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NOTES ON THE ERYSIPHACEAE OF MANCHURIA

BY

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In 1928, M. MIURA published the "*Flora of Manchuria and East Mongolia*, part III,"¹⁾ in which 19 species of *Erysiphaceae* collected in Manchuria were enumerated. In the course of the taxonomic study on the Japanese Erysiphaceae, the writer examined also the Manchurian specimens which are preserved in the Herbarium of the Faculty of Agriculture, Hokkaido Imperial University, and recognized 19 species belonging to 6 genera. Among them two species of *Uncinula* seemed to be new to science and 3 species to have better their names be changed.

1. *Sphaerotheca Humuli* (DC.) BURR.

Hab. On *Sanguisorba officinalis* L. (*Waremoko*), Dairen (Sept. 14, 1914, KENJI MIYABE; Oct. 1, 1914, K. KONDO; July, 19, 1916, K. KONDO).

2. *Sphaerotheca fuliginea* (SCHLECHT.) POLLACCI

Hab. On *Bidens parviflora* WILLD. (*Hosobano-sendangusa*), Yugakujo (Sept. 17, 1929, H. TAKASUGI).—On *Bidens tripartita* L. (*Taukogi*), Ryojun (Oct. 31, 1914, K. KONDO).—On *Cirsium arvense* SCOP. var. *setosum* Ledeb. (*Yezono-kitsuneazami*), Dairen (Oct. 17, 1914, K. KONDO).—On *Coreopsis Drummondii* TORR. et GRAY. (*Kinkei-giku*), Dairen (Oct. 30, 1914, K. KONDO).—On *Impatiens*

1) Publication of South Manch. Railw. Comp. XXVII, 1928. (In Japanese).

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Balsamina L. (*Hosenkwa*), Dairen (Sept. 9, 1913, R. SUZUKI; Oct. 11, 1914, K. KONDO), Yugakujo (Sept. 7, 1925, M. MIURA), Harupin (Sept. 1926, K. HARA).—On *Phaseolus radiatus* L. var. *aurea* FR. et SAV. (*Azuki*), Yugakujo (Sept. 19, 1929, H. TAKASUGI).—On *Taraxacum officinale* WEB. (*Tampopo*), Dairen (Oct. 18, 1914, K. KONDO), Ryojun (Oct. 31, 1914, K. KONDO).—On *Xanthium Strumarium* L. (*Onamomi*), Yugakujo (Aug. 27, 1914, KENJI MIYABE), Koshurei (July, 20, 1917, KENJI MIYABE).

* 3. *Erysiphe Pisi* DC.

Hab. On *Aeschynomene indica* L. (*Kusanemu*), Yugakujo (Aug. 29, 1929, H. TAKASUGI).—On *Lespedeza juncea* PERS. var. *sericea* MAXIM. (*Medohagi*), Ryojun (Oct. 31, 1914, K. KONDO).—On *Lespedeza tomentosa* SIEB. (*Inuhagi*), Dairen (Sept. 25, 1918, M. MIURA).—On *Melilotus suaveolens* LEDEB. (*Ebirahagi*) Hoten, Hokuryo (Sept. 1915, K. KONDO), Koshurei (Aug. 2, 1916, KENJI MIYABE; Sept. 29, 1917, KENJI MIYABE; Sept. 7, 1918, M. MIURA).—On *Gueldenstedtia multiflora* BUNGE (*Inu-geenge*), Koshurei (June, 2, 1918, M. MIURA).—On *Pisum sativum* L. (*Endo*), Koshurei (July, 24, 1916, KENJI MIYABE; Aug. 1, 1916, KENJI MIYABE & Y. AKAISHI; Sept. 1, 1916, KENJI MIYABE).—On *Robinia pseudoacacia* L. (*Harienju*). Tetsurei (Sept. 14, 1916, KENJI MIYABE).

4. *Erysiphe Polygoni* DC.

Microsphaera Polygoni SAWADA

Hab. On *Clematis heracleifolia* DC. var. *Davidiana* FRANCH. (*Manshu-ohkusabotan*), Tokuriji (Oct. 6, 1929, H. TAKASUGI).—On *Clematis mandshulica* MAXIM. (*Tachisenninso*), Kirin, Shohakusan (Aug. 16, 1918, M. MIURA).—On *Elsholtzia cristata* WILLD. (*Naginatakoju*), Ho-ohsan (Sept. 30, 1918, M. MIURA).—On *Elsholtzia cristata* WILLD. var. *saxatilis* KOMAR. (*Hosoba-naginatakoju*), Tokuriji (Oct. 6, 1929, H. TAKASUGI).—On *Polygonum aviculare* L. (*Michiyanagi*), Seiho (Sept. 30, 1923, K. KONDO).—On *Statice bicolor* BUNGE (*Togoso*), Dairen (Sept. 5, 1915, K. KONDO).

* The asterisk denotes the species of fungus which was newly added to the list of the Manchurian Erysiphaceae.

*5. *Erysiphe Aquilegiae* DC.

Hab. On *Paeonia obovata* MAXIM. var. *japonica* MAK. (*Yamashakuyaku*), Jijisan (Sept. 15, 1920, K. KONDO).

6. *Erysiphe cichoracearum* DC.

Hab. On *Arabis pendula* L. (*Yezohatazao*). Kirin, Shohakusan (Aug. 16, 1918, M. MIURA).—On *Artemisia laciniata* WILLD. var. *latifolia* MAXIM. (*Hiroha-kikuyomogi*), Kirin, Shohakusan (Aug. 16, 1918, M. MIURA).—On *Artemisia vulgaris* L. (*Yomogi*), Kirin, Shohakusan (Aug. 16, 1918, M. MIURA).—On *Eritrichum pectinatum* DC. (*Tachimiyama-murasaki*), Koshurei (June, 24, 1918, M. MIURA).—On *Inula britannica* L. (*Yezo-oguruma*), Dairen, Nanzan (Oct. 21, 1914, K. KONDO).—On *Inula salicina* L. (*Kasenso*), Dairen, Nanzan (Oct. 21, 1914, K. KONDO).—On *Plantago major* L. var. *asiatica* DECNE (*Ohbako*), Dairen (Oct. 30, 1914, K. KONDO).—On *Scorzonera albicaulis* BUNGE (*Yanagibaramonjin*), Dairen (July, 14, 1916, K. KONDO), Yugakujo (Oct. 11, 1929, H. TAKASUGI).—On *Sonchus uliginosus* BIEB. (*Hachijona*), Dairen (Oct. 4, 1914, K. KONDO).

7. *Microsphaera Alni* WINT.

Hab. On *Rhamnus dahurica* PALL. var. *nipponica* MAK. (*Kurotsubara*), Jijisan (Sept. 15, 1920, K. KONDO), Hoten, Hokuryo (Sept. 24, 1918, M. MIURA). Koshurei (Sept. 13, 1921, M. MIURA).

*8. *Microsphaera quercina* (SCHWEIN.) BURR.

Hab. On *Quercus crispula* BLUME (*Mizunara*), Jijisan (Sept. 15, 1920, K. KONDO).—On *Quercus mongorica* FISCH. (*Mongorinara*), Ho-ohsan (Oct. 5, 1904, T. NISHIDA; Sept. 29, 1918, M. MIURA), Bujun (Aug. 23, 1914, KENJI MIYABE).

*9. *Microsphaera Bäumléri* P. MAGN.

Hab. On *Vicia Cracca* L. (*Kusafuji*), Ho-ohsan (Oct. 5, 1904, T. NISHIDA), Ryojun (July, 30, 1917, KENJI MIYABE), Dairen (Sept. 25, 1918, M. MIURA).

*10. *Sawadaea Tulasnei* (FUCK.) HOMMA

Uncinula Tulasnei FUCK.

Sawadaea Aceris (DC.) MIYABE

Hab. On *Acer Lobelii* TEN. var. *platanoides* MIYABE (*Manshu-itaya*), Dairen (Oct. 10, 1914, K. KONDO), Yugakujo (Sept. 27, 1919, M. MIURA; Sept. 4, 1929, H. TAKASUGI).

11. *Uncinula Kenjiana* HOMMA, n. sp.

Uncinula clandestina MIURA (not Schroeter), Fl. Manch. East Mong. Pt. III, p. 128, 1928.

Amphigenous, mostly epiphyllous, mycelium evanescent, at first forming a thin effused film; perithecia gregarious, depressed-globose, $84-61.2\ \mu$ in diameter; cells distinct, $19.2-20.4 \times 14.4-16\ \mu$ in width; appendages 7-15 in number,

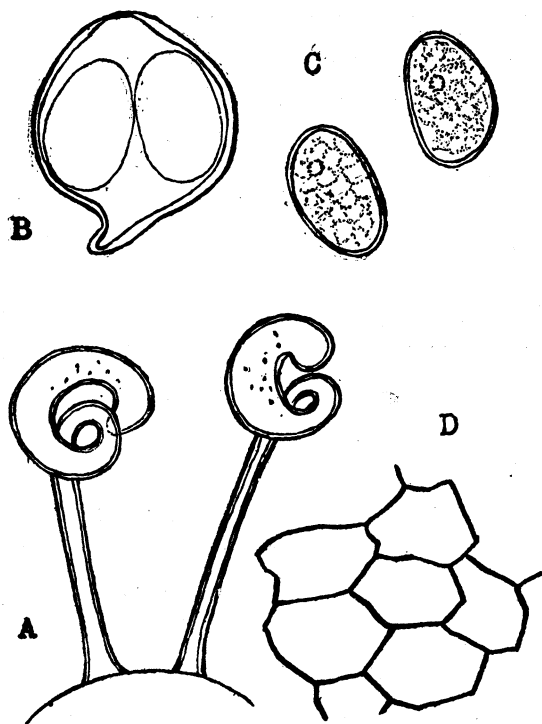


Fig. 1.

Uncinula Kenjiana n. sp. On *Ulmus pumila* L.

- A. Appendages of the perithecium ($\times 550$).
 B. Ascus ($\times 550$). C. Ascospores ($\times 550$).
 D. Outer view of perithecial wall. ($\times 550$).

simple, smooth, straight, $70-136\ \mu$ long, aseptate, hyaline, thin walled from the base to the apex, the uncinuate part of the appendages are abruptly enlarged, the width of this part reaching to about 2 times of the other part of the appendages, and are coiled twice toward the outer from the inner; asci 3-5, globose, with or without stalk, $44-57.6 \times 33.6-44.4\ \mu$; spores always 2, large, ellipsoidal, $28-31.2 \times 16.8-21.6\ \mu$.

Hab. On *Ulmus pumila* L. (*Nonire*), Koshurei (Sept. 25, 1917, KENJI MIYABE; Sept. 9, 1918, M. MIURA; Sept. 25, 1926, H. TAKASUGI; Oct. 1, 1929, H. TAKASUGI).

From 4 species of *Uncinula* parasitic on the species of *Ulmus*, *U. clandestina*, *U. Clintonii*, *U.*

Bivonae and *U. macrospora*, the present fungus differs clearly in many characters, especially in the peculiar manner of the uncination of its appendages as shown in the accompanying figure.

12. *Uncinula Salmoni* SYD.

Hab. On *Fraxinus rhynchophylla* HANCE (*Manshu-toneriko*), Seiryuzan (Oct. 2, 1920, M. MIURA; Sept. 4, 1929, H. TAKASUGI).—On *Fraxinus mandshurica* RUPR. (*Yachidamo*), Royarei (Sept. 7, 1915, H. MISUMI).

13. *Uncinula Salicis* (DC.) WINT.

Hab. On *Salix daphnoides* VILL. (*Yezo-Yanagi*), Dairen (Oct. 6, 1919, M. MIURA).—On *Salix cinerea*, L. (*Hai-iro-yanagi*), Chorinshi (Sept. 12, 1915, H. MISUMI).

14. *Uncinula mandshurica* MIURA

Hab. On *Populus laurifolia* LEDEB. (*Teriha-doro*), Yugakujo (Oct. 8, 1929, H. TAKASUGI).

**15. *Uncinula Salici-gracilistylae* HOMMA
n. sp.**

Hypophyllous, mycelium persistent; perithecia gregarious, globose, 112–154 μ in diameter; cells obscure, 11.2–12 $\times$ 9.6–10.8 μ ; appendages numerous (about 56–87 in number), simple, 100.8–140 μ in length, aseptate, hyaline, thin walled throughout, having to several swollen parts, the apex of the appendages circinate or falcate; asci 6–8, ellipsoidal or ovate, short stalked,

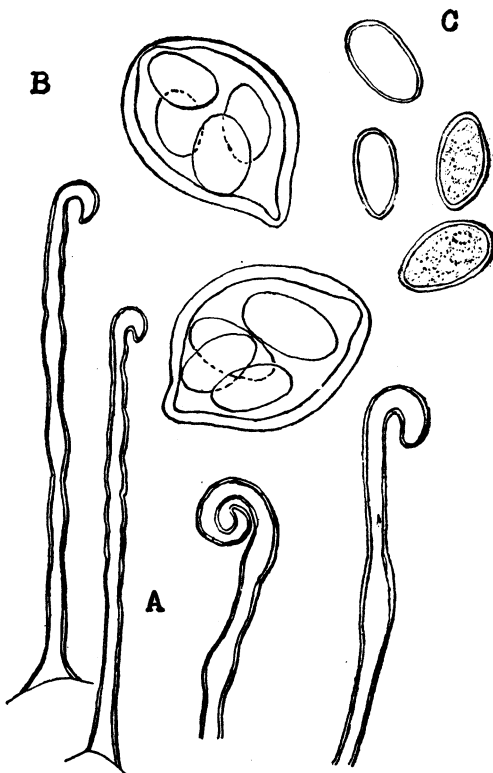


Fig. 2.

Uncinula Salici-gracilistylae n. sp.

On *Salix gracilistyla* MIQ.

A. Appendages ($\times 550$). B. Asci ($\times 550$).
C. Ascospores ($\times 550$).

46.8-54 × 31.2-34.8 μ ; spores 4-5 (rarely 3), elongata ellipsoidal, 19.2-24 × 10.4-12 μ .

Hab. On leaves of *Salix gracilistyla* MIQ. (*Neko-yanagi*), Royarei (Sept. 7, 1915, H. MISUMI).

The present species is related to *U. Salicis*, but it differs evidently from the latter species by the characteristic appendages which have several swollen parts, as well as by the formation of the perithecia on the undersurface while those of *U. Salicis* parasitic on *Salix gracilistyla* are always epiphyllous.

* 16. *Uncinula Miyabei* (SALM.) SACC. et SYD.

Hab. On *Alnus japonica* SIEB. et ZUCC. (*Hannoki*), Yugakujo (Sept. 23, 1929, H. TAKASUGI).

17. *Phyllactinia corylea* (PERS.) KARST.

Hab. On *Ailanthus glandulosa* DESF. (*Shinju*), Dairen (Sept. 29, 1916, K. KONDO; Oct. 4, 1914, K. KONDO).—On *Carpinus cordata* BLUME (*Sawashiba*), Choyozan (Sept. 1915, H. MISUMI).

* 18. *Phyllactinia moricola* (P. HENN.) HOMMA

Phyll. suffulta (RED.) SACC. var. *moricola* P. HENN.

Hab. On *Morus bombycis* KOIDZ. (*Yamaguwa*), Hankadai (Oct. 9, 1904, T. NISHIDA), Yugakujo (Oct. 11, 1929, H. TAKASUGI).

* 19. *Phyllactinia Fraxini* (DC.) HOMMA

Hab. On *Betula daphurica* PALL. (*Ko-onoore*), Yugakujo (Oct. 1, 1929, H. TAKASUGI).—On *Populus Simoni* CARR. (*Teriha-doro*), Koshurei (Aug. 25, 1920, M. MIURA).

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