings, sizes of conidiophores and conidia, colored conidia at mature stage, and sometimes chained 2-3-conidia. Recently, KATSUKI's specimens of *C. commelinicola* (KATSUKI, 1965)²⁵ were re-examined by NAKASHIMA (unpublished data) and he confirmed that these are not *C. commelinicola* CHUPP, but accordant with Hahajima fungus in their morphological characteristics. Therefore, it is treated as a new species of *Cercospora*, namely *C. japonica* NAKASHIMA, Tak. KOBAYASHI et T. OKAMOTO, sp. nov.

(5) *Coleosporium eupaederiae* L. GUO

Fig. 3, a and b ; Plate 1, e

Synonym : *Coleosporium paederiae* DIETEL 1909, an anamorphic Uredinales.

Coleosporium paederiae DIETEL ex HIRATSUKA, nom. illegit., non DIETEL 1909.

Uredinia are hypophyllous, immersed at first, then erumpent breaking through epiderm, powdery and yellowish in mass. Urediniospores are elliptic to broad ellipsoid, with somewhat truncate base, pale yellowish to yellowish, $21.5-26.5 \times 14.5-19 \mu\text{m}$, ornamented with dense warts.

Specimen examined : *Paederia scandens* (LOUR.) MERRILL (Japanese name : Hekuso-kazura), March 10,

2000, by TO.

Disease name : Rust (Sabi-byo in Japanese).

Note : Although no telial state has been observed, morphological characteristics of uredinial sori and urediniospore of this fungus accorded well with those of *Coleosporium eupaderiae* L. GUO (1989)²⁶⁾ and *Coleosporium paederiae* sensu HIRATSUKA (HIRATSUKA *et al.* 1992)²⁷⁾. This fungus lived in uredinial stage only in Hahajima throughout the year. It is newly added to Bonin mycoflora.

(6) *Colletotrichum capsici* (SYDOW) E.J. BUTLER *et* BISBY

Fig. 2, i and j ; Plate 1, g

Small spots densely appeared on leaves and petioles. Acervuli break through cuticle and epiderm cells, 100–250 μm in diam. with many setae, which have 73–137 \times 6.8–7.5 μm in size and brown color. Conidiophores are cylindrical, hyaline, 10–15 \times 2.5–3 μm . Conidia are hyaline but creamy in masses, unicellular, falcate (strongly curved), acute at the tip, 22–30 \times 2.5–3 μm .

Specimen examined : *Passiflora edulis* SIMS (Japanese name : Kudamono-tokeiso or Passhion furutsu), August 21, 1998, by TO.

Disease name : Anthracnose (Tanso-byo in Japanese).

Note : In Japan this is the first record of the present species on Passion fruits and from Bonin Islands. As noted by SUTTON (1992)²⁸⁾, it is difficult to differentiate between two anthracnose fungi, *Colletotrichum capsici* and *C. dematium* (PERSOON : FRIES) GROVE. However, recent study using molecular biology could clearly differentiated these two fungus groups, though the *dematium*-group was divided into two separate groups (MOTOHASHI *et al.*, 2003)²⁹⁾. Monoconidial isolate of the present fungus was included in the *capsici*-group together with many Japanese isolates originated from various plants (MOTOHASHI *et al.*, 2003)²⁹⁾.

(7) *Colletotrichum gloeosporioides* (Penz.) Penz. *et* Sacc. sensu lato

Fig. 2, k and l ; Plate 1, f and g

Paederia scandens : Roundish zonate spots which are grayish brown with brown border, 3–10 mm in diam. Acervuli are 100–135 μm in diam. with a few setae having 50 \times 2.5 μm in size. Conidia are cylindrical with rounded ends, hyaline but salmon pink in masses, unicellular, 12.5–15 \times 3–4.5 μm in size.

Passiflora edulis : Spots are similar to those of the previous species, but are not formed on petioles. Acervuli are 150–260 in diam. without setae. Conidiophores are cylindrical, hyaline, 6–10 μm . Conidia are 12.5–17.5 \times 3.3–5.8 μm .

Psidium guajava : Acervuli are 90–210 μm in diam.

with a few setae having 43–58 \times 2.9–3.6 μm in size. Conidia are 12–14.5 \times 3–5 μm .

Specimen examined : *Paederia scandens* (LOUR.) MERRILL. (Japanese name : Hekuso-kazura), August 21, 1998, by TO. *Passiflora edulis* SIMS (Japanese name : Kudamono-tokeiso or Passhion furutsu), August 21, 1998, by TO. *Psidium guajava* L. (Japanese name : Guaba or Banjiro), August 21, 1998, by TO.

Disease name : Anthracnose (Tanso-byo in Japanese).

Note : This is the first record of this species on *Paederia scandens* and *Passiflora edulis* from Japan. In case of *Psidium guajava*, YAGUCHI *et al.* (2003)³⁰⁾ reported the fruit rot caused by *C. gloeosporioides* from Okinawa Island.

(8) *Fusicoccum aesculi* CORDA

Fig. 3, c and d ; Plate 1, h

Zonate leaf blight lesions are grayish brown and scattered with pin-point black dots. Pycnidia are globular, blackish, immersed at first then erumpent, 100–160 μm in diam. and 100–140 μm in height, with blackish brown wall having 8–12 μm thick. Conidiophores are hyaline, cylindrical and produce enteroblastic conidia. Conidia are smooth, hyaline, unicellular, long fusoid with obtuse ends, 19–30 \times 5.3–8.3 μm .

Specimen examined : *Cucumis sativus* L. (Japanese name : Kyuri), August 20, 1998, by TO.

Disease name : Brown leaf blight (Kasshoku-hagare-byo in Japanese).

Note : Fungi having the above mentioned morphological characteristics have long been known under the genera *Macrophoma* or *Dothiorella*. Through the re-examination of the type or authentic specimens of these genera, *Fusicoccum* CORDA was designated as proper genus for this fungus group (CROUS and PALM, 2000³¹⁾; MAAS and UECKER, 1984³²⁾; PENNYCOOK and SAMUELS, 1985³³⁾; SUTTON, 1977³⁴⁾; 1980³⁵⁾). *Fusicoccum aesculi* CORDA, the type species of the genus, is the anamorph of *Botryosphaeria dothidea* (MOUG. : FR.) CES. *et de NOT.* In recent study it was presented that Japanese *Dothiorella* specimens were mainly divided in 5 groups (Imai *et al.*, unpublished data), and this fungus on *Cucumis* was included into a *Dothiorella* group as the anamorph of *B. dothidea*. Hence, the fungus on *Cucumis* was identified as *F. aesculi*. *Cucumis sativus* is a new host for the present species.

(9) *Fusicoccum vagans* (SPEG.) Tak. KOBAYASHI *et* T. OKAMOTO, comb. nov.

Fig. 3, e and f ; Plate 1, i

Synonym : *Dothiorella vagans* SPEGAZZINI, Anal. Mus. Nac. Buenos Aires 23 : 114, 1912, in SACCARDO, Syll.

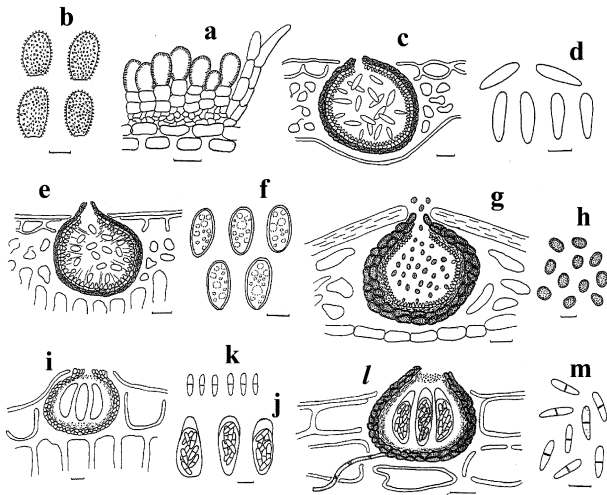


Fig. 3 a and b: *Coleosporium eupaderiae* (a: Urediniosorus, b: Urediniospores); c and d: *Fusicoccum aesculi* (c: Pycnidium, d: Conidia); e and f: *Fusicoccum vagans* (e: Pycnidium, f: Conidia); g and h: *Microsphaeropsis boninensis* (g: Pycnidium, h: Conidia); i~k: *Mycosphaerella musicola* (i: Pseudothecium, j: Asci, k: Ascospores); l and m: *Mycosphaerella tarennicola* (l: Pseudothecium, m: Ascospores). (Scale bars: e=50 μ m; a, c, g, i and l=20 μ m; b, d, f, j, k and m=10 μ m; h=5 μ m).

Fung. 25: 198, 1931.

Leaf spots are elliptic, grayish brown at first, then enlarge to make large grayish leaf blight lesions with many black pin-points of pycnidial bodies. Pycnidia immerse at first within leaf tissue, then erumpent breaking through the epiderm, black, globular, 165–290 μ m in diam. and 200–300 μ m in height. Conidiophores are hyaline and ampulliform. Conidia are elliptic with rounded ends, hyaline, unicellular with thick wall, 17.5–26.5 \times 10–12.5 μ m.

Specimen examined: *Monstera deliciosa* Liebm. (Japanese name: Horaisho), August 21, 1998, by TO.

Disease name: Gray leaf blight (Haiiro-hagare-byo in Japanese).

Note: On *Monstera* 3 fungi belonging to the genera *Macrophoma* and *Dothiorella* have been known. Among them, *Dothiorella monsterae* (SACC.) PETR. et SYD. (1927³⁶), =*Macrophoma monsterae* SACCARDO, in TROTTER *et al.* 1931³⁷) and *Macrophoma monsterae* var. *crassispora* RAJAT (1981)³⁸) are apparently different from the present fungus in their shape and narrower size of conidia. The size and shape of the present fungus was quite in accordance with those of *Dothiorella vagans* SPERG., which are cylindrical with ends round in shape and 24–26 \times 10–11 μ m in size (SACCARDO, 1931³⁷) and was originally

recorded on *Monstera pinnatifida* from Argentina. From these, the present fungus was identified as *D. vagans*. As mentioned in the note of the previous fungus, *Fusicoccum* Corda is designated as the representative genus among the fungus group, *Fusicoccum*, *Macrophoma* and *Dothiorella*. Hence, *D. vagans* is transferred to the genus *Fusicoccum* as *F. vagans* (SACC.) Tak. KOBAYASHI et T. OKAMOTO, comb. nov. This is the first record of this fungus from Japan. According to IMAI *et al.* (unpublished data), the present fungus is included in a group of *Dothiorella* (= *Fusicoccum*) having thick cell wall.

(10) *Microsphaeropsis boninensis* Tak. KOBAYASHI et T. OKAMOTO, sp. nov. Fig. 3, g and h; Plate 2, a

Maculis in foliis vivis brunneis vel rubeolis, irregularibus, 5–30 mm longis; pycnidiiis immersis, dein erumpentibus, brunneis vel atro-brunneis, globularibus, 90–110 μ m diam, 84–96 μ m altis; conidiis globulis, unicellularibus, brunneis vel viridifuscis, 3.6–4.8 μ m diam, laevibus.

Leaf spots are brown to reddish brown, irregular, 5–30 mm at major axis, then enlarged and coalesced forming large long blighted lesions, and densely scattered black pin-points of the top of pycnidia. Pycnidia immerse within epidermal layer, then erumpent breaking through the epiderm and cuticle, globular, brown to black, 90–110 μ m in diam., 84–96 μ m in height. Conidiophores are hyaline, ampullaceous and produced phialidic conidia. Conidia are smooth, unicellular, globular, brown to greenish brown, 3.6–4.8 μ m in diam.

Holotype: On living leaves of *Dracaena draco* L. (Japanese name: Ryuketsuju), March 4, 2000, by TO (TFM: FPH-7614).

Disease name: Red blight (Sekihan-byo in Japanese).

Note: The present fungus belongs in the fungus group known as *Coniothyrium* CORDA (SACCARDO 1884¹²). However, as the result of re-examination of the type species of the genus *Coniothyrium*, *C. palmarum* CORDA, many species forming conidia as enteroblastic and phialidic were excluded from the genus *Coniothyrium* (SUTTON, 1977³⁴; 1980³⁵). Under the recent concept, the present fungus belongs to the genus *Microsphaeropsis* HÖHNEL. On *Dracaena* plants, only *Coniothyrium dracaenae* F. STEVENS and WEEDON (in STEVENS, 1925³⁹) has been described. It is, however, different from the present fungus by the elliptic and small sized conidia (3–5 \times 2–3 μ m). *Coniothyrium agaves* (DUR. et MONT. ex MONT.) SACC. [= *Coniothyria agaves* (DUR. et MONT.) PETR. et SYD.] (PETRAK and SYDOW, 1927³⁶) also differs from the present fungus by its large conidia (5–7.5 μ m in diam.) and by pycnidia having hypostroma. Hence,

the present fungus is treated as a new species of the genus *Microsphaeropsis*, as *M. boninensis* Tak. KOBAYASHI et T. OKAMOTO.

(11) *Mycosphaerella musicola* Mulder

Fig. 3, i~k ; Plate 2, b

Many fusoid to eye spots, which are yellowish at first then turn to grayish brown to gray, are formed between parallel nerves of leaf. Finally diseased leaves dried and died. On dead blighted lesions many minute black pin-points of perithecia and stromata without conidia are observed. Perithecia are small, black, globular, 60–84 μm in diam. and 70–90 μm in height. Perithecial wall is dark brown to black, composed of angular and black cells, 9.5–14 μm in thickness. Asci are bitunicate, pyriform, 33–43 \times 9.5–12 μm in size. Ascospores are hyaline, 2-celled with a transverse septum at central part, cylindrical to oblong with round ends, 13–17 \times 2.5–4 μm .

Specimen examined : *Musa cavendishii* Lamb. (Japanese name : Sanjaku-banana on Teikyaku-mibasho), August 21, 1998, by TO.

Disease name : Sigatoka disease or Banana leaf spot (Shigatoka-byo or Hanyo-byo in Japanese).

Note : This disease is observed popularly in banana bushes in Hahajima, Bonin Islands. Perithecium is formed within epidermal layer of host or within the stroma, having a few conidiophores but without conidia, which may be assumed to belong to *Pseudocercospora*. As the pathogens of sigatoka disease of banana, three species of *Mycosphaerella*, namely *M. musicola* Mulder, *M. minima* Stahl and *M. musae* (Speg.) Syd., have been known (Phytopathol. Soc. Japan, 2000⁴⁰) ; TANAKA ed., 1995⁴¹). Among them, *M. musicola* seems to be most important and it has anamorph, *Pseudocercospora musae* (Zimm.) DEIGHTON. In Japan, there is no detailed description about the pathogens of sigatoka disease. However, disease symptoms and morphology of the causal fungus from Hahajima Island well accorded with those of *M. musicola* described in foreign literature (CORLETT, 1991⁴²) ; SIVANESAN, 1984⁴³). Hence, the present fungus was identified as *M. musicola* Mulder.

(12) *Mycosphaerella tarennicola* Tak. KOBAYASHI et T. OKAMOTO, sp. nov.

Fig. 3, i and m ; Plate 2, c

Maculis in foliis vivis brunneis, rotundatis, 2–5 mm diam ; pseudotheciis atropunctatis, globosis, 60–105 μm diam, 60–96 μm altis ; ascis bitunicatis, ellipticis vel inaequilateralibus, 36–53 \times 9.5–11 μm ; ascosporidiis 1-septatis, oblongis vel cymbiformibus, hyalinis, 14–15 \times 3.5–4.5 μm .

Leaf spots are brown, rounded, 2–5 mm in diam., scattered small black pin-point of pseudothecia. Pseudothecia are globular, blackish, 60–105 μm in diam., 60–96 μm in height, with black pseudothecial wall composed of thick-walled irregular cells. Asci are bitunicate, elliptic to inaequilateral, 36–53 \times 9.5–11 μm . Ascospores are 2-celled, hyaline, long elliptic or boat shaped, with rounded ends, 14–15 \times 3.5–4.5 μm .

Holotype : *Tarenna subsessilis* (Gray) Ohwi (Japanese name : Shima-gyokushinka), February 29, 2000, by TO (TFM : FPH-7615).

Disease name : Brown spot (Kappan-byo in Japanese).

Note : No species of *Mycosphaerella* or *Sphaerella* on *Tarenna* spp. of Rubiaceae has been found (CORLETT, 1991⁴²) ; 1995⁴⁴). Only a rust disease caused by *Puccinia tarennicola* KAKISHIMA et KOBAYASHI (1994⁴⁵), KOBAYASHI et al., 1992⁴⁶) has been recorded on *Tarenna gracilipes* from Okinawa Island, Japan.

(13) *Pestalotiopsis adusta* (Ellis et Everh.) STEYAERT

Fig. 4, a

Acervuli immerse at first forming pseudopycnidia, then erumpent breaking through epidermal layer, 60–100 μm in diam. Conidia are 5-celled composed of three median colored cells and each hyaline end cell, 15–19 \times 5–6.5 μm , colored cells are concolorous, light brown to brown and 10–12.5 μm in length, apical appendages are 3 or rarely 1–2, thread like, 4–12 μm in length, basal appendages are one or rarely two and 1.5–2.5 μm in length.

Specimen examined : *Paederia scandens* (Lour.) Merrill (Japanese name : Hekuso-kazura), August 21, 1998, by TO.

Disease name : Pestalotia disease (Pestalotia-byo in Japanese).

Note : Morphological characteristics of the present fungus was identical with those of *Pestalotiopsis adusta* described by GUBA (1961)⁴⁷), HINO (1953)⁴⁸), KOBAYASHI (1977)⁴⁹), KOBAYASHI and de GUZMAN (1988)⁵⁰) and STEYAERT (1953)⁵¹). This is the first record of the present species from the Bonin Islands. *P. scandens* is a new host for this species.

(14) *Pestalotiopsis toxica* (Ellis et Everh.) SUN et GE

Fig. 4, b ; Plate 2, d

Acervuli are formed on marginal blighted lesions of leaves, immersed at first, then erumpent, small, 30–50 μm in diam. Conidia are 5-celled composed of three median colored cells and each hyaline end cell, 12–17 \times 4.3–5.3 μm , colored cells are concolorous, light brown and 9.5–11 μm in length, apical appendages are 3 or

rarely 2, thread like, 6–10 μm in length, basal appendages are one and 2–3 μm in length, often lacking.

Specimen examined: *Psidium guajava* L. (Japanese name: Guaba or Banjiro), August 21, 1998, by TO. *Terminalia catappa* L. (Japanese name: Momotamana or Kobateishi), August 21, 1998, by TO.

Disease name: Pestalotia disease (Pestalotia-byo in Japanese).

Note: Morphological characteristics of the present materials were in accordance with those of *Pestalotia toxica* ELLIS et EVERH. (GUBA, 1961)⁴⁷⁾, which was recently transferred to the genus *Pestalotiopsis* by SUN and GE (1990)⁵²⁾ as *P. toxica*. This is the species having smallest conidia in Guba's concolorous group of *Pestalotia*. It has been recorded from USA on *Rhus toxicodendron* and on *Cocos nucifera* (GUBA, 1961)⁴⁷⁾ and recently from China on *Abies* sp. (SUN and GE, 1990)⁵²⁾. This is the first record of the present fungus from Japan. *Psidium guajava* and *Terminalia catappa* are the new hosts for this species.

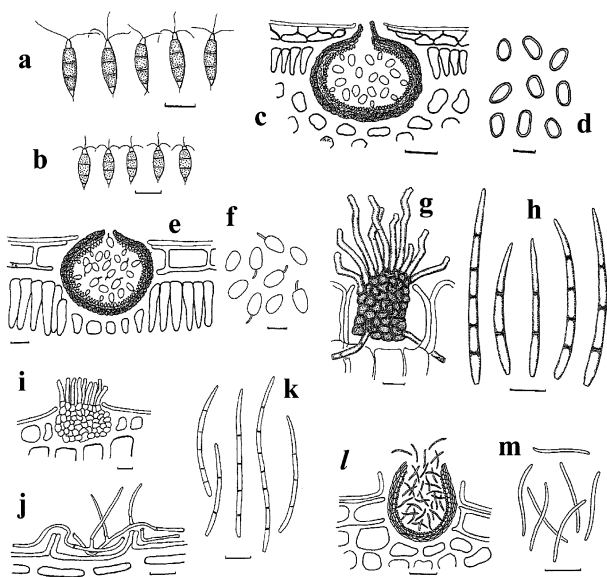


Fig. 4 a: Conidia of *Pestalotiopsis adusta* Steyaert; b: Conidia of *Pestalotiopsis toxica*; c and d: *Phyllosticta anacardiacearum* (c: Pycnidium, d: Conidia); e and f: *Phyllosticta boninense* (e: Pycnidium, f: Conidia with appendage); g and h: *Pseudocercospora paedericola* (g: Stroma and conidiophores, h: Conidia with thin scar); i~k: *Pseudocercospora oxalidis* (i: Stroma and conidiophores, j: External hyphae bearing conidia, k: Conidia); l and m: *Septoria pastinacina* (l: Pycnidium, m: Conidia). (Scale bars: c=50 μm ; e=20 μm ; a, b, d, f~m=10 μm).

(15) *Phoma* sp.

Leaf spots are grayish brown with dark brown to purplish brown border, circular to eye-spot-like, 2–5 mm in diam., scattered minute black dots of pycnidia. Pycnidia are black, globular, 90–115 μm in diam., 86–91 μm in height, with 12 μm thick wall. Conidia are bacilliformis to sausage shape, hyaline, 3.6–4.8 \times 1.7–1.9 μm .

Specimen examined *Pleioblastus simoni* (Carr.) Nakai (Japanese name: Medake), August 21, 1998, by TO.

Note: Although many leaf spots were observed on this material, most of pycnidia found on spots were empty. Only a few pycnidia were filled with a small amount of conidia. On *Pleioblastus*, no *Phoma* species has hitherto been found. However, decision of species is deferred here to the next chance of collecting good flesh material.

(16) *Phomopsis mangiferae* AHMAD

Blight lesions start from the tip of leaves. Finally the upper half of a leaf becomes grayish brown to grayish white with many minute points of pycnidial stromata which immerse at first and then erumpent breaking through epidermal layer, 125–225 μm in width. Conidiophores are simple, hyaline, 13.5–16.5 μm in length. Alpha conidia are unicellular, hyaline, fusoid, 5.5–9 \times 2–3 μm . Beta conidia were not observed.

Specimen examined: *Mangifera indica* L. (leaves) (Japanese name: Mango), August 21, 1998, by TO.

Disease name: Gray leaf blight (Haiiro-hagare-byo in Japanese).

Note: On *Mangifera*, two species of *Phomopsis*, namely *P. amraii* SRIVASTAVA *et al.* (1966⁵³⁾; UECKER, 1988⁵⁴⁾) and *P. mangiferae* AHMAD apud PETRAK and AHMAD (1954⁵⁵⁾; UECKER, 1988⁵⁴⁾), have been known. In the former species alpha and beta conidia were described, but the latter has only alpha conidia. However, these species have quite similar sizes of alpha conidia. As the shape and size of alpha conidia in the present fungus were well in accordance with those of *P. mangiferae* which was the older species on *Mangifera*, it was identified as *P. mangiferae* AHMAD. This is the first record of the present species in Japan.

(17) *Phomopsis papayae* GONZ. FRAG. et CIF.

Plate 2, e

Pycnidial stroma immerse at first, then erumpent breaking through epidermal layer, 215–355 μm width. Conidiophores are simple, hyaline, 10–15 μm in length. Alpha conidia are hyaline unicellular, fusoid, 6–10 \times 2.5–3 μm . Beta conidia were not observed.

Specimen examined: *Carica papaya* L. (leaves) (Ja-

panese name : Papaiya), August 21, 1998, by TO.

Disease name : Phomopsis leaf blight (Phomopsis-hagare-byo in Japanese).

Note : On *Carica*, two species of *Phomopsis*, namely, *P. caricae-papayae* PETR. et CIF. (1930⁵⁶) ; UECKER, 1988⁵⁴) and *P. papayae* GONZ. FRAG. et CIF. (1925⁵⁷) ; UECKER, 1988⁵⁴), have been described. Both species have only alpha conidia and their shape and size are quite similar. As the shape and size of conidia in the present fungus are almost in accordance with those of two *Phomopsis* species listed above, the fungus was identified as the older species, *P. papayae* GONZ. FRAG. et CIF.

(18) *Phomopsis* sp. on *Calophyllum* and *Paederia*.

Calophyllum inophyllum : pycnidial stroma are 100–145 μm in width, 55–72 μm in height. Alpha conidia are one-celled, hyaline, fusoid, 6.5–8 \times 2–2.5 μm . Beta conidia were not observed.

Paederia scandens : Pycnidial stroma are 135–165 μm in width. Alpha conidia are one-celled, hyaline, fusoid, 5.5–9 \times 2.5–3 μm . Beta conidia were not observed.

Specimen examined : *Calophyllum inophyllum* L. (Japanese name : Terihaboku), March 4, 2000, by TO. *Paederia scandens* L. (Japanese name : Hekuso-kazura), August 21, 1988, by TO.

Note : No species of *Phomopsis* has been recorded on *Calophyllum* and *Paederia* (UECKER, 1988⁵⁴) ; WEHMEHER, 1933⁵⁸). It is difficult to determine the species of the fungi listed above, because these fungi have no isolate. Therefore, these two fungi were tentatively placed as unidentified species of the genus *Phomopsis*.

(19) *Phyllosticta anacardiacearum* van der AA

Fig. 4, c and d

Irregular brown spots occur on leaves, then they turn grayish brown, and finally large blighted lesions are formed. Black small papulae (pycnidia) are scattered on lesions. They immerse at first, then erumpent breaking through epidermal layer, black, globular, 120–230 μm in diam., 100–240 μm in height. Conidiogenous cells are hyaline, small and papular. Conidia are one-celled, hyaline, elliptic to obovoid, thick-walled with sticky epispore, 10–14 \times 5.3–7.5 μm . Apical appendages almost disappear.

Specimen examined : *Mangifera indica* L. (Japanese name : Mango), August 21, 1998, by TO.

Disease name : Brown leaf blight (Kasshoku-hagare-byo in Japanese).

Note : On *Mangifera* plants, four species of the genus *Phyllosticta* have been described. According to van der AA (1973⁵⁹) and van der AA and VANEF (2002⁶⁰), *P. mangiferae* BATISTA and *P. mortoni* FAIRMAN do not

belong to the genus *Phyllosticta* but to the genus *Fusicoccum* for the former and to the genus *Phomopsis* for the latter. *Phyllostictina mangiferae* BATISTA et VITAL is a species to be transferred to the genus *Phyllosticta*, but this species epithet can not be used in the genus *Phyllosticta* because of the presence of *Phyllosticta mangiferae* BATISTA. Hence, van der AA (1973⁵⁹) established a new specific epithet '*anacardiacearum*' for it. The present fungus is identified as *P. anacardiacearum* AA (= *Phyllostictina mangiferae* BATISTA et VITAL) based on the accordance between their morphological characteristics. *Dothiorella mangiferae* SYDOW (in SYDOW *et al.*, 1916⁶¹) is different from the present fungus because it has narrower size of conidia (9–13 \times 3.5–4.5 μm) and inner structure of pycnidium. Other species of the genera *Dothiorella* and *Macrophoma* described on *Mangifera* spp. are quite different from *Phyllosticta anacardiacearum* due to their very large size of conidia. This is the first record of the present species from Japan.

(20) *Phyllosticta boninense* Tak. KOBAYASHI et T. OKAMOTO, sp. nov.

Fig. 4, e and f ; Plate 2, f

Maculis in foliis vivis, brunneis vel griseo-brunneis, cum zona atro-brunnea circumcinctis, 5–10 mm diam ; pycnidii immersis, dein erumpentibus, nigris, globulosis, 80–128 μm diam, 93–156 μm altis ; conidiophoris papiliformibus, hyalinis ; conidiis continuis, ovoideis, hyalinis, 9.3–13.3 \times 6.3–9 μm , ad apicem appendiculatis ; appendicibus hyalinis, viscidis, 2.5–9.5 μm longis.

Leaf spots are brown to grayish brown, surrounded with dark brownish zone, 5–10 mm in diam., scattered black pin-points (pycnidia). Pycnidia first immerse, then erumpent breaking through epidermal layer, black, globular, 80–128 μm in diam. and 93–156 μm in height. Conidiophores are small, papiliform and hyaline. Conidia are one-celled, hyaline, ovoid, 9.3–13.3 \times 6.3–9 μm , with a sticky appendage on the tip of each conidium. Appendages are hyaline, 2.5–9.5 μm in length, and straight or curved.

Holotype : Diseased leaves of *Paederia scandens* (LOUR.) MERRILL (Japanese name : Hekuso-kazura), August 21, 1998, by TO (TFM : FPH-7616).

Disease name : Grayish brown spot (Haikappan-byo in Japanese).

Note : On *Paederia* plants, only one species, *Phyllosticta paederiae* (PETR.) AA, has been known from China (TAI, 1979⁶²) ; van der AA, 1973⁵⁹). However, it has quite a smaller spore size (5–8 \times 3.5–5 μm) and is clearly different from the present species. According to the key for *Phyllosticta* species by van der AA (1973⁵⁹), *Phyllosticta minima* (BERK. et M.A. CURTIS) UNDERW. et

EARLE on *Acer* spp. is somewhat similar to the present fungus but its conidial size ($7.5\text{--}12 \times 4.5\text{--}8$) are smaller than those of this fungus. Hence, the present fungus was described as a new species.

(21) *Pseudocercospora paedericola* NAKASHIMA et TAK. KOBAYASHI

Fig. 4, g and h ; Plate 2, g

In NAKASHIMA, Doct. Thesis, Tokyo Univ. Agr., p. 143, 2001.

Synonym : *Cercospora paederiae* TAI, Bull. Chin. Bot. Soc. 2 (2) : 56, 1936 ; CHUPP, Monogr. *Cercospora* : 500, 1953 ; KATSUKI, Cercosporae of Japan : 56, 1965 ; YAMAMOTO and MAEDA, Sci. Rept. Hyogo Univ. Agr., Agr. Biol. 4 : 67, 1960.

Cercospora paederiae SAWADA, nom. inval., Descr. Catal. Formosan Fungi X : 84, 1944.

Pseudocercospora paederiae (SAWADA ex) GOH et HSIEH, in HSIEH and GOH, *Cercospora* and similar fungi from Taiwan : 291, 1990 ; GUO and HSIEH, The genus *Pseudocercospora* in China : 291, 1995.

Leaf spots are grayish brown to brown, circular to somewhat irregular, 2–5 mm in sizes. Stroma are amphigenous, brown, often formed in stomata, 10–38 μm in diam. Conidiophores developed from the upper cells of stroma, fascicled, pale brown to brown, straight or repeatedly geniculate, $20\text{--}75 \times 2.8\text{--}3.8 \mu\text{m}$. Conidia are cylindrical to long obclavate, pale olive, somewhat tapered and rounded at the tip, truncate at the base with thin walled, 1–5 septate, $37\text{--}78 \times 3\text{--}5 \mu\text{m}$, smooth.

Specimen examined : *Paederia scandens* (LOUR.) MERRILL (Japanese name : Hekuso-kazura), August 21, 1998, by TO.

Disease name : Angular spot (Kakuhan-byo in Japanese).

Note : This species was first described as *Cercospora paederiae* TAI (1936⁶³) from China. *Cercospora paederiae* SAWADA (1944⁶⁴) is a later homonym of *C. paederiae* TAI, and CHUPP (1953¹⁹) treated the former as a synonym of the latter. Later, HSIEH and GOH (1990⁶⁵) recognized *C. paederiae* SAWADA as an independent species and redescribed it in the genus *Pseudocercospora* as *P. paederiae* (SAWADA ex) GOH et HSIEH sp. nov., because SAWADA's description had been written in Japanese but not in Latin. Later, GUO and HSIEH (1995⁶⁶) concluded that both species were conspecific after re-examination of the type materials of *C. paederiae* TAI and *C. paederiae* SAWADA. They used, however, the species name as *P. paederiae* (SAWADA ex) GOH et HSIEH. This name is also illegal, because *C. paederiae* TAI has nomenclatural priority. Specific epithet "paederiae" can not be used in the genus *Pseudocercospora*, because *P. paederiae* GOH et HSIEH had occupied in this genus,

even if it was illegal. Hence, NAKASHIMA (2001⁶⁷) gave a new specific epithet "paedericola" for *C. paederiae* TAI in the genus *Pseudocercospora*, as *P. paedericola* NAKASHIMA et KOBAYASHI.

The present material collected at Hahajima was identified as *P. paedericola* (= *C. paederiae* TAI) based on its accordance with the symptoms and morphological characteristics described by CHUPP (1953¹⁹), GUO and HSIEH (1995⁶⁶), KATSUKI (1965²⁵), and NAKASHIMA (2001⁶⁷). This is a new record of the present species in Bonin Islands.

(22) *Pseudocercospora oxalidis* (GOH et HSIEH) U. BRAUN

Fig. 4, i~k ; Plate 2, h

Leaf spots are circular, 3–5 mm in diam., pale brown to brown, then turn grayish at the centre part and enlarge to 5–10 mm in diam. Diseased leaves become yellowish and die. Fruiting bodies are amphigenous and white powdery masses of conidia cover the lower leaf surface of spots. Stroma are mainly hypophyllous, composed of 20–30 μm in diam., almost hyaline, and often many external hyphae run over the lower leaf surface. Conidiophores both of fascicled on stroma and of single on running hyphae are hyaline, simple, 6–15 μm in length, with thin conidial scars. Conidia are hyaline, narrow cylindrical to acicular, with truncate and thin basal end, indistinctly septated, $31\text{--}70 \times 1.2\text{--}2.2 \mu\text{m}$.

Specimen examined : *Oxalis corymbosa* DC. (Japanese name : Murasaki-katabami), March 6, 2000, by TO.

Disease name : Brown spot (Kappan-byo in Japanese).

Note : This species was first described from Taiwan as *Pseudocercospora oxalidis* GOH et HSIEH (1989⁶⁸) ; HSIEH and GOH, 1990⁶⁵), then it was revised by BRAUN (1992⁶⁹) ; 1995²²) as *Pseudocercospora oxalidis* (GOH et HSIEH) BRAUN. In Japan, several collections of the present fungus in Okinawa-Honto were reported by IMAIZUMI *et al.* (1999⁷⁰) and NAKASHIMA (2001⁶⁷). Recently, the disease caused by this species was found at Shimane, Honshu, Japan (IMAIZUMI and KOBAYASHI, unpublished data). This species was newly added to the mycoflora of Bonin Islands.

(23) *Puccinia miyoshiana* DIETEL

Plate 2, i

Telia are formed numerously on both leaf surfaces, powdery, chocolate brown. Teliospores are brown to chocolate brown, broadly ovoid to broadly elliptic, $29\text{--}35 \times 19\text{--}24 \mu\text{m}$. Heavily diseased leaves become brownish to grayish brown and spread from the lower leaves to the upper leaves.

Specimen examined : *Eccoilopus cotulifer* (THUNB.) CAMUS (Japanese name : Abura-susuki), March 6, 2000,

by TO.

Disease name : Rust (Sabi-byo in Japanese).

Note : According to HIRATSUKA *et al.* (1992²⁷), the present species was originally described from Japan and has been known in Russia and China at present. This is the first record of the present species in Bonin Islands.

(24) *Septoria pastinacina* SACC. Fig. 4, l and m

Synonym : *Septoria passifloricola* PUNITHALINGAM, CMI Descr. pathog. fungi & bacteria Set 67, No. 670, 2 p, 1980 ; KUBOTA *et al.* Ann. Phytopath. Soc. Japan 62 (6), 606, 1996.

Leaf spots are circular, pale brown at first, then become grayish white to grayish brown with brown border, 3–10 mm in diam., scattered dark brown to black dots (pycnidia) on spots. Pycnidia are brown to dark brown, globular, 75–175 µm in diam., 81–160 µm in height, widely open pore at mature. Conidia are filiform, hyaline, straight or curved, indistinctly septated, 15–28 × 0.8–1.5 µm.

Specimen examined : *Passiflora edulis* Sims (Japanese name : Kudamono-tokeiso), August 21, 1998, by TO.

Disease name : Circular spot (Maruhan-byo in Japanese).

Note : Among 5 species of *Septoria* described on *Passiflora* plants, symptoms and morphology of the present fungus was identical with those of *Septoria pastinacina* SACC. (1884¹²) and *S. passifloricola* PUNITHALINGAM (1980⁷¹) which was newly given for *S. passiflorae* LOUR (1941), a later homonym of *S. passiflorae* SYD. (1939⁷²). The other 3 species, namely, *S. pastinaceae* WESTEND. (in SACCARDO 1884¹²), *S. fructigena* BERK. et M.A. CURTIS (in SACCARDO 1892¹⁶) and *S. passiflorae* SYD. (1939⁷²), were clearly different from the present fungus by their long size of conidia. *Septoria pastinacina* was found on stem of *Pastinacea sativa* (= *Passiflora sativa*) and *S. passifloricola* was recorded on leaves, blossoms, fruits and stems of *Passiflora* spp. (KUBOTA *et al.*, 1996⁷³ ; PUNITHALINGAM, 1980⁷¹). Although the description of *Septoria pastinacina* was simple, there is no basic difference in morphological characteristics between *S. pastinacina* and *S. passifloricola*. Therefore, *S. passifloricola* PUNITHALINGAM was treated as a synonym of *S. pastinacina* SACC. The present fungus is newly added to Bonin mycoflora.

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the fungi belonging to *Cercospora* and allied genera. They also express gratitude to Prof. Keiko T. NATSUKI, the Laboratory of Tropical Plant Protection, Tokyo University of Agriculture, for her encouragement throughout the study.

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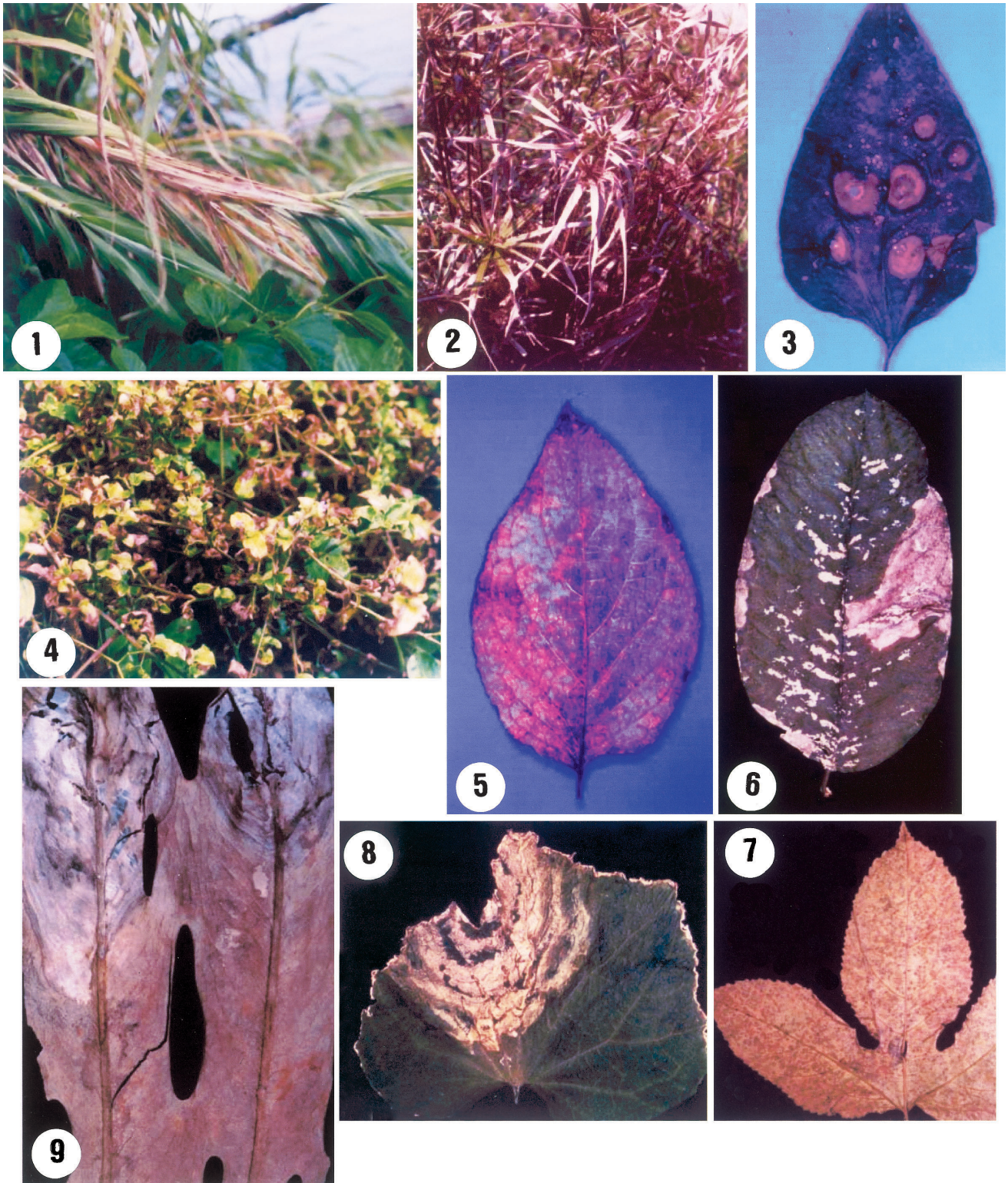


Photo 1 1: *Ascochyta miscanthi* on *Miscanthus sinensis* var. *condensatus* (Field symptom); 2: *Ascochyta papyricola* on *Cyperus alaternifolius* (Field symptom); 3: Brown spot of *Clematis terniflora* var. *boninensis* caused by *Ascochyta vitalbae*; 4: *Cercospora japonica* on *Commelina bengalensis* (Field symptom); 5: Diseased leaf of *Paederia scandens* caused by *Coleosporium eupaderiae* (Uredinial state); 6: Anthracnose of *Psidium guajava* caused by *Colletotrichum gloeosporioides*; 7: Anthracnose of *Passiflora edulis* caused by *Colletotrichum capsici* and *C. gloeosporicides*; 8: Brown leaf blight of *Cucumis sativus* caused by *Fusicoccum aesculi*; 9: Gray leaf blight of *Monstera deliciosa* caused by *Fusicoccum vagans*.

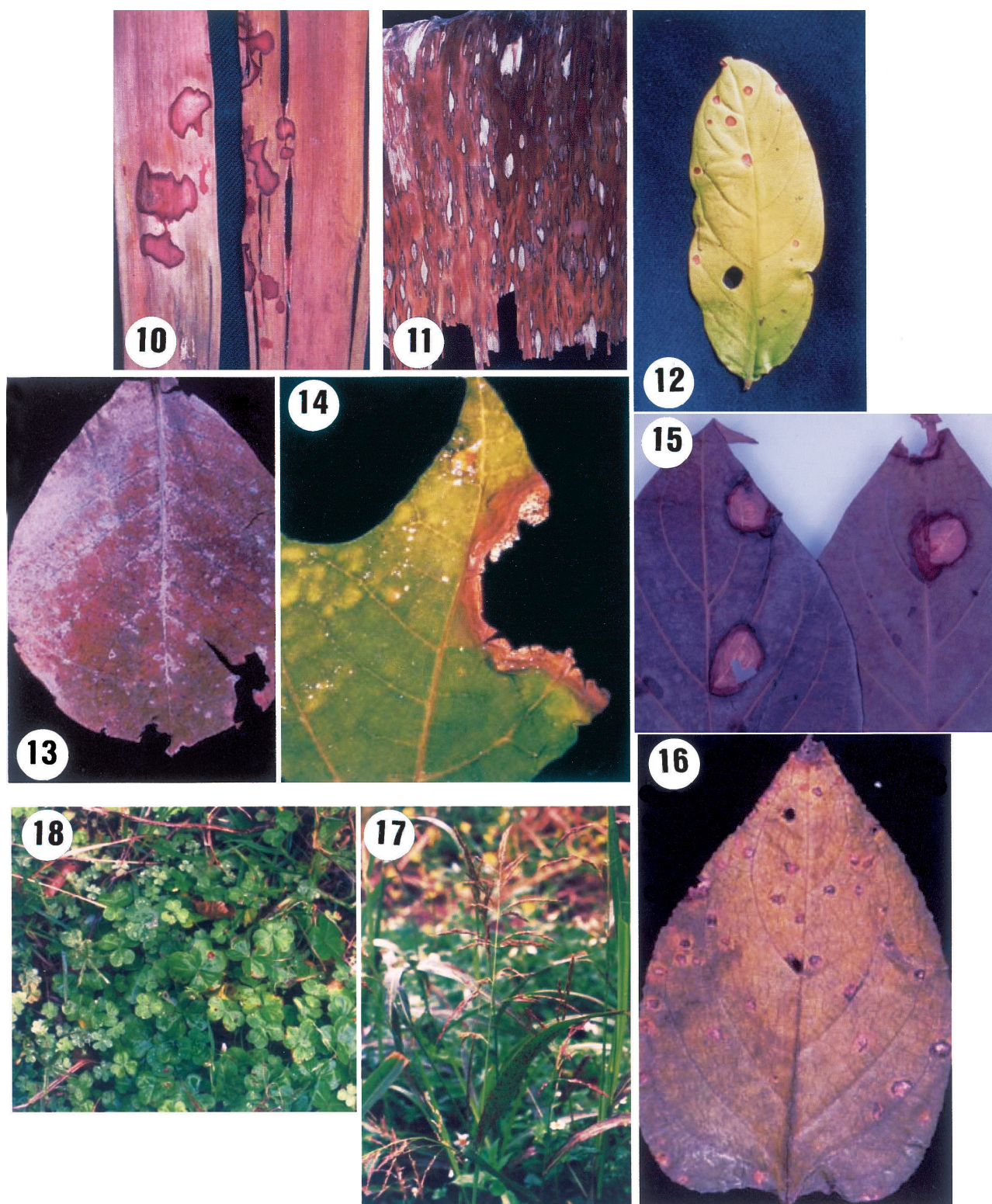


Photo 2 10 : Red blight of *Dracaena draco* caused by *Microsphaeropsis boninensis* ; 11 : Sigatoka disease of *Musa paradisiaca* caused by *Mycosphaerella musicola* ; 12 : Brown spot of *Tarennia subsessilis* caused by *Mycosphaerella tarennicola* ; 13 : Pestalotia disease of *Terminalia catappa* caused by *Pestalotiopsis toxica* ; 14 : Phomopsis leaf blight of *Carica papaya* caused by *Phomopsis papayae* ; 15 : Grayish brown spot of *Paederia scandens* caused by *Phyllosticta boninense* ; 16 : Angular spot of *Paederia scandens* caused by *Pseudocercospora paedericola* ; 17 : Rust of *Eccoilopus corulifer* caused by *Puccinia miyoshiana* ; 18 : *Pseudocercospora oxalidis* on *Oxalis corymbosa* (Field symptom).

小笠原・母島産植物寄生菌類ノート

小林享夫*・岡本 崇**

(平成 15 年 5 月 27 日受付/平成 15 年 9 月 24 日受理)

要約：本報告は 1998 年 8 月および 2000 年 3 月に東京都小笠原村母島において、著者の 1 人岡本により採集された 28 点の植物病害標本上に認められた、植物寄生菌類の同定結果とそれらに関する若干の菌学的補遺について述べたものである。すなわち 16 科 19 属 19 種の植物上に 22 種の菌類と未同定 2 属の菌類による 28 種類の病害が観察された。これらのうちハチジョウススキ紫眼斑病菌 *Ascochyta miscanthi*, マルバツユクサ斑点病菌 *Cercospora japonica*, リュウケツジュ赤斑病菌 *Microsphaeropsis boninensis*, シマギョクシンカ褐斑病菌 *Mycosphaerella tarennicola*, およびヘクソカズラ灰褐斑病菌 *Phyllosticta boninensis* の 5 種はそれぞれ新種として発表した。また日本新産種としてホウライショウ灰色葉枯病菌 *Fusicoccum vagans* (*Dothiorella* より転属処理), シュロガヤツリ灰色葉枯病菌 *Ascochyta papyricola*, ムニンセンニンソウ褐斑病菌 *Ascochyta vitalbae*, グアバ・モモタマナペスタロチア病菌 *Pestalotiopsis toxica*, マンゴー灰色葉枯病菌 *Phomopsis mangiferae*, パパイアホモプシス葉枯病菌 *Phomopsis papayae*, マンゴー褐色葉枯病菌 *Phyllosticta anacardiacearum* の 7 種を記録した。そのほか小笠原未記録種として *Coleosporium eupaderiae* (ヘクソカズラさび病菌, 種名変更), *Colletotrichum capsici* (パッションフルーツ炭疽病菌), *Fusicoccum aesculi* (キュウリ褐色葉枯病菌), *Pestalotiopsis adusta* (ヘクソカズラペスタロチア病菌), *Pseudocercospora paedericola* (ヘクソカズラ角斑病菌), *Pseudocercospora oxalidis* (ムラサキカタバミ褐斑病), *Septoria pastinacina* (パッションフルーツ円斑病菌, 種名変更) の 7 種が加えられた。上記の菌類を加えて小笠原産の植物寄生菌は約 170 種となる。

キーワード：植物寄生菌類, 小笠原・母島, 新種, 菌類相

* 東京農業大学国際食料情報学部国際農業開発学科

** 東京農業大学農学部国際農業開発学科 (現 和歌山県東牟婁農業改良普及センター)