

CERCOSPORA IN GUATEMALA

Albert S. Muller and Charles Chupp

SPECIES of the genus *Cercospora* are among the most abundant leaf-spotting fungi in the Americas. In many instances they are responsible for diseases of serious consequences, affecting the quantities and quality of the product of agricultural crops. A *Cercospora* species may affect certain wild species of a given genus of plants and cultivated representatives of the same genus as well. The herbarium of the National School of Agriculture of Guatemala already contains specimens of 49 species of *Cercospora* on 53 host plants. Four species are new to science. The following is a contribution to the knowledge of the genus *Cercospora* in Guatemala, based on specimens in the above cited herbarium and in the herbarium of Cornell University and collected by the senior author.

CERCOSPORA ANNONACEAE P. Henn. in *Hedwigia* 48: 1909.

On *Annona squamosa* L., Chimaltenango, Sept. 8, 1942, Muller 149.

***Cercospora Antirrhini* Muller & Chupp, sp. nov.**

On *Antirrhinum majus* L., Chimaltenango, Jan. 10, 1943, Muller 386.

Maculis subrotundis, 0.5-5 mm., diam., albidis, anguste brunneo-marginatis; amphigenis; conidiophoris pallide olivaceo-brunneis, parce septatis, 3-6 x 20-80 mu; conidiis hyalinis, indistincte multiseptatis, acicularibus, 2-4 x 35-125 mu.

Leaf spots subcircular, 0.5-5 mm. in diameter, center white, border wide, dull brown; fruiting chiefly epiphyllous; stromata a few cells to 30 mu in diameter; fascicles 2-12 divergent stalks; conidiophores pale olivaceous brown, slightly paler and narrower toward the tip, 1.5-5-septate, not branched, straight to slightly curved, rarely geniculate, tip rounded or subtruncate, 3-6 x 20-80 mu; conidia hyaline, cylindrical or very longest almost acicular, straight to mildly curved, indistinctly multiseptate, base truncate to obconically truncate, tip conic, 2-4 x 35-125 mu.

CERCOSPORA ASPARAGI Sacc. in *Michelia* 1: 88. 1897.

On *Asparagus officinalis* L., Bárcena, Feb. 2, 1950, *Muller* 670.

CERCOSPORA ATROMARGINALIS Atk. in *Journ. E. Mitchell Sci. Soc.* 8: 59. 1892.

On *Solanum nigrum* L., Chimaltenango, Sept. 2, 1942, *Muller* 102.

CERCOSPORA BETICOLA Sacc. in *Nuov. Gior. Bot. Ital.* 8: 189. 1876.

On *Chenopodium ambrosioides* L., Chimaltenango, Sept. 29, 1941, *Muller* 36; on *Beta vulgaris* var. *cicla* Moq. Chimaltenango, Sept. 15, 1941, *Muller* 67; on *Spinacia oleracea* L., Chimaltenango, September 28, 1942, *Muller* 233; on *Beta vulgaris* L., Chimaltenango, Dec. 14, 1942, *Muller* 331.

CERCOSPORA BIDENTIS Tharp in *Mycologia* 9: 108. 1917.

On *Bidens pilosa* L., Chimaltenango, Aug. 29, 1942, *Muller* 187.

CERCOSPORA BORRERIAE E. & E. in *Proc. Acad. Nat. Sci. Phila.* 46: 379. 1892.

On *Borreria* sp., Chimaltenango, Nov. 6, 1942, *Muller* 288; on *Borreria laevis* (Lam.) Griseb., Bárcena, Nov. 2, 1944, *Muller* 468.

CERCOSPORA CAJANI P. Henn. in *Hedwigia* 41: 305. 1902.

On *Cajanus Cajan* (L.) Millsp., Chimaltenango, Oct. 11, 1941, *Muller* 55.

CERCOSPORA CAPSICI H. & W. in *Mycologia* 3: 15. 1911.

On *Capsicum microcarpum* Cav., Chimaltenango, Sept. 28, 1942, *Muller* 234.

CERCOSPORA CHRYSANTHEMI H. & W. in *Mycologia* 3: 15. 1911.

On *Chrysanthemum* sp., Bárcena, Dec. 20, 1944, *Muller* 511.

CERCOSPORA COFFEICOLA Berk. & Cooke in *Grevillea* 9: 99. 1881.

On *Coffea arabica* L., Chimaltenango, Sept. 16, 1942, *Muller* 203.

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CERCOSPORA COLEROIDES Sacc. in Journ. Myc. 12: 52. 1906.

On *Casimiroa edulis* La Llave & Lex., Antigua, Dec. 25, 1941. *Muller* 96.

***Cercospora cotizensis* Muller & Chupp, nom. nov.**

Cercospora Crotalariae Syd. in Annal. Myc. 28: 208. 1930, non Saccardo 1906.

On *Crotalaria* sp., Chimaltenango, Sept. 10, 1941, *Muller* 5.

CERCOSPORA CRUENTA Sacc. in *Michelia* 2: 149. 1880.

On *Vigna unguiculata* (L.) Walp., Bárcena, Jan. 20, 1945, *Muller* 568.

CERCOSPORA FLAGELLARIS E. & M. in *Amer. Nat.* 16: 1003. 1882.

On *Phytolacca* sp., Chimaltenango, Aug. 16, 1942, *Muller* 171.

CERCOSPORA FUCHSIAE Chupp & Muller in *Bol. Soc. Venez. Sci. Nat.* 8: 45. 1942.

On *Fuchsia* sp., Bárcena, Sept. 29, 1944, *Muller* 451.

CERCOSPORA FUSIMACULANS Atk. in *Journ. E. Mitchell Sci. Soc.* 8: 50. 1892.

On *Panicum maximum* Jacq., Bárcena, Jan. 20, 1950, *Muller* 669.

CERCOSPORA GONATOCLADA Syd. in *Annal. Myc.* 23: 245. 1925.

On *Iresine Calea* (Ibáñez) Standl., Chimaltenango, Aug. 25, 1942, *Muller* 186.

CERCOSPORA GRANDISSIMA Rangel in *Bol. Agric. São Paulo, Serie 16A, N° 4*: 322. 1915.

On *Dahlia* sp., wild at Godínez, Sept. 15, 1944, *Muller* 592.

***Cercospora guatemalensis* Muller & Chupp, sp. nov.**

On *Ocimum canum* Sims, Bárcena, July 8, 1944, *Muller* 599.

Maculis subrotundis, 0.5-4 mm. diam., albidis, fusco-brunneo-marginatis; epiphyllis; conidiophoris pallide olivaceo-brunneis, 1-5-septatis, 3.5-6 x 30-100 mu; conidiis hyalinis, cylindraceis, indistincte multiseptatis, 2-3.5 x 30-110 mu.

Leaf spots subcircular, 0.5-4 mm. in diameter, center white, dull brown; fruiting chiefly epiphyllous; stromata a few brown cells to 30 mu in diameter; fascicles 2-12 divergent stalks; conidiophores pale olivaceous brown, slightly paler and narrowest towards tip, 1-5-septate, not branched, straight to slightly curved, rarely geniculate, tips bluntly rounded or subtruncate, 3.5-6 x 30-100 mu; conidia hyaline, cylindric or longest ones almost acicular, straight to mildly curved, indistinctly multiseptate, base truncate to obconically truncate, tip conic, 2-3.5 x 30-110 mu.

CERCOSPORA HENNINGSII Allesch. in Engl. Pflanzenwelt Ostafri., Teil. C: 35. 1895.

On *Manihot esculenta* Crantz., Bárcena, Jan. 14, 1948, *Muller 571*.

CERCOSPORA HYDROCOTYLES E. & E. in Journ. Myc. 3: 16. 1887.

On *Hydrocotyle mexicana* Schlecht. & Cham., Chimaltenango, Nov. 2, 1942, *Muller 286*.

Cercospora insulana (Sacc.) *Muller & Chupp, comb. nov.*

Cercosporina insulana Sacc. in Nuov. Gior. Bot. Ital. 22: 74. 1915.

On *Armeria maritima* Willd., Chimaltenango, Aug. 28, 1942, *Muller 177*.

CERCOSPORA IPOMOEAE Winter in Hedwigia 26: 34. 1887.

On *Ipomoea sp.*, Bárcena, Sept. 18, 1944, *Muller 444*.

Cercospora jacobinicola *Muller & Chupp, sp. nov.*

On *Jacobinia spicigera* (Schlecht.) Bailey, Chimaltenango, Oct. 2, 1941, *Muller 42*.

Maculis subrotundis, 2-6 mm. diam. 1 mm. griseo-atris, anguste marginatis; hypophyllis; conidiophoris subhyalinis, pallide olivaceo-brunneis, parce septatis, 2.5-5 x 10-40 mu; conidiis hyalinis, cylindraceis, multiseptatis, 2.5-5 x 30-105 mu.

Leaf spots subcircular to irregular, 2-6 mm. in diameter, lead-colored to almost black, with narrow, raised-line border; fruiting chiefly hypophyllous; stromata small, dark olivaceous to brown; fascicles sometimes dense, compact; conidiophores subhyaline, pale olivaceous brown, uniform in color and in width, rarely septate, not branched, 0-1 geniculate, conic lip, slightly curved or undulate, 2.5-5 x 10-40 μ ; conidia cylindrical, or longest ones distinctly obclavate, straight to slightly curved, multiseptate, base short, obconically truncate, tip blunt to conic, 2.5-5 x 30-105 μ .

CERCOSPORA JASMINICOLA Chupp & Muller in Arch. Inst. Biol. Veg. Rio de Janeiro, Brasil 3: 93. 1936.

On *Jasminum grandiflorum* L., Guatemala, Dec. 2, 1941, Muller 88.

CERCOSPORA LANTANAE Chupp in Journ. Dept. Agr. P. R. 15: 10. 1931.

On *Lantana Camara* L., Barcena, Nov. 2, 1944, Muller 480.

CERCOSPORA LONGISSIMA Sacc. in Sylloge Fungorum 18: 607. 1906.

On *Lactuca sativa* L., Chimaltenango, Mar. 2, 1942, Muller 108.

CERCOSPORA MALI E. & E. in Journ. Myc. 4: 116. 1888.

On *Cydonia oblonga* Mill., Chimaltenango, Nov. 26, 1941, Muller 35.

CERCOSPORA MEDICAGINIS E. & E. in Proc. Acad. Nat. Sci. Phila., Part 1. 43: 91. 1891.

On *Medicago sativa* L., Barcena, Sept. 29, 1944, Muller 453.

CERCOSPORA MUSAE Zimm. in Centralbl. f. Bakt. II. 8: 219. 1902.

On *Musa sapientium* L., Tiquisate, Apr. 3, 1949, Muller 632.

CERCOSPORA NICOTINAE E. & E. in Proc. Acad. Nat. Sci. Phila. 45: 170. 1893.

On *Nicotiana Tabacum* L., Barcena, Aug. 14, 1944, Muller 572.

CERCOSPORA ORYZAE Miy. in Journ. Coll. Ag. Imp. Univ. Tokyo 2: 263. 1910.

On *Oryza sativa* L., Tiquisate, Jan. 31, 1950, *Muller* 667.

CERCOSPORA PERSONATA (B. & C.) Ell. in Grevillea 3: 106. 1874.

On *Arachis hypogaea* L., Barcena, Nov. 2, 1944, *Muller* 479.

CERCOSPORA PETUNIAE (Saito) Chupp & Muller in Arch. Inst. Biol. Veg., Rio de Janeiro, Brasil 3: 96. 1936.

Cercosporina Petuniae Saito in Trans. Tottori Soc. Agr. Sci. 3: 271. 1931.

On *Petunia hybrida* Vilm., Chimaltenango, Aug. 28, 1942, *Muller* 175.

CERCOSPORA PUNICAE P. Henn. in Engl. Bot. Jahrb. 37: 165. 1905.

On *Punica granatum* L., Bárcena, Aug. 14, 1944, *Muller* 570.

CERCOSPORA RICHARDIAECOLA Atk. in Journ. E. Mitchell Sci. Soc. 8: 51. 1892.

On *Zantedeschia aethiopica* (L.) Spreng., Chimaltenango, Nov. 6, 1942, *Muller* 289.

CERCOSPORA RICINELLA Sacc. & Berl. in Atti R. Inst. Ven. Sci. ser. 6. 3: 721. 1885.

On *Ricinus communis* L., Chimaltenango, Oct. 2, 1941, *Muller* 45.

CERCOSPORA ROSAECOLA Pass. in Just's Bot. Jahresber. 3: 276. 1877.

On *Rosa* sp., Barcena, Aug. 14, 1944, *Muller* 574.

CERCOSPORA SALVIICOLA Tharp in Mycologia 9: 115. 1917.

On *Salvia officinalis* L., Chimaltenango, Nov. 21, 1942, *Muller* 297.

CERCOSPORA SESAMI Zimm. in Ber. L. und Forstw. D. Ostfr. 2: 28. 1904.

On *Sesamum indicum* L., Tiquisate, Apr. 3, 1949, *Muller* 633.

CERCOSPORA SETARIAE Atk. in Journ. E. Mitchell Sci. Soc. 8: 50. 1902.

On *Paspalum conjugatum* Berg., Chimaltenango, Oct. 28, 1941, *Muller* 56.

CERCOSPORA SOJINA Hara in Nogyo Sekai, Tokyo 9: 28. 1915.

On *Glycine Max* (L.) Merr., Chimaltenango, Nov. 28, 1941, *Muller* 73.

CERCOSPORA SORGHI E. & M. in Journ. Myc. 3: 15. 1887.

On *Sorghum vulgare* Pers., Chimaltenango, Nov. 26, 1941, *Muller* 32.

***Cercospora spiraecicola* Muller & Chupp, sp. nov.**

On *Spiraea prunifolia* Sieb. & Zucc., Chimaltenango, Jan. 16, 1942, *Muller* 397.

Maculis subrotundis, 3-6 mm. diam., pallide brunneis, rubro-brunneo marginatis; epiphyllis; conidiophoris subhyalinis vel-dilute olivaceo-brunneis, parce septatis, 2-3.5 x 5-35 mu; conidiis subhyalinis vel-dilute olivaceis, cylindraceutis, 1-5-septatis, 2-3.5 x 15-55 mu.

Leaf spots subcircular to irregular, 3-6 mm. in diameter, center pale brown or rarely almost gray, wide dark reddish brown margin; fruiting chiefly epiphyllous; stromata dark brown, globular, 20-50 mu in diameter; fascicles dense, compact; conidiophores delicate, curved or variously bent, subhyaline to pale olivaceous brown, uniforme in width, almost, hyaline tip, seldom septate, not branched, not geniculate, tip conic to rounded, 2-3.5 x 5-35 mu; conidia subhyaline to very pale olivaceous, cylindric, straight to curved, 1-5-septate, ends rounded bluntly or base obconically truncate, 2-3.5 x 15-55 mu.

CERCOSPORA TROPAEOLI Atk. in Journ. E. Mitchell Sci. Soc. 8: 59. 1892.

On *Tropaeolum* sp., Chimaltenango, June 10, 1942, *Muller* 121.

CERCOSPORA VERBENIPHILA Speg. in Biol. Acad. Nac. Cienc. Argent. 29: 179. 1926.

On *Verbena* sp., Barcena, Aug. 8, 1944, *Muller* 600.