CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

California Pest Rating Profile for

Septoria petroselini (Lib.) Desm. 1843
Leaf blight of parsley

Pest Rating: C

Kingdom: Fungi, Phylum: Ascomycota,
Subphylum: Pezizomycotina, Class: Dothideomycetes,
Subclass: Dothideomycetidae, Order: Mycosphaerellales,
Family: Mycosphaerellaceae

Comment Period: 01/16/2025 through 03/02/2025

Initiating Event:

This pathogen has not been through the pest rating process. The risk to California from *Septoria petroselini* is described herein and a permanent rating is proposed.

History & Status:

Background:

California is the nation's top producer of parsley, responsible for more than 40% of the nation's supply. Parsley is a specialty vegetable crop that is grown on over 3,000 acres, mainly along the central and southern coast, with a value in 2023 that exceeded $70M (https://www.cdfa.ca.gov/Statistics/).

Fungi classified in the genus *Septoria* have wide geographic distributions and are associated with leaf spots and stem cankers of a broad range of plant hosts. A generic concept of *Septoria* includes fungi forming pycnidial conidiomata with hyaline, smooth, filiform to cylindrical multi-septate conidia (Sutton, 1980). Some 3000 *Septoria* species have been described (Verkley et al. 2004). Sexual morphs are largely unknown, but those reported were mostly classified in *Ascomycota, Mycosphaerella,* and *Sphaerulina*. *Septoria* isolates that were morphologically very similar but found on plants of different host families were traditionally regarded as distinct taxa. Modern DNA sequencing largely confirms that most species have limited host ranges (Quaedvlieg et al., 2013).

Septoria petroselini was first described by a basonym of *Ascochyta petroselini* by Desmazières in Europe in 1843. Verkley et al. (2013) using multilocus DNA sequence analysis published a revised

phylogeny of the genus *Septoria*. They placed *S. petroselini* in clade 4 with other species that attack members of the Apiaceae including *S. apiicola,* which is an important pathogen of celery in California.

Hosts: Anethum graveolens (dill), *Apium graveolens* (celery), *Carum carvi* (caraway), *Carum petroselinum* (parsley), *Conioselinum scopulorum* (hemlock parsley), *Coriandrum sativum* (cilantro), *Petroselinum crispum* (garden parsley), *P. sativum* (parsley) (Farr and Rossman, 2024). In California, it has only been found on parsley (CDFA database, 2024; Koike et al., 2007).

Symptoms: Early symptoms of septoria leaf blight are brown leaf spots on leaves and cotyledons. The leaf spots are small in diameter and are variable in shape, often developing at the leaf margins where leaf wetness is the highest. As the disease develops, the number and size of leaf spots will increase leading to extensive blighting of the foliage. Sometimes the leaf spots have a darker margin than their interior and occasionally they may be surrounded by yellow haloes. As the leaf spots age, the centers turn tan or light grey, and black fungal pycnidia are often visible without magnification. When infections are severe, leaves may yellow and defoliate (Koike, 2007).

Transmission: Septoria petroselini can be seedborne with the pathogen capable of infecting the seedling leaves (Tok and Kurt, 2019). Epidemic spread occurs under moist conditions (wind-driven rain, irrigation) and by mechanical means (tools or workers). The pathogen may overwinter as diseased plants, which survive mild winters in coastal areas. Spores may survive and remain infectious on dead or dried leaf material for several years (Koike et al., 2007).

Damage Potential: Infected seeds can have reduced germination and emergence. The development of epidemics is highly dependent on the presence of water for pycnidia to swell and release spores, for the dispersal of spores between plants, and for infection to occur. Infection and symptom development can occur over a wide temperature range with optimum temperatures for disease development. Increasing leaf wetness duration results in greater disease severity, with symptoms most severe following 72 hours of leaf wetness. Under optimum conditions, symptoms can develop on parsley in as little as nine days after infection (Pscheidt and Ocamb, 2024; Koike et al., 2007).

Worldwide Distribution: Africa: *Kenya, Libya, Mauritius, South Africa, Tanzania, Zimbabwe*. Asia: *India, Korea, Malaysia, Turkey.* Europe: *Belgium, Bulgaria, Denmark, Finland, Greece, Netherlands, Poland, Romania, Spain, Ukraine, United Kingdom*. North America: *Canada, Dominican Republic, United States*. South America: *Bolivia, Brazil, Chile, Venezuela*. Oceana: *Australia, New Caledonia, New Zealand* (EPPO, 2024).

Official Control*: Septoria petroselini* is on the EPPO's A1 list for Egypt, and is a quarantine pest in China (EPPO, 2024). It is on the USDA PCIT's harmful organisms list for China, Columbia, and Egypt (USDA PCIT 2024). It is listed in CDFA's Phytosanitary field inspection manual as a pest of concern for export seed.

California Distribution: Widely distributed on the central coast from San Luis Obispo, Ventura, and Santa Barbara counties, and the Monterey Bay area (PDR database, 2024).

California Interceptions: none.

The risk that *Septoria petroselini* would pose to California is evaluated below.

Consequences of Introduction:

1) **Climate/Host Interaction:** Mild temperatures and high humidity, which are conducive to disease, are found on the central coast where most California parsley is grown.

   Evaluate if the pest would have suitable hosts and climate to establish in California.

   Score: **2**
   - Low (1) Not likely to establish in California; or likely to establish in very limited areas.
   - Medium (2) may be able to be established in a larger but limited part of California.
   - High (3) likely to establish a widespread distribution in California.

2) **Known Pest Host Range:** The host range is limited to a few species in the family Apiaceae.

   Evaluate the host range of the pest.

   Score: 2
   - Low (1) has a very limited host range.
   - Medium (2) has a moderate host range.
   - High (3) has a wide host range.

3) **Pest Reproductive Potential:** *Septoria petroselini* produces multi-celled asexual conidia. There are no sexual spores or resting spores known. It is spread by wind and water.

   Evaluate the natural and artificial dispersal potential of the pest.

   Score: 2
   - Low (1) does not have high reproductive or dispersal potential.
   - Medium (2) has either high reproductive or dispersal potential.
   - High (3) has both high reproduction and dispersal potential.

4) **Economic Impact:** Septoria late blight is managed by using pathogen-free seed and by applying foliar fungicides. There is near zero tolerance for damage to the foliage of parsley, so any level of disease can render it unmarketable. It is an issue for export seed crops.

   Evaluate the economic impact of the pest on California using the criteria below.

   Economic Impact: A, B, C
   A. The pest could lower crop yield.
   B. The pest could lower crop value (including increasing crop production costs).
   C. The pest could trigger the loss of markets (including quarantines).
   D. The pest could negatively change normal cultural practices.

E. The pest can vector, or is vectored, by another pestiferous organism.
F. The organism is injurious or poisonous to agriculturally important animals.
G. The organism can interfere with the delivery or supply of water for agricultural uses.

Economic Impact Score: **3**
- Low (1) causes 0 or 1 of these impacts.
- Medium (2) causes 2 of these impacts.
- High (3) causes 3 or more of these impacts.

5) **Environmental Impact:** None have been reported but this disease could be a problem for home and urban gardeners.

Evaluate the environmental impact of the pest on California using the criteria below.

Environmental Impact: E
A. The pest could have a significant environmental impact such as lowering biodiversity, disrupting natural communities, or changing ecosystem processes.
B. The pest could directly affect threatened or endangered species.
C. The pest could impact threatened or endangered species by disrupting critical habitats.
D. The pest could trigger additional official or private treatment programs.
E. The pest significantly impacts cultural practices, home/urban gardening, or ornamental plantings.

Environmental Impact Score: 2
- Low (1) causes none of the above to occur.
- Medium (2) causes one of the above to occur.
- High (3) causes two or more of the above to occur.

Consequences of Introduction to California for *Septoria petroselini:* Medium

Add up the total score and include it here. **11**
-Low = 5-8 points
-Medium = 9-12 points
-High = 13-15 points

6) **Post-Entry Distribution and Survey Information**: Evaluate the known distribution in California. Only official records identified by a taxonomic expert and supported by voucher specimens deposited in natural history collections should be considered. Pest incursions that have been eradicated, are under eradication or have been delimited with no further detections should not be included.

Present in California for many decades without regulation, this pathogen has been spread with infected seed to all parts of the state where parsley is grown commercially.

Evaluation is 'high'.

Score: -3

-Not established (0) Pest never detected in California or known only from incursions.

-Low (-1) Pest has a localized distribution in California or is established in one suitable climate/host area (region).

-Medium (-2) Pest is widespread in California but not fully established in the endangered area, or pest established in two contiguous suitable climate/host areas.

-High (-3) Pest has fully established in the endangered area, or pest is reported in more than two contiguous or non-contiguous suitable climate/host areas.

7) **The final score is** the consequences of the introduction score minus the post-entry distribution and survey information score: (Score)

Final Score: *Score of Consequences of Introduction – Score of Post Entry Distribution and Survey Information* ***= 8***

Uncertainty:

In California, *S. petroselini* seems to be restricted to parsley. In the future, we could detect strains capable of attacking additional hosts.

Conclusion and Rating Justification:

Based on the evidence provided above the proposed rating for ***Septoria petroselini*** **is C.**

References:

EPPO Database. https://gd.eppo.int/taxon/ SEPTPE Accessed 12/26/2024

Farr, D.F., and Rossman, A.Y. Fungal Databases, U.S. National Fungus Collections, ARS, USDA. Retrieved 12/24/2024, from https://nt.ars-grin.gov/fungaldatabases/

Koike, S.T., Gladders, P. and Paulus, A.O., 2007. Vegetable diseases: a color handbook. Gulf Professional Publishing.

Quaedvlieg, W.G.J.M., Verkley, G.J.M., Shin, H.D., Barreto, R.W., Alfenas, A.C., Swart, W.J., Groenewald, J.Z. and Crous, P.W., 2013. Sizing up Septoria. Studies in mycology, 75(1), pp.307-390.

Pscheidt, J.W., and Ocamb, C.M., senior editors. 2024. Pacific Northwest Plant Disease Management Handbook [online]. Corvallis, OR: Oregon State University. https://pnwhandbooks.org/plantdisease (accessed 31 March 2024).

Sutton, B.C., 1981. The Coelomycetes. Fungi imperfecti with pycnidia, acervuli and stromata (pp. 696-pp).

Tok, F.M. and Kurt, Ş., 2019. The effect of hot water treatment on seed transmission of *Septoria petroselini*, the causal agent of septoria blight on parsley.

USDA Phytosanitary Certificate Issuance and Tracking System, Phytosanitary Export Database (PExD) Harmful Organisms Database Report. *Septoria petroselini*. Accessed 12/24/2024.

Verkley, G.J., Starink-Willemse, M., van Iperen, A. and Abeln, E.C., 2004. Phylogenetic analyses of *Septoria* species based on the ITS and LSU-D2 regions of nuclear ribosomal DNA. Mycologia, 96(3), pp.558-571.

Responsible Party:

Heather J. Martin, Primary Plant Pathologist/Nematologist, CDFA/PHPPS ECOPERS, 1220 N St Rm 221, Sacramento, CA 95814 Phone: (916) 654-1017, permits[@]cdfa.ca.gov.

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*Comment Period: 01/16/2025 through 03/02/2025

*NOTE:

You must be registered and logged in to post a comment. If you have registered and have not received the registration confirmation, please contact us at permits[@]cdfa.ca.gov.

Comment Format:

- Comments should refer to the appropriate California Pest Rating Proposal Form subsection(s) being commented on, as shown below.

  Example Comment:

  Consequences of Introduction: 1. Climate/Host Interaction: [Your comment that relates to "Climate/Host Interaction" here.]

- Posted comments will not be able to be viewed immediately.
- Comments may not be posted if they:

  Contain inappropriate language which is not germane to the pest rating proposal;

Contains defamatory, false, inaccurate, abusive, obscene, pornographic, sexually oriented, threatening, racially offensive, discriminatory or illegal material;

Violates agency regulations prohibiting sexual harassment or other forms of discrimination;

Violates agency regulations prohibiting workplace violence, including threats.

- Comments may be edited prior to posting to ensure they are entirely germane.
- Posted comments shall be those which have been approved in content and posted to the website to be viewed, not just submitted.

Pest Rating: C
