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Systematic Mycology and Microbiology Laboratory - Nomenclature Fact Sheets

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Septoria on *Passiflora* spp.

Taxonomy and Nomenclature

Three species of *Septoria* are reported as occurring on *Passiflora* species: *Septoria fructigena* Berk. & M.A. Curt. 1874, *Septoria passiflorae* Syd. 1939, and *Septoria passifloricola* Punith. 1980. *S. passiflorae* Syd. and *S. passifloricola* Punith. can be easily distinguished on the basis of conidial length. *S. passiflorae* Syd. has conidia 35-52 x 1.5-2 μm while *S. passifloricola* has conidia 14-22 x 1.5-2 (-2.5) μm . The initial description of *S. fructigena* was quite brief; conidia were described as 33 μm long (as 0.0013 inches) with no size range provided. Batista and Peres (1965) redescribed *S. fructigena* based on a Brazilian collection, reporting conidial lengths of 13-35 x 1-2 μm , a size range with considerable overlap with *S. passifloricola*. Doidge (1950) examined the type specimen of *S. passifloricola* (as *S. passiflorae* Louw) and concluded that it was identical to *S. fructigena*. Nevertheless, subsequent authors have continued to treat *S. passifloricola* and *S. fructigena* as distinct species. Settling the question of whether these two are distinct would require a careful examination of the type specimens and possibly a molecular analysis of DNA sequence information.

The existence of homonyms has led to some potential confusion for these species of *Septoria* on *Passiflora*. Sydow described a *Septoria* on *Passiflora mollissima* in Ecuador in 1939, giving it the name *Septoria passiflorae* Syd. 1939. In 1941, Louw inadvertently created an illegitimate later homonym, giving the same name to a *Septoria* found on *Passiflora edulis* and *Passiflora quitensis* in South Africa, *Septoria passiflorae* Louw 1941 non Syd. 1939. *Septoria passiflorae* Louw non Syd. is confirmed as having caused a serious epidemic in 1938-1939 in South Africa (Punithalingam 1980).

Until 1980, Sydow's earlier name appeared to have been largely forgotten, while host indices commonly cited *S. passiflorae* Louw (e.g., Huguenin 1966, Nattrass 1961, Pennycook 1989, Simmonds 1966, Urtiaga 1986, 2004, Whiteside 1966). Punithalingam published the name *Septoria passifloricola* in 1980, as a replacement for the illegitimate *S. passiflorae* Louw non Syd., and therefore *S. passifloricola* is the current accepted name for the *Septoria* from South Africa.

Geographic Distribution and Host Range of *Septoria* spp. on *Passiflora*

Trujillo et al. (1994) obtained an isolate on *Passiflora tripartita* var. *tripartita* (banana poka) from Colombia that they identified as *S. passiflorae* Syd. based on conidial dimensions. In pathogenicity tests, of the seven *Passiflora* species inoculated, only *P. tripartita* var. *tripartita* and *P. foetida* were susceptible, while *P. laurifolia*, *P. ligularis*, *P. suberosa*, *P. edulis*, and *P. edulis* f. *flavicarpa* were not infected. The authors did not test *Passiflora* spp. not known to occur in Hawaii, so the full host range has not yet been fully determined. The *S. passiflorae* Syd. isolate from Colombia was introduced to Hawaii as a biocontrol agent, successfully resulting in 50-95% reductions in *Passiflora tripartita* var. *tripartita* biomass two years after inoculation (Trujillo et al. 2001).

The geographic distribution and host range of *S. passiflorae* Syd. must be interpreted with caution due to the potential for confusion with the homonym *S. passiflorae* Louw (= *S. passifloricola*). Of literature reports in the SBML fungus-host database, only reports from Colombia (Wellman 1977, Trujillo et al. 1994) and Hawaii (Trujillo et al. 2001) are confirmed. Other reports in the SBML database under the name *S. passiflorae* actually refer to *S. passiflorae* Louw. No author names were given to distinguish between the homonyms in the reports from Brazil (Mendes et al. 1998) and

Florida (Miller 1991), but these fungus host indices presumably refer to *S. passiflorae* Louw because the host is *Passiflora edulis*, which is reportedly not susceptible to *S. passiflorae* Syd (Trujillo et al. 1994).

According to Punithalingam (1980), *S. passifloricola* occurs on *Passiflora brasiliensis* (= *P. alata*), *P. edulis*, *P. macrocarpa*, *P. quadrangularis*, and *P. quitensis*, in several African countries, Australia, New Zealand, New Caledonia, Trinidad, and Venezuela. As explained above, reports from Brazil (Mendes et al. 1998) and Florida (Miller 1991) may also refer to *S. passifloricola* (as *S. passiflorae*, authority not provided).

Septoria fructigena was initially reported on fruits of a *Passiflora* sp. in South Carolina (Berkeley 1874). It has a host range similar to that of *S. passifloricola*, occurring on *P. edulis*, *P. quadrangularis*, and *P. quitensis*. It has also been reported from Haiti (Benjamin & Slot 1969), Puerto Rico and the Virgin Islands (Stevenson 1975), South Africa (Doidge 1950, Gorter 1977, Crous et al. 2000), and Brazil (Batista & Peres 1965, Mendes et al. 1998). In addition, the U.S. National Fungus Collections contain a specimen from Ethiopia (Farr et al. n.d.).

Nomenclature Reports

Septoria passiflorae Syd. 1939 (Ascomycetes, Mycosphaerellales)

Notes: Not the illegitimate later homonym *Septoria passiflorae* Louw 1941 = *Septoria passifloricola*.

Distribution: Central America (Colombia, Wellman 1977), South America (Ecuador, Sydow 1939). Introduced to North America (USA: HI) as a biocontrol agent (Trujillo et al. 2001). Other reports may refer to *Septoria passiflorae* Louw = *Septoria passifloricola*.

Substrate: Leaves. Reports on fruit, flowers and stems may refer to *Septoria passiflorae* Louw = *Septoria passifloricola*.

Disease Note: Used in biocontrol of *Passiflora tripartita* (banana poka) in Hawaii (Trujillo et al. 2001).

Host: *S. passiflorae* Syd. was restricted to *Passiflora tripartita* var. *tripartita* and *P. foetida*, and was not capable of infecting *Passiflora edulis* and other *Passiflora* spp. in inoculation studies (Trujillo et al. 1994). Reports on other hosts may refer to *Septoria passiflorae* Louw = *Septoria passifloricola*.

Supporting Literature:

Sydow, H. 1939. Fungi Aequatoriensis (Series prima). Ann. Mycol. 37: 275-438.

Trujillo, E.E., Kadooka, C.Y., Tanimoto, V., Bergfeld, S., Shishido, G., and Kawakami, G. 2001. Effective biomass reduction of the invasive weed species banana poka by septoria leaf spot. Pl. Dis. 85: 357-361.

Trujillo, E.E., Norman, D.J., and Killgore, E.M. 1994. Septoria leaf spot, a potential biological control for banana poka vine in forests of Hawaii. Pl. Dis. 78: 883-885.

Wellman, F.L. 1977. Dictionary of tropical American crops and their diseases. Scarecrow Press, Inc., Metuchen, NJ, 495 pages.

Verified By: Erica On May 18, 2006

Septoria passifloricola Punith. 1980 (Ascomycetes, Mycosphaerellales)

[= *Septoria passiflorae* Louw 1941 - illegitimate later homonym, not included in search] Note: Illegitimate later homonym of *Septoria passiflorae* Syd. 1939.

Notes: Doidge (1950) considered *Septoria passiflorae* Louw (= *Septoria passifloricola* Punith. 1980) to be a synonym of *Septoria fructigena*, based on examination of the type specimen. However,

Priest (2006) suggested that *Septoria fructigena* is a *Phomopsis* sp. because Mason, the worker who advised Doidge to list *Septoria fructigena* as a synonym, reexamined the type in 1954 and found it to be a different fungus.

Distribution: Africa, Australia, Caribbean (Trinidad), New Zealand, South America (Venezuela) (Punithalingam 1980). Reports under the name *Septoria passiflorae* may refer to *S. passiflorae* Syd.

Substrate: Leaf, blossom, fruit, stem.

Disease Note: Leaf, blossom, fruit, and stem spot. Responsible for a major epidemic in South Africa 1938-1939 (Punithalingam 1980).

Host: *Passiflora* spp. (Passifloraceae).

Supporting Literature:

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5: 1-1094.

Punithalingam, E. 1980. *Septoria passifloricola*. C.M.I. *Descr. Pathog. Fungi Bact.* 670: 1-2.

Verified By: Drew On Mar 04, 2008

Septoria passifloricola Punith. 1980 (Ascomycetes, Mycosphaerellales)

[= *Septoria passiflorae* Louw 1941 - illegitimate later homonym, not included in search] Note: Illegitimate later homonym of *Septoria passiflorae* Syd. 1939.

Notes: Doidge (1950) considered *Septoria passiflorae* Louw (= *Septoria passifloricola* Punith. 1980) to be a synonym of *Septoria fructigena*, based on examination of the type specimen. However, Priest (2006) suggested that *Septoria fructigena* is a *Phomopsis* sp. because Mason, the worker who advised Doidge to list *Septoria fructigena* as a synonym, reexamined the type in 1954 and found it to be a different fungus.

Distribution: Africa, Australia, Caribbean (Trinidad), New Zealand, South America (Venezuela) (Punithalingam 1980). Reports under the name *Septoria passiflorae* may refer to *S. passiflorae* Syd.

Substrate: Leaf, blossom, fruit, stem.

Disease Note: Leaf, blossom, fruit, and stem spot. Responsible for a major epidemic in South Africa 1938-1939 (Punithalingam 1980).

Host: *Passiflora* spp. (Passifloraceae).

Supporting Literature:

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5: 1-1094.

Punithalingam, E. 1980. *Septoria passifloricola*. C.M.I. *Descr. Pathog. Fungi Bact.* 670: 1-2.

Verified By: Drew On Mar 04, 2008

Septoria fructigena Berk. & M.A. Curtis 1874 (Ascomycetes, Mycosphaerellales)

Notes: Doidge (1950) considered *Septoria passiflorae* Louw (= *Septoria passifloricola* Punith. 1980) to be a synonym of *Septoria fructigena*, based on examination of the type specimen. However, Priest (2006) suggested that *Septoria fructigena* is a *Phomopsis* sp. because Mason, the worker who advised Doidge to list *Septoria fructigena* as a synonym, reexamined the type in 1954 and found it to

be a different fungus. The type needs to be reexamined.

Distribution: North America (USA: SC, type). Caribbean Islands, South America (Brazil), Africa (South Africa). The SBML herbarium also contains a specimen from Ethiopia.

Substrate: Leaves, fruits.

Disease Note: Leaf spot, fruit spot.

Host: *Passiflora species* (Passifloraceae).

Supporting Literature:

Doidge, E.M. 1950. The South African fungi and lichens to the end of 1945. *Bothalia* 5: 1-1094.

Verified By: Drew On Mar 04, 2008

Additional References:

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Benjamin, C.R., and Slot, A. 1969. Fungi of Haiti. *Sydowia* 23: 125-163

Berkeley. 1874. Notices of North American Fungi. *Grevillea* 3: 10.

Crous, P.W., Phillips, A.J.L., and Baxter, A.P. 2000. *Phytopathogenic Fungi from South Africa*. University of Stellenbosch, Department of Plant Pathology Press, 358 pages.

Farr, D.F., Rossman, A.Y., Palm, M.E., & McCray, E.B. (n.d.) *Fungal Databases, Systematic Botany & Mycology Laboratory, ARS, USDA*. Retrieved May 19, 2006, from <http://nt.ars-grin.gov/fungalatabases/>

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Mendes, M.A.S., da Silva, V.L., Dianese, J.C., and et al. 1998. *Fungos em Plants no Brasil*. Embrapa-SPI/Embrapa-Cenargen, Brasilia, 555 pages.

Miller, J.W. 1991. Bureau of Plant Pathology. *Tri-ology Techn. Rep. Div. Pl. Indust.*, Florida 30(6): 8-9.

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Norman, D.J., and Trujillo, E.E. 1995. Development of *Colletotrichum gloeosporioides* f. sp. *clidemiae* and *Septoria passiflorae* into two mycoherbicides with extended viability. *Pl. Dis.* 79: 1029-1032.

Pennycook, S.R. 1989. *Plant diseases recorded in New Zealand*. 3 Vol. Pl. Dis. Div., D.S.I.R., Auckland.

Simmonds, J.H. 1966. *Host index of plant diseases in Queensland*. Queensland Department of Primary Industries, Brisbane, 111 pages.

Stevenson, J.A. 1975. Fungi of Puerto Rico and the American Virgin Islands. *Contr. Reed Herb.* 23:

Urutiaga, R. 1986. Indice de enfermedades en plantas de Venezuela y Cuba. Unknown journal or publisher, 202 pages.

Urutiaga, R. 2004. Indice de enfermedades en plantas de Venezuela y Cuba, Second Edition: 301 pages.

Whiteside, J.O. 1966. A revised list of plant diseases in Rhodesia. *Kirkia* 5: 87-196.

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