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TAXONOMY OF THE MELIOLACEAE WITH SPECIAL REFERENCE TO THE FORMOSAN SPECIES

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The present author, when an associate professor of the former Taihoku Imperial University in Taihoku city, made a number of mycological surveys in Formosa, and collected especially the sooty mould fungi belonging to the Meliolaceae, Capnodiaceae, Microthyriaceae and Dematiaceae during the period 1937 to 1942. These specimens are now all deposited in the Herbarium of the Phytopathological Laboratory, National Taiwan University, Taihoku, Formosa.

Among the sooty mould fungi, the 114 species belonging to the Meliolaceae were dividualy reported seven times in the Transactions of the Natural History Society of Formosa and the Science Reports of the Hyogo University of Agriculture during the period 1940 to 1957.

The present paper, Which has synthetically been rearranged, deals with revisions and redescriptions of these species with one addition of *Meliola*, but excluding one species of *Meliolina*. Thus the meliolaceous fungi described in the present paper are still 114 species in all, in which *Meliola* is represented by 77 species, *Irene* by 13, *Irenina* by 12, *Irenopsis* by 4, *Amazonia* by 1, *Balladyna* by 2, *Balladynastrum* by 1, *Armatella* by 3 and *Armata* of new genus by one species.

MELIOLACEAE MARTIN

in Univ. Iowa Stud. Nat. Hist. 17: 96. 1936 - HANSFORD, Mycol. Pap. 15: 19. 1946 (emend.) - GÄUMANN, Pilze, 148. 1949 - BESSEY, Morph. & Taxon. Fung. 317. 1950 - AINSWORTH & BISBY, Dict. Fung. 196. 1950 - ALEXOPOULOS, Introd. Mycol. 243. 1952.

Perisporiaceae FRIES (maj. part.), in SACCARDO, Syll. Fung. 1: 1. 1882 - WINTER, in RABENH. Krypt.-Fl. 1(2): 43. 1887 - ELLIS & EVERHART, N. Amer. Pyren. 2. 1892 - LINDAU, in ENGLER & PRANTL, Nat. Pflanz.-Fam. 1(1): 333. 1897 - THEISSEN & SYDOW, Ann. Myc. 15: 457. 1917 - GÄUMANN, Vergl. Morph. Pilz. 204. 1928 - CLEMENTS & SHEAR, Gen. Fung. 53. 1931 - FISHER, Ann. Bot. N. S. 3: 405. 1939 - GWYNNE-VAUGHAN & BARNES, Struct. & Devel. Fung. 194. 1951.

Key to Genera

- A. Ascospores phaeophragmiae..... Meliolineae
 - I. Perithecia globose or subglobose
 - a. Mycelium with setae..... 1. *Meliola*, p. 51.
 - b. Mycelium without setae
 - 1. Perithecia with larviform appendages..... 2. *Irene*, p. 77.
 - 2. Perithecia with setae..... 3. *Irenopsis*, p. 81.
 - 3. Perithecia glabrous..... 4. *Irenina*, p. 83.
 - II. Perithecia dimidiate..... 5. *Amazonia*, p. 86.
- B. Ascospores phaeodidymae
 - I. Mycelium with setae..... 6. *Balladyna*, p. 87.
 - II. Mycelium without setae..... 7. *Balladynastrum*, p. 87.
- C. Ascospores hyalosporae, hyalodidymae, or phaeodidymae
 - I. Mycelium without setae..... 8. *Armatella*, p. 88.
- D. Ascospores phaeosporae
 - I. Mycelium without setae..... 9. *Armata*, p. 89.

Meliola FRIES

Syst. Orb. Veg. 111. 1825 - BORNET, Ann. Sci. Nat. Bot. Ser. 3, 15: 257. 1851 - ENGLER & PRANTL, Nat. Pflanz.-Fam. 1(1): 308. 1879 - SACCARDO, Syll. Fung. 1: 60. 1882 - COOKE, Handb. Austr. Fung. 316. 1892 - ELLIS & EVERHART, N. Amer. Pyren. 45. 1892 - THEISSEN & SYDOW, Ann. Mycol. 15: 461, 1917 - STEVENS, Ill. Biol. Monogr. 2: 66. 1916 & Ann. Mycol. 26: 165. 1928 - DOIDGE & SYDOW, Both. 2: 436. 1928 - CLEMENTS & SHEAR, Gen. Fung. 55. 1931 - CIFERRI, Ann. Mycol. 36: 203. 1938 - HANSFORD, Mycol. Pap. 15: 32. 1946.

Key to Sections

- A. Ascospores 3-septate..... Section I. Nos. 1~3.
- B. Ascospores 4-septate
 - I. Perithecia with setae..... Section II. Nos. 4~5.
 - II. Perithecia without setae

- a. Mycelial setae branched, branches longer than $40\ \mu$ Section III. Nos. 6~13.
- b. Mycelial setae dentate, teeth shorter than $40\ \mu$ Section IV. Nos. 14~24.
- c. Mycelial setae simple, sometimes dentate Section V. Nos. 25~40.
- d. Mycelial setae simple
 - 1. Mycelial setae uncinatae Section VI. Nos. 41~43.
 - 2. Mycelial setae straight or nearly so
 - (1) Capitatae hyphopodia opposita vel alternata Section VII. Nos. 44~59.
 - (2) Capitatae hyphopodia alternata
 - x. Apices mycelialium setarum obtusi Section VIII. Nos. 60~66.
 - y. Apices mycelialium setarum usualiter acuti Section IX. Nos. 67~77.

Section I

Key to Species

- A. Mycelial setae uncinatae vel fortiter curvatae, in Aquifoliaceae 1. *M. ilicicola*
- B. Mycelial setae rectae vel leviter curvatae
 - 1. Head cells irregulariter, profunde lobatae, in Symplocaceae 2. *M. symploci*
 - 2. Head cells subglobosae vel ellipsoideae, saepe lobatae vel angulatae, in Ericaceae 3. *M. niessleana*

1. *Meliola ilicicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 420. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 24. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus, interdum plus minusve irregularibus, dense velutinis, atris, 1~5 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel leniter curvatis, opposita vel irregulariter ramosis, fuscis, $8\sim 9\ \mu$ crassis, cellulis $16\sim 37\ \mu$ longis composito; hyphopodiis capitatis alternis, crebris, uno pro cellula, cellula superiore subglobosa vel irregulari, plus minusve lobulata, $16\sim 23\times 14\sim 21\ \mu$, inferiore $7\sim 16\ \mu$ longa; hyphopodiis mucronatis solitariis, ampulliformibus, $16\sim 21\times 7\sim 9\ \mu$; setis mycelialibus numerosis, simplicibus, rectis vel irregulariter curvatis, interdum superiore circumnatis, atris, opacis, apice rotundatis vel obtusis, $280\sim 518\ \mu$ longis, ad basim $8\sim 11\ \mu$ crassis; peritheciis subgregariis vel sparsis, globosis, scabris, atris, $238\sim 322\ \mu$ diam.; ascis ellipsoideis vel elliptico-oblongis, brevissime pedicellatis, 2~4-sporis, fugacibus, $92\sim 122\times 39\sim 53\ \mu$; paraphysibus numerosis, filiformibus, hyalinis, indistincte septatis, $98\sim 147\times 4\sim 4.5\ \mu$; sporidiis cylindraccis, utrinque rotundatis vel obtusis, fuscis, 4-septatis, ad septa plus minusve constrictis, $64\sim 74\times 18\sim 23\ \mu$.

Hab. On leaves of *Ilex formosana* MAXIM. Prov. Taihoku : Sekitei (Nov. 20, 1938, W. YAMAMOTO); Sansyorei (Dec. 31, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 17, 1938, W. YAMAMOTO).

2. *Meliola symploci* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 422. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 35. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, effusis, orbicularibus, interdum plus minusve irregularibus, leniter velutinis, atris, 2~7 mm. diam.; mycelio laxo reticulato, ex hyphis leniter undulatis, opposita vel irregulariter ramosis, fuscis, $7\sim 8\ \mu$ crassis, cellulis $28\sim 51\ \mu$ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula, irregulariter clavatis, cellula superiore irregulari, 3~6-lobata, $16\sim 23\times 16\sim 25\ \mu$, inferiore $7\sim 14\ \mu$ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, ampulliformibus, $21\sim 28\times 7\sim 10\ \mu$; setis mycelialibus modice copiosis, saepe perithecia circulo laxo circumnatis, simplicibus, rectis vel leniter curvatis, atris, opacis, ad apicem obtusis et pellucide brunneis, $310\sim 670\ \mu$ longis, ad basim $8\sim 10\ \mu$ crassis; peritheciis sparsis, subglobosis, plus minusve verrucosis, atris, $210\sim 250\ \mu$ diam.; ascis oblongis vel cylindraco-clavatis, brevissime pedicellatis, 2~4-sporis, fugacibus, $74\sim 110\times 32\sim 42\ \mu$; sporidiis ellipsoideis vel elongato-ellipsoideis, utrinque rotundatis vel obtusis, 3-septatis, ad septa leniter constrictis, fuscis, $46\sim 60\times 15\sim 20\ \mu$.

Hab. On leaves of *Symplocos eriobotryaefolia* HAY. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

3. *Meliola niessleana* WINTER, in Hedw. 24 : 260. 1885 - SACCARDO, Syll. Fung. 1~4 : 16. 1886 - STEVENS, Ann. Mycol. 20 : 168. 1928 - CIFERRI, Ann. Mycol. 29 : 287. 1931 - YAMAMOTO Trans. Nat. Hist. Soc. Formosa 31 : 25. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 29. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis plerumque epiphyllis, effusis, orbicularibus, atris, 2~6 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, opposita vel irregulariter ramosis, fuscis, $6\sim 7\ \mu$ crassis, cellulis $23\sim 42\ \mu$ longis composito; hyphopodiis capitatis alternis plerumque uno pro cellula, cellula superiore ellipsoidea, subglobosa, interdum angulosa vel lobulata, $14\sim 18\times 11\sim 16\ \mu$, inferiore $5\sim 12\ \mu$ longa; hyphopodiis mucronatis paucis, solitariis, ampulliformibus, $18\sim 21\times 8\sim 10\ \mu$; setis mycelialibus modice copiosis, saepe perithecia circulo laxo circumnatis, simplicibus, rectis vel leniter curvatis, atris, opacis, ad apicem obtusis et pellucide brunneis, $308\sim 500\ \mu$.

longis, ad basim 9~11 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 210~266 μ diam.; ascis fusoidis vel clavatis, breviter pedicellatis, 2~4-sporis, fugacibus, 74~115 \times 27~32 μ ; paraphysibus numerosis, filiformibus, ad basim leniter ramosis, hyalinis, indistincte septatis, 64~100 \times 5~6 μ ; sporidiis elongato-ellipsoideis, plus minusve curvatis, 3-septatis, ad septa non vel parum onstrictis, fuscis, 44~57 \times 14~16 μ .

Hab. On leaves of *Gaultheria Cumingiana* VIDAL. Prov. Taihoku: Mt. Taiheizan (Jan. 13, 1939, W. YAMAMOTO).

Section II

Key to Species

- 1. Ascospores cylindrical, on Moraceae.....
- 4. *M. microtricha*
- 2. Ascospores fusoid, on Moraceae.....
- 5. *M. sakahensis*

4. *Meliola microtricha* SYDOW, in Ann. Mycol. 18: 157. 1920 - SACCARDO, Syll. Fung. 24: 322. 1926 - STEVENS, Ann. Mycol. 26: 174. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 155. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 28. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus vel subirregularibus, velutinis, atris, 1~4 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis undulatis, alterne ramosis, ex atro fuscis, 7~9 μ crassis, cellulis 18~39 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, crebris, cellula superiore subglobosa vel plus minus irregulari, interdum leniter angulata vel lobulata, 12~18 \times 12~19 μ , inferiore brevi, 7~16 μ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, ampulliformibus, 18~21 \times 8~10 μ ; setis mycelialibus numerosis, simplicibus, plus minusve curvatis, apice acutis vel subacutis, atris, opacis, 182~392 μ longis, ad basim 8~10 μ crassis; peritheciis gregariis, globosis, laevibus, atris, setosis, 140~196 μ diam.; setis perithecialibus 7~12, simplicibus, rectis vel leniter curvatis, fuscis, apice acutis, 56~154 μ longis, ad basim 7~8 μ crassis; ascis ellipsoideis vel oblongis, bisporis, brevissime pedicellatis, fugacibus, 55~78 \times 30~37 μ ; sporidiis cylindraccis, utrinque rotundatis, 4-septatis, cellulis terminalibus leniter longioribus, ad septa vix constrictis, brunneis, 39~47 \times 15~18 μ .

Hab. On leaves of *Ficus formosana* MAXIM. Prov. Taihoku: Sansyorei (Dec. 31, 1938, W. YAMAMOTO). Prov. Taiyu: Suisya (Dec. 11, 1938, W. YAMAMOTO). Prov. Takao: Sempei (June 4, 1939,

W. YAMAMOTO). Prov. Taitò: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Ficus formosana* MAXIM. form. *Shimadai* HAY. Prov. Taihoku: Sansyorei (Dec. 31, 1938, W. YAMAMOTO).

On *Ficus Beecheyana* HOOK. & ARN. Prov. Taihoku: Sansyorei (Dec. 31, 1938, W. YAMAMOTO).

5. *Meliola sakahensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30: 420. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 32. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis hypophyllis, orbicularibus, plus minusve velutinis, atris, 2~4 mm. diam., interdum confluentibus et majoribus; mycelio densiuscule reticulato ex hyphis undulatis, alterne ramosis, ex fusco atro-brunneis, 7~8 μ crassis, cellulis 16~37 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, cellula superiore subglobosa, ellipsoidea, interdum angulosa, 11~19 \times 9~16 μ , inferiore 8~16 μ longa; hyphopodiis mucronatis, paucis, alternis vel solitariis, ampulliformibus, 16~25 \times 8~9 μ ; setis mycelialibus numerosis, saepe perithecia circulo laxe circumdantibus, rectis vel leniter curvatis, simplicibus, atris, opacis, apice obtusis et pellucide brunneis, 240~450 μ longis, ad basim 8~10 μ crassis; peritheciis subgregariis, globosis, atris, setosis, 140~196 μ diam.; setis perithecialibus 10~35, saepe leniter curvatis, ex atro fuscis, apice obtusis et dilutioribus, 84~250 μ longis, ad basim 7~9 μ crassis; ascis ellipsoideis, breviter pedicellatis, bisporis, fugacibus, 69~94 \times 25~32 μ ; sporidiis fusoidis, utrinque obtusis, 4-septatis, cellula media majore, ad septa leniter constrictis, fuscis, 44~54 \times 15~17 μ .

Hab. On leaves of *Ficus foveolata* WALL. var. *arisanensis* KUDO. Prov. Karenkò: Sakahen (July 5, 1939, W. YAMAMOTO).

Section III

Key to Species

- A. Capitata hyphopodia mostly opposite, on Fagaceae. 6. *M. kodaihoensis*
- B. Capitata hyphopodia opposite or alternate
 - I. Mycelial setae 1~4 times dichotomously branched, on Araliaceae 7. *M. leptoclada*
 - II. Mycelial setae once or twice dichotomously branched, on Araliaceae 8. *M. dichotoma*
- C. Capitata hyphopodia alternate
 - I. Head cells irregular, deeply lobed, on Gramineae 9. *M. phyllostachydis*
 - II. Head cells regular, entire
 - 1. Mycelial setae dichotomously branched,

with obtuse or rounded apices

- (1) Mycelial setae 1~4 times dichotomously branched, on Rutaceae.....10. *M. atalantiae*
 - (2) Mycelial setae once or twice dichotomously branched, on Rutaceae..... 11. *M. tenella*
 - (3) Mycelial setae once dichotomously branched, at times irregularly branched, on Verbenaceae 12. *M. clerodendri*
2. Mycelial setae several branched near the apex, branches with acute apices, on Gramineae..... 13. *M. arundinis*

6. *Meliola kodaihoensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 133. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 26. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis in ramulis petiolisque, atris, dense velutinis, crustaceis, 0.5~2 cm. longis; mycelio dense intertexto, ex hyphis rectis vel leniter undulatis, fuscis, plerumque opposite ramosis, 5~7 μ crassis, cellulis 10~23 μ longis composito; hyphopodiis capitatis plerumque oppositis, crebris, rectis vel leniter curvatis, cellula superiore ellipsoidea vel subglobosa, 8~10 \times 7~3 μ , inferiore brevi, 4~9 μ longa; hyphopodiis mucronatis paucis, oppositis, raro solitariis, tenue ampulliformibus, 14~23 \times 6~8 μ ; setis mycelialibus numerosis, densissime fasciculatis, rectis, sursum attenuatis, atris, opacis, 182~252 μ longis, ad basim 7~9 μ crassis, superiore 1~3 ies dichotomice ramosis; ramis plus minusve recurvatis, 28~88 μ , longis, ramulis ultimis saepe brevioribus, rectangularibus, apice acutis, 4~14 μ longis; peritheciis gregariis, globosis atris plum minusve scabris, 168~238 μ diam.; ascis ovoideis vel oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 46~60 \times 22~28 μ ; paraphysibus paucis, filiformibus, rectis vel leniter curvatis, continuis, hyalinis, 39~51 \times 4.5~7 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 30~39 \times 9~15 μ .

Hab. On young branches and petioles of *Synacdryas kodaihoensis* (HAY.) KUDO. Prov. Tainan: Tosikyaku (Jan. 2, 1939, W. YAMAMOTO).

7. *Meliola leptocladia* SYDOW, in Ann. Mycol. 20 : 62. 1922 - STEVENS, Ann. Mycol. 20 : 180. 1928 - YAMAMOTO, Trans. Mat. Hist. Soc. Formosa 31 : 22. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 26. 1942 - HARA, List Jap. Fung. 199. 1954 - HANSFORD, Reinw. 3 : 78. 1954.

Coloniis plerumque epiphyllis, orbicularibus, velutinis, atris, tenue crustaceis, 2~7 mm.; mycelio dense reticulato, ex hyphis rectis vel leniter

undulatis, saepe opposite ramosis, fuscis, 7~9 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis, interdum oppositis, crebris, rectis vel leniter curvatis, cellula superiore ovoideis vel ellipsoideis, interdum oblongis, 10~15 \times 8~10 μ , inferiore 4.5~8 μ , longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 19~30 \times 7~9 μ ; setis mycelialibus numerosis, 1~4 ies dichotomice ramosis, atris, opacis, ad apicem obtusis vel rotundatis, 180~300 μ longis, ad basim 7~9 μ crassis, ramis ultimis ex fusco brunneis et 18~80 μ longis; peritheciis globosis, scabris, atris, 182~238 μ diam.; ascis clavatis vel obovoideis, breviter pedicellatis, 2~3-sporis, fugacibus, 58~89 \times 32~39 μ ; sporidiis cylindraceutis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 41~53 \times 14~19 μ .

Hab. On leaves of *Agalma lutchuense* NAK. Prov. Taihoku : Seihuku (Oct. 20, 1938, W. YAMAMOTO); Sekitei (Nov. 20, 1938, W. YAMAMOTO); Sansyorei (Dec. 31, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 11, 1938, W. YAMAMOTO). Prov. Taito : Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Heptapleurum arboricolum* HAY. Prov. Taityu : Suisya (Dec. 17, 1938, W. YAMAMOTO). Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO).

On *Gilbertia pellucidopunctata* HAY. Prov. Taihoku : Sansyorei (Dec. 31, 1938, W. YAMAMOTO). Prov. Taito : Sinsuiei (June 26, 1939, W. YAMAMOTO).

8. *Meliola dichotoma* BERKELEY et CURTIS, in Proc. Amer. Acad. Art. & Sci. 4 : 130. 1860 - STEVENS, Ann. Mycol. 20 : 177. 1928 - SHIRAI & HARA, List Jap. Fung. 209. 1927 - HANSFORD, Sydow. 9 : 14. 1955.

Meliola hederar YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 53. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 23. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, plerumque hypophyllis, sparsis, orbicularibus vel irregularibus, plus minusve velutinis, atris, 1.5~4 mm. crassis; mycelio laxo vel densiuscule reticulato, ex hyphis rectis, fuscis, plerumque opposite ramosis, 7~9 μ crassis, cellulis 18~28 μ longis composito; hyphopodiis capitatis oppositis vel alternis, confertis, rectis vel paulo curvatis, cellula superiore oblonga, 10~16 \times 7~9 μ , inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 16~25 \times 7~9 μ ; setis mycelialibus copiosis, 1~2 ies dichotomice ramosis, atris, opacis, 238~364 μ longis, ad basim 9~10 μ crassis; ramis divergentibus, leniter recurvatis, apice obtusis et dilutioribus, primariis 84~224 μ longis,

secundariis 28~140 μ longis; peritheciis gregariis, globosis vel globoso-depressis, verrucosis, atris, 210~280 μ diam.; ascis ellipsoideis, breviter pedicellatis, 2~3-sporis, fugacibus, 48~69 \times 23~32 μ ; sporidiis ellipsoideis vel ellipsoideo-oblongis, utrinque rotundatis, fuscis, 4-septatis, ad septa constrictis, 41~50 \times 12~19 μ .

Hab. On leaves of *Hedera formosana* NAK. Prov. Taihoku: Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

9. *Meliola phyllostachydis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 26. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 30. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, orbicularibus, crustaceis, atris, velutinis, 2~13 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel parum undulatis, alterne ramosis, ex fusco brunneis, 8~10 μ crassis, cellulis 25~39 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, cellula superiore irregulari, valde 3~5-lobata, 16~28 \times 16~23 μ , inferiore subcylindracea, interdum subflexuosa, 9~15 μ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 14~19 \times 8~9 μ ; setis mycelialibus copiosis, 2~4 ies dichotomicae ramosis, atris, opacis, 280~336 μ longis, ad basim 9~13 μ crassis; ramis primariis 42~84 μ , longis, ramis ultimis apice acutis, 4~37 μ , plerumque 4~16 μ longis; peritheciis subgregariis, globoso-depressis, plus minusve scabris, atris, 168~238 μ diam.; ascis clavatis vel obovatis, brevissime pedicellatis, 2~4-sporis, fugacibus, 62~94 \times 32~44 μ ; sporidiis cylindraceis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, 48~60 \times 14~21 μ .

Hab. On leaves of *Pseudosasa Uzawai* NAK. Prov. Taityu: Suisya (Dec. 4, 1938, W. YAMAMOTO). Prov. Tainan: Tosikyaku (Jun. 2, 1939, W. YAMAMOTO).

On *Phyllostachys Makinoi* HAY. Prov. Taityu: Suisya (Dec. 17, 1938, W. YAMAMOTO). Prov. Tainan: Kansirei (Dec. 28, 1938, W. YAMAMOTO).

On *Phyllostachys edulis* CARR. Prov. Taityu: Tengeti (Dec. 18, 1938, W. YAMAMOTO).

10. *Meliola atalantiae* (PATOULLARD) YAMAMOTO comb. nov.

Meliola bambusae PATOULLARD var. *atalantiae* PATOULLARD, in Jour. Bot. Paris 11: 348. 1897 - SACCARDO, Syll. Fung. 14: 471. 1899 - STEVENS, Ann. Mycol. 26: 184. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 150. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 17. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis amphigenis, sparsis, orbicularibus vel irregularibus, plus minusve velutinis, 1~5 mm. longis, interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, fuscis, 7~10 μ crassis, cellulis 16~23 μ longis composito; hyphopodiis capitatis alternis, crebris, uno pro cellula, cellula superiore oblonga vel ellipsoidea, 15~21 \times 9~13 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis paucis, sparsis, ampulliformibus, 16~25 \times 8~10 μ ; setis mycelialibus modice copiosis, 1~4 ies dichotomicae ramosis, atris, opacis, 224~336 μ longis, ad basim 9~13 μ crassis; ramis ultimis denticulatis et apice acutis; peritheciis sparsis, globosis vel globoso-depressis, plus minusve verrucosis, atris, 154~224 μ diam.; ascis ellipsoideis vel oblongis, 2~3-sporis, brevissime pedicellatis, fugacibus, 57~76 \times 25~39 μ ; sporidiis elliptico-oblongis vel oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 51~55 \times 14~23 μ .

Hab. On leaves of *Atalantia bilocularis* WALL. Prov. Tainan: Tamai (May 15, 1939, W. YAMAMOTO).

11. *Meliola tenella* PATOULLARD, in Rev. Mycol. 10: 140. 1888 - SACCARDO, Syll. Fung. 9: 413. 1891 - STEVENS, Ann. Mycol. 26: 180. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 158. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 33. 1942 - HARA, List Jap. Fung. 201. 1954.

Coloniis amphigenis, sparsis, orbicularibus, plus minusve velutinis, atris 1~4 mm. diam.; mycelio densiuscule reticulato, ex hyphis plus minusve undulatis, opposite vel irregulariter ramosis, fuscis, 8~9 μ crassis, cellulis 14~21 μ longis composito; hyphopodiis capitatis crebris, alternis, plerumque uno pro cellula, cellula superiore oblonga vel ovoidea, 14~18 \times 8~12 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 14~23 \times 8~9 μ ; setis mycelialibus numerosis, 1~2 ies dichotomicae ramosis, atris, opacis, apice acutis, 252~350 μ longis, ad basim 9~12 μ crassis, ramis primariis recurvatis et 84~182 μ longis; peritheciis gregariis, globosis vel globoso-depressis, plus minusve verrucosis, atris, 168~224 μ diam.; ascis oblongis vel elliptico-oblongis, 2~3-sporis, brevissime pedicellatis, fugacibus 60~83 \times 30~37 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 44~53 \times 14~20 μ .

Hab. On leaves of *Murraya paniculata* (L.) JACK. Prov. Takao: Rōkki (June 2, 1939, W. YAMAMOTO). Prov. Taitō: Taibu (June 26, 1939, W. YAMAMOTO).

12. *Meliola clerodendri* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 418. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 20. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus, plus minusve velutinis, atris, 1~5 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis undulatis, plerumque opposite ramosis, ex fusco brunneis, 6~7 μ crassis, cellulis 16~32 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, cellula superiore ellipsoidea vel subglobosa, 10~14 \times 9~13 μ , inferiore brevi, 4~8 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 14~25 \times 5~8 μ ; setis mycelialibus numerosis, saepe perithecia circulo laxo circumdantibus, erectis, rectis vel leniter curvatis, simplicibus, interdum dichotomico vel irregulariter ramosis, ex fusco brunneis, apice rotundatis vel obtusis, 168~280 μ longis, ad basim 7~8 μ crassis; ramis varie longitudinis gerentibus, 16~77 μ , raro 166 μ longis; peritheciis gregariis, globosis, scabris, atris, 115~170 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 48~60 \times 25~30 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, brunneis, 32~40 \times 11~14 μ .

Hab. On leaves of *Clerodendron cryptophyllum* TURCZ. Prov. Taihoku : Sinten (Oct. 23, 1938, W. YAMAMOTO). Prov. Taiyu : Suisya (Dec. 11, 1938, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO).

13. *Meliola arundinis* PATOULLARD, in Jour. Bot. Paris 11 : 348. 1897 - SACCARDO, Syll. Fung. 14 : 473. 1899 - SYDOW, Phillip. Jour. Sci. C. Bot. 8 : 481. 1913 & Ann. Mycol. 15 : 182. 1917 - STEVENS, Ann. Mycol. 26 : 182. 1928 & Mem. Dept. Agr. India Bot. Ser. 15 : 109. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 150. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 17. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis amphigenis, sparsis, orbicularibus vel ellipsoideis, densiuscule crustaceis, velutinis, atris, 1~5 mm. longis; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, saepe opposite ramosis, fuscis, 8~10 μ crassis, cellulis 14~23 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, uno pro cellula, cellula superiore ovoidea, subglobosa, plus minusve irregulari, 11.5~17 \times 11.5~18.5 μ , inferiore brevi, 6~14 μ longa; hyphopodiis mucronatis paucis, alternis, raro oppositis, ampulliformibus, 13~23 \times 6~8.5 μ ; setis mycelialibus copiosis, rectis, atris, opacis, 182~210 μ longis, ad basim 10~13 μ crassis, ad apicem bi vel trifurcatis, interdum bidentatis; dentibus divergentibus, apice acutis, 23~51 μ longis; peritheciis globosis, scabris, atris, 134~

168 μ diam.; ascis fugacibus; sporidiis cylindraceis vel elliptico-cylindraceis, utrinque rotundatis, 4-septatis, ad septa vix constrictis, brunneis, 44~55 \times 14~18.5 μ .

Hab. On leaves of *Phragmites longivalvis* STEUD. Prov. Taihoku : Rumoan (Sept. 19, 1938, R. TAKAHASHI).

Section IV

Key to Species

- A. Colonies growing on stems, on Fagaceae.....
.....14. *M. ramulicola*
- B. Colonies growing on leaves
 - I. Capitata hyphopodia mostly opposite, on Theaceae 15. *M. schimicola*
 - II. Capitata hyphopodia opposite or alternate
 - a. Ascospores elliptic cylindrical, on Symplocaceae.....16. *M. symplocacearum*
 - b. Ascospores cylindrical, on Leguminosae 17. *M. robinsonii*
 - III. Capitata hyphopodia alternate
 - a. Perithecia papillate at the apex, on Loranthaceae..... 18. *M. suisyaensis*
 - b. Perithecia not papillate at the apex
 - 1. Middle cell of ascospore large
 - (1) Ascospores long fusoid, on Fagaceae..... 19. *M. subacuminata*
 - (2) Ascospores ellipsoid, on Lauraceae 20. *M. neolitsea*
 - (3) Ascospores cylindrical, on Proteaceae..... 21. *M. heliciae*
 - 2. Middle cell of ascospore not large
 - (1) Mycelial setae shorter than 300 μ , on Anacardiaceae...22. *M. brachyodonta*
 - (2) Mycelial setae longer than 300 μ
 - x. Mycelial setae dentate, teeth 10~30 μ long, on Symplocaceae
..... 23. *M. symplocicola*
 - y. Mycelial setae dentate, teeth 2~7 μ long, on Fagaceae...24. *M. taiyuensis*

14. *Meliola ramulicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 134. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 31. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis in ramulis, elongatis, irregularibus, atris, dense velutinis, 1~4 mm. crassis; mycelio dense intexto, ex hyphis leniter vel valde undulatis, opposite vel irregulariter ramosis, anastomosantibus, fuscis, 7~9 μ crassis, cellulis 18~44 μ longis composito; hyphopodiis capitatis alternis vel oppositis, plerumque crebris, clavatis, cellula superiore subglobosa, 13~17 \times 14~17 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel unilateralibus, ampulliformibus, 16~32 \times 8~12 μ ; setis mycelialibus nume-

rosis, rectis vel leniter curvatis, rigidis, atris, tota longitudine opacis, 295~500 μ longis, ad basim 10~14 μ crassis, ad apicem bi vel trifurcatis, dentibus acutis interdum iterum bi vel tridentatis et 9~35 μ longis; peritheciis gregariis, subglobosis vel conicis, atris, scabris, 252~364 μ diam.; ascis ellipsoideis vel ellipsoideo-cylindraceis, brevissime pedicellatis, 2~3-sporis, fugacibus, 69~97 \times 27~32 μ ; paraphysibus vermicularibus, continuis, hyalinis, 56~83 \times 4.5~6 μ ; sporidiis ellipsoideo-cylindraceis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali paulo majore, 44~55 \times 12~18 μ .

Hab. On branches of *Synaedrys brevicaudata* (SKAN) KOIDZ. Prov. Tainan: Hunkikô (Oct. 8, 1939, W. YAMAMOTO). Prov. Taityu: Rengeti (Oct. 21, 1939, W. YAMAMOTO). Prov. Takao: Kusukusu (Nov. 19, 1940, W. YAMAMOTO).

15. *Meliola schimicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30: 421. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 32. 1942 - HARA, List Jap. Fung. 200. 1954 - HANSFORD, Reinw. 3: 107. 1954.

Coloniis plerumque epiphyllis, orbicularibus, velutinis, atris 1~4 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis, rectangulariter opposite ramosis, fuscis, 7~8 μ crassis, cellulis 14~28 μ longis composito; hyphopodiis capitatis oppositis vel alternis, plerumque oppositis, crebris, cellula superiore ovoidea vel ellipsoidea. 11~16 \times 8~9 μ , inferiore brevi, 2.5~6 μ longa; hyphopodiis mucronatis paucis, oppositis, raro solitariis, tenue ampulliformibus, 19~30 \times 7~9 μ ; setis mycelialibus sparsis, etiam perithecia circulo laxo circumdantibus, rectis, atris, opacis, 336~500 μ longis, 8~10 μ crassis, ad apicem leniter dilutioribus et 2~5 denticulatis, dentibus mox exiguis mox elongatis et 4~14 μ longis; peritheciis sparsis, globosis, scabris, atris, 182~238 μ diam., areola myceliali radiante cinctis; ascis obovatis vel oblongis, brevissime pedicellatis, bisporis, fugacibus, 58~74 \times 25~35 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 48~55 \times 14~23 μ .

Hab. On leaves of *Schima hankaoensis* HAY. Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO).

16. *Meliola symplacacearum* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 57. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 35. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, sparsis, effusis, orbicularibus, atris, 3~8 mm. diam.; mycelio laxo reticulato, ex hyphis rectis, leniter undulatis, opposite vel irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis

23~32 μ longis composito; hyphopodiis capitatis alternis rarissime oppositis, plerumque uno pro cellula, saepe leniter curvatis, cellula superiore oblonga vel ellipsoidea, interdum plus minusve irregulari, 14~19 \times 8~10 μ , inferiore brevi, 3~4 μ longa; hyphopodiis mucronatis paucis, solitariis, interdum oppositis vel alternis, ampulliformibus, 17~25 \times 8~9 μ ; setis mycelialibus non copiosis, praecipue perithecia circulo laxo circumdantibus, rectis vel leniter curvatis, atris, opacis, 250~560 μ longis, ad basim 8~9 μ crassis, apice acutis vel bi vel tridentatis, dentibus 4~12 μ longis; peritheciis sparsis, subglobosis, glabris, scabris, atris, 182~224 μ diam., in sicco collabescentibus; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 57~74 \times 25~35 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 41~50 \times 12~23 μ .

Hab. On leaves of *Symplocos lucida* SIEB. & ZUCC. Prov. Taihoku: Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

17. *Meliola robinsonii* SYDOW, in Phillip. Jour. Sci. C. Bot. 21: 135. 1922 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 151. 1940 - HANSFORD, Reinw. 3: 94. 1954.

Meliola bicornis WINTER var. *robinsonii* (SYDOW) STEVENS, in Ann. Mycol. 26: 189. 1928 - YAMAMOTO, loc. cit. - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 18. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis plerumque epiphyllis, sparsis, orbicularibus, velutinis, atris, 1~4 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis rectis, opposite ramosis, fuscis, 6~8 μ crassis. cellulis 12~28 μ longis composito; hyphopodiis capitatis oppositis vel alternis, crebris, cellula superiore obovoidea vel oblonga, 11~16 \times 8~10 μ , inferiore brevi, 4~9 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 16~23 \times 7~9 μ ; setis mycelialibus numerosis, saepe perithecia circulo laxo circumdantibus rectis vel leniter curvatis, ex atro fuscis, 250~434 μ longis, ad basim 7~9 μ crassis, ad apicem 1~6-denticulatis, dentibus 3~12 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 126~193 μ diam., ascis clavatis vel ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 46~76 \times 28~35 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa constrictis, brunneis, 41~50 \times 14~20 μ .

Hab. On leaves of *Entada phaseoloides* (L.) MERR. Prov. Taihoku: Seiuhoku (Oct. 30, 1938, W. YAMAMOTO); Sekitei (Nov. 13, 1938, W. YAMAMOTO). Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO).

18. *Meliola suisyaensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30: 422. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 34. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus, velutinis, atris, 1~3 mm. diam.; mycelio dense reticulato, ex hyphis undulatis, alterne ramosis, fuscis, 7~9 μ crassis, cellulis 16~37 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, crebris, clavatis, cellula superiore obovata vel oblonga, interdum paulo angulosa, recta vel curvata, 14~22 \times 11~14 μ , inferiore brevi, 5~10 μ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, tenuae ampulliformibus, 18~23 \times 7~8 μ ; setis mycelialibus numerosis, rectis vel leniter curvatis, ex fusco atris, 280~364 μ longis, ad basim 9~10 μ crassis, ad apicem brevissime bi vel triramosis, ramulis acutis vel iterum cristatis et 7~16 μ longis; peritheciis subgregariis, subglobosis, apice leniter papillatis, scabris, atris, 190~238 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 70~88 \times 30~40 μ ; paraphysibus numerosis, tenuis, continuis, hyalinis, 56~85 \times 5.5~7 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad septa plus minusve constrictis, fuscis, 46~56 \times 16~23 μ .

Hab. On leaves of *Loranthus lonicelifolius* HAY. Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO).

19. *Meliola subacuminata* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 127. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 34. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis hypophyllis, sparsis, orbicularibus vel plus minus irregularibus, atris, plus minusve velutinis, 5~15 mm. diam.; mycelio laxo reticulato, ex hyphis valde undulatis, irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis 14~46 μ longis composito; hyphopodiis capitatis alternis, saepe remotis, interdum leniter curvatis, cellula superiore oblonga, ovoidea vel subglobosa, 10~21 \times 7~12 μ , inferiore mox brevi mox longiore, 5~16 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, raro solitariis, tenuae ampulliformibus, 23~35 \times 8~10 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumdantibus, 310~500 μ longis, ad basim 11~13 μ crassis, plus minusve curvatis, rigidis, atris, opacis, ad apicem bi vel trifurcatis, ramulis interdum iterum breviter bi vel tridentatis, dentibus, 7~25 μ longis; peritheciis subgregariis vel sparsis, globosis, atris, verrucosis, 238~280 μ diam.; ascis elongato-fusoides, brevissime pedicellatis, 2~3-sporis, fugacibus, 87~115 \times 25~39 μ ;

sporidiis elongato-fusiformibus, utrinque subacutis vel obtusis, 4-septatis, ad septa leniter constrictis, cellula centrali multo majore, fuscis, 60~74 \times 18~22 μ .

Hab. On leaves of *Castanopsis subacuminata* HAY. Prov. Takao: Sempei (June 4, 1939, W. YAMAMOTO).

20. *Meliola neolitsea* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 24. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 29. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis hypophyllis, orbicularibus vel plus minus irregularibus, arachnoideis, atris, leniter velutinis, 3~15 mm. diam.; mycelio laxo reticulato, ex hyphis undulatis, opposite vel irregulariter ramosis, ex fusco brunneis, 7~9 μ crassis, cellulis 16~37 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, raro oppositis, cellula superiore oblonga, obovoidea vel subglobosa, saepe leniter curvata interdum latere insertis, 11~17 \times 10~15 μ , inferiore brevi, 4~8 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel unilateralibus, ampulliformibus, 18~25 \times 8~10 μ ; setis mycelialibus modice copiosis, saepe perithecia circulo laxo circumdantibus, plus minusve irregulariter curvatis, atris, opacis, 250~840 μ longis, ad basim 8~9 μ crassis, apice obtusis vel acutis, interdum bifurcatis et iterum ad apicem bidenticulatis, dentibus 9~28 μ longis; peritheciis subgregariis, subglobosis, scabris, atris, 168~210 μ diam.; cellulis parietis irregularibus, valde lobatis; ascis oblongis vel ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 67~81 \times 32~42 μ ; sporidiis ellipsoideis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, cellula media leniter majore, fuscis, 48~56 \times 14~22 μ .

Hab. On leaves of *Cryptocarya chinensis* HEMSL. Prov. Taityu: Godyo (May 7, 1939, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO). Prov. Takao: Sempei (June 4, 1939, W. YAMAMOTO). Prov. Taito: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Neolitsea variabilima* (HAY.) KAN. & SAS. Prov. Taityu: Godyo (May 7, 1939, W. YAMAMOTO).

On *Litsea Hayatae* KAN. Prov. Taityu: Rengeti (Dec. 18, 1939, W. YAMAMOTO). Prov. Tainan: Hunkiko (Oct. 8, 1939, W. YAMAMOTO).

21. *Meliola heliciae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 54. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 23. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis hypophyllis, sparsis, late effusis, orbicularibus vel plus minus irregularibus, atris, paulo velutinis, 4~15 mm. diam., interdum

confluentibus; mycelio laxè reticulato, ex hyphis undulatis, tortuosis, opposite vel irregulariter ramosis, ex fusco atris, 7~9 μ crassis, cellulis 18~40 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula, vel remotis, rectis vel irregulariter curvatis, cellula superiore oblonga, ellipsoidea vel subglobosa, 14~21 \times 10~14 μ , inferiore 5~9 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel solitariis, tenue ampulliformibus, 21~32 \times 7~9 μ ; setis mycelialibus non copiosis, praecipue circa perithecia evolutis, atris, opacis, 364~770 μ longis, ad basim 9~11 μ crassis, ad apicem varie denticulatis vel cristatis, dentibus 10~23 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 168~224 μ diam., in sicco paulo collabescentibus; ascis evanescentibus; sporidiis ellipsoideo-oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 46~53 \times 16~24 μ .

Hab. On leaves of *Helicia formosana* HEMSLEY. Prov. Taihoku: Urai (Jan. 14, 1939, W. YAMAMOTO). Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO). Prov. Takao: Sempei (June 4, 1939, W. YAMAMOTO). Prov. Taitô: Sinsuiei (June 26, 1939, W. YAMAMOTO).

22. *Meliola brachyodonta* SYDOW, in Both. 2; 442 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 151. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 18. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis epiphyllis, sparsis, effusis, orbicularibus vel subirregularibus, atris, 1~4 mm. diam.; mycelio laxè reticulato, ex hyphis plus minusve undulatis, opposite vel alterne ramosis, fuscis, 6~8 μ crassis, cellulis 18~37 μ longis; hyphopodiis capitatis modice copiosis, alternis, cellula superiore subglobosa, interdum oblonga, 10~15 \times 9~12 μ ; inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel unilateralibus, ampulliformibus, 16~35 \times 7~8 μ ; setis mycelialibus modice copiosis, rectis vel leniter curvatis, ex atro fuscis, 224~336 μ longis, ad basim 7~9 μ crassis, ad apicem 2~4-denticulatis, dentibus interdum crenatis, 5~12 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, plus minusve verrucosis, atris, 154~210 μ diam.; ascis ovoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 55~74 \times 25~35 μ ; sporidiis cylindræis vel elliptico-oblongis, utrinque late rotundatis, 4-septatis, cellula centrali leniter majorè, ad septa leniter constrictis, fuscis, 39~48 \times 14~18 μ .

Hab. On leaves of *Rhus javanica* L. var. *Roxburghii* REHD. & WILS. Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO).

23. *Meliola symplocicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 57. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 35. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, plerumque hypophyllis, late effusis, orbicularibus vel plus minus irregularibus interdum indefinitis, plus minusve velutinis, atris, 5~30 mm., postea confluentibus et majoribus, interdum magnum folii partem obtegentibus; mycelio laxè reticulato, ex hyphis irregulariter undulatis, opposite vel irregulariter ramosis, fuscis, 5~8 μ crassis, cellulis 18~42 μ longis composito; hyphopodiis, capitatis sparsis, remotiusculis, interdum alternis vel unilateralibus, cellula superiore oblonga, saepe plus minusve curvata, interdum paulo irregulari, 13~23 \times 8~12 μ , inferiore brevi, 3~9 μ longa; hyphopodiis mucronatis sparsis, interdum oppositis, ampulliformibus, 21~31 \times 7~8 μ ; setis mycelialibus numerosis, praecipue perithecia circulo laxè circumdantibus, rectis, ex fusco atris, 336~630 μ longis, ad basim 8~10 μ crassis, apice bi vel tridentatis, dentibus interdum iterum cristatis et usque 30 μ longis; peritheciis sparsis, globoso-depressis, scabris, atris, 140~190 μ diam., in sicco paulo collabescentibus; ascis oblongis vel ovato-oblongis, brevissime pedicellatis, bisporis, fugacibus, 48~56 \times 23~28 μ , sporidiis oblongis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, 41~46 \times 14~20 μ .

Hab. On leaves of *Symplocos theophrastaefolia* SIEB. et ZUCC. Prov. Taityu: Suisya (Dec. 4, 1938, W. YAMAMOTO); Rengeti (Oct. 21, 1939, W. YAM.).

24. *Meliola taityuensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 131. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 35. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, sparsis, orbicularibus, atris, 2~4 mm. diam.; mycelio laxè vel densiuscule reticulato, ex hyphis rectis, plerumque opposite ramosis, ex fusco atris, 8~9 μ crassis, cellulis 19~30 μ longis composito; hyphopodiis capitatis alternis, rectis interdum leniter curvatis, cellula superiore cylindræa, interdum sursus leniter attenuata, 17~23 \times 9~10 μ , inferiore brevi, 5~7 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 18~30 \times 7~3 μ ; setis mycelialibus non copiosis, subperitheciis locatis, rectis vel plus minus curvatis, atris, tota longitudine opacis, 280~714 μ longis, ad basim 9~10 μ crassis, ad apicem cristatis, interdum bi vel tridentatis, dentibus raro iterum brevissime dentatis et 2~7 μ longis; peritheciis paucis, sparsis, globosis vel globoso-depressis, atris, scabris, 182~224 μ diam.; ascis ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 58~71 \times

25~35 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 44~53 \times 14~23 μ .

Hab. On leaves of *Cyclobalanopsis glauca* (THUNB.) OERST. Prov. Taityu: Mt. Hassenzan (July 13, 1939, W. YAMAMOTO).

Section V

Key to Species

A. Capitata hyphopodia opposite or alternate

I. Mycelial setae uncinatae, on Leguminosae25. *M. heterocephala*

II. Mycelial setae not uncinatae

a. Mycelial setae subpellucid, several septatae

1. Ascospores elliptic cylindrical, on Fagaceae 26. *M. subpellucida*

2. Ascospores cylindrical, on Styracaceae 27. *M. alniphylli*

b. Mycelial setae dark, opaque

1. Mycelial setae somewhat geniculate, 4~10-dentate near the apex, on Aceraceae28. *M. aceris*

2. Mycelial setae 2~3-dentate

(1) Middle cell of ascospore large

x. Ascospores fusoid or ellipsoid, on Fagaceae 29. *M. castanopsina*

y. Ascospores elliptic cylindrical, on Liliaceae 30. *M. smilacis*

(2) Middle cell of ascospore not large

x. Head cells 7~14 \times 7~9 μ , on Sapindaceae31. *M. nepheliiicola*

y. Head cells 12~17 \times 8~10 μ , on Rutaceae.....32. *M. butleri*

B. capitata hyphopodia alternate

I. Perithecia papillate at the apex, on Fagaceae.....33. *M. taiwaniana*

II. Perithecia not papillate at the apex

a. Middle cell of ascospore large, on Palmae34. *M. palmicola*

b. Middle cell of ascospore not large

1. Head cells regular

(1) Head cells globose or subglobose, on Lauraceae.....35. *M. linderiae*

(2) Head cells ellipsoid, on Lauraceae 36. *M. beilschmiediae*

(3) Head cells mostly cylindrical, on Anacardiaceae.....37. *M. mangiferae*

2. Head cells irregular

(1) Head cells subglobose or ellipsoid, small, on Theaceae.....38. *M. cameliicola*

(2) Head cells long ellipsoid or oblong, large

x. Colonies 1~3 mm. in diam., on Lauraceae.....39. *M. litseae*

y. Colonies 2~16 mm. in diam., on Asclepidaceae 40. *M. hoyae*

25. *Meliola hetrocephala* SYDOW, in Ann. Mycol. 14 : 356. 1916 & 15 : 186. 1917 - SACCARDO, Syll. Fung. 24 : 304. 1926 - STEVENS, Ann. Mycol. 26 : 204. 1928 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 59, 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 153. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 23. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, sparsis, orbicularibus, effusis, atris, 1~7 mm. diam., interdum confluentibus; mycelio laxe reticulato, ex hyphis undulatis, opposite vel alterne ramosis, ex fusco dilute brunneis, 6~7 μ crassis, cellulis, 14~30 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, plerumque uno pro cellula, cellula superiore subglobosa vel oblonga, 9~14 \times 7~10 μ , inferiore brevi, 1.5~6 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 14~23 \times 5.6~7 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxe circumdantibus, rectis, ex atro fuscis, 168~238 μ longis, ad basim 7~8 μ crassis, superiore geniculatis, irregulariter incurvo-uncinatis et denticulatis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 124~160 μ diam.; ascis ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 41~53 \times 19~25 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, cellulis terminalibus leniter longioribus, ad septa vix constrictis, brunneis, 30~39 \times 9~13 μ .

Hab. On leaves of *Desmodium laxiflorum* DC. Prov. Tainan : Tōsikyaku (Jan. 2, 1939, W. YAMAMOTO).

26. *Meliola subpellucida* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 136. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 34. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis hypophyllis, sparsis, plerumque in venis elongatis, irregularibus, atris, plus minusve velutinis, 3~6 mm. crassis; mycelio densiuscule reticulato, ex hyphis valde undulatis, irregulariter ramosis, anastomosantibus, fuscis, 7~9 μ crassis, cellulis 16~50 μ longis composito; hyphopodiis capitatis alternis, interdum oppositis, plerumque crebris, clavatis; cellula superior varia, subglobosa vel globoso-depressa, interdum ellipsoidea vel ovoidea, raro leniter angulosa, 9~16 \times 10~16 μ , inferiore brevi, interdum subcylindracea, 4~14 μ longa; hyphopodiis mucronatis paucis, sparsis, ampulliformibus, 14~25 \times 8~9 μ ; setis mycelialibus modice copiosis, rectis vel leniter interdum valde curvatis, apicem versus attenuatis, ex fusco dilutissime brunneis, inferiore opacis, superne subpellucidis vel pellucidis, 364~532 μ longis, ad basim 14~16 μ crassis, ad apicem obtusis, interdum bi vel tridentatis, dentibus raro iterum brevissime

dentatis et 7~32 μ longis; peritheciis paucis, subgregariis, globosis vel globoso-depressis, atris, scabris, 196~252 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 69~103 \times 30~41 μ ; sporidiis ellipsoideo-cylindraccis, interdum plus minusve curvatis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali paulo majore, 48~60 \times 16~20 μ .

Hab. On leaves of *Synaedrys amygdalifolia* (SKAN.) KOIDZ. form. *castanopsisifolia* (HAY.) KUDO. Prov. Tainan: Hunkikō (Oct. 8, 1939, W. YAMAMOTO).

27. *Meliola alniphylli* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30: 418. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 16. 1942 - HARA, List Jap. Fung. 196. 1954.

Coloniis plerumque epiphyllis, orbicularibus, dense velutinis, atris, crustaceis, 1~3 mm. diam.; mycelio dense reticulato, ex hyphis undulatis, opposite vel alterne ramosis, fuscis, 8~10 μ crassis, cellulis 14~30 μ longis composito; hyphopodiis capitatis oppositis vel alternis, crebris, cellula superiore globosa vel subglobosa, 10~14 \times 9~13 μ , inferiore brevi, 4.5~9 μ longa; hyphopodiis mucronatis numerosis, oppositis vel alternis, ampulliformibus, 14~21 \times 7~11.5 μ ; setis mycelialibus numerosis, simplicibus, rectis vel leniter curvatis, apice obtusis et cum capsula capitulata, inferiore fuscis, apicem versus dilutioribus, pellucidis vel subpellucidis, 3~7-septatis, 182~300 μ longis, ad basim 9~13 μ crassis, interdum apice 2~3-dentatis, dentibus 5~21 μ longis; peritheciis gregariis, globosis vel globoso-depressis, scabris, atris, 154~210 μ diam., ascis ellipsoideis vel clavatis, brevissime pedicellatis, 2~3-sporis, fugacibus, 60~69 \times 27.5~34.5 μ ; sporidiis cylindraccis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 39~48 \times 13~16 μ .

Hab. On leaves of *Alniphyllum pterospermum* MATSUM. Prov. Taityu: Suisya (Dec. 4, 1938, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

28. *Meliola aceris* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30: 416. 1940 - SAWADA Bull. Agr. Exp. Stat. Formosa 83: 15. 1942 - HARA, List Jap. Fung. 196. 1954.

Coloniis amphigenis, plerumque hypophyllis, orbicularibus vel plus minus irregularibus, paulo velutinis, atris, 2~7 mm. diam.; mycelio densiuscule reticulato, ex hyphis varie undulatis, opposite vel irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, rarissime oppositis, leniter curvatis, cellula

superiore oblonga, ellipsoidea vel subglobosa, 10~16 \times 8~13 μ , inferiore brevi, 5~8 μ longa; hyphopodiis mucronatis paucis, solitariis, ampulliformibus, 16~25 \times 7~9 μ ; setis mycelialibus modice copiosis, 224~476 μ longis, ad basim 9~10 μ crassis, simplicibus, rectis interdum superiore geniculatis, atris, opacis, apice acutis interdum varie denticulatis, dentibus 5~23 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, leniter verrucosis, atris, 188~238 μ diam.; ascis ellipsoideis vel oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 53~69 \times 28~35 μ ; sporidiis cylindraccis, utrinque late rotundatis, 4-septatis, non vel parum constrictis, fuscis, 39~47 \times 12~20 μ .

Hab. On leaves of *Acer oblongum* WALL. Prov. Karenkō: Kirai (July 5, 1939, W. YAMAMOTO).

29. *Meliola castanopsina* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 125. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 19. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis hypophyllis, sparsis, effusis, orbicularibus, atris, 5~15 mm. diam., interdum confluentibus; mycelio laxo reticulato, ex hyphis valde undulatis, opposite vel irregulariter ramosis, ex brunneo fuscis, 5~8 μ crassis, cellulis 18~37 μ longis composito; hyphopodiis capitatis alternis, raro oppositis, clavatis, leniter curvatis vel subflexuosis, cellula superiore ellipsoidea, oblonga vel subglobosa, 9~15 \times 7~10 μ ; inferiore mox brevi mox longiore, raro 1-septata, 5~16 μ longa; hyphopodiis mucronatis paucis, sparsis, ampulliformibus, 18~30 \times 7~9 μ ; setis mycelialibus modice copiosis, saepe perithecia circulo laxo circumdantibus, rectis vel plus minus curvatis, atris, opacis raro superne subpellucidis, 250~1200 μ longis, ad basim 7~10 μ crassis, ad apicem acutis vel bi-tridentatis, dentibus, brevibus, 4~14 μ longis; peritheciis sparsis, globosis vel globoso-depressis, atris, scabris, 154~196 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 55~78 \times 28~35 μ ; sporidiis ellipsoideis vel elongato-ellipsoideis, interdum leniter curvatis, utrinque obtusis, 4-septatis, ad septa leniter constrictis, cellula centrali majore, fuscis, 44~53 \times 14~19 μ .

Hab. On leaves of *Castanopsis formosana* HAY. Prov. Takao: Rokki (June 2, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Castanopsis stipitata* (HAY.) KAN. et HAT. Prov. Taityu: Godyō (May 7, 1939, W. YAMAMOTO); Rengeti (Oct. 21, 1939, W. YAMAMOTO).

On *Castanopsis uraiana* (HAY.) KAN. & HAT. Prov. Taityu: Suisya (Oct. 1, 1939, W. YAMAMOTO); Rengeti (Oct. 21, 1939, W. YAMAMOTO).

30. *Meliola smilacis* STEVENS, in III. Biol. Monogr. 2: 56. 1916 - SACCARDO, Syll. Fung. 24: 310. 1926 - STEVENS, Ann. Mycol. 26: 206. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 157. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 33. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, sparsis, orbicularibus, tenue crustaceis, 1~3.5 mm. diam.; mycelio dense reticulato, ex hyphis plus minusve undulatis, opposite vel irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis 16~21 μ longis composito; hyphopodiis capitatis alternis vel oppositis, saepe alternis, cellula superiore obovata, ellipsoidea vel subglobosa, 9~15 \times 9~11.5 μ , inferiore brevi, 3.5~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, rectis vel curvatis, 21~25 \times 8~9 μ ; setis mycelialibus non copiosis, simplicibus, rectis vel paulo curvatis, ad apicem obtusis, raro 1~3 denticulatis, ex atro fuscis sed apicem versus pallidioribus, 304~672 μ longis, ad basim 9~11.5 μ crassis; peritheciis subgregariis, globosis, plus minusve verrucosis, atris, 168~252 μ diam.; ascis oblongis vel elliptico-oblongis, bisporis, brevissime pedicellatis, fugacibus, 53~71 \times 26~34 μ ; sporidiis cylindraceis vel elliptico-cylindraceis, utrinque rotundatis, cellulis mediis paulo majoribus, ad septa fortiter constrictis, fuscis, 44~56 \times 14~20 μ .

Hab. On leaves of *Smilax lanceafolia* ROXB. Prov. Taihoku: Sekitei (Nov. 20, 1938, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Smilax stenopetala* GRAY. Prov. Taityu: Rēngeti (Dec. 18, 1938, W. YAMAMOTO).

On *Smilax trachyclada* HAY. Prov. Taihoku: Urai (Jan. 14, 1939, W. YAMAMOTO).

31. *Meliola nepheliicola* STEVENS et ROLDAN, in Phillip. Jour. Sci. 56: 60. 1935 - YAMAMOTO, Sci. Rep. Hyogo Univ. Agr. Ser. Agr. 1: 43. 1953.

Coloniis plerumque hypophyllis, velutinis, atris, 3~17 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis plus minusve undulatis, opposite vel alterne ramosis, fuscis, 5.5~7 μ crassis, cellulis 12~30 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superne globosa, subglobosa vel ovoidea, 7~14 \times 7~9 μ , inferiore brevi, 2.5~7 μ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 14~21 \times 5.5~8 μ ; setis mycelialibus numerosis, simplicibus, atris, opacis, ad apicem acutis vel 2~3-denticulatis, 380~644 μ longis, ad basim 8~10 μ crassis; peritheciis subgregariis, globosis, scabris, atris, 140~210 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 48~60 \times 18~25 μ ; sporidiis oblongis,

utrinque rotundatis, 4-septatis, ad septa leniter constrictis, 37~44 \times 11~17 μ .

Hab. On leaves of *Euphoria Longana* LAM. Prov. Taihoku: Sekitel (Nov. 20, 1938, W. YAMAMOTO); Seihuku (Oct. 30, 1938, W. YAMAMOTO). Prov. Tainan: Kagi (Oct. 19, 1938, W. YAMAMOTO); Kansirei (Dec. 29, 1938, W. YAMAMOTO).

32. *Meliola butleri* SYDOW, in Ann. Mycol. 9: 379, 1911 - SACCARDO, Syll. Fung. 24: 338. 1926 - SAWADA, Stud. Citrol. 3: 348. 1929 & Rept. Dept. Agr. Gov. Res. Inst. Formosa 51: 17. 1931 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 151. 1940 - HARA, List Jap. Fung. 197. 1954.

Meliola citricola SYDOW, in Ann. Mycol. 15: 183. 1917 & 17: 141. 1919 - SACCARDO, Syll. Fung. 24: 337. 1926 - STEVENS, Ann. Mycol. 26: 197. 1928 - SAWADA, Rept. Dept. Agr. Gov. Res. Inst. Formosa 51: 17. 1931 - MUNDKUR, Imp. Council. Agr. Res. Sci. Monogr. 12: 14. 1938.

Coloniis amphigenis, sparsis, orbicularibus, plus minusve velutinis, atris, 1~4 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis saepe opposite ramosis, ex fusco brunneis, 7~9 μ crassis, cellulis 16~28 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superiore oblonga vel ovoidea, 12~17 \times 8~10 μ , inferiore brevi, 3~6 μ longa; hyphopodiis mucronatis paucis, alternis, oppositis vel solitariis, ampulliformibus, 18~25 \times 8~10 μ ; setis mycelialibus numerosis, simplicibus, rectis vel leniter curvatis, atris, 336~714 μ longis, ad basim 9~11 μ crassis, ad apicem acutis, interdum 1~3-denticulatis, dentibus 5~11 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, leniter verrucosis, atris, 154~210 μ diam.; ascis ovato-oblongis vel ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 57~71 \times 25~32 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, brunneis, 41~46 \times 13~20 μ .

Hab. On leaves of *Citrus Tankan* HAY. Prov. Taihoku: Higasizono-tyō (Sept. 18, 1938, W. YAMAMOTO); Sekitei (Nov. 20, 1938, W. YAMAMOTO).

On *Citrus poonensis* HORT. Prov. Taityu: Innrin (Jan. 25, 1939, W. YAMAMOTO).

On *Citrus maxima* (BURM.f.) MERR. Prov. Taihoku: Sinten (Oct. 28, 1938, W. YAMAMOTO).

33. *Meliola taiwaniana* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 128. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 31: 33. 1942 - HARA, List Jap. Fung. 201. 1954.

Coloniis hypophyllis, sparsis, effusis, orbicularibus vel plus minus irregularibus, indefinitis, obscure atris, 5~12 mm. crassis, interdum confluentibus; mycelio laxo vel densiuscule reticulato,

ex hyphis valde undulatis, tortuosis, opposite vel irregulariter ramosis, ex fusco atris, 7~9 μ crassis, cellulis 27~55 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, leniter curvatis, interdum flexuosis, cellula superiore ellipsoidea, oblonga vel ovoidea, interdum leniter angulosa, 15~25 \times 9~16 μ , inferiore mox brevi mox longiore, subcylindracea, 7~25 μ longa; hyphopodiis mucronatis, sparsis, solitariis, ampulliformibus, 19~35 \times 8~10 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxe circumdantibus, simplicibus, rectis vel plus minus curvatis, atris, tota longitudine opacis, 392~1176 μ longis, ad basim 14~16 μ crassis, apice acutis, interdum bi vel tridentatis, dentibus 7~19 μ longis; peritheciis gregariis, subglobosis, apice plus minusve papillatis, scabris, sed apice verruculosus, atris, 210~252 μ diam.; ascis evanescentibus; sporidiis ellipsoideis, utrinque obtusis vel rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali paulo majore, 53~63 \times 18~25 μ .

Hab. On leaves of *Castanopsis taiwaniana* HAY. Prov. Taityu: Rengeti (Oct. 21, 1939, W. YAMAMOTO).

34. *Meliola palmicola* WINTER, in Hedw. 26 : 31. 1887 - ELLIS & EVERHART, N. Amer. Pyren. 46. 1892 - SACCARDO, Syll. Fung. 11 : 267. 1895 - PATOULLARD, Jour. Bot. Paris 4 : 61. 1890 - SYDOW & BUTLER, Ann. Mycol. 9 : 382. 1911 - STEVENS, BISHOP Mus. Bull. 19 : 40. 1925 & Ann. Mycol. 26 : 210. 1928 - DOIDGE & SYDOW, Both. 2 : 443. 1928 - BUTLER & BISBY, Imp. Counc. Agr. Res. Sci. Monogr. 1 : 29. 1931 - HANSFORD, Jour. Linn. Soc. Bot. 51 : 279. 1937 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 156. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 29. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis amphigenis, sparsis, orbicularibus vel irregularibus, tenue crustaceis, plus minusve velutinis, atris, 1~4 mm. longis; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, opposite vel irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis 21~48 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore obovata vel subglobosa, interdum clavata, 15~23 \times 11~15 μ , inferiore subcylindracea, 8~23 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 16~28 \times 7~10 μ ; setis mycelialibus modice copiosis, rectis, atris, opacis, 280~784 μ longis, ad basim 11~14 μ crassis, ad apicem acutis vel 1~3 ies dichotomicae ramulosis, ramulis 5~23 μ longis; peritheciis sparsis, globosis, plus minusve verrucosis, atris, 182~238 μ diam.; ascis oblongis, 2~3-sporis, brevissime pedicellatis, fugacibus,

57~76 \times 28~35 μ ; sporidiis ellipsoideis vel elliptico-oblongis, 4-septatis, cellulis mediis leniter majoribus, ad septa leniter constrictis, fuscis, 44~55 \times 14~21 μ .

Hab. On leaves of *Phoenix Hanceana* NAUD. var. *formosana* BECC. Prov. Tainan: Tamai (May 15, 1939, W. YAMAMOTO).

35. *Meliola linderæ* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 20. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 26. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis hypophyllis, effusis, orbicularibus vel irregularibus, arachnodeis, atris, 7~20 mm. diam., interdum postea confluentibus et magnam folii partem obtegentibus; mycelio reticulato, ex hyphis irregulariter undulatis, opposite vel irregulariter ramosis, 7~9 μ crassis, cellulis 24~48 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula vel remotis, clavatis, cellula superiore globosa vel subglobosa, 14~16 \times 14~16 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 18~25 \times 8~9 μ ; setis mycelialibus modice copiosis, saepe perithecia circulo laxe circumdantibus, rectis vel leniter curvatis, atris, opacis, 238~420 μ longis, ad basim 9~10 μ crassis, apice acutis, interdum 2~3 denticulatis, dentibus 7~9 μ longis; peritheciis sparsis vel subgregariis, subglobosis, scabris, atris, 154~196 μ diam.; cellulis parietis irregularibus, valde lobatis; ascis oblongis vel obovoideo-oblongis, brevissime pedicellatis, bisporis, fugacibus, 62~83 \times 25~32 μ ; sporidiis cylindraceis, utrinque obtusis vel rotundatis, 4-septatis, leniter constrictis, fuscis, 44~58 \times 14~20 μ .

Hab. On leaves of *Lindera communis* HEMSL. Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO). Prov. Taihoku: Sansyorei (Dec. 31, 1938, W. YAMAMOTO). Prov. Tainan: Hunkikô (Oct. 8, 1939, W. YAMAMOTO). Prov. Taitô: Sinsuiei (June 26, 1939, W. YAMAMOTO).

36. *Meliola beilschmiediae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 52. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 18. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis hypophyllis, sparsis, effusis, suborbicularibus, arachnoideis, indistinctis, 3~8 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel undulatis, opposite ramosis, ex fusco atris, 7~8 μ crassis, cellulis 16~30 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore ovoidea, apice obtusa, interdum curvata, 12~17 \times 7~9 μ , inferiore 5~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 18~25 \times

7~8 μ ; setis mycelialibus non copiosis, praecipue perithecia circulo laxe circumdantibus, rectis, atris, opacis, 364~784 μ longis, ad basim 9~11 μ crassis, apice acutis vel 2~5-dentatis vel crestis, dentibus usque 12 μ longis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 168~200 μ diam., in sicco paulo collabescentibus; ascis evanescentibus; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 41~45 \times 14~20 μ .

Hab. On leaves of *Beilschmiedia erythrophloia* HAY. Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO); Kuraru (Nov. 21, 1940, W. YAMAMOTO). Prov. Taityu : Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Tainan : Hunkikō (Oct. 8, 1939, W. YAMAMOTO).

37. *Meliola mangiferae* EARLE, in Bull. N. Y. Bot. Gard. 3 : 307. 1905 - SYDOW & BUTLER, Ann. Mycol. 9 : 382. 1911 - SYDOW, Phillip. Jour. Sci. C. Bot. 8 : 268. 1913 - SACCARDO, Syll. Fung. 22 : 48. 1913 - STEVENS, Ill. Biol. Monogr. 2 : 57. 1916 & Ann. Mycol. 26 : 208. 1928 - TORO, Mycol. 19 : 76. 1927 - CIFERRI, Ann. Mycol. 29 : 289. 1931 - BUTLER & BISBY, Imp. Counc. Agr. Res. Sci. Monogr. 1 : 28. 1931 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 155. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 28. 1942 - HANSFORD & THIRUMALACHAR, Parl. 3 : 285. 1948 - Hara, List Jap. Fung. 199. 1954 - HANSFORD, Reinw. 3 : 76. 1954.

Coloniis amphigenis, sparsis, orbicularibus, velutinis, atris, 2~11 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis plus minus undulatis, opposita vel alterne ramosis, fuscis, 7~9 μ crassis, cellulis 21~32 μ longis composito; hyphopodiis capitatis alternis interdum unilateralibus, plerumque uno pro cellula, cellula superiore cylindracea interdum ellipsoidea vel plus minus irregularibus, 16~22 \times 8~12 μ , inferiore brevi, 4~12 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 21~23 \times 7~9 μ ; setis mycelialibus numerosis, simplicibus, rectis, ad apicem obtusis vel acutis et saepe 2~4-denticulatis, 600~840 μ longis, ad basim 9~12 μ crassis, dentibus 3~16 μ longis; peritheciis sparsis, globosis, scabris, atris, 182~252 μ diam.; ascis clavatis vel ellipsoideis, bisporis, brevissime pedicellatis, fugacibus; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad septa fortiter constrictis, fuscis, 48~56 \times 16~25 μ .

Hab. On leaves of *Mangifera indica* L. Prov. Tainan : Kagi (Oct. 19, 1938, W. YAMAMOTO).

38. *Meliola camelliicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 53. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 19. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis plerumque hypophyllis, late effusis, irregularibus, indefinitis, obscure atris, 2~25 mm. longis, interdum confluentibus et magnam folii partem obtegentibus; mycelio laxissime reticulato, ex hyphis undulatis, opposita vel irregulariter ramosis, fuscis, 5~7 μ crassis, cellulis 18~37 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, plerumque uno pro cellula, interdum remotis, cellula superiore subglobosa, ellipsoidea vel oblonga, 8~14 \times 7~9 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, tenue ampulliformibus 16~28 \times 6~8 μ ; setis mycelialibus paucis, tantum circa basim peritheciolorum evolutis, rectis, atris, 168~560 μ longis, ad basim 9~12 μ crassis, apice acutis vel obtusis et saepe 2~4-dentatis, dentibus 5~37 μ longis; peritheciis sparsis, globoso-depressis, scabris, 140~196 μ diam.; ascis evanescentibus; sporidiis cylindraceis, utrinque rotundatis, fuscis, 4-septatis, ad septa plus minusve constrictis, 44~48 \times 13~19 μ .

Hab. On leaves of *Camellia shinkoensis* (HAY.) MAK. Prov. Taityu : Godyō (May 7, 1939, W. YAMAMOTO).

39. *Meliola litseae* SYDOW, in Ann. Mycol. 15 : 187. 1917 - SACCARDO, Syll. Fung. 24 : 298. 1926 - STEVENS, Ann. Mycol. 26 : 206. 1926 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 60. 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 154. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 27. 1942 - HARA, List Jap. Fung. 199. 1954 - HANSFORD, Reinw. 3 : 38. 1954.

Meliola litseae YATES, in Phillip. Jour. Sci. C. Bot. 12 : 366. 1917 & 13 : 363. 1918 - SACCARDO, Syll. Fung. 24 : 298. 1926.

Coloniis plerumque epiphyllis, sparsis, minutis, orbicularibus vel irregularibus, velutinis, atris, 1~3 mm. diam.; mycelio densiuscule reticulato, ex hyphis plus minus undulatis, saepe opposita ramosis, obscure brunneis, 7~8 μ crassis, cellulis 16~30 μ longis composito; hyphopodiis capitatis alternis, cellula superiore oblonga vel ovato-oblonga, 15~21 \times 10~15 μ , inferiore brevi, 7~12 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 16~25 \times 8~9 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxe circumdantibus, simplicibus, rectis vel leniter curvatis, ex atro fuscis, 210~750 μ longis, ad basim 9~11.5 μ crassis, ad apicem obtusis vel 2~4-denticulatis, dentibus usque 30 μ longis; peritheciis gregariis, globosis vel globoso-depressis, plus minus scabris, atris, 154~182 μ diam.; ascis ellipsoideis vel oblongis, bisporis, brevissime pedicellatis, fugacibus, 60~80 \times 28~35 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 45~55 \times 15~21 μ .

Hab. On leaves of *Litsea cubeba* PERS. Prov. Taiyü : Suisya (Dec. 4, 1938, W. YAMAMOTO).

40. *Meliola hoyae* SACCARDO, in Syll. Fung. 24 : 271. 1926 - STEVENS, Ann. Mycol. 26 : 206. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 153. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 24. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, sparsis, orbicularibus vel plus minus irregularibus, crustaceis, velutinis, atris, 2~16 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis plus minus undulatis, plerumque opposite ramosis, 7~9 μ crassis, cellulis 14~32 μ longis composito; hyphopodiis capitatis crebris, alternis, plerumque uno pro cellula, cellula superiore cylindracea vel oblonga, 14~19 \times 9~12 μ , inferiore brevi, 7~9 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 16~28 \times 7~9 μ ; setis mycelialibus modice copiosis, rectis, ex atro fuscis, opacis, 280~574 μ longis, ad basim 9~12 μ crassis, ad apicem obtusis vel acutis et saepe 1~2 ies dichotmice ramulosis interdum denticulatis, ramulis 9~30 μ longis; peritheciis sparsis, globosis, scabris, atris, 140~238 μ diam.; ascis ellipsoideis, bisporis, brevissime pedicellatis, fugacibus, 56~80 \times 25~31 μ ; sporidiis cylindraceis vel oblongis, late rotundatis, 4-septatis, ad septa fortiter constrictis, fuscis, 42~50 \times 14~20 μ .

Hab. On leaves of *Hoya carnosa* BROWN. Prov. Taihoku : Sekitei (Nov. 13, 1938, W. YAMAMOTO).

Section VI

Key to Species

- A. Head cells irregular, deeply lobed, on Rutaceae 41. *M. fagaricola*
 B. Head cells ellipsoid or ovoid, somewhat irregular
 1. Mycelial setae strongly uncinatæ, on Gramineae 42. *M. andropogonis*
 2. Mycelial setae somewhat irregularly curved, on Rhamnaceae 43. *M. ventilaginis*

41. *Meliola fagaricola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 419. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 22. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus vel plus minus irregularibus, velutinis, atris, crustaceis, 1~5 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, ex fusco atro-brunneis, 8~10 μ crassis, cellulis 16~37 μ longis composito; hyphopodiis capitatis alternis, crebris, uno pro cellula, cellula superiore irregulari, 2~4-

lobata, 21~28 \times 18~25 μ , inferiore subcylindracea, 7~16 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 18~30 \times 8~10 μ ; setis mycelialibus numerosis, simplicibus, uncinulatis, atris, opacis, apice obtusis et pellucide brunneis, 280~644 μ longis, ad basim 8~10 μ crassis; peritheciis sparsis, globosis vel globoso-depressis, scabris, atris, 210~270 μ diam., ascis ellipsoideis vel oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 62~89 \times 32~44 μ ; sporidiis elliptico-cylindraceis, 4-septatis, ad septa valde constrictis, 51~65 \times 14~25 μ .

Hab. On leaves of *Fagaya nitida* ROXB. Prov. Taihoku : Sekitei (Nov. 13. 1938, W. YAMAMOTO); Sansyorei (Dec. 31, 1938, W. YAMAMOTO).

42. *Meliola andropogonis* STEVENS & ROLDAN, in Phillip. Jour. Sci. 56 : 61. 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 150. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 16. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis plerumque epiphyllis, sparsis, orbicularibus densiuscule crustaceis, velutinis, atris, 1~4 mm. diam.; mycelio dense reticulato, ex hyphis plus minusve undulatis, plerumque opposite ramosis, fuscis, 7~9 μ crassis, cellulis 18~23 μ longis composito; hyphopodiis capitatis alternis, crebris, plerumque uno pro cellula, cellula superiore ovoidea, ellipsoidea vel irregulari, plus minusve angulata vel lobulata, 12~19 \times 11~16 μ , inferiore 5~14 μ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, 14~19 \times 7~10 μ ; setis mycelialibus modice copiosis, simplicibus, fortiter uncinatis, ad apicem obtusis vel subacutis, atris, opacis, 168~350 μ longis, ad basim 10~13 μ crassis; peritheciis gregariis, globosis vel globoso-depressis, scabris, atris, 140~196 μ diam.; ascis ellipsoideis, 2~4-sporis, brevissime pedicellatis, fugacibus, 60~76 \times 30~37 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, cellulis fere aequalibus vel mediis parum majoribus, ad septa plus minusve constrictis, brunneis, 41~48 \times 12~18 μ .

Hab. On leaves of *Miscanthus japonicus* (THUNB.) ANDR. Prov. Taihoku : Tyokutan (Nov. 3, 1938, W. YAMAMOTO); Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taiyü : Suisya (Dec. 11, 1938, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

43. *Meliola ventilaginis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 27. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 36. 1942 - HARA, List Jap. Fung. 201. 1954.

Coloniis hypophyllis, effusis, orbicularibus vel irregularibus, arachnoideis, plus minusve velutinis, atris, 3~15 mm. diam., postea interdum confluen-

tibus et marginibus folii partem obtegentibus; mycelio laxe reticulato, ex hyphis plus minusve undulatis, opposite vel irregulariter ramosis, ex fusco fuliginosis, 7~3 μ crassis, cellulis 23~51 μ longis composito; hyphopodiis capitatis non copiosis, alternis vel unilateralibus, remotis, clavatis vel irregulariter clavatis, subflexuosis, cellula superiore varia, ellipsoidea, ovoidea, obovoidea vel irregulari, plus minusve angulosa vel 1~3-lobulata, 14~20 \times 9~16 μ , inferiore 12~23 μ longa; hyphopodiis mucronatis modice copiosis, oppositis, alternis, unilateralibus vel solitariis, longiore ampulliformibus, interdum curvatis, 16~35 \times 7~9 μ ; setis mycelialibus numerosis, plerumque uncinulatis vel irregulariter curvatis, interdum rectis, ex atro fuscis, apice acutiusculis, sed pellucidis, brunneis, 210~364 μ longis, ad basim 9~10 μ crassis; peritheciis subgregariis, globosis, verruculosis, atris, 182~224 μ diam.; ascis ellipsoideis vel oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 46~62 \times 23~30 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuliginosis, 39~48 \times 12~16 μ .

Hab. On leaves of *Ventilago elegans* HEMSL. Prov. Taihoku; Sekitei (Nov. 13, 1938 & Apr. 2, 1939, W. YAMAMOTO); Sansyōrei (Dec. 31, 1938, W. YAMAMOTO). Prov. Taityu: Godyō (May 7, 1939, W. YAMAMOTO).

Section VII

Key to Species

- A. Capitata hyphopodia mostly opposite
 - a. Mycelial setae shorter than 320 μ , with acute apices, on Saxifragaceae...44. *M. cylindrophora*
 - b. Mycelial setae 250~600 μ long, with obtuse apices, on Styracaceae 45. *M. styracis*
- B. Capitata hyphopodia opposite or alternate
 - a. Mycelial setae obtuse at the apex
 - 1. Head cells irregular, somewhat lobed or angulate, on Ranunculaceae...46. *M. knowltoniae*
 - 2. Head cells regular, entire
 - (1). Mycelial setae 170~390 \times 7~9 μ , on Leguminosae 47. *M. aethiops*
 - (2). Mycelial setae 310~760 \times 9~12 μ , on Ebenaceae 48. *M. diospyri*
 - b. Mycelial setae acute at the apex
 - 1. Mycelial setae shorter than 300 μ , on Leguminosae 49. *M. hoaa*
 - 2. Mycelial setae 300~900 μ long, on Saxifragaceae.....50. *M. pileostegias*
 - 3. Mycelial setae 300~600 μ long
 - (1). Ascospores small, 32~43 \times 14~18 μ , on Nyctanginaceae.....51. *M. pisoniae*
 - (2). Ascospores large, 41~55 \times 12~22 μ , on Santalaceae.....52. *M. champereiae*

- (3). Ascospores medium, 35~46 \times 12~18 μ
 - x. Head cells oblong, on Leguminosae53. *M. bauhiniicola*
 - y. Head cells subglobosa or ellipsoid, on Convolvulaceae... 54. *M. malacotricha*
- C. Capitata hyphopodia mostly alternate
 - a. Mycelial setae obtuse or rounded at the apex
 - 1. Ascospores fusoid, on Fagaceae..... 55. *M. fusispora*
 - 2. Ascospores cylindrical, on Verbenaceae..... 56. *M. callicarpicola*
 - b. Mycelial setae acute at the apex
 - 1. Perithecia papillate at the apex, on Menispermaceae.....57. *M. pericampyli*
 - 2. Perithecia not papillate at the apex
 - (1). Ascospore 32~39 \times 9~14 μ , on Leguminosae.....58. *M. banosensis*
 - (2). Ascospores 39~48 \times 12~16 μ , on Araliaceae.....59. *M. araliicola*

44. *Meliola cylindrophora* REHM, in Phillip. Jour. Sci. C. Bot. 3: 181. 1913 - SYDOW, ibid. 3: 475. 1913 - REHM, Ann. Mycol. 12: 165. 1914 - STEVENS, Ann. Mycol. 26: 232. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 152. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 21. 1942 - HARA, List Jap. Fung. 197. 1954 - HANSFORD, Reinw. 3: 83 1954.

Coloniis epiphyllis, sparsis, orbicularibus, crustaceis, velutinis, atris, 2~5 mm. diam.; mycelio dense reticulato, ex hyphis rectis, opposite ramosis, fuscis, 7~9 μ crassis, cellulis 16~30 μ longis composito; hyphopodiis capitatis crebris, plerumque oppositis, cellula superiore oblonga, 12~16 \times 8~10 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis nullis; setis mycelialibus modice copiosis, rectis vel leniter curvatis, apice acutis, atris, 252~322 μ longis, ad basim 7~9 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 210~252 μ diam.; ascis elliptico-oblongis, plerumque bisporis, brevissime pedicellatis, fugacibus, 64~76 \times 30~37 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4 - septatis, cellulis mediis leniter majoribus, ad septa fortiter constrictis, fuscis, 39~48 \times 14~18.5 μ .

Hab. On leaves of *Itea chinensis* HOOK. & ARN. var. *subserrata* MAXIM. Prov. Taihoku: Sekitei (Nov. 20 & 23, 1933, W. YAMAMOTO); Sansyōrei (Dec. 31, 1939, W. YAMAMOTO); Urai (Jan. 14, 1939, W. YAMAMOTO).

On *Itea chinensis* HOOK. & ARN. var. *arisanensis* MASAM. Prov. Tainan: Hunkikō (Mar. 20, 1939, W. YAMAMOTO). Prov. Taihoku: Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu: Musya (July 3, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

45. *Meliola styracis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 228. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 34. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, sparsis, orbicularibus, interdum plus minusve irregularibus, crustulis, atris, 3~5 mm. diam.; mycelio densiuscule reticulato, ex hyphis, oppositè ramosis, fuscis, 7~9 μ crassis, cellulis 14~25 μ longis composito; hyphopodiis capitatis plerumque oppositis, confertis, cellula superior oblonga vel ellipsoidea, 9~15 \times 8~10 μ , inferiore brevi, 2~5 μ longa; hyphopodiis mucronatis paucis, oppositis vel solitariis, ampulliformibus, 16~25 \times 9~10 μ ; setis mycelialibus non copiosis, praecipue circa basim perithecorum evolutis, rectis vel leniter curvatis, ex fusco atris, opacis, 250~600 μ longis, ad basim 9~10 μ crassis; peritheciis gregariis, globosis, atris, plus minusve verrucosis, 168~238 μ diam.; areola myceliali radiante cinctis; ascis oblongis vel ellipsoideo-oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 53~80 \times 25~35 μ ; sporiis cylindraceis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, 37~48 \times 13~18 μ .

Hab. On leaves of *Styrax suberifolius* HOOK. et ARN. Prov. Taihoku : Urai (Jan. 14, 1939, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 17, 1938, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO); Godyô (May 7, 1939, W. YAMAMOTO); Mt. Hassenzan (Dec. 21, 1940, W. YAMAMOTO). Prov. Tainan : Tamai (May 14, 1939, W. YAMAMOTO).

46. *Meliola knowltoniae* DOIDGE, in Both. 1 : 208. 1924 - STEVENS, Ann. Mycol. 26 : 260. 1928 - DOIDGE & SYDOW, Both. 2 : 461. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 153. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 25. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis epiphyllis, sparsis, effusis, orbicularibus vel irregularibus, atris, 1~3 mm. longis; mycelio laxè reticulato, ex hyphis undulatis, oppositè vel alterne ramosis, fuscis, 7~9 μ crassis, cellulis 21~46 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, saepe uno pro cellula, interdum remotis, cellula superiore irregulariter clavata vel irregulari, leniter curvata, plus minusve angulata, raro leniter lobulata, 15~21 \times 14~16 μ , inferiore brevi, 7~12 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 16~28 \times 8~9 μ ; setis mycelialibus non copiosis, praecipue perithecia circulo laxè circumdantibus, rectis vel irregulariter curvatis, apice obtusis, ex atro fuscis, 300~840 μ longis, ad basim 9~10 μ crassis; peritheciis subgregariis globosis vel globoso-depressis, plus minusve verrucosis, atris, 126~182 μ diam.; ascis ellipsoideis,

bisporis, brevissime pedicellatis, fugacibus, 51~60 \times 27~32 μ ; sporiis cylindraceis, utrinque rotundatis, 4-septatis, cellulis terminalibus leniter longioribus, ad septa leniter constrictis, ex fusco brunneis, 38~44 \times 14~17 μ .

Hab. On leaves of *Clematis Gouriana* ROXB. Prov. Taihoku : Sekitei (Nov. 20, 1938, W. YAMAMOTO). Prov. Tainan : Tosikyaku (Jan. 2, 1939, W. YAMAMOTO). Prov. Karenkô : Sakahen (July 6, 1939, W. YAMAMOTO).

On *Clematis floribunda* YAMAM. Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

47. *Meliola aethiops* SACCARDO, in Syll. Fung. 24 : 302. 1926 - STEVENS, Ann. Mycol. 26 : 226. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 149. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 16. 1942 - HARA, List Jap. Fung. 196. 1954 - HANSFORD, Reinw. 3 : 79. 1954.

Coloniis epiphyllis, sparsis, effusis, orbicularibus vel plus minus irregularibus, atris, 1~4 mm. longis, interdum confluentibus; mycelio laxè reticulato, ex hyphis rectis vel leniter undulatis, oppositè vel irregulariter ramosis, brunneis, 6~7 μ crassis, cellulis 16~25 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superiore subglobosa vel ellipsoidea, 9~14 \times 8~10 μ , inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis paucis, solitariis vel oppositis, ampulliformibus, 14~21 \times 7~9 μ ; setis mycelialibus modice copiosis, simplicibus, rectis vel leniter curvatis, fuscis, ad apicem obtusis et pellucide brunneis, 168~392 μ longis, ad basim 7~9 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, scabris, atris, 140~182 μ diam.; ascis ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 46~69 \times 25~37 μ ; sporiis cylindraceis, utrinque rotundatis, 4-septatis, cellulis terminalibus leniter majoribus, ad septa vix constrictis, brunneis, 32~44 \times 10~16 μ .

Hab. On leaves of *Cassia siamea* LAMK. Prov. Tainan : Unsui (Mar. 19, 1939, W. YAMAMOTO).

48. *Meliola diospyri* SYDOW, in Ann. Mycol. 9 : 381. 1911 - SACCARDO, Syll. Fung. 24 : 284. 1926 - STEVENS, Ann. Mycol. 26 : 229. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 152. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 21. 1942 - HARA, List Jap. Fung. 198. 1954.

Meliola diospyriae YATES, in Phillip. Jour. Sci. C. Bot. 12 : 364. 1917 - SACCARDO, Syll. Fung. 24 : 284. 1926 - STEVENS, Ann. Mycol. 26 : 228. 1928.

Coloniis plerumque epiphyllis, sparsis, orbicularibus vel plus minus irregularibus, leniter velutinis, atris, 1~4 mm. diam. interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, saepe oppositè ramosis,

fuscis, 7~8 μ crassis, cellulis 18~28 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superiore oblonga, 11~18 \times 9~13 μ , inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 16~28 \times 7~8 μ ; setis mycelialibus modice copiosis, saepe perithecia circulo laxe circumdantibus, rectis, ex atro fuscis, apice obtusis, 310~756 μ longis, ad basim 9~12 μ crassis; peritheciis sparsis, globosis vel globoso-depressis, scabris, atris, 154~196 μ diam.; ascis oblongis vel elliptico-oblongis, bisporis, brevissime pedicellatis, fugacibus 62~74 \times 27~32 μ ; sporidiis oblongis vel elliptico-oblongis, utrinque late rotundatis, 4-septatis, cellulis extimis leniter minoribus, ad septa fortiter constrictis, brunneis, 44~53 \times 16~23 μ .

Hab. On leaves of *Diospyros Morrisiana* HANCE. Prov. Taityu : Suisya (Dec. 4, 1938, W. YAMAMOTO).

49. *Meliola koae* STFVENS, in BISHOP Mus. Bull. 19 : 34. 1925 & Ann. Mycol. 26 : 220. 1928 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 62. 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 154. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 25. 1942 - HARA, List Jap. Fung. 198. 1954.

Meliola acaciae-confusae SAWADA, in Rept. Dept. Agr. Gov. Res. Inst. 51 : 16. 1931.

Coloniis amphigenis, sparsis, orbicularibus, plus minusve velutinis, atris, 1~4 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, brunneis, 8~9 μ crassis, cellulis 25~35 μ longis composito; hyphopodiis capitatis oppositis interdum alternis, crebris, cellula superiore subglobosa vel oblonga, recta vel leniter curvata, 9~15 \times 9~12 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 16~25 \times 7~9 μ ; setis mycelialibus modice copiosis, simplicibus, rectis vel leniter curvatis, apice obtusis vel subacutis, ex fusco brumeis, 154~280 μ longis, ad basim 8~9 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, plus minus verrucosis, atris, 168~238 μ diam.; ascis ellipsoideis vel ovatis, bisporis, brevissime pedicellatis, fugacibus, 51~69 \times 32~37 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 42~53 \times 12~21 μ .

Hab. On leaves of *Acacia confusa* MERR. Prov. Taihoku : Mokusaku (Sept. 25, 1938, W. YAMAMOTO); Sinten (Oct. 23, 1938, W. YAMAMOTO). Prov. Takao : Kuwarusu (Apr. 12, 1942, W. YAMAMOTO).

50. *Meliola pileostegiae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 228. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 31. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, laxe raro densiuscule

sparsis, orbicularibus, atris, velutinis, crustulis 1~4 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel lenter curvatis, opposite ramosis, fuscis, 7~9 μ crassis, 14~23 μ longis composito; hyphopodiis capitatis oppositis vel alternis, confertis, cellula superiore oblonga vel ellipsoidea, 11~16 \times 9~10 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 14~23 \times 7~8 μ ; setis mycelialibus numerosis, simplicibus, rectis vel plus minus curvatis, sursum attenuatis, apice acutis, ex fusco atris, opacis sed superiore pallidioribus et subpellucidis, 336~868 μ longis, ad basim 9~11 μ crassis; peritheciis subgregariis, globosis, scabris, 182~224 μ diam.; ascis ellipsoideis vel oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 60~83 \times 23~37 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 41~50 \times 14~18 μ .

Hab. On leaves of *Pileostegia viburnoideis* HOOK. et THOMS. Prov. Taihoku : Sekitei (Apr. 2, 1939, W. YAMAMOTO). Prov. Tainan : Hunkikô (Mar. 20, 1939, W. YAMAMOTO). Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

51. *Meliola pisoniae* STEVENS et ROLDAN, in Phillip. Jour. Sci. 56 : 62. 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 156. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 31. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, plerumque epiphyllis, sparsis, minutis, orbicularibus, velutinis, atris, 1~2.5 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, 7~8 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis oppositis, interdum alternis, cellula superiore ellipsoidea, interdum subglobosa, 9~14 \times 8~9 μ , inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis paucis, oppositis, vel solitariis, ampulliformibus, 16~30 \times 6~7 μ ; setis mycelialibus modice copiosis, simplicibus, rectis, apice acutis, ex atro fuscis, opacis, sed apice pellucidis, 280~560 μ longis, ad basim 11~14 μ crassis; peritheciis sparsis, globosis, scabris, atris, 112~154 μ diam.; ascis 2~3-sporis, fugacibus; sporidiis cylindraccis, interdum ad basim attenuatis, utrinque rotundatis vel obtusis, 4-septatis, cellulis terminalibus leniter longioribus, ad septa leniter constrictis, fuscis, 32~43 \times 9~14 μ .

Hab. On leaves of *Pisonia aculeata* L. Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO).

52. *Meliola champeriae* SYDOW, in Ann. Mycol. 12 : 549. 1914 & 15 : 183. 1917 - SACCARDO, Syll. Fung. 24 : 340. 1926 - STEVENS, Ann. Mycol. 26 : 222.

1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 152. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 20. 1942 - HARA, List Jap. Fung. 197. 1954.

Coniis plerumque hypophyllis, sparsis, orbicularibus vel paulo irregularibus, crustaceis, atris, 1~5 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis rectis vel plus minus undulatis, saepe opposite ramosis, fuscis, 7~9 μ crassis, cellulis 14~28 μ longis composito; hyphopodiis capitatis alternis vel oppositis, crebris, cellula superiore obovoidea, oblonga vel subglobosa, 11~16 \times 10~13 μ , inferiore brevi, 5~11 μ , longa; hyphopodiis mucronatis paucis, oppositis vel solitariis, ampulliformibus, 16~25 \times 8~9 μ ; setis mycelialibus numerosis, simplicibus, rectis vel leniter curvatis, apice acutis, atris, opacis, 280~574 μ longis, ad basim 9~12 μ crassis; peritheciis subgregariis globosis vel globoso-depressis, plus minusve scabris, atris, 154~224 μ diam.; ascis oblongis vel ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 53~70 \times 28~39 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad septa constrictis, fuscis, 41~55 \times 12~22 μ .

Hab. On leaves of *Champereia manillana* (BL.) MERR. Prov. Tainan : Tamai (May 14, 1939, W. YAMAMOTO). Prov. Takao : Rokki (June 2, 1939, W. YAMAMOTO). Prov. Taitô : Taibu (June 26, 1939, W. YAMAMOTO).

53. *Meliola bauhiniicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 225. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 17. 1942 - HARA, List Jap. Fung. 197. 1954.

Coniis epiphyllis, sparsis, effusis, orbicularibus, atris, 2~4 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel plus minus undulatis, plerumque opposite ramosis, fuscis, 7~8 μ crassis, 16~28 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superiore oblonga, interdum obovoidea, 9~16 \times 7~9 μ , inferiore brevi, 4.5~3 μ longa; hyphopodiis mucronatis non copiosis, alternis vel oppositis, ampulliformibus, 16~25 \times 5.5~3 μ ; setis mycelialibus modice copiosis, rectis, apice acutis, atris, opacis, 420~532 μ longis, ad basim 8~9 μ crassis; peritheciis gregariis, globosis, scabris, 154~193 μ diam.; ascis ellipsoideis vel oblongis, 2~3-sporis, fugacibus, 48~62 \times 25~30 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 39~46 \times 12~18 μ .

Hab. On leaves of *Bauhinia Championi* BENTH. Prov. Taihoku : Sekitei (Nov. 14, 1938, W. YAMAMOTO); Urai (Nov. 3, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 17, 1938, W. YAMAMOTO); Mt. Hassenzan (Dec. 21, 1940, W. YAMAMOTO). Prov. Sintiku : Mt. Kappanzan (May 21, 1939, W.

YAMAMOTO). Prov. Karenkô : Sakahen (July 6, 1939, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

54. *Meliola malcotricha* SPEGAZZINI, in SACCARDO, Syll. Fung. 9 : 425. 1891 - STEVENS, Ann. Mycol. 23 : 227. 1923 - SYDOW, ibid. 23 : 58. 1930 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 63. 1935 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 154. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 28. 1942 - HARA, List Jap. Fung. 199. 1954 - HANSFORD, Reinw. 3 : 80. 1954.

Meliola ipomoeae EARLE, in SACCARDO, Syll. Fung. 17 : 549. 1905 - STEVENS, Ill. Biol. Monogr. 2 : 54. 1916 & Ann. Mycol. 26 : 227. 1928.

Meliola merremiae REHM, in Phillip. Jour. Sci. C. Bot. 8 : 253. 1913 - SYDOW, Ann. Mycol. 15 : 190. 1917 - SACCARDO, Syll. Fung. 24 : 280. 1926 - STEVENS, Ann. Mycol. 26 : 227. 1928.

Meliola hewittiae REHM, in Phillip. Jour. Sci. C. Bot. 8 : 253. 1913 - SYDOW, Ann. Mycol. 15 : 186. 1917 & 21 : 96. 1923 - SACCARDO, Syll. Fung. 24 : 281. 1926 - STEVENS, Ann. Mycol. 26 : 227. 1928.

Coniis plerumque epiphyllis, sparsis suborbicularibus, minutis, atris, 1~3 mm. diam. interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, obscure brunneis, 7~8 μ crassis, cellulis 14~25 μ longis composito; hyphopodiis capitatis oppositis vel alternis, cellula superiore subglobosa vel ellipsoidea, 9~12 \times 8~10 μ , inferiore brevi, 3~6 μ longa; hyphopodiis mucronatis non copiosis, alternis, oppositis vel solitariis, ampulliformibus 14~21 \times 6~8 μ ; setis mycelialibus modice copiosis, simplicibus, rectis vel leniter curvatis, apice acutis, ex atro fuscis, 168~560 μ longis, ad basim 9~10 μ crassis; peritheciis gregariis, globosis vel globoso-depressis, plus minus verrucosis, atris, 140~189 μ diam., ascis oblongis vel ovato-oblongis, 2~4-sporis, brevissime pedicellatis, fugacibus, 48~67 \times 23~30 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, brunneis, 35~46 \times 14~16 μ .

Hab. On leaves of *Ipomoea indica* (BURM.) MERR. Prov. Taityu : Suisya (Dec. 4, 1938, W. YAMAMOTO); Godyô (May 7, 1939, W. YAMAMOTO).

On *Ipomoea* sp. Prov. Tainan : Unsui (Jan. 2, 1939, W. YAMAMOTO).

55. *Meliola fusispora* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 126. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 22. 1942 - HARA, List Jap. Fung. 198. 1954.

Coniis hypophyllis, sparsis, orbicularibus, atris, plus minusve velutinis, 3~9 mm. diam.; mycelio laxo reticulato, ex hyphis valde undulatis, irregulariter ramosis, tortuosis, ex fusco atris, 7~10 μ

crassis, cellulis 25~44 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, raro oppositis, plus minusve curvatis, cellula superiore ovata, ellipsoidea vel oblonga, 14~21 \times 9~16 μ , inferiore mox brevi mox longiore, subcylindracea, 5~14 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, tenue corniformibus, 21~32 \times 8~11 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumstantibus, simplicibus, rectis vel leniter curvatis, apice obtusis vel rotundatis, atris, opacis sed superne subpellucidis, 420~1780 μ longis, ad basim 14~16 μ crassis; peritheciis gregariis vel sparsis, globosis, atris, verrucosis, appendiculatis, 224~294 μ diam.; appendicibus brevioribus, corniformibus, saepe curvatis, apice truncatis, vel rotundatis, 25~55 μ longis, ad basim 21~30 μ crassis; ascis fuscoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 69~104 \times 27~39 μ ; sporidiis fusiformibus, interdum leniter curvatis, utrinque obtusis vel subacutis, 4-septatis, ad septa leniter constrictis, cellula centrali multo majore, fuscis, 53~67 \times 16~23 μ .

Hab. On leaves of *Castanopsis stipitata* (HAY.) KAN. et HAT. Prov. Tainan: Hunkikô (Oct. 8, 1939, W. YAMAMOTO).

56. *Meliola callicarpicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 226. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 19. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis epiphyllis, laxe vel densiuscule sparsis, effusis, orbicularibus, obscure atris, 1.5~4 mm. diam.; mycelio laxa reticulato, ex hyphis valde undulatis, plerumque opposite ramosis, fuscis, 6~7 μ crassis, cellulis 25~37 μ longis composito; hyphopodiis capitatis alternis, raro oppositis, plerumque uno pro cellula, cellula superiore ellipsoidea, interdum subglobosa, 10~14 \times 8~10 μ , inferiore brevi, 4~8 μ longa; hyphopodiis mucronatis oppositis, alternis vel unilateralibus, ampulliformibus, 16~23 \times 6~8 μ ; setis mycelialibus modice copiosis, saepe circa basim perithecorum evolutis, simplicibus, rectis vel plus minus curvatis, apice obtusis, ex fusco atris, opacis sed superiore pallidioribus et pellucidis, 280~460 μ longis, ad basim 8~9 μ crassis; peritheciis subgregariis, globosis, scabris, atris, 140~200 μ diam.; ascis clavatis, brevissime pedicellatis, 2~3-sporis, fugacibus, 56~67 \times 25~30 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 37~42 \times 12~16 μ .

Hab. On leaves of *Callicarpa formosana* ROLFE. Prov. Taihoku: Urai (Jan. 14, 1939; W. YAMAMOTO); Sekitei (Apr. 2, 1939, W. YAMAMOTO).

On *Callicarpa longiloba* MERR. Prov. Taiyuu: Mt. Hassensan (Dec. 19, 1940, W. YAMAMOTO).

57. *Meliola pericampyli* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 55. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 30. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, sparsis, plerumque epiphyllis, orbicularibus, atris, plus minusve velutinis, 2~4 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel undulatis, opposite vel alterne ramosis, fuscis, 7~9 μ crassis, cellulis 23~39 μ longis composito; hyphopodiis capitatis alternis, raro oppositis, clavatis, plerumque uno pro cellula, rectis vel curvatis, cellula superiore subglobosa vel oblonga, 11~16 \times 9~13 μ , inferiore subcylindracea, 5~14 μ longa; hyphopodiis mucronatis non copiosis, alternis vel oppositis, ampulliformibus, 16~28 \times 7~9 μ ; setis mycelialibus modice copiosis, atris, opacis, apice subacutis, 280~798 \times 9~12 μ ; peritheciis gregariis, globosis vel subglobosis, plus minusve scabris, apice paulo papillatis, non ostiolatis, 140~196 μ diam., in sicco collabescentibus; ascis ellipsoideo-cylindraceis, breviter pedicellatis, 2~3-sporis, 60~80 \times 25~35 μ ; sporidiis cylindraceis, utrinque rotundatis, fuscis, 4-septatis, leniter constrictis, 40~50 \times 13~16 μ .

Hab. On leaves of *Pericampylus formosanus* DIELS. Prov. Taiyuu: Rengeti (Dec. 18, 1938 & Oct. 21, 1939, W. YAMAMOTO).

58. *Meliola banosensis* SYDOW, in Ann. Mycol. 14: 356. 1916 & 15: 182. 1917 - SACCARDO, Syll. Fung. 24: 307. 1926 - STEVENS, Ann. Mycol. 26: 272. 1928 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56: 74. 1936 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 150. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 17. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis plerumque epiphyllis, sparsis, orbicularibus vel plus minus irregularibus, leniter velutinis, atris, 1~5 mm. diam., mycelio laxo reticulato, ex hyphis rectis vel plus minus undulatis, opposite vel alterne ramosis, brunneis, 5~7 μ crassis, cellulis 12~37 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, raro oppositis, plerumque uno pro cellula, cellula superiore subglobosa vel oblonga, 9~14 \times 7~14 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 14~21 \times 6~9 μ ; setis mycelialibus numerosis, simplicibus, rectis, ex atro fuscis, ad apicem pallidioribus et subacutis, 210~560 μ longis, ad basim 7~10 μ crassis; peritheciis sparsis, globosis vel subglobosis, scabris, 183~193 μ diam.; ascis clavatis vel oblongis, 2~3-sporis, brevissime pedicellatis, fugacibus, 44~62 \times 21~28 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa parum constrictis, 32~39 \times 9~14 μ .

Hab. On leaves of *Pueraria Thunbergiana* (SIEB. et ZUCC.) BENTH. Prov. Taihoku: Seihuku (Oct. 30, 1938, W. YAMAMOTO); Sekitei (Nov. 13, 1938, W. YAMAMOTO). Prov. Tainan: Unsui (June 2, 1939, W. YAMAMOTO). Prov. Takao: Sempei (June 4, 1939, W. YAMAMOTO). Prov. Karenkô: Sakahen (July 6, 1939, W. YAMAMOTO).

On *Milletia reticulata* BENTH. Prov. Taihoku: Seihuku (Oct. 30, 1938, W. YAMAMOTO); Sekitei Nov. 23, 1938, W. YAMAMOTO). Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO). Prov. Tainan: Kansirei (Jan. 2, 1939, W. YAMAMOTO); Unsui (Mar. 19, 1939, W. YAMAMOTO).

59. *Meliola araliicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 224. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 16. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis epiphyllis, laxe vel densiuscule sparsis, minutis, orbicularibus vel plus minus irregularibus, atris, 1~3 mm. diam., interdum confluentibus; mycelio laxe reticulato, ex hyphis rectis vel plus minus undulatis, plerumque opposite rectangulariterque ramosis, fuscis, 7~9 μ crassis, 14~23 μ longis composito; hyphopodiis capitatis alternis, raro oppositis, cellula superiore globosa vel subglobosa, 9~14 x 9~12 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, interdum irregulariter curvatis, 16~25 x 7~9 μ ; setis mycelialibus non copiosis, praecipue circa basim perithecorum evolutis, simplicibus, rectis, apice acutis, rigidis, ex fusco atris, opacis, 240~644 μ longis, ad basim 9~10 μ crassis; peritheciis subgregariis, globosis, plus minusve verrucosis, atris, 154~200 μ diam.; ascis obovoideo-oblongis vel clavatis vel oblongis, breviter pedicellatis, 2~3-sporis, fugacibus, 60~78 x 25~33 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa constrictis, fuscis, 39~48 x 12~16 μ .

Hab. On leaves of *Aralia Decaisneana* HANCE. Prov. Taityu: Suisya (Dec. 4, 1939, W. YAMAMOTO).

Section VIII

Key to Species

- A. Ascospores fusoid or helminthoid
 - a. Mycelial setae rather short, 280~480 μ , on Rubiaceae 60. *M. mephitidiae*
 - b. Mycelial setae rather long, 300~800 μ , on Leguminosae 61. *M. euchrestae*
- B. Ascospores ellipsoid or cylindrical
 - a. Head cells globose or subglobose, on Rosaceae 62. *M. formosensis*
 - b. Head cells ellipsoid, on Verbenaceae 63. *M. sakawensis*

c. Head cells irregular, somewhat lobed or angulate

- 1. Ascospores longer than 53 μ on Gramineae 64. *M. panici*
- 2. Ascospores shorter than 52 μ
 - (1). Mycelial setae 220~430 x 9~10 μ , on Euphorbiaceae 65. *M. glochidiicola*
 - (2). Mycelial setae 360~780 x 11~14 μ , on Magnoliaceae 66. *M. kadsurae*

60. *Meliola mephitidiae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 227. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 26. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis hypophyllis, late effusis, obscure atris, orbicularibus vel irregularibus, indefinitis, 6~15 mm. longis, interdum confluentibus et magnam folii partem obtinentibus; mycelio laxissime reticulato, ex hyphis valde undulatis, ex brunneo fuscis, opposite vel irregulariter ramosis, 5~7 μ crassis, 21~35 μ longis composito; hyphopodiis capitatis non copiosis, remotis, sparsis, interdum alternis, clavatis, cellula superiore ovoidea vel ellipsoidea, 14~17 x 9~13 μ , inferiore subcylindracea, deorsum leniter attenuata, 6~16 μ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, tenue ampulliformibus, 16~30 x 7 μ ; setis mycelialibus modice copiosis, praecipue circa basim perithecorum evolutis, simplicibus, rectis vel leniter curvatis, ex fusco atris, opacis sed superiore pallidioribus et subpellucidis, apice obtusis, 280~476 μ longis, ad basim 8~9 μ crassis; peritheciis subgregariis, globosis, atris, scabris, 154~190 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 51~60 x 22~30 μ ; sporidiis vermicularibus, plus minusve curvatis, utrinque obtusis vel rotundatis, fuliginosis, 4-septatis, ad septa vix vel parum constrictis, cellulis terminalibus paulo longioribus, 40~50 x 10~13 μ .

Hab. On leaves of *Mephitidia chinensis* CHAMP. Prov. Taihoku: Sekitei (Nov. 13, 1938, W. YAM.).

61. *Meliola euchrestae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 226. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 22. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis hypophyllis, laxe interdum densiuscule sparsis, atris, velutinis, orbicularibus vel plus minus irregularibus, 2~10 mm. crassis, interdum confluentibus et magnam folii partem obtinentibus; mycelio laxe reticulato, ex hyphis valde undulatis, opposite vel irregulariter ramosis, 6~7 μ crassis, 18~44 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula vel remotiusculis, clavatis, plus minusve curvatis,

cellula superiore subglobosa vel ellipsoidea, $9\sim 14\times 8\sim 13\mu$, inferiore brevi, $5\sim 9\mu$ longa; hyphopodiis mucronatis paucis, oppositis, alternis, unilateralibus vel solitariis, ampulliformibus, $16\sim 28\times 8\sim 9\mu$; setis mycelialibus copiosis, simplicibus, rectis vel leniter curvatis, apice obtusis, ex fusco atris, opacis sed superiore pallidioribus et pellucidis, $800\sim 810\mu$ longis, ad basim. $10\sim 12\mu$ crassis; peritheciis gregariis, globosis vel globoso-depressis, atris, plus minusve scabris, $154\sim 210\mu$ diam.; ascis evanescentibus; sporidiis vermicularibus, utrinque obtusis vel subacutis, saepe leniter curvatis, fuliginis, 4-septatis, ad septa non vel vix constrictis, cellulis terminalibus paulo longioribus, $39\sim 48\times 12\sim 17\mu$.

Hab. On leaves of *Euchresta Horsfieldii* BENN. var. *formosana* HAY. Prov. Tainan : Hunkikō (Mar. 20, 1939, W. YAMAMOTO).

62. *Meliola formosensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 18. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 22. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis epiphyllis, effusis, orbicularibus vel plus minus irregularibus, arachnoideis, atris, $1\sim 5$ mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel undulatis, opposite ramosis, fuscis, $6\sim 8\mu$ crassis, cellulis $21\sim 35\mu$ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, rectis vel leniter curvatis, cellula superiore globosa vel subglobosa, $9\sim 14\times 9\sim 12\mu$, inferiore brevi, $4\sim 9\mu$ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, $16\sim 23\times 7\sim 8\mu$; setis mycelialibus paucis, perithecia circulo laxo circumdantibus, simplicibus, rectis, atris, opacis, apice obtusis et dilutioribus, $196\sim 380\mu$ longis, ad basim $8\sim 9\mu$ crassis; peritheciis sparsis vel subgregariis, globosis, scabris, atris, $140\sim 210\mu$ diam., areola myceliali radiante cinctis; ascis oblongis vel obovoideis, brevissime pedicellatis, $2\sim 4$ -sporis, $51\sim 74\times 23\sim 30\mu$; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa parum constrictis, fuliginis, $30\sim 40\times 9\sim 14\mu$.

Hab. On leaves of *Rubus formosensis* KTZE. Prov. Taityu : Suisya (Dec. 17, 1938, W. YAMAMOTO).

On *Rubus euphleophyllum* HAY. Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO).

On *Rubus floribundo-paniculatus* HAY. Prov. Taityu : Godyō (May 7, 1939, W. YAMAMOTO).

On *Rubus mingtsensis* HAY. Prov. Taitō: Sinsuiei (June, 26, 1939 W. YAMAMOTO).

On *Rubus shinkoensis* HAY. Prov. Taihoku : Urai (Jan. 14, 1939, W. YAMAMOTO).

On *Rubus Swinhoei* Hance. Prov. Taihoku : Sekitei (Nov. 13, 1938, W. YAMAMOTO).

63. *Meliola sakawensis* P. HENNINGS, in Hedw. 43 : 141. 1904 - SACCARDO, Syll. Fung. 17 : 548. 1905 - REHM, Phillip. Jour. Sci. C. Bot. 8 : 392. 1913 - SYDOW, Ann. Mycol. 15 : 192. 1917 & Phillip. Jour. Sci. C. Bot. 21 : 136. 1922 - STEVENS, Mem. Dept. Agr. India Bot. Ser. 15 : 108. & Ann. Mycol. 26 : 248. 1928 - SHIRAI & HARA, List Jap. Fung. 210. 1927 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 68. 1935 - HANSFORD, Jour. Linn. Soc. Bot. 51 : 544. 1938 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 157. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 32. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis amphigenis, sparsis vel subgregariis, orbicularibus, velutinis, atris, $1\sim 4$ mm. diam., interdum confluentibus et majoribus; mycelio dense reticulato, ex hyphis rectis vel plus minus undulatis, saepe opposite ramosis, ex fusco brunneis, $7\sim 8\mu$ crassis, cellulis $16\sim 37\mu$ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore ovoidea, $9\sim 16\times 8\sim 10\mu$, inferiore brevi, $4\sim 7\mu$ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, $14\sim 19\times 5\sim 8\mu$; setis mycelialibus numerosis, praecipue circa perithecia confertis, rectis vel plus minus curvatis, apice obtusis, ex atro fuscis, apicem versus pallidioribus, $182\sim 300\mu$ longis, ad basim $7\sim 9\mu$ crassis; peritheciis gregariis, globosis, glabris, atris, $103\sim 156\mu$ diam.; ascis obovoideis vel ellipsoideis, $2\sim 4$ -sporis, brevissime pedicellatis, fugacibus, $53\sim 65\times 25\sim 32\mu$; sporidiis cylindraceis vel oblongis, utrinque rotundatis, 4-septatis, cellulis terminalibus paulo longioribus, ad septa leniter constrictis, brunneis, $28\sim 37\times 10\sim 13\mu$.

Hab. On leaves of *Clerodendron paniculatum* L. Prov. Taihoku : Keibi (Sept. 25 & Nov. 20, 1938, W. YAMAMOTO). Prov. Tainan : Kansirei (Dec. 28, 1938, W. YAMAMOTO).

On *Clerodendron fragrans* VENT. Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO).

On *Clerodendron trichotomum* THUNB. Prov. Tainan : Hunkikō (Oct. 8, 1939, W. YAMAMOTO).

64. *Meliola panici* EARLE, in SACCARDO, Syll. Fung. 17 : 550. 1905 - STEVENS, Ill. Biol. Monogr. 2 : 42. 1916 & Ann. Mycol. 26 : 261. 1928 - TORO, Mycol. 19 : 76. 1927 - SYDOW, Ann. Mycol. 26 : 431. 1928, 27 : 422. 1929 & 28 : 59. 1930 - PETRAK & CIFERRI, Ann. Mycol. 28 : 388. 1930 & 30 : 201. 1932 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 68. 1936 - CIFERRI, Ann. Mycol. 36 : 219. 1938 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 156. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 30. 1942 - HARA, List Jap. Fung. 199, 1954 - HANSFORD, Reinw. 3 : 855, 1954.

Coloniis plerumque epiphyllis, sparsis, orbicularibus, tenue crustaceis, atris, 1~6 mm. diam.; mycelio densiuscule reticulato, ex hyphis plus minus undulatis, opposite vel irregulariter ramosis, ex fusco brunneis, 7~9 μ crassis, cellulis 18~37 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore ovoidea, subglobosa vel irregulari, saepe 1~3-lobulata, 13~16 x 10~15 μ , inferiore subcylindracea, ad basim attenuata, 5~14 μ longa; hyphopodiis mucronatis non copiosis, alternis, oppositis vel unilateralibus, ampulliformibus, 14~23 x 7~9 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumdantibus, simplicibus, rectis, apice obtusis, atris, opacis, 504~914 μ longis, ad basim 10~13 μ crassis; peritheciis gregariis vel sparsis, globosis, scabris, atris, 168~210 μ diam.; ascis oblongis vel ellipsoideis, 2~4-sporis, brevissime pedicellatis, fugacibus, 53~65 x 28~35 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa vix constrictis, fuscis, 39~50 x 12~19 μ .

Hab. On leaves of *Miscanthus japonicus* (THUNB.) ANDR. Prov. Taihoku: Sinten (Oct. 23, 1938, W. YAMAMOTO); Urai (Jan. 14, 1939, W. YAMAMOTO); Tomita-tyô (Mar. 11, 1939, W. YAMAMOTO); Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO); Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Tainan: Unsui (Jan. 2, 1939, W. YAMAMOTO). Prov. Taitô: Sinsuiei (June 26, 1939, W. YAMAMOTO).

65. *Meliola glochidiicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 19. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 23. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis epiphyllis, orbicularibus, minutis, 1~2.5 mm. diam., mycelio densiuscule radiante intertexto, ex hyphis undulatis, alterne ramosis, fuscis, 7~9 μ crassis, cellulis 25~37 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, plerumque uno pro cellula, saepe cellula superiore ellipsoidea vel obovoidea, leniter irregulari, interdum leniter lobulata, 15~21 x 14~16 μ , inferiore subcylindracea, 9~14 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 18~30 x 8~9 μ ; setis mycelialibus non copiosis, saepe perithecia circulo laxo circumdantibus, simplicibus, rectis vel plus minus curvatis, apice obtusis, ex atro fuscis, 224~434 μ longis, ad basim 9~10 μ crassis; peritheciis gregariis, globosis vel globoso-depressis, plus minusve verruculosi, atris, 210~280 μ diam.; ascis oblongis, ellipsoideis vel obovoideis, 2~4-sporis, fugacibus, 53~87 x 28~42 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad

septis leniter constrictis, fuscis, 46~52 x 14~19 μ .

Hab. On leaves of *Glochidion hypoleucum* HAY. Prov. Taityu: Suisya (Mar. 12, 1939, W. YAMAMOTO).

66. *Meliola kadsurae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 55. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 24. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, laxae vel densiuscule sparsis, orbicularibus, atris, 1~3 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, fuscis, 9~14 μ crassis, cellulis 25~41 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, saepe curvatis, cellula superiore oblonga vel subglobosa, plus minusve angulosa vel paulo lobulata, 20~30 x 17~23 μ , inferiore subcylindracea, ad basim attenuata, 9~21 μ longa; hyphopodiis mucronatis non copiosis, oppositis, 16~30 x 9~14 μ ; setis mycelialibus non copiosis, praecipue perithecia circulo laxo circumdantibus, simplicibus, rectis vel leniter curvatis, ex fusco atris, opacis, apice obtusis et pellucide brunneis, 364~784 μ longis, ad basim 11~14 μ crassis; peritheciis subgregariis, subglobosis, plus minusve verruculosi, atris, 154~224 μ diam., in sicco paulo collabescentibus; ascis oblongis vel ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 64~83 x 34~42 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa plus minusve constrictis, fuscis, 53~60 x 16~25 μ .

Hab. On leaves of *Kadsura japonica* JUSS. Prov. Taityu: Suisya (Mar. 12, 1939, W. YAMAMOTO).

Section IX

Key to Species

- A. Middle cell of ascospore large
 - a. Ascospores long fusoid, on Fagaceae.....67. *M. kiraiensis*
 - b. Ascospores ellipsoid, on Fagaceae.....68. *M. cyclobalanopsina*
 - c. Ascospores cylindrical, on Fagaceae.....69. *M. lithocarpina*
- B. Middle cell of ascospore not large
 - a. Head cells regular, entire
 - 1. Head cells globose or subglobose, on Pittosporaceae.....70. *M. elmeri*
 - 2. Head cells ellipsoid, on Oleaceae.....71. *M. osmanthi*
 - 3. Head cells long ovoid or long ellipsoid, on Fagaceae.....72. *M. kawakamii*
 - 4. Head cells cylindrical, on Fagaceae.....73. *M. shiiae*
 - b. Head cells irregular

1. Ascospores shorter than $50\ \mu$
 - (1). Head cells $11\sim 14\times 8\sim 10\ \mu$, on Araliaceae 74. *M. acanthopanacis*
 - (2). Head cells $14\sim 20\times 8\sim 11\ \mu$, on Euphorbiaceae 75. *M. kansirei*
2. Ascospores longer than $50\ \mu$
 - (1). Ascospores $51\sim 60\times 14\sim 25\ \mu$, on Lauraceae 76. *M. sempeiensis*
 - (2). Ascospores $57\sim 67\times 21\sim 28\ \mu$, on Lauraceae 77. *M. machili*

67. *Meliola kiraiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 132. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 33 : 25. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis hypophyllis, sparsis, effusis, orbicularibus, plus minusve velutinis, obscure atris, $2\sim 6$ mm. diam.; mycelio laxe vel densiuscule reticulato, ex hyphis plus minusve undulatis, oppositae vel irregulariter ramosis, fuscis, $6\sim 9\ \mu$ crassis, cellulis $19\sim 37\ \mu$ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, subflexuosis vel irregulariter curvatis, cellula superiore varia, oblonga, ovoidea vel ellipsoidea, interdum leniter angulosa vel lobulata, $16\sim 25\times 8\sim 13\ \mu$, inferiore subcylindracea, $7\sim 16\ \mu$ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, raro unilateralibus, tenue ampulliformibus, $23\sim 35\times 6\sim 8\ \mu$; setis mycelialibus modice copiosis, simplicibus, rectis vel plus minus curvatis, apicem versus attenuatis, apice acutis, interdum inferiore deorsum attenuatis, atris tota longitudine opacis, $322\sim 574\ \mu$ longis, ad basim $9\sim 10\ \mu$ crassis; peritheciis sparsis, globosis, atris, plus minusve verruculosis, $196\sim 280\ \mu$ diam.; ascis fusoides, brevissime pedicellatis, $2\sim 3$ -sporis, fugacibus, $74\sim 92\times 32\sim 39\ \mu$ sporidiis elongato-fusoides, leniter curvatis, utrinque obtusis vel subacutis, fuscis, ad septa vix vel parum constrictis, cellula centrali paulo majore, $60\sim 78\times 16\sim 20\ \mu$.

Hab. On leaves of *Synaedrys lepidocarpa* (HAY.) KOIDZ. Prov. Karenkô : kirai (July 5, 1939, W. YAMAMOTO).

68. *Meliola cyclobalanopsis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 130. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 33 : 20. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis hypophyllis, laxe vel densiuscule sparsis, effusis, orbicularibus vel irregularibus, obscure atris, plus minusve velutinis, $3\sim 15$ mm. crassis, interdum confluentibus et magnam folii partem obtegentibus; mycelio laxe reticulato, ex hyphis leniter vel valde undulatis, oppositae vel irregulariter ramosis, ex fusco atris, $5\sim 7\ \mu$ crassis, cellulis $19\sim 39\ \mu$ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, interdum

remotis, clavatis, leniter curvatis vel subflexuosis, cellula superiore oblonga, ellipsoidea vel subglobosa, $7\sim 16\times 7\sim 9\ \mu$, inferiore subcylindracea, $5\sim 12\ \mu$ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, $12\sim 28\times 7\sim 8\ \mu$; setis mycelialibus modice copiosis, circa perithecia dense stipatis, simplicibus, rectis vel plus minus curvatis, atris sed superiore fuscis, opacis, interdum superiore subpellucidis, apice acutis, $300\sim 870\ \mu$ longis, ad basim $8\sim 10\ \mu$ crassis; peritheciis subgregariis vel sparsis, globosis, atris, $156\sim 219\ \mu$ scabris, diam.; ascis ellipsoideis, brevissime pedicellatis, $2\sim 3$ -sporis, fugacibus, $48\sim 65\times 23\sim 30\ \mu$; sporidiis ellipsoideo-cylindraceis, utrinque rotundatis, plus minusve curvatis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali multo majore, $39\sim 55\times 13\sim 16\ \mu$.

Hab. On leaves of *Cyclobalanopsis glauca* (THUNB.) OERST. Prov. Taihoku : Urai (Nov. 3, 1938, W. YAMAMOTO); Dandan (Nov. 27, 1938, W. YAMAMOTO). Prov. Taityu : Godyô (May 7, 1939, W. YAMAMOTO); Musya (July 3, 1939, W. YAMAMOTO); Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Karenkô : Sakahen (July 6, 1939, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Cyclobalanopsis longinix* (HAY.) SCHOT. Prov. Tainan : Hunkikô (Mar. 20, 1939, W. YAMAMOTO). Prov. Taityu : Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Karenkô : Kirai (July 5, 1939, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Cyclobalanopsis pseudomyrsinaefolia* (HAY.) SCHOT. Prov. Tainan : Hunkikô (Mar. 20, & Oct. 8, 1939, W. YAMAMOTO). Prov. Taityu : Rengeti (Oct. 21, 1939, W. YAMAMOTO). Prov. Takao : Kujukusu (Nov. 19, 1940, W. YAMAMOTO).

69. *Meliola lithocarpina* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 133. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 33 : 26. 1942 - HARA, List Jap. Fung. 199. 1954.

Coloniis plerumque hypophyllis, sparsis, orbicularibus, velutinis, atris, $4\sim 8$ mm. diam.; mycelio laxe vel densiuscule reticulato, ex hyphis plus minusve undulatis, oppositae vel alterne ramosis, fuscis, $7\sim 9\ \mu$ crassis, cellulis $23\sim 48\ \mu$ longis composito; hyphopodiis capitatis alternis, clavatis, plus minusve curvatis, cellula superiore cylindracea, interdum ovoidea vel ellipsoidea, $14\sim 23\times 9\sim 13\ \mu$, inferiore mox brevi mox longiore, $7\sim 16\ \mu$ longa; hyphopodiis mucronatis paucis, alternis, tenue ampulliformibus, $23\sim 35\times 7\sim 9\ \mu$; setis mycelialibus simplicibus, rectis vel plus minus curvatis, atris, opacis, apice acutis, $336\sim 448\ \mu$ longis, ad basim $9\sim 11\ \mu$ crassis; peritheciis subgregariis, globosis vel globoso-depressis, scabris,

238~303 μ diam.; ascis obovato-oblongis vel ellipsoideis, breviter pedicellatis, 2~3-sporis, fugacibus, 78~106 \times 32~44 μ ; paraphysibus copiosis, tenuis, continuis, hyalinis, 55~83 \times 6~7 μ ; sporidiis subcylindraceis, utrinque rotundatis, interdum obtusis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali multo majore, 64~74 \times 21~23 μ

Hab. On leaves of *Synaedrys brevicaudata* (SKAN) KOIDZ. Prov. Taihoku: Urai (Jan. 14, 1939, W. YAMAMOTO). Prov. Taityu: Suisya (Dec. 4, 1938, W. YAMAMOTO); Rengeti (Oct. 21, 1939, W. YAMAMOTO).

70. *Meliola elmeri* SYDOW, in SACCARDO, Syll. Fung. 24: 331. 1926 - STEVENS, Ann. Mycol. 26: 227. 1928 & Mem. Dept. Agr. India Bot. Ser. 15: 106. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 153. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 21. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis amphigenis, sparsis, orbicularibus, crustaceis, velutinis, atris, 1.5~3 mm. diam. interdum confluentibus; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, saepe opposita ramosis, fuscis, 8~10 μ crassis, cellulis 11~23 μ longis composito; hyphopodiis capitatis crebris, alternis, plerumque uno pro cellula, cellula superiore globosa vel subglobosa, 11~16 \times 11~14 μ , inferiore brevi, 7~12 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 11~16 \times 8~10 μ ; setis mycelialibus numerosis, simplicibus, rectis, apice acutis, atris, opacis, 182~280 μ longis, ad basim 9~11 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, vix scabris, atris, 154~200 μ diam.; ascis ellipsoideis vel oblongis, bisporis, brevissime pedicellatis fugacibus, 57~70 \times 25~35 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, cellulis terminalibus leniter longioribus, ad septa leniter constrictis, fuscis, 48~55 \times 13~17 μ .

Hab. On leaves of *Pittosporum oligocarpum* HAY. Prov. Tainan: Hunkikō (Mar. 20, 1939, W. YAMAMOTO). Prov. Karenkō: Kirai (July 5, 1939, W. YAMAMOTO).

71. *Meliola osmanthi* SYDOW, in Ann. Mycol. 18: 157. 1920 - STEVENS, BISHOP Mus. Bull. 19: 39. 1925 - SACCARDO, Syll. Fung. 24: 330. 1926 - STEVENS, Ann. Mycol. 26: 222. 1928 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 155. 1940 - SAWADA, Agr. Exp. Stat. Formosa 83: 29. 1942 - HARA, List Jap. Fung. 199. 1954.

Meliola osmanthi-aquifolii HARA, Fungi 1 (2): 13. 1931 & List Jap. Fung. 199. 1954 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30: 156. 1940.

Coloniis epiphyllis, sparsis, minutis, orbicularibus

vel suborbicularibus, atris, 1~3 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, opposita ramosis, ex atro obscure brunneis, 9~10 μ crassis, cellulis 16~23 μ longis composito; hyphopodiis capitatis crebris, alternis, plerumque uno pro cellula, cellula superiore ellipsoidea vel oblonga, 14~21 \times 10~12 μ , inferiore brevi, 4~7 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 18~25 \times 7~9 μ ; setis mycelialibus non copiosis, simplicibus, rectis, apice acutis, atris, opacis, 224~500 μ longis, ad basim 9~10 μ crassis; peritheciis sparsis, globosis, scabris, atris, 168~210 μ diam.; ascis elliptico-oblongis, bisporis, brevissime pedicellatis, fugacibus, 62~83 \times 30~37 μ ; sporidiis oblongis vel elliptico-oblongis, utrinque rotundatis vel obtusis, 4-septatis, ad septa leniter constrictis, fuscis, 46~55 \times 16~21 μ .

Hab. On leaves of *Osmanthus Matsumuranus* HAY. Prov. Taityu: Suisya (Dec. 17, 1938, & Mar. 12, 1939, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO).

72. *Meliola kawakamii* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 131. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 25. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis epiphyllis, sparsis, orbicularibus vel plus minus irregularibus, plus minusve velutinis, atris, 1~4 mm. diam.; mycelio laxo vel densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposita ramosis, fuscis, 7~9 μ crassis, cellulis 16~25 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, rectis vel leniter curvatis, cellula superiore ovata, interdum ellipsoidea, 14~19 \times 9~11 μ , inferiore brevi, 2~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 18~28 \times 7~9 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumdantibus, simplicibus, rectis vel leniter curvatis, atris, opacis interdum superne subpellucidis, apice acutis vel obtusis, 448~756 μ longis, ad basim 9~12 μ crassis; peritheciis gregariis, globosis vel globoso-depressis, atris, plus minusve verrucosis, 168~224 μ diam.; ascis oblongis vel obovato-oblongis, brevissime pedicellatis, bisporis, fugacibus, 57~76 \times 25~35 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa valde constrictis, fuscis, 46~55 \times 14~22 μ .

Hab. On leaves of *Synaedrys Kawakamii* (HAY.) KOIDZ. Prov. Tainan: Hunkikō (Mar. 20, 1939, W. YAMAMOTO).

73. *Meliola shiiae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 126. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 33. 1942 - HARA, List

Jap. Fung. 200. 1954.

Coloniis plerumque epiphyllis, sparsis, orbicularibus, atris, 2~5 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, brunneis, 6~7 μ crassis, cellulis 16~25 μ longis composito; hyphopodiis capitatis alternis, regularibus, rectis vel subrectis, cellula superiore cylindracea vel subcylindracea, 11~17 \times 6~7 μ , inferiore brevi, 3~5 μ longa; hyphopodiis mucronatis paucis, oppositis vel solitariis, ampulliformibus, 18~23 \times 7~8 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumdantibus, simplicibus, rectis vel leniter curvatis, ex fusco atris, opacis, interdum superiore subpellucidis, apice acutis vel obtusis, 364~560 μ longis, ad basim 9~10 μ crassis; peritheciis subgregariis vel sparsis, globosis vel globoso-depressis, plus minusve verruculosus, 154~224 μ diam.; ascis oblongis vel ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 48~64 \times 23~32 μ ; sporidiis oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 39~44 \times 12~20 μ .

Hab. On leaves of *Castanopsis stipitata* (HAY.) KAN. et HAT. Prov. Taityu : Suisya (Mar. 12, 1939 & Oct. 1, 1939, W. YAMAMOTO). Prov. Taihoku : Seihuku (Oct. 30, 1938, W. YAMAMOTO). Prov. Tainan : Hunkikō (Oct. 8, 1939, W. YAMAMOTO). On *Castanopsis Kawakamii* HAY. Prov. Taityu : Rengeti (Dec. 18, 1938, W. YAMAMOTO).

74. *Meliola acanthopanacis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 224. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 15. 1942 - HARA, List Jap. Fung. 197. 1954.

Coloniis epiphyllis, laxo vel densiuscule sparsis, orbicularibus, obscure atris, 1~3 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel subrectis, plerumque opposite ramosis, fuscis, 7~9 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, interdum leniter curvatis, cellula superiore oblonga, ellipsoidea vel subglobosa, 11~14 \times 8~10 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis, non copiosis, oppositis, alternis, unilateralibus vel solitariis, ampulliformibus, 18~25 \times 7~9 μ ; setis mycelialibus modice copiosis, praecipue circa basim perithecorum evolutis, simplicibus, rectis, apice acutis, rigidis, atris, opacis, 336~812 μ longis, ad basim 10~13 μ crassis; peritheciis subgregariis, globosis vel globoso-depressis, plus minusve verruculosus, atris, 168~210 μ diam.; ascis oblongis vel ovato-oblongis, breviter pedicellatis, 2~3-sporis, fugacibus, 60~80 \times 25~32 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa vix vel parum constrictis, fuscis, 44~50 \times 12~17 μ .

Hab. On leaves of *Acanthopanax trifoliatum* (L.) MERR. Prov. Tainan : Unsui (Jan. 2, 1939, W. YAMAMOTO).

75. *Meliola kansireiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 19. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 24. 1942 - HARA, List Jap. Fung. 198. 1954.

Coloniis epiphyllis, orbicularibus vel plus minus irregularibus, atris, 1~3 mm. diam., interdum confluentibus et majoribus; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite rectangulariterque ramosis, fuscis, 7~8 μ crassis, cellulis 21~32 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore oblonga vel obovoidea, interdum leniter curvata, 14~20 \times 8~11 μ , inferiore 5~9 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 21~30 \times 7~9 μ ; setis mycelialibus non copiosis, plerumque perithecia circulo laxo circumdantibus, simplicibus rectis vel parum curvatis, atris, opacis, apice obtusis vel acutiusculis, 530~810 μ longis, ad basim 11~14 μ crassis; peritheciis subgregariis, rarissime solitariis, globosis vel globoso-depressis, verruculosus, atris, 182~224 μ diam., areola myceliali radiante cinctis; ascis ellipsoideis vel oblongis, brevissime pedicellatis, bisporis, fugacibus, 57~74 \times 28~35 μ ; sporidiis oblongis vel ellipsoideo-oblongis, utrinque rotundatis, 4-septatis, ad septa valde constrictis, fuscis, 44~48 \times 14~21 μ .

Hab. On leaves of *Glochidion album* (BL.) BOERL. Prov. Tainan : Kansirei (Dec. 29, 1938, W. YAMAMOTO); Unsui (Jan. 2, 1939, W. YAMAMOTO).

76. *Meliola sempeiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 56. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 32. 1942.

Coloniis hypophyllis, sparsis, orbicularibus vel plus minus irregularibus, arachnoideis, interdum leniter velutinis, 2~6 mm. diam.; mycelio laxo reticulato, ex hyphis undulatis, opposite vel irregulariter ramosis, ex fusco atris, 8~9 μ crassis, cellulis 23~39 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula vel remotis, cellula superiore subglobosa interdum oblonga, 13~18 \times 10~15 μ , inferiore brevi, 5~8 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 18~30 \times 8~10 μ ; setis mycelialibus modice copiosis, praecipue perithecia circulo laxo circumdantibus, simplicibus, plus minusve curvatis, sursum attenuatis, apice acutis, atris, opacis, 336~896 μ longis, ad basim 11~14 μ crassis; peritheciis gregariis, globosis vel globoso-depressis, scabris, atris, 168~224 μ diam., in sicco collabescentibus, cellulis

parietis irregularibus, valde lobatis; ascis ellipsoideis vel oblongis, brevissime pedicellatis, bisporis, fugacibus, $60\sim 76\times 30\sim 39\mu$; sporidiis ellinsoideo-oblongis, utrinque rotundatis, 4-septatis, fuscis, $51\sim 60\times 14\sim 25\mu$.

Hab. On leaves of *Notaphobe Konishii* HAY. Prov. Takao: Sempei (June 4, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO). Prov. Tainan: Hunkikō (Oct. 8, 1939, W. YAMAMOTO).

77. *Meliola machili* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 23. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 27. 1942 - HARA, List Jap. Fung. 199. 1954 - HANSFORD, Reinw. 3: 89. 1954.

Coloniis amphigenis, effusis, orbicularibus vel plus minus irregularibus, atris, plus minusve velutinis, $2\sim 11$ mm., interdum confluentibus et majoribus; mycelio densiuscule reticulato, ex hyphis irregulariter undulatis, opposite vel alterne ramosis, atro-brunneis, $8\sim 11.5\mu$ crassis, cellulis $23\sim 35\mu$ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, clavatis, leniter curvatis, cellula superiore ellipsoidea, oblonga vel subglobosa, $16\sim 21\times 13\sim 16\mu$, inferiore $7\sim 11.5\mu$ longa; hyphopodiis mucronatis paucis, alternis vel oppositis, ampulliformibus, $16\sim 30\times 9\sim 11.5\mu$; setis mycelialibus modice copiosis, simplicibus, rectis vel leniter curvatis, atris, opacis, apice acutiusculis, $500\sim 925\mu$ longis, ad basim $11.5\sim 14\mu$ crassis; peritheciis gregariis, globosis vel globoso-depressis, scabris, $168\sim 224\mu$ diam.; ascis ellipsoideis vel oblongis, brevissime pedicellatis, bisporis, fugacibus, $62\sim 83\times 32\sim 37\mu$; sporidiis oblongis vel ellipsoideo-oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, ex fusco atro-brunneis, $57\sim 67\times 21\sim 28\mu$.

Hab. On leaves of *Machilus Kusanoi* HAY. Prov. Taihoku: Seihuku (Oct. 30, 1938, W. YAMAMOTO); Sekitei (Nov. 13 & 20, 1938 & Apr. 2, 1939, W. YAMAMOTO); Sansyorei (Dec. 31, 1939, W. YAMAMOTO). Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO). Prov. Tainan: Tōsikyaku (Jan. 2, 1939, W. YAMAMOTO). Prov. Takao: Rokki (June 2, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Machilus Thunbergii* SIEB. & ZUCC. Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Machilus arisanensis* HAY. Prov. Taihoku: Mt Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu: Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Taitō: Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Machilus pseudo-longifolia* HAY. Prov. Taihoku: Sinten (Oct. 23, 1938, W. YAMAMOTO); Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu: Musya (July 3, 1939, W. YAMAMOTO); Mt.

Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Karenkō: Kirai (July 5, 1939, W. YAMAMOTO); Sakahen (July 6, 1939, W. YAMAMOTO).

On *Machilus zuhoensis* HAY. Prov. Taihoku: Sekitei (Nov. 20, 1938, W. YAMAMOTO). Prov. Taityu: Suisya (Dec. 11, 1938 & Mar. 12, 1939, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO). Prov. Tainan: Hunkikō (Mar. 20, 1939, W. YAMAMOTO).

Irene THEISSEN et SYDOW

in Ann. Mycol. 15: 194 & 461. 1917 - SACCARDO, Syll. Fung. 24: 538. 1926 - STEVENS, Ann. Mycol. 25: 420. 1927 - DOIDGE & SYDOW, Both. 2: 428. 1928 - CLEMENTS & SHEAR, Gen. Fung. 55. 1954 - HANSFORD, Mycol. Pap. 15: 32. 1954.

Key to Species

A. Ascospores 3-septate

I. Appendages aggregate, on Ericaceae..... 78. *I. musyaensis*

II. Appendages not aggregate

a. Capitata hyphopodia alternate

1. Head cells deeply lobed

(a). With paraphyses

(1). Appendages $60\sim 124\times 19\sim 32\mu$, on Rosaceae 79. *I. stranvaesiicola*

(2). Appendages $25\sim 71\times 14\sim 21\mu$, on Lauraceae 80. *I. kiraiensis*

(b). Without paraphyses

(1). Ascospores ellipsoid, $44\sim 53\times 14\sim 19\mu$, on Styracaceae..... 81. *I. styracicola*

(2). Ascospores cylindrical, $32\sim 40\times 11\sim 15\mu$, on Rosaceae..... 82. *I. photiniicola*

2. Head cells not lobed, on Rosaceae..... 83. *I. calostroma*

B. Ascospores 4-septate

I. Appendages short clavate, on Verbenaceae..... 84. *I. formosana*

II. Appendages vermiform or corniform

1. Capitata hyphopodia opposite or alternate

a. Head cells ovoid, on Juglandaceae..... 85. *I. engelhardtiae*

b. Head cells subglobose, ellipsoid or oblong (1). Ascospores ellipsoid or long ellipsoid, on Fagaceae 86. *I. lithocarpicola*

(2). Ascospores subcylindrical, on Fagaceae 87. *I. castanopsisifoliae*

2. Capitata hyphopodia alternate

a. Middle cell of ascospore very large, on Fagaceae 88. *I. arisanensis*

b. Middle cell of ascospore slightly large, on Fagaceae 89. *I. konishii*

c. Middle cell of ascospore not large, on Fagaceae..... 90. *I. sinsuiensis*

78. *Irene musyaensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 43. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 11. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis amphigenis sed plerumque epiphyllis, laxe vel densiuscule sparsis, effusis, irregularibus, atris, 1~3 mm. crassis; mycelio laxe reticulato, ex hyphis rectis vel plus minus undulatis, plerumque opposite ramosis, ex fusco atris, 8~10 μ crassis, cellulis 16~46 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, clavatis, rectis vel curvatis, cellula superiore oblonga vel ellipsoidea, 16~21 \times 12~15 μ , inferiore subcylindracea, 9~15 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 23~30 \times 9~10 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis, verrucosis, atris, appendiculatis, 266~350 μ diam.; appendicibus copiosis, larviformibus, apicem versus attenuatis, rigidis, 40~115 μ longis, ad basim 18~25 μ crassis, saepe 2~5-aggregatis; ascis evanescentibus; sporidiis elongato-ellipsoideis, utrinque rotundatis, 3-septatis, ad septa leniter constrictis, fuscis, 41~50 \times 14~19 μ .

Hab. On leaves of *Vaccinium formosanum* HAY. Prov. Taityu : Musya (July 3, 1939, W. YAMAMOTO).

79. *Irene starnvaesiicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 415. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 11. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, orbicularibus, atris, tenue crustaceis, 2~4 mm. diam., mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, opposite vel irregulariter ramosis, 7~9 μ crassis, cellulis 23~46 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, uno pro cellula, saepe curvatis, cellula superiore irregulari, 3~4-lobata, interdum ovoidea vel subglobosa, 16~23 \times 14~21 μ , inferiore mox brevi mox longiore, 9~18 μ longa; hyphopodiis mucronatis non copiosis, interdum oppositis, alternis vel unilateralibus, raro solitariis, ampulliformibus, 16~23 \times 8~11 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis vel globoso-depressis, verrucosis, atris, appendiculatis, 224~300 μ diam.; appendicibus 9~16, larviformibus, saepe leniter curvatis, apicem versus attenuatis, 60~124 μ longis, ad basim 19~32 μ crassis; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 60~92 \times 34~42 μ ; paraphysibus filiformibus, continuis, hyalinis, 42~83 \times 5~6 μ ; sporidiis ellipsoideis vel elongato-ellipsoideis, utrinque rotundatis vel obtusis, fuscis, 3-septatis, ad septa plus minusve constrictis, 44~58 \times 15~20 μ .

Hab. On leaves of *Stranvaesia nitakayamensis* HAY. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

80. *Irene kiraiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 47. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 10. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis hypophyllis, sparsis, effusis, orbicularibus vel plus minus irregularibus, tenuibus, arcte adhaerentibus, obscure atris, 2~6 mm. diam., interdum confluentibus; mycelio dense reticulato, ex hyphis valde undulatis, irregulariter ramosis, anastomosantibus, ex brunneo fuscis, 6~9 μ crassis, cellulis 30~55 μ longis composito; hyphopodiis capitatis non copiosis, sparsis, interdum alternis vel unilateralibus, saepe irregulariter valde curvatis, cellula superiore varia, oblonga, obovata vel irregulari, interdum angulosa vel 2~3-lobata, 14~25 \times 10~18 μ , inferiore 5~23 μ longa; hyphopodiis mucronatis paucis, solitariis, ampulliformibus, 16~28 \times 7~8 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis vel globoso-depressis, scabris, non vel paulo collabescentibus, appendiculatis, 250~322 μ diam.; appendicibus 1~3, larviformibus, rigidis, saepe leniter curvatis, 25~71 \times 14~21 μ ; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 78~92 \times 28~42 μ ; paraphysibus filiformibus, hyalinis, continuis, 60~83 \times 6~7 μ ; sporidiis fusoides, saepe parum curvatis, utrinque obtusis vel subacutis, 3-septatis, ad septa vix vel parum constrictis, fuscis, 46~60 \times 12~20 μ .

Hab. On leaves of *Actinodaphne mushaensis* HAY. Prov. Karenkô : Kirai (July 5, 1939, W. YAMAMOTO).

81. *Irene styracicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 49. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 12. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, minutis, laxe vel densiuscule sparsis, orbicularibus vel plus minus irregularibus, atris, 1~2 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, opposite vel irregulariter ramosis, fuscis, 7~9 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, irregulariter clavatis, rectis vel leniter curvatis, cellula superiore irregulari, 2~3-lobata, 14~21 \times 14~21 μ , inferiore subcylindracea, ad basim attenuata, 8~16 μ longa; hyphopodiis mucronatis non copiosis, alternis vel solitariis, ampulliformibus, 16~23 \times 7~8 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis vel globoso-depressis, verrucosis, atris, appendiculatis, 140~250 μ diam.; appendicibus 4~10, larviformibus, saepe leniter

curvatis, apice rotundatis vel obtusis, rigidis, 62~120 μ longis, ad basim 23~28 μ crassis; ascis ellipsoideis vel ovoideo-oblongis, brevissime pedicellatis, 2~4-sporis, fugacibus, 52~92 \times 28~37 μ ; sporidiis oblongis vel ellipsoideo-oblongis, utrinque rotundatis, leniter curvatis, 3-septatis, ad septa plus minusve constrictis, fuscis, 44~53 \times 14~19 μ .

Hab. On leaves of *Styrax formosanum* MATS. Prov. Taityu : (Dec. 4, 1938, & Dec. 11, 1938, W. YAMAMOTO).

82. Irene photinicola YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 48. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 11. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis plerumque hypophyllis, sparsis, effusis, irregularibus, atris, 2~10 mm. crassis, interdum confluentibus et irregulariter majoribus; mycelio laxo reticulato, ex hyphis plus minusve undulatis, opposite vel irregulariter ramosis, ex brunneo fuscis, 6~8 μ crassis, cellulis 30~48 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, interdum remotiusculis, cellula superiore irregulari, valde 2~5-lobata, 13~16 \times 9~16 μ , inferiore subcylindracea, ad basim attenuata, 7~14 μ longa; hyphopodiis mucronatis copiosis, unilateralibus vel solitatis, ampulliformibus, 16~23 \times 7~9 μ ; setis mycelialibus nullis; peritheciis sparsis, globosis vel globoso-depressis, verrucosis, atris, appendiculatis, 168~224 μ diam., in sicco non vel paulo colabescentibus; appendicibus 2~3, larviformibus, superiore leniter curvatis, rigidis, 35~60 μ longis, ad basim 19~30 μ crassis; ascis evanescentibus; sporidiis cylindraceis, utrinque late rotundatis, 3-septatis, ad septa plus minusve constrictis, ex brunneo fuscis, 32~40 \times 11~15 μ .

Hab. On leaves of *Photinia Kudoi* MAS. Prov. Karenkô : Kirai (July 5, 1939, W. YAMAMOTO).

83. Irene calostroma (DESMAZIÈRES) v. HÖHNEL, in STEVENS, Ann. Mycol. 25 : 423. 1927 - DOIDGE & SYDOW, Both. 2 : 429. 1928 - HANSFORD, Jour. Linn. Soc. Bot. 51 : 266. 1937 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 31 : 15. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 9. 1942 - HANSFORD, Farl. 3 : 269. 1948 - HARA, List Jap. Fung. 165. 1954.

Sphaeria calostroma DESMAZIÈRES, in v. HÖHNEL, Ann. Mycol. 15 : 363. 1917 - STEVENS, Ann. Mycol. 25 : 423. 1927 - DOIDGE & SYDOW, Both. 2 : 429. 1928.

Meliola puiggarii SPEGAZZINI, in SACCARDO, Syll. Fung. 9 : 414. 1891 - STEVENS, Ill. Biol. Monogr. 2 : 11. 1916 & Ann. Mycol. 25 : 423. 1927 - DOIDGE & SYDOW, Both. 2 : 430. 1928.

Meliola autumnalis SYDOW, in Ann. Mycol. 2 : 169. 1904 - SACCARDO, Syll. Fung. 17 : 549. 1905 -

STEVENS, Ann. Mycol. 25 : 432. 1927 - DOIDGE & SYDOW, Both. 2 : 430. 1928.

Meliola rubicola P. HENNINGS, in Hedw. 43 : 140. 1904 - SACCARDO, Syll. Fung. 17 : 551. 1905 - SYDOW, Ann. Mycol. 7 : 168. 1909 - YOSHINAGA, Bot. Mag. Tokyo 25 : 491. 1911 - REHM, Ann. Mycol. 16 : 213. 1918 - STEVENS, Ann. Mycol. 25 : 423. 1927 - DOIDGE & SYDOW, Both. 2 : 430. 1928.

Coloniis epiphyllis, sparsis, effusis, orbicularibus, indifinitis, obscure atris, 1~3 mm. diam., interdum confluentibus; mycelio laxo reticulato, ex hyphis valde undulatis, opposite vel irregulariter ramosis, ex fusco brunneis, 6~7 μ crassis, cellulis 25~45 μ longis composito; hyphopodiis capitatis alternis interdum unilateralibus, plerumque uno pro cellula, cellula superiore ovoidea, ellipsoidea vel paulo irregulari, interdum lobulata, 11~18 \times 9~16 μ , inferiore 6~14 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel solitariis, ampulliformibus, 14~21 \times 7~9 μ ; setis mycelialibus et perithecialibus nullis; peritheciis sparsis, globosis, scabris, appendiculatis, atris, 168~252 μ diam.; appendicibus 3~4, larviformibus, saepe leniter curvatis, apicem veusus attenuatis, brunneis, 39~62 \times 16~21 μ ; ascis ellipsoideis, brevissime pedicellatis, 2~4-sporis, fugacibus, 46~62 \times 23~32 μ ; sporidiis cylindraceis, utrinque rotundatis, leniter curvatis, 3-septatis, ad septa leniter constrictis, brunneis, 32~46 \times 11~14 μ .

Hab. On leaves of *Rubus taiwanianus* MATS. Prov. Taihoku : Dandan (Nov. 27, 1938, W. YAMAMOTO).

On *Rubus conduplicatus* DUTH. Prov. Taityu : Suisya (Dec. 4, 1938, W. YAMAMOTO).

On *Rubus floribundo-paniculatus* HAY. Prov. Taihoku : Tairyô (May 7, 1939, W. YAMAMOTO).

On *Rubus formosensis* KTZE. Prov. Karenkô : Sakahen (July 6, 1939, W. YAMAMOTO).

On *Rubus mingetsensis* HAY. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

84. Irene formosensis YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 14. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 10. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, effusis, orbicularibus vel plus minus irregularibus, arachnoideis, atris, 2~5 mm. diam.; mycelio laxo reticulato, ex hyphis undulatis, alterne ramosis, ex brunneo fuscis, 6~9 μ crassis, cellulis 25~42 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, clavatis, plus minusve curvatis, cellula superiore obovoidea vel ellipsoidea, 12~23 \times 10~14 μ , inferiore 5~16 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 14~23 \times 7~9 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis, plus minusve

scabris, atris, appendiculatis, 115~177 μ diam.; appendicibus 3~6, obovoideis vel breviter clavatis, brevissime stipitatis, scabris, 30~46 \times 21~30 μ ; ascis ellipsoideis vel oblongis, brevissime pedicellatis, bisporis, fugacibus, 48~60 \times 32~37 μ ; sporidiis cylindraceutis, utrinque rotundatis, 4-septatis, ad septa parum constrictis, ex brunneo fuscis, 44~48 \times 15~19 μ .

Hab. On leaves of *Callicarpa formosana* ROLFE. Prov. Taihoku : Sinten (Oct. 23, 1938, W. YAMAMOTO); Sekitei (Mar. 2, 1939, W. YAMAMOTO); Urai (Nov. 6, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 11, 1938, W. YAMAMOTO).

85. Irene engelhardtiae YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 14. 1941 - SAWADA Bull. Agr. Exp. Stat. Formosa 83 : 9. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis plerumque epiphyllis, effusis, orbicularibus vel irregularibus, arachnoideis, 1~9 mm. diam.; mycelio laxo reticulato, ex hyphis undulatis, plerumque opposita ramosis, fuscis, 5~7 μ crassis, cellulis 16~28 μ longis composito; hyphopodiis capitatis alternis vel oppositis, cellula superiore ovata, interdum leniter curvata, inferiore brevi, 2.5~6 μ longa; hyphopodiis mucronatis paucis, alternis, raro oppositis, ampulliformibus, 16~25 \times 6~8 μ ; setis mycelialibus nullis; peritheciis sparsis, globosis vel globoso-depressis, appendiculatis, atris, 157~238 μ diam.; appendicibus copiosis, corniformibus, leniter curvatis, 18~30 μ longis, areola myceliali radiante cinctis; ascis oblongis, brevissime pedicellatis, bisporis, fugacibus, 53~65 \times 30~35 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, olivaceo-fuscis, 42~57 \times 14~23 μ .

Hab. On leaves of *Engelhardtia chrysolepis* HANCE. Prov. Taihoku : Sansyorei (Nov. 27, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 4, 1938, W. YAMAMOTO); Godyô (May 7, 1939, W. YAMAMOTO). Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO). Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

86. Irene lithocarpicola YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 218. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 10. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis hypophyllis, laxo vel densiuscule sparsis, effusis, irregularibus, indefinitis, griseo-atris, 4~15 mm. crassis; mycelio laxo reticulato, ex hyphis valde undulatis, tortuosis, opposita vel irregulariter ramosis, fuscis, 5~9 μ crassis, cellulis 23~46 μ longis composito; hyphopodiis capitatis paucis, sparsis, interdum alternis vel oppositis, clavatis, plus minusve curvatis, cellula superiore oblonga, ovata vel subglobosa, 9~14 \times 7~9 μ , inferiore mox

brevi mox longiore, 5~16 μ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, ampulliformibus, 16~23 \times 7~8 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis vel globoso-depressis, atris, appendiculatis, 196~224 μ diam.; appendicibus corniformibus, rectis vel curvatis, apice truncatis vel rotundatis, brunneo fuscis, 21~53 μ longis, ad basim 9~21 μ crassis; ascis evanescentibus; sporidiis ellipsoideis, ellipsoideo-oblongis vel oblongis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter constrictis, cellula centrali paulo majore, 48~60 \times 14~23 μ .

Hab. On leaves of *Synaedrys amygdalifolia* (SKAN) KOIDZ. Prov. Taityu : Rengeti (Dec. 18, 1938; Oct. 21, 1939, W. YAMAMOTO).

On *Synaedrys formosana* (HAY.) KOIDZ. Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO). Prov. Takao : Mt. Hiiranzan (Nov. 20, 1940, W. YAMAMOTO).

On *Synaedrys formosana* (HAY.) KOIDZ. form. *dodoniaefolia* (HAY.) KUDO. Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

On *Synaedrys rhombocarpa* (HAY.) KUDO form. *Suisshaensis* (KAN. et YAM.) KUDO. Prov. Taityu : Suisya (Oct. 1 & 21, 1939, W. YAMAMOTO).

87. Irene castanopsisifoliae YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 216. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 9. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis amphigenis sed plerumque hypophyllis, laxo vel densiuscule sparsis, atris, orbicularibus vel plus minus irregularibus, 1~4 mm. diam.; mycelio dense reticulato, ex hyphis plus minusve undulatis, opposita vel irregulariter ramosis, 6~7 μ crassis, cellulis 12~21 μ longis composito; hyphopodiis capitatis alternis, interdum oppositis, rectis vel leniter curvatis, cellula superiore ellipsoidea, interdum oblonga vel subglobosa, 9~14 \times 8~10 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis paucis, alternis, oppositis, raro solitariis, ampulliformibus, 14~19 \times 6~8 μ ; setis mycelialibus nullis; peritheciis sparsis, globosis vel globoso-depressis, atris, appendiculatis, 196~252 μ diam.; appendicibus corniformibus, saepe leniter curvatis, apice rotundatis vel truncatis, transverse septatis, inferiore etiam longitudine septatis, 21~42 μ longis, ad basim 23~28 μ crassis; ascis oblongis vel ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 57~78 \times 23~37 μ ; sporidiis oblongis, utrinque late rotundatis, fuscis, 4-septatis, ad septa plus minusve constrictis, 39~48 \times 12~23 μ .

Hab. On leaves of *Synaedrys amygdalifolia* (SKAN) KOIDZ. form. *castanopsisifolia* (HAY.) KUDO. Prov. Tainan : Hunkikô (Oct. 8, 1939, W. YAMAMOTO).

88. *Irene arisanensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 216. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 8. 1942 - HARA, List Jap. Fung. 165. 1954.

Coloniis plerumque hypophyllis, laxe vel densiuscule sparsis, obscure atris, orbicularibus vel plus minus irregularibus, 2~7 mm. diam., interdum confluentibus et magnam folii partem obtegentibus; mycelio laxe vel densiuscule reticulato, ex hyphis valde undulatis, opposite vel irregulariter ramosis, fuscis, 6~7 μ crassis, cellulis 14~35 μ longis composito; hyphopodiis capitatis alternis interdum unilateralibus, clavatis, leniter curvatis, cellula superiore ellipsoidea vel oblonga, 10~14 \times 7~9 μ ; inferiore mox brevi mox longiore, 5~14 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis raro solitariis, ampulliformibus, 16~25 \times 7~8 μ ; setis mycelialibus nullis; peritheciis sparsis, globosis vel globoso-depressis, atris, appendiculatis, 168~238 μ diam.; appendicibus corniformibus, leniter curvatis, apice rotundatis, transverse septatis, inferiore etiam longitudine septatis, 23~53 μ longis, ad basim 14~21 μ crassis; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 63~74 \times 30~37 μ ; sporidiis ellipsoideo-cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, cellula centrali majore, 44~54 \times 14~19 μ .

Hab. On leaves of *Cyclobalanopsis ternaticupula* (HAY.) KUDO form. *arisanensis* (HAY.) KUDO. Prov. Taityu : Suisya (Oct. 1, 1939, W. YAMAMOTO).

89. *Irene konishii* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 217. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 10. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, laxe vel densiuscule sparsis, orbicularibus vel plus minus irregularibus, atris, 1~3 mm. diam.; mycelio densiuscule reticulato, ex hyphis rectis vel plus minus undulatis, ex brunneo fuscis, plerumque opposite ramosis, 7~9 μ crassis, cellulis 18~23 μ longis composito; hyphopodiis capitatis alternis interdum unilateralibus, rectis vel plus minus curvatis, cellula superiore oblonga vel ellipsoidea, 14~17 \times 8~10 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, 16~23 \times 7~9 μ ; setis mycelialibus nullis; peritheciis sparsis vel subgregariis, globoso-depressis, atris, appendiculatis, 182~252 μ diam., in juventute areola myceliali cinctis; appendicibus corniformibus, 40~50 μ longis, ad basim 16~21 μ crassis; ascis ellipsoideis vel obovato-oblongis, brevissime pedicellatis, 2~3-sporis, fugacibus, 64~76 \times 27~37 μ ; sporidiis oblongis vel ellipsoideo-oblongis, utrinque rotundatis, ex brunneo fuscis, 4-septatis, ad septa leniter

constrictis, cellula centrali vix vel parum majore, 44~55 \times 14~23 μ .

Hab. On leaves of *Synaedrys Konishii* (HAY.) KOIDZ. Prov. Taityu : Suisya (Mar. 12, 1939, W. YAMAMOTO); Rengeti (Oct. 21, 1939, W. YAMAMOTO).

90. *Irene sinsuiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 219. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 11. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, laxe vel densiuscule sparsis, 1~3 mm. diam.; mycelio compacto intertexto, ex hyphis rectis vel leniter undulatis, opposite vel alterne ramosis, ex fusco atris, crebre septatis, 8~10 μ crassis, cellulis 12~19 μ longis composito; hyphopodiis capitatis alternis, crebris, clavatis, cellula superiore subglobosa interdum ellipsoidea, raro oblonga, 10~15 \times 8~12 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel unilateralibus, ampulliformibus, 16~23 \times 7~9 μ ; setis mycelialibus nullis; peritheciis paucis, sparsis vel subgregariis, globosis, atris, appendiculatis, 168~238 μ diam.; appendicibus corniformibus, rectis vel leniter curvatis, 21~46 μ longis, ad basim 12~21 μ crassis; ascis oblongis vel ellipsoideo-oblongis, brevissime pedicellatis, bisporis, fugacibus, 60~76 \times 25~37 μ ; sporidiis oblongis, utrinque late rotundatis, fuscis, 4-septatis, ad septa plus minusve constrictis, 46~53 \times 16~25 μ .

Hab. On leaves of *Synaedrys shinsuiensis* (HAY.) et KAN.) KUDO. Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

Irenopsis STEVENS

in Ann. Mycol. 25 : 411 & 429. 1927 - HANSFORD, Mycol. Pap. 15 : 32. 1946 & Reinw. 3 : 75. 1954 - CLEMENTS & SHEAR, Gen. Fung. 251. 1954.

Key to Species

- A. Ascospores 3-septate, on Ericaceae.....91. *I. sinsuiensis*
 B. Ascospores 4-septate
 I. Head cells irregular, deeply lobed, on Malpighiaceae92. *I. hiptages*
 II. Head cells subglobose or ovoid, somewhat lobed or angulate
 a. Ascospores 39~46 \times 14~16 μ , on Malvaceae93. *I. coronata* var. *triumfettae*
 b. Ascospores 32~38 \times 9~14 μ , on Malvaceae94. *I. molleriana*

91. *Irenopsis sinsuiensis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 414. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 8. 1942 - HARA, List Jap. Fung. 167. 1954.

Coloniis plerumque epiphyllis, orbicularibus vel plus minus irregularibus, crustaceis, atris, 1.5~5 mm. diam., mycelio dense reticulato, ex hyphis undulatis, alterne ramosis, ex fusco atro-brunneis, ϵ ~12 μ crassis, cellulis 25~42 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, plus minusve curvatis, cellula superiore oblonga, 21~30 \times 14~20 μ , inferiore subcylindracea, ad basim attenuata, 11~25 μ longa; hyphopodiis mucronatis paucis, alternis, unilateralibus vel solitariis, ampulliformibus, 21~35 \times 9~13 μ ; setis mycelialibus nullis; peritheciis gregariis vel sparsis, globosis vel globoso-depressis, verrucosis, setosis, atris, 250~350 μ diam.; setis perithecialibus 9~17, simplicibus, rectis, apice obtusis, fuscis, septatis, 84~280 μ longis, ad basim 9~13 μ crassis; ascis ellipsoideis vel elongato-ellipsoideis, breviter pedicellatis, 2~4-sporis, fugacibus, 87~131 \times 37~55 μ ; paraphysibus numerosis, inferiore dichotomice vel irregulariter ramosis, hyalinis, indistincte septatis, 69~115 μ longis, 3.5~4.5 μ crassis; sporidiis ellipsoideis, utrinque obtusis, ex fusco atro-brunneis, 3-septatis, ad septa leniter constrictis, 70~83 \times 22~25 μ .

Hab. On leaves of *Vaccinium caudatifolium* HAY. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taitô : Sinsui (June 26, 1939, W. YAMAMOTO).

92. *Irenopsis hiptages* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 222. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 8. 1942 - HARA, List Jap. Fung. 167. 1954.

Coloniis amphigenis, sparsis, orbicularibus, atris, 1~3 mm. diam.; mycelio densiuscule reticulato, ex hyphis plus minusve undulatis, opposita vel irregulariter ramosis, fuscis, 7~8 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, crebris, cellula superiore irregulariter clavata vel omnino irregulari, 3~4-lobata, 15~20 \times 11~16 μ , inferiore 5~9 μ longa; hyphopodiis mucronatis modice copiosis, oppositis, alternis, unilateralibus vel solitariis, anguste ampulliformibus, 16~25 \times 7~8 μ ; setis mycelialibus nullis; peritheciis subgrogariis, globosis, scabris, atris, setosis, 168~224 μ diam., setis perithecialibus 8~13, simplicibus, rectis, apice obtusis, ex fusco atris, 98~168 μ longis, ad basim 9~10 μ crassis; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 60~71 \times 28~37 μ ; sporidiis ellipsoideo-oblongis, utrinque rotundatis, fuscis, 4-septatis, ad septa valde constrictis, 44~53 \times 16~23 μ .

Hab. On leaves of *Hiptage benghalensis* (L.)

KURZ. Prov. Taiyu : Godyô (May 7, 1939, W. YAMAMOTO). Prov. Takao : Rokki (June 2, 1939, W. YAMAMOTO).

93. *Irenopsis coronata* (SPEGAZZINI) STEVENS var. *triumfettae* (STEVENS) STEVENS, in Ann. Mycol. 25 : 436. 1927 - STEVENS & ROLDAN, Phillip. Jour. Sci. 435. 1936 - HANSFORD, Jour. Linn. Soc. Bot. 51 : 267. 1937 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 148. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 8. 1942 - HARA, List Jap. Fung. 167. 1954.

Meliola triumfettae STEVENS, in Ill. Biol. Monogr. 2 : 30. 1916 - TORO, Mycol. 19 : 78. 1927.

Coloniis epiphyllis, sparsis, effusis, orbicularibus vel plus minus irregularibus, 1~3 mm. diam., interdum confluentibus; mycelio laxo reticulato, ex hyphis undulatis, opposita vel irregulariter ramosis, fuscis, 6~8 μ crassis, cellulis 21~32 μ longis composito; hyphopodiis capitatis alternis, interdum unilateralibus, plerumque uno pro cellula, interdum remotiusculis, cellula superiore subglobosa vel irregulari, interdum leniter angulosa, 10~16 \times 11~15 μ , inferiore brevi, 3~8 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 14~21 \times 7~8 μ ; setis mycelialibus nullis; peritheciis subgrogariis, subglobosis, scabris, atris, setosis, 126~182 μ diam.; setis perithecialibus 6~8, simplicibus, saepe leniter curvatis, apice obtusis, ex fusco brunneis, opacis vel subpellucidis, 4~7-septatis, 70~168 \times 7~9 μ ; ascis oblongis vel ellipsoideis, bisporis, brevissime pedicellatis, fugacibus, 52~67 \times 30~35 μ ; sporidiis cylindraceis, utrinque late rotundatis, 4-septatis, ad septa vix constrictis, cellulis terminalibus leniter longioribus, fuscis, 39~46 \times 14~16 μ .

Hab. On leaves of *Urena lobata* L. Prov. Taihoku : Sekitei (Nov. 23, 1938, W. YAMAMOTO).

94. *Irenopsis molleriana* (WINTER) STEVENS, in Ann. Mycol. 25 : 437. 1927 - HANSFORD, Reinw. 3 : 91. 1954.

Meliola molleriana WINTER, in Hedw. 25 : 96. 1886 - SACCARDO, Syll. Fung. 9 : 420. 1891.

Meliola sidae (non REHM) YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 157. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 33. 1942 - HARA, List Jap. Fung. 200. 1954.

Coloniis epiphyllis, sparsis, effusis, orbicularibus vel plus minus irregularibus, atris, 1~2 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel plus minus undulatis, saepe opposita ramosis, fuscis, 6~8 μ crassis, cellulis 18~32 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore subglobosa vel ovoidea, leniter irregulari, interdum plus minus angulata vel lobulata, 9~14 \times 9~14 μ ,

inferiore brevi, 3.5~6 μ longa; hyphopodiis mucronatis, paucis, oppositis, alternis vel solitariis, ampulliformibus, 14~23 \times 7~8 μ ; setis mycelialibus nullis; peritheciis gregariis, subglobosis, scabris, atris, setosis, 140~168 μ diam.; setis perithecialibus 2~9, rectis vel plus minus curvatis, apice acutis, fuscis, 3~5-septatis, 98~126 μ longis, ad basim 7~9 μ crassis; ascis ellipsoideis, 2~3-sporis, brevissime pedicellatis, fugacibus, 46~53 \times 19~23 μ ; sporidiis cylindraceutis, utrinque rotundatis, raro obtusiusculis, 4-septatis, ad septa parum constrictis, fuscis, 32~38 \times 9~14 μ .

Hab. On leaves of *Sida acuta* BURM. f. Prov. Takao: Rokki (June 2, 1939, W. YAMAMOTO).

Irenina STEVENS

in Ann. Mycol. 25: 411 & 422. 1927 - HANSFORD, Mycol. Pap. 15: 32. 1946 & Reinw. 3: 75. 1954 - CLEMENTS & SHEAR, Gen. Fung. 55. 1954.

Key to Species

A. Ascospores 3-septate

- I. Head cells irregular, deeply lobed
 - a. With paraphyses, on Staphyleaceae..... 95. *I. turpiniae*
 - b. Without paraphyses, on Rosaceae 96. *I. raphiolepis*

- II. Head cells subglobose, more or less angulate, on Myricaceae 97. *I. manca*

B. Ascospores 4-septate

- I. Head cells regular, entire
 - a. Ascospores fusoid or ellipsoid, on Euphorbiaceae 98. *I. subapoda*
 - b. Ascospores cylindrical
 - 1. Head cells globose, on Leguminosae..... 99. *I. pithecolobii*
 - 2. Head cells ellipsoid, on Fagaceae 100. *I. cyclobalanopsisicola*

- II. Head cells irregular, somewhat lobed or angulate

- a. Ascospores mostly ellipsoid, on Ericaceae 101. *I. rhododendri*
- b. Ascospores mostly cylindrical
 - 1. Stipe cells rather long (4~41 μ), at times 1-septate, on Caprifoliaceae...102. *I. ebuli*
 - 2. Stipe cells short, continuous
 - (a). Head cells shorter than 16 μ , on Caprifoliaceae103. *I. loniceræ*
 - (b). Head cells longer than 16 μ .
 - (1). Ascospores shorter than 41 μ , on Saxifragaceae ...104. *I. hydrangeæ*
 - (2). Ascospores longer than 41 μ
 - x. Head cells obovoid or ellipsoid, at times slightly angulate, on Euphorbiaceae105. *I. malloiticola*

y. Head cells pyriform or somewhat irregular, on Caprifoliaceae 106. *I. viburni*

95. *Irenina turpiniae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 50. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 14. 1952 - HARA, List Jap. Fung. 167. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus vel plus minus irregularibus, atris, 1~4 mm., diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel leniter undulatis, oppositè vel alterne ramosis, fuscis, 9~11 μ crassis, cellulis 23~42 μ longis composito; hyphopodiis capitatis, alternis, uno pro cellula, irregulariter curvatis; cellula superiore irregulari, valde 3~5-lobata, 21~30 \times 21~28 μ , inferiore subcylindraceuta, ad basim attenuata, 10~17 μ longa; hyphopodiis mucronatis paucis, solitariis, ampulliformibus, 16~21 \times 6~9 μ ; setis mycelialibus nullis; peritheciis sparsis, globosis vel globoso-depressis, verruculosis, atris, 154~253 μ diam.; ascis ellipsoideis, brevissime pedicellatis, 2~3-sporis, fugacibus, 60~78 \times 35~42 μ ; paraphysibus copiosis, filiformibus, inferiore ramosis, 51~88 \times 4.5~6 μ ; sporidiis cylindraceutis, utrinque rotundatis, 3-septatis, ad septa leniter constrictis, fuscis, 48~60 \times 16~21 μ .

Hab. On leaves of *Turpinia formosana* NAK. Prov. Taihoku: Sinten (Oct. 28, 1938, W. YAMAMOTO); Sekitei (Nov. 20, 1938, W. YAMAMOTO). Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO); Godyô (May 7, 1939, W. YAMAMOTO); Mt. Hassenzan (July 13, 1939, W. YAMAMOTO). Prov. Karenkô: Kirai (July 5, 1939, W. YAMAMOTO). Prov. Taitô: Sinsuiei (June 26, 1939, W. YAMAMOTO).

96. *Irenina raphiolepis* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31: 50. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83: 14. 1942 - HANSFORD, Reinw. 3: 102. 1954 - HARA, List Jap. Fung. 167. 1954.

Coloniis epiphyllis, laxè vel densiuscule sparsis, orbicularibus vel plus minus irregularibus, atris, 1~5 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, oppositè vel alterne ramosis, fuscis, 7~9 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore irregulari, 2~4-lobata, 14~23 \times 12~23 μ , inferiore subcylindraceuta, ad basim attenuata, 6~14 μ longa; hyphopodiis mucronatis paucis, alternis vel solitariis, ampulliformibus, 16~25 \times 7~9 μ ; setis mycelialibus nullis; peritheciis gregariis, subglobosis vel globoso-depressis, verruculosis, atris, 238~294 μ diam., cellulis parietis protruberantibus, mamillatis, 20~30 μ longis; ascis ellipso-

ideis, brevissime pedicellatis, 2~4-sporis fugacibus, 57~80 × 28~41 μ ; sporidiis cylindraceis vel oblongis, utrinque rotundatis, saepe leniter curvatis, 3-septatis, ad septa non vel leniter constrictis, fuscis, 44~58 × 16~22 μ .

Hab. On leaves of *Rhaphiolepis indica* LIND. var. *Tashiroi* HAY. Prov. Taityu : Suisya (Nov. 11, 1938, W. YAMAMOTO).

97. *Irenina manca* (ELLIS et MARTIN) STEVENS, in Ann. Mycol. 25 : 448. 1927 - YAMAMOTO. Trans. Nat. Hist. Soc. Formosa 30 : 148. 1940 - SAWADA, Bull. Exp. Stat. Formosa 83 : 13. 1942 - HARA, List Jap. Fung. 167. 1954.

Meliola manca ELLIS et MARTIN, in Amer. Nat. 17 : 1284. 1883 - SACCARDO, Syll. Fung. 9 : 419. 1891 - ELLIS & EVERHART, N. Amer. Pyren. 47. 1892 - REHM, Hedw. 40 : 162. 1901 - STEVENS, III. Biol. Monogr. 2 : 11. 1916 - CIFERRI, Ann. Mycol. 29 : 287. 1931.

Irene manca (ELLIS et MARTIN) THEISSEN et SYDOW, in Ann. Mycol. 15 : 461. 1917.

Coloniis amphigenis, plerumque epiphyllis, sparsis, orbicularibus, tenuissime crustaceis, atris, 1~5 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel plus minus undulatis, opposite ramosis, fuscis, 6~8 μ crassis, cellulis 16~32 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, cellula superiore obovoidea vel subglobosa, plus minus angulata, raro leniter lobulata, 11.5~16 × 9~14 μ , inferiore subcylindracea, 6~9 μ longa; hyphopodiis mucronatis paucis, raro oppositis, ampulliformibus, 16~21 × 6~7.5 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis, verrucosis, atris, 168~252 μ diam., areola myceliali radiante cinctis; ascis ellipsoideis vel elliptico-oblongis, 2~4-sporis, brevissime pedicellatis, fugacibus, 51~65 × 25~32 μ ; sporidiis cylindraceis, utrinque rotundatis, leniter curvatis, 3-septatis, ad septa plus minusve constrictis, brunneis, 40~48 × 13~15 μ .

Hab. On leaves of *Myrica rubra* SIEB. & ZUCC. Prov. Taihoku : Sekitei (Oct. 13, 1938, & Apr. 2, 1939, W. YAMAMOTO).

On *Myrica adenophora* HANCE var. *Kusanoi* HAY. Prov. Taitô : Sinsuiei (June 26, 1939, W. YAMAMOTO).

98. *Irenina subapoda* (SYDOW) STEVENS, in Ann. Mycol. 25 : 466. 1927 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 149. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 14. 1942 - HARA, List Jap. Fung. 167. 1954.

Meliola subapoda SYDOW, in Ann. Myco. 112 : 547. 1914 - SACCARDO, Syll. Fung. 24 : 289. 1926 - STEVENS & ROLDAN, Philip. Jour. Sci. 56 : 55. 1935.

Coloniis hypophyllis, sparsis, effusis, orbicularibus, atris, 2~8 mm. diam.; mycelio laxo reticulato, ex hyphis rectis vel plus minus undulatis, remote ramosis, fuscis, 5~7 μ crassis, cellulis 25~53 μ longis composito; hyphopodiis capitatis non copiosis, remotis, interdum alternis vel unilateralibus, cellula superiore subglobosa vel ellipsoidea, 9~14 × 9~10 μ , inferiore 5~14 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel unilateralibus, 14~21 × 6~7 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis, verrucosis, atris, 140~182 μ diam.; ascis clavatis, bisporis, brevissime pedicellatis, fugacibus, 58~71 × 28~32 μ ; sporidiis ellipsoideis vel fusoideis, utrinque obtusis, fuscis, 4-septatis, ad septa plus minus constrictis, cellula centrali majore, 32~44 × 14~16 μ .

Hab. On leaves of *Mallotus philippensis* (LAM.) MUELL. - ARG. Prov. Taityu : Godyô (May 7, 1939, W. YAMAMOTO). Prov. Tainan : Tamai (May 14, 1939, W. YAMAMOTO). Prov. Taitô : Taibu (June 26, 1939, W. YAMAMOTO).

99. *Irenina pithecolobii* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 221. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 13. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, sparsis, atris, crustulis, orbicularibus, 1~3 mm. diam.; mycelio densissime reticulato, ex hyphis vel leniter undulatis, opposite ramosis, fuscis, crebre septatis, 9~10 μ crassis, cellulis 12~16 μ longis composito; hyphopodiis capitatis alternis, confertis, clavatis, cellula superiore globosa vel subglobosa, inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis paucis, oppositis, alternis vel unilateralibus, ampulliformibus, 14~21 × 8~10 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis vel globoso-depressis, atris, verrucosis, 182~259 μ diam.; ascis ellipsoideis, breviter pedicellatis, 2~3-sporis, fugacibus, 55~78 × 23~37 μ ; paraphysibus filiformibus, continuis, hyalinis, 37~58 × 6~9 μ ; sporidiis cylindraceis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 44~50 × 12~20 μ .

Hab. On leaves of *Pithecolobium lucidum* BENTH. Prov. Taihoku : Sekitei (Nov. 23, 1938, W. YAMAMOTO). Prov. Taityu : Suisya (Dec. 11, 1938, W. YAMAMOTO).

100. *Irenina cyclobalanopsicola* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 219. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 12. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, sparsis, crustulis, atris, orbicularibus, 1.5~3.5 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel leniter undulatis, plerumque opposite ramosis, ex fusco atris, 8~

10 μ crassis, cellulis 12~23 μ longis composito; hyphopodiis capitatis alternis, crebris, cellula superiore ovata, 11~15 \times 10~13 μ , inferiore brevi, 5~8 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 16~23 \times 8~9 μ ; setis mycelialibus nullis; peritheciis paucis, sparsis vel subgregariis, globosis vel globoso-depressis, atris, grosse verrucosis, 224~280 μ diam.; ascis oblongis vel ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 64~78 \times 28~34 μ ; sporidiis cylindraceutis, utrinque rotundatis, fuscis, 4-septatis, ad septa leniter vel fortiter constrictis, 48~55 \times 14~23 μ .

Hab. On leaves of *Cyclobalanopsis ternaticupula* (HAY.) KUDO. Prov. Taiyu : Godyô (May 7, 1939, W. YAMAMOTO); Rengeti (Dec. 18, 1938, W. YAMAMOTO). Prov. Sintiku : Mt. Kappanzan (May 21, 1939, W. YAMAMOTO).

101. *Irenina rhododendri* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 17. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 14. 1942 - HARA, List Jap. Fung. 167. 1954.

Coloniis epiphyllis, effusis, orbicularibus vel irregularibus, indefinitis, 2~6 mm. diam., interdum confluentibus; mycelio laxissime reticulato, ex hyphis undulatis, opposite rectangulariter ramosis, fuscis, 5.5~7 μ crassis, cellulis 28~37 μ longis composito; hyphopodiis capitatis, remotis, cellula superiore ellipsoidea, ovoidea vel subglobosa, interdum angulosa vel plus minus lobulata, 13~16 \times 10~14 μ , inferiore 7~14 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 18~28 \times 7~8 μ ; peritheciis sparsis, globosis, verrucosis, atris, 126~196 μ diam.; ascis bisporis, fugacibus; sporidiis oblongis vel ellipsoideo-oblongis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, cellula media leniter majore, fuscis, 39~48 \times 14~21 μ .

Hab. On leaves of *Rhododendron Oldhami* MAX. Prov. Taihoku : Heikei (Nov. 23, 1938, W. YAMAMOTO).

102. *Irenina ebuli* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 16. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 12. 1942 - HANSFORD, Reinw. 3 : 79. 1954 - HARA, List Jap. Fung. 166. 1954.

Coloniis amphigenis, minutis, subgregariis, orbicularibus vel plus minus irregularibus, arachnoideis, fuscis, 1~2 mm. diam.; mycelio laxo reticulato, ex hyphis undulatis, irregulariter ramosis, fuscis, 7~8 μ crassis, cellulis 23~32 μ longis composito; hyphopodiis capitatis alternis, plerumque uno pro cellula, irregulariter curvatis, cellula superiore cylindraceuta, clavata vel irregulari, apice rotundata vel truncata, raro obtusa vel lobulata, 14~30 \times 10~16 μ , inferiore subcylindraceuta, ad basim atte-

nuata, interdum 1-septata, 7~41 μ longa; hyphopodiis mucronatis non copiosis, oppositis vel alternis, ampulliformibus, 16~25 \times 6~8 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis, atris, verrucosis, 140~189 μ diam.; ascis ellipsoideo-oblongis, brevissime pedicellatis, bisporis, fugacibus, 53~76 \times 25~32 μ ; sporidiis cylindraceutis, utrinque rotundatis, 4-septatis, ad septa modice constrictis, fuliginosis, 41~48 \times 14~18 μ .

Hab. On leaves of *Ebulus formosana* NAK. Prov. Tainan : Tosikyaku (Jan. 2, 1939, W. YAMAMOTO).

103. *Irenina lonicerae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 221. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 13. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis epiphyllis, sparsis, effusis, minutis, orbicularibus, interdum plus minusve irregularibus, atris, 1~2 mm. diam.; mycelio laxiuscule reticulato, ex hyphis plus minusve undulatis, opposite vel alterne ramosis, fuscis, 7~8 μ crassis, 23~37 μ longis composito; hyphopodiis capitatis alternis, uno pro cellula, vel remotiusculis, irregulariter clavatis, leniter curvatis, cellula superiore pyriformis vel obovoidea, plus minusve lobata, 14~16 \times 11~14 μ , inferiore brevi, 6~9 μ longa; hyphopodiis mucronatis modice copiosis, oppositis, alternis vel solitariis, ampulliformibus, 16~25 \times 7~8 μ ; setis mycelialibus nullis; peritheciis paucis, gregariis, globoso-depressis, verrucosis, atris, 140~188 μ diam.; ascis oblongis vel ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 53~67 \times 21~30 μ ; sporidiis cylindraceutis, utrinque rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 39~46 \times 14~19 μ .

Hab. On leaves of *Lonicera japonica* THUNB. var. *sempervillosa* HAY. Prov. Taihoku : Seiktei (Nov. 20, 1938, W. YAMAMOTO). Prov. Taiyu : Suisya (Dec. 11, 1938, W. YAMAMOTO).

104. *Irenina hydrangeae* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 31 : 220. 1941 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 12. 1942 - HARA, List Jap. Fung. 166. 1954.

Coloniis amphigenis sed plerumque epiphyllis, effusis, orbicularibus vel plus minus irregularibus, atris, 1~3 mm. diam., interdum confluentibus; mycelio laxo reticulato, ex hyphis plus minusve undulatis, plerumque opposite ramosis, fuscis, 7~10 μ crassis, 13~32 μ longis composito; hyphopodiis capitatis alternis, remotis, interdum uno pro cellula, cellula superiore subglobosa vel irregulari, plus minusve lobulata, 16~19 \times 13~19 μ , inferiore 6~12 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel solitariis, ampulliformibus, 16~23 \times 7~9 μ ; setis mycelialibus nullis; peritheciis gregariis, globosis, verrucosis, atris, 168~

224 μ diam.; ascis ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 53~62 \times 27~32 μ ; sporidiis oblongis, utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 37~41 \times 14~19 μ .

Hab. On leaves of *Hydrangea chinensis* MAXIM. Prov. Taihoku : Sekitei (Nov. 13, 1938 & Apr. 2, 1939, W. Yamamoto).

On *Hydrangea angustipetala* HAY. Prov. Taihoku : Sansyorei (Dec. 31, 1938, W. YAMAMOTO).

105. *Irenina mallotica* YAMAMOTO, in Trans. Nat. Hist. Soc. Formosa 30 : 415. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 13. 1942 - HARA, List Jap; Fung. 166. 1954.

Coloniis amphigenis, plerumque epiphyllis, orbicularibus vel plus minus irregularibus, atris, 1~3 mm. diam.; mycelio laxo reticulato, ex hyphis valde undulatis, oppositae vel alterne ramosis, fuscis, 6~8 μ crassis, cellulis 18~30 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, uno pro cellula, interdum remotiusculis, clavatis, saepe curvatis, cellula superiore obovata, ellipsoidea, interdum angulosa, raro apice truncata, 14~23 \times 9~16 μ , inferiore cylindracea, 7~21 μ longa; hyphopodiis mucronatis paucis, alternis, oppositis vel solitariis, 14~25 \times 6~8 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis, verrucosis, atris, 168~210 μ diam.; ascis oblongis vel ellipsoideis, brevissime pedicellatis, bisporis, fugacibus, 55~78 \times 30~37 μ ; sporidiis elliptico-oblongis vel oblongis, utrinque rotundatis, 4-septatis, ad septa plus minusve constrictis, fuscis, 44~48 \times 14~20 μ .

Hab. On leaves of *Mallotus japonicus* MUELL. - ARG. Prov. Taihoku : Seihuku (Oct. 30, 1938, W. YAMAMOTO); Urai (Nov. 3, 1938, W. YAMAMOTO); Sekitei (Nov. 13, 1938, W. YAMAMOTO). Prov. Tainan : Unsui (Mar. 19, 1939, W. YAMAMOTO).

On *Mallotus paniculatus* (LAM.) MUELL. - ARG. Prov. Taihoku : Urai (Nov. 3, 1938 & Jan. 14, 1939, W. YAMAMOTO). Prov. Taiyu : Godyô (May 7 & 19, 1939, W. YAMAMOTO). Prov. Takao : Sempei (June 4, 1939, W. YAMAMOTO).

106. *Irenina viburni* (SYDOW) STEVENS, in Ann. Mycol. 25 : 457. 1927 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 149. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 15. 1942 - HARA, List Jap. Fung. 167. 1954.

Meliola viburni SYDOW, in Ann. Mycol. 15 : 193. 1917 & 17 : 141. 1919 - SACCARDO, Syll. Fung. 24 : 275. 1926.

Coloniis plerumque epiphyllis, sparsis, orbicularibus vel plus minus irregularibus, atris, 0.5~3 mm. diam.; mycelio dense reticulato, ex hyphis rectis vel undulatis, oppositae vel alterne ramosis, fuscis, 7~9 μ crassis, cellulis 20~30 μ longis com-

posito; hyphopodiis capitatis crebris, alternis, interdum unilateralibus, saepe uno pro cellula, cellula superiore pyriformis vel irregulari, plus minus angulata vel lobulata, interdum leniter curvata, 16~23 \times 14~19 μ , inferiore subcylindracea, 5~18 μ longa; hyphopodiis mucronatis non copiosis, oppositis, alternis vel unilateralibus, ampulliformibus, 14~25 \times 7~9 μ ; setis mycelialibus nullis; peritheciis subgregariis, globosis, verrucosis, atris, 140~210 μ diam.; ascis elliptico-cylindraceutis vel oblongis, bisporis, brevissime pedicellatis, fugacibus, 50~74 \times 25~37 μ ; sporidiis cylindraceutis, utrinque rotundatis, 4-septatis, ad septa parum constrictis, fuscis, 42~48 \times 12~20 μ .

Hab. On leaves of *Viburnum luzonicum* ROLFE var. *formosanum* REHD. Prov. Taiyu : Suisya (Dec. 11, 1938, W. YAMAMOTO).

On *Viburnum propinquum* HEMSL. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

Amazonia THEISSEN

in Ann. Mycol. 11 : 499. 1913 - THEISSEN & SYDOW, Ann. Mycol. 15 : 421. 1917 - SACCARDO, Syll. Fung. 24 : 421. 1917 - STEVENS, Ann. Mycol. 25 : 412. 1927 - DOIDGE & SYDOW, Both. 2 : 427. 1928 - CLEMENTS & SHEAR, Gen. Fung. 99. 1954 - HANSFORD, Mycol. Pap. 15 : 32. 1954.

107. *Amazonia peregrina* (SYDOW) SYDOW, in Ann. Mycol. 15 : 238. 1917 - STEVENS, Ann. Mycol. 25 : 414. 1927 - STEVENS & ROLDAN, Phillip. Jour. Sci. 56 : 48. 1935 - HANSFORD, Jour. Linn. Soc. Bot. 51 : 266. 1937 - YAMAMOTO, Trans. Nat. Hist. Soc. Formosa 30 : 148. 1940 - SAWADA, Bull. Agr. Exp. Stat. Formosa 83 : 7. 1942 - HARA, List Jap. Fung. 16. 1954 - KATSUKI, Jour. Jap. Bot. 31 : 370. 1956 - HINO & KATSUMOTO, Bull. Fac. Agr. Yamaguti Univ. 7 : 259. 1956.

Meliola peregrina SYDOW, in Phillip. Jour. Sci. C. Bot. 8 : 479. 1913.

Coloniis amphigenis, sparsis, minutis, orbicularibus, tenuissime crustaceis, atris, 0.5~2 mm. diam.; mycelio densiuscule radiato intertexto, ex hyphis rectis vel leniter undulatis, alterne ramosis, fuscis, 7~9 μ crassis, cellulis 11~21 μ longis composito; hyphopodiis capitatis alternis, crebris, uno pro cellula, cellula superiore ellipsoidea vel subglobosa, 9~14 \times 8~11 μ , inferiore brevi, 5~9 μ longa; hyphopodiis mucronatis paucis, oppositis vel alternis, ampulliformibus, 18~25 \times 8~9 μ ; setis mycelialibus nullis; peritheciis dimidiatis, atris, 196~308 μ diam.; ascis copiosis, fasciculatis, elliptico-oblongis, brevissime pedicellatis, bisporis, fugacibus, 51~69 \times 23~30 μ ; paraphysibus filiformibus, hyalinis, 41~78 \times 5~7 μ ; sporidiis oblongis,

utrinque late rotundatis, 4-septatis, ad septa leniter constrictis, fuscis, 39~46 × 12~18 μ .

Hab. On leaves of *Maesa formosana* MEZ. Prov. Taihoku: Seihuku (Oct. 30, 1938, W. YAMAMOTO). Prov. Tainan: Tosikyaku (Jan. 2, 1939, W. YAMAMOTO). Prov. Taityu: Suisya (Dec. 11, 1938, W. YAMAMOTO); Musya (July 3, 1939, W. YAMAMOTO).

Balladyna RACIBORSKI

Paras. Alg. Pilz. Java 2: 3. 1900 - SACCARDO, Syll. Fung. 16: 411. 1902 - THEISSEN & SYDOW, Ann. Mycol. 15: 475. 1917 - HANSFORD, Mycol. Pap. 15: 23. 1954 - CLEMENTS & SHEAR, Gen. Fung. 56. 1954.

Key to Species

1. Ascospores 16~21 × 7~9 μ , on Rubiaceae 108. *B. velutina*
2. Ascospores 28~35 × 11~14 μ , on Gramineae 109. *B. lelebae*

108. *Balladyna velutina* (BERKELEY et CURTIS) v. HÖHNEL, in SYDOW & BUTLER, Ann. Mycol. 9: 389. 1911 - THEISSEN & SYDOW, Ann. Mycol. 15: 475. 1917 - YAMAMOTO, Sci. Rep. Hyogo Univ. Agr. Ser. Agr. Biol. 3: 21. 1957.

Asterina velutina BERKELEY et CURTIS, in N. Pac. Explor. Bot. 129. 1859 - SACCARDO, Syll. Fung. 1: 43. 1882 - HARA, List Jap. Fung. 29. 1954.

Balladyna gardeniae RACIBORSKI, Paras. Alg. Pilz. Java 2: 3. 1900 - SACCARDO, Syll. Fung. 16: 411. 1902 - SYDOW & BUTLER, Ann. Mycol. 9: 389. 1911.

Coloniis amphigenis, sparsis vel subgregariis, orbicularibus, arachnoideis, fuscis, plus minus velutinis, 1~3 mm. diam.; interdum confluentibus; mycelio densiuscule reticulato, ex hyphis undulatis, opposite vel irregulariter ramosis, brunneis, 4.5~8.5 μ crassis, cellulis 10~23 μ longis composito; hyphopodiis alternis vel unilateralibus, raro oppositis, ellipsoideis vel obovoideis, interdum plus minus angulatis, continuis, fuscis, 7~10 × 4.5~7 μ ; setis mycelialibus non copiosis, praecipue circa perithecia circulo circumdantibus, simplicibus, rectis vel leniter curvatis, apice obtusis, atris, opacis, 70~112 μ longis, ad basim 6~7 μ crassis; peritheciis gregariis, ovoideis, ad basim stipitatis, apice plus minus papillatis et ostiolatis, glabris, ex atro olivaceo-fuscis, 39~53 μ altis, medio 32~42 μ crassis; ascis subglohis, 6~8-sporis, fugacibus 28~35 × 23~32 μ ; sporidiis oblongis, utrinque late rotundatis, medio 1-septatis, ad septa fortiter constrictis, ex fusco brunneis, 16~21 × 7~9 μ .

Hab. On leaves of *Gardenia angustifolia* LODD. Prov. Taihoku: Urai (Jan. 14, 1939, W. YAMA-

MOTO). Prov. Taityu: Godyō (May 7, 1939, W. YAMAMOTO); Mt. Hassenzan (Dec. 19, 194., W. YAMAMOTO).

109. *Balladyna lelebae* YAMAMOTO, in Sci. Rep. Hyogo Univ. Agr. Ser. Agr. Biol. 3: 21. 1957.

Balladyna macrospora YAMAMOTO, (nom. nud.) Sci. Rep. Hyogo Univ. Agr. Ser. Agr. 1: 41. 1953.

Coloniis plerumque hypophyllis, sparsis vel subgregariis, oblongis, velutinis, 1~7 mm. longis, 0.5~2 mm. crassis; mycelio densiuscule reticulato, ex hyphis valde undulatis, irregulariterque dense ramosis, ex fusco brunneis, 6~7 μ crassis, cellulis 9~19 μ longis composito; hyphopodiis non copiosis, sparsis, ellipsoideis vel ovoideis, continuis, 8~11.5 × 6~8 μ ; setis mycelialibus numerosis, rectis vel leniter curvatis, apicem versus attenuatis, apice obtusis, ex atro fuscis, opacis, 98~210 μ longis, ad basim 7~9 μ crassis; peritheciis copiosis, subglohis, ad basim breviter stipitatis vel sessilibus, glabris, apice indistincte ostiolatis, olivaceo-fuscis vel fuscis, 51~78 μ altis, medio 48~74 μ latis, plerumque monoascigeris, contextu ex cellulis irregulariter polyedricis, 7~9 × 6~9 μ composito; ascis ellipsoideis vel subglohis, 6~8-sporis, aparaphysatis, 44~58 × 35~46 μ ; sporidiis oblongis, utrinque late rotundatis, medio 1-septatis et leniter constrictis, ex fusco olivaceo-brunneis, 28~35 × 11~14 μ .

Hab. On leaves of *Leleba Shimadai* NAK. Prov. Taityu: Rengeti (Dec. 18, 1938, W. YAMAMOTO).

Balladynastrum HANSFORD

in Proc. Linn. Soc. Lond. 153: 15. 1941 & Mycol. Pap. 15: 25. 1954.

110. *Balladynastrum diplosporae* (YAMAMOTO) YAMAMOTO comb. nov.

Balladyna diplosporae YAMAMOTO, (nom. nud.) in Sci. Rep. Hyogo Univ. Agr. Ser. Agr. 1: 41. 1953.

Balladynella diplosporae YAMAMOTO, in Sci. Rep. Hyogo Univ. Agr. Ser. Agr. Biol. 3: 22. 1957.

Coloniis amphigenis, sparsis, late effusis, orbicularibus vel plus minus irregularibus, atris, 4~14 mm. diam., interdum confluentibus et majoribus; mycelio dense radiante intertexto, ex hyphis rectis vel leniter undulatis, opposite vel alterne ramosis, fuscis, 4.5~6 μ crassis, cellulis 14~37 μ longis composito; hyphopodiis copiosis, alternis, raro oppositis, plerumque uno pro cellula, subcylindraceutis, sursum parum attenuatis, interdum plus minusve irregularibus, apice rotundatis vel obtusis, continuis, 10~16 × 5~7 μ ; setis mycelialibus nullis; peritheciis copiosis, gregariis, globosis vel subglohis, ad basim breviter stipitatis,

glabris, apice indistincte ostiolatis, ex atro olivaceo-fuscis, 238~364 μ altis, medio 266~350 μ latis, plerumque monoascigeris, contextu ex cellulis irregulariter polyedricis, 8~10 \times 5~9 μ composito; ascis ovato-globosis, 6~8-sporis, 35~39 \times 30~35 μ ; sporidiis oblongis, circa medio 1-septatis, ad septa fortiter constrictis, cellula inferiore leviter longiore, olivaceo-brunneis, 17~21 \times 7~9 μ .

Hab. On leaves of *Diplospora viridiflora* DC. Prov. Taityu : Mt. Hassenzan (Dec. 21, 1940, W. YAMAMOTO).

Armatella THEISSEN et SYDOW

in Ann. Mycol. 13 : 235. 1915 & 15 : 410. 1917 - SACCARDO, Syll. Fung. 24 : 409. 1926 - CLEMENTS & SHEAR, Gen. Fung. 97. 1954 - HANSFORD, Mycol. Pap. 15 : 25 & Reinw. 3 : 75. 1954.

Key to Species

- A. Head cells irregular, deeply lobed, on Lauraceae 111. *A. litseae*
 B. Head cells somewhat irregular, more or less lobed
 1. Head cells 7~11.5 \times 7~10 μ , on Lauraceae 112. *A. longispora*
 2. Head cells 11~18 \times 8~13 μ , on Lauraceae 113. *A. formosana*

111. *Armatella litseae* (P. HENNINGS) THEISSEN et SYDOW, in Ann. Mycol. 13 : 235. 1915 & 15 : 410. 1917 - HEMMI, Bot. mag. Tokyo 30 : 341. 1916 - SACCARDO, Syll. Fung. 24 : 409. 1926 - HANSFORD, Mycol. Pap. 15 : 25. 1946 - HANSFORD & THIRUMALACHAR, Farl. 3 : 286. 1948 - HARA, List Jap. Fung. 20. 1954 - YAMAMOTO, Sci. Rep. Hyogo Univ. Agr. Ser. Agr. Biol. 3 : 19. 1957.

Dimerosporium litseae P. HENNINGS, in ENGLER, Bot. Jahrb. 32 : 42. 1903 - SACCARDO, Syll. Fung. 17 : 533. 1905 - IDETA, Jap. Phytopath. 218. 1911.

Coloniis epiphyllis, densiuscule vel laxe sparsis, effusis, orbicularibus vel plus minus irregularibus, atris, 2~7 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis rectis vel undulatis, alterne ramosis, fuscis, 4.5~6 μ crassis, cellulis 16~23 μ longis composito; hyphopodiis capitatis alternis, 1-septatis, cellula superiore irregulari, valde 3~7-lobulatis, 11~15 \times 9~16 μ , inferiore brevi, 3~7 μ longa; hyphopodiis mucronatis et setis mycelialibus nullis; peritheciis densiuscule sparsis, depresso-globosis, verrucosis vel scabris, atris, 182~252 μ diam.; parietis crassis, parenchymaticis; cellulis superficialibus protruberantibus, usque 16 μ longis; ascis fasciculatis, clavato-cycindraceis, brevissime pedicellatis, 4-

sporidii, 50~69 \times 21~30 μ ; paraphysibus numerosis, filiformibus, simplicibus, interdum plus minusve ramulosis, 51~87 \times 2.5~4 μ ; sporidiis elongato-ovoideis vel oblongis, utrinque rotundatis, continuis, raro 1-septatis, ad septum constrictis, ex hyalino olivaceo-brunneis, 30~41 \times 11.5~41 μ .

Hab. On leaves of *Neolitsea acuto-trinervia* KAN. et SAS. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu : Mt. Hassenzan (July 13, 1939, W. YAMAMOTO).

On *Neolitsea acuminatissima* (HAY.) KAN. et SAS. Prov. Taihoku : Mt. Taiheizan (June 13, 1939, W. YAMAMOTO). Prov. Taityu : Mt. Hassenzan (July 13, 1939, W. YAMAMOTO).

112. *Armatella longispora* YAMAMOTO, in Sci. Rep. Hyogo Univ. Agr. Biol. 3 : 19. 1957.

Coloniis amphigenis, plerumque hypophyllis, late effusis, orbicularibus vel plus minus irregularibus, fuscis, postea confluentibus et magnam folii partem obtegentibus; mycelio densiuscule reticulato, ex hyphis rectis vel undulatis, alterne ramosis, fuscis, 5~6.5 μ crassis, cellulis 14~37 μ longis composito; hyphopodiis capitatis alternis vel unilateralibus, raro oppositis, 1-septatis, cellula superiore subglobosa vel irregulari, leniter angulosa, raro leniter lobulata, 7~11.5 \times 7~10 μ , inferiore brevi, 3.5~8 μ longa; hyphopodiis mucronatis et setis mycelialibus nullis; peritheciis sparsis, globosis vel depresso-globosis, verrucosis, atris, 168~238 μ diam., cellulis parietis leniter protruberantibus, usque 21 μ longis; ascis fasciculatis, ellipsoideis vel clavatis, brevissime pedicellatis, 6~8-sporis, 55~74 \times 23~30 μ ; paraphysibus numerosis, filiformibus, simplicibus, hyalinis, 44~69 \times 3~4.5 μ ; sporidiis ellipsoideis vel oblongis, utrinque obtusis, continuis, raro 1-septatis, medio vix vel leniter constrictis, granulosis, ex hyalino subhyalinis, levibus, 25~32 \times 8~10 μ .

Hab. On leaves of *Cinnamomum randaiense* HAY. Prov. Taityu : Suisya (Dec. 11, 1938, W. YAMAMOTO).

On *Cinnamomum pseudo-Lourerii* HAY. Prov. Karenkô : Kirai (July 5, 1939, W. YAMAMOTO).

113. *Armatella formosana* YAMAMOTO, in Sci. Rep. Hyogo Univ. Agr. Ser. Agr. Biol. 3 : 19. 1957.

Coloniis epiphyllis, densiuscule sparsis, effusis, orbicularibus vel plus minus irregularibus, atris, 2~5 mm. diam., interdum confluentibus; mycelio densiuscule reticulato, ex hyphis undulatis, alterne ramosis, fuscis, 6~7 μ crassis, cellulis 23~30 μ longis composito; hyphopodiis capitatis alternis, 1-septatis, ad septum constrictis, cellula superiore elongato-irregulari, valde 3~6-lobata, 11~18 \times 8~13 μ , inferiore brevi, interdum subflexuosa, 4.5~9 μ longa; setis mycelialibus nullis; peritheciis:

subgregariis, globosis vel depresso-globosis, verrucosis, atris, 196~308 μ diam., cellulis parietis protruberantibus, corniformibus, usque 32 μ longis; ascis fasciculatis, ovoideis vel clavatis, brevissime pedicellatis, 4-sporis, 46~74 \times 23~32 μ ; paraphysibus numerosis, filiformibus, simplicibus, raro leniter ramulosis, hyalinis, 34~76 \times 2.5~4.5 μ ; sporidiis oblongis, utrinque rotundatis, medio vix vel leniter constrictis, continuis, hyalinis, raro olivaceo-brunneis, levibus, 25~34 \times 9~13 μ .

Hab. On leaves of *Actinodaphne musshaensis* HAY. Prov. Taihoku: Mt. Taiheizan (June 13, 1939, W. YAMAMOTO).

Armata YAMAMOTO gen. nov.

Mycelium omnino superficiale, ex hyphis irregulariter ramosis, hyphopodiatis compositum. Hyphopodia capitata, monoseptata. Setae myceliales nullae. Perithecia superficialia, globosa vel subglobosa, glabra, atra. Asci fasciculati, octospori, paraphysati. Sporidia ellipsoidea, continua, fusca.

This genus is closely related to *Armatella*, from which it differs in the dark colored and continuous ascospore.

114. Armata macrospora (YAMAMOTO) YAMAMOTO comb. nov.

Armatella macrospora YAMAMOTO, in Sci. Hyogo Univ. Agr. Ser. Agr. Biol. 3: 21. 1957.

Coloniis hypophyllis, sparsis, effusis, orbicularibus vel irregularibus, atris, 4~15 mm. diam.; mycelio densiuscule reticulato, ex hyphis valde undulatis, irregulariter ramosis, brunneis, 4~7 μ crassis, cellulis 18~35 μ longis composito; hyphopodiis capitatis alternis vel irregularibus, plerumque 1-septatis, cellula superiore irregulari, plus minusve angulosa, 9~16 \times 7~11.5 μ , inferiore plerumque continua, interdum septata et irregulariter undulata, usque 69 μ longa; hyphopodiis mucronatis et setis mycelialibus nullis; peritheciis sparsis, globosis vel depresso-globosis, scabris, atris, 196~294 μ diam.; ascis fasciculatis ellipsoideis vel elongato-ellipsoideis, 8-sporis, 84~126 \times 36~46 μ ; paraphysibus numerosis, filiformibus, simplicibus, hyalinis, 84~140 \times 3~4.5 μ ; sporidiis elongato-ellipsoideis, utrinque obtusis, continuis, olivaceo-brunneis vel fuscis, granulosis, 41~57 \times 14~17 μ .

Hab. On leaves of *Phoebe formosana* HAY. Prov. Karenkô: Kirai (July 5, 1939, W. YAMAMOTO). Prov. Taityu: Mt. Hassenzan (Dec. 19, 1940, W. YAMAMOTO).

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v. *subserrata* MAX.
Meliola cylindrophora REHM
Kadsura japonica JUSS.
Meliola kadsurae YAM.
Leleda Shimadai NAK.
Balladyna lelebae YAM.
Lindera communis HEMSL.
Meliola linderae YAM.
Litsea cubeda PERS.
Meliola litseae SYD.
Litsea Hayatae KAN.
Meliola neolitseae YAM.
Lonicera japonica THUNB.
Irenina lonicerae YAM.
Loranthus lonicifolius HAY.
Meliola suisyaensis YAM.
Machilus arisanensis HAY.
Meliola machili YAM.
Machilus Kusanoi HAY.
Meliola machili YAM.
Machilus pseudo-longifolia HAY.
Meliola machili YAM.
Machilus Thunbergii SIEB. & ZUCC.
Meliola machili YAM.
Machilus zuihoensis HAY.
Meliola machili YAM.
Maesa formosana MEZ
Amazonia peregrina (SYD.) SYD.
Mallotus japonicus MUELL. - ARG.
Irenina mallotica YAM.
Mallotus paniculatus MUELL. - ARG.
Irenina mallotica YAM.
Mallotus philippinensis MUELL. - ARG.
Irenina subapoda (SYD.) STEV.
Mangifera indica L.
Meliola mangiferae EARLE
Mephitidia chinensis CHAMP.
Meliola mephitidiae YAM.
Milletia reticulata BENTH.
Meliola banosensis SYD.
Miscanthus japonicus ANDR.
Meliola andropogonis STEV. & ROLD.
Meliola panici FARLE
Murraya paniculata L.
Meliola tenella PAT.
Myrica adenophora HANCE
v. *Kusanoi* HAY.
Irenina mance (E. & M.) STEV.
Myrica rubra SIEB. & ZUCC.
Irenina manca (E. & M.) STEV.
Neolitsea acuminatissima KAN. & SAS.
Armatella litseae (Henn.) THEISS. & SYD.
Neolitsea acuto-trinervia KAN. & SAS.
Armatella litseae (Henn.) THEISS. & SYD.
Neolitsea variabilima KAN. & SAS.
Meliola neolitseae YAM.
Notaphobe Konishii HAY.
Meliola sempeiensis YAM.
Osmanthus Matsumuranus HAY.
Meliola osmanthi SYD.
Pericampylus formosanus DIELS.
Meliola pericampyli YAM.
Phoebe formosana HAY.
Armata macrospora YAM.
Phoenix Hanceana NAUD.
v. *formosana* BECC.
Meliola palmicola WINT.
Photinia Kudoii MASAM.
Irene photiniicola YAM.
Phragmites longivalvis STEUD.
Meliola arundinis PAT.
Phyllostachys edulis CARR.
Meliola phyllostachydis YAM.
Phyllostachys Makinoi HAY.
Meliola phyllostachydis YAM.
Pileostegia viburnioides HOOK. & THOMS.
Meliola pileostegiae YAM.
Pisonia aculeata L.
Meliola pisoniae STEV. & ROLD.
Pithecolobium lucidum BENTH.
Irenina pithecolobii YAM.
Pittosporum oligocarpum HAY.
Meliola elmeri SYD.
Pseudosasa Uzawai NAK.
Meliola phyllostachydis YAM.
Pueraria Thunbergiana BENTH.
Meliola banosensis SYD.
Rhaphiolepis indica LINDL.
v. *Tashiroi* HAY.
Irenina rhaphiolepis YAM.
Rhododendron Oldhami MAX.
Irenina rhododendri YAM.
Rhus javanica L.
v. *Roxburghii* REHD. & WILS.
Meliola brachyodonta SYD.
Rubus conduplicatus DUTH.
Irene calostroma (DESM.) v. HÖHN.
Rubus euphlephyllum HAY.
Irene calostroma (DESM.) v. HÖHN.
Rubus floribundo-paniculatus HAY.
Irene calostroma (DESM.) v. HÖHN.

- Meliola formosensis* YAM.
Rubus formosensis KTZE.
Irene calostroma (DESM.) v. HÖHN.
Meliola formosensis YAM.
Rubus mingetsensis HAY.
Irene calostroma (DESM.) v. HÖHN.
Meliola formosensis YAM.
Rubus shinkoensis HAY.
Meliola formosensis YAM.
Rubus Swinhoei HANCE
Meliola formosensis YAM.
Rubus taiwanianus MATS.
Irene calostroma (DESM.) v. HÖHN.
Schima kankaoensis HAY.
Meliola schimicola YAM.
Sida acuta BURM. f.
Irenopsis molleriana (WINT.) STEV.
Smilax lanceaefolia ROXB.
Meliola smilacis STEV.
Smilax stenopetala GRAY
Meliola smilacis STEV.
Smilax trachyclada HAY.
Meliola smilacis STEV.
Stranvaesia niitakayamensis HAY.
Irene stranvaesiicola YAM.
Styrax formosanum MATS.
Irene styracicola YAM.
Styrax suberifolius HOOK. & ARN.
Meliola styracis YAM.
Symplocos eriobotryaefolia HAY.
Meliola symploci YAM.
Symplocos lucida SIDE. & ZUCC.
Meliola symplocacearum YAM.
Symplocos theophrastaefolia S. & Z.
Meliola symplocicola YAM.
Synaedrys amygdalifolia KOIDZ.
f. *castanopsisifolia* KUDO
Irene castanopsisifoliae YAM.
Irene lithocarpicola YAM.
Meliola subpellucida YAM.
Synaedrys brevicaudata KOIDZ.
Meliola lithocarpina YAM.
Meliola ramulicola YAM.
Synaedrys formosana KOIDZ.
Irene lithocarpicola YAM.
Synaedrys formosana KOIDZ.
f. *dodoniaefolia* KUDO
Irene lithocarpicola YAM.
Synaedrys Kawakamii KOIDZ.
Meliola Kawakamii YAM.
Synaedrys kodaihoensis KUDO
Meliola kacaihoensis YAM.
Synaedrys Konishii KOIDZ.
Irene konishii YAM.
Synaedrys lepidocarpa KOIDZ.
Meliola kiraiensis YAM.
Synaedrys rhombocarpa KUDO
f. *suishagensis* KUDO
Irene lithocarpicola YAM.
Synaedrys shinsuiensis KUDO
Irene sinsuiensis YAM.
Urena lobata L.
Irenopsis triumfettae (STEV.) STEV.
Vaccinium caudatifolium HAY.
Irenopsis sinsuiensis YAM.
Vaccinium formosanum HAY.
Irene musyaensis YAM.
Ventilago elegans HEMSL.
Meliola ventilaginis YAM.
Viburnum luzonicum ROLFE
v. *formosanum* REHD.
Irenina viburni (SYD.) STEV.
Viburnum propinquum HEMSL.
Irenina viburni (SYD.) STEV.

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