

1. PaDIL Species Factsheet



Scientific Name:

Puccinia asparagi DC.

Urediniomycetes, Uredinales

Common Name

Asparagus rust

Live link: <http://www.padil.gov.au:80/pests-and-diseases/Pest/Main/136598>

Image Library

Australian Biosecurity

Live link: <http://www.padil.gov.au:80/pests-and-diseases/>

Partners for Australian Biosecurity image library



Museum Victoria

<http://museumvictoria.com.au/>



CRC National Plant Biosecurity

<http://www.crcplantbiosecurity.com.au/>



Plant Health Australia

<http://www.planthealthaustralia.com.au/>



Department of Agriculture, Fisheries and Forestry

<http://www.daff.gov.au/>



Department of Agriculture and Food, Western Australia

<http://www.agric.wa.gov.au/>

2. Species Information

2.1. Details

Specimen Contact: Dr Jose R. Liberato - jose.liberato@nt.gov.au

Author: Liberato JR, Beasley D & Shivas RG

Citation: Liberato JR, Beasley D & Shivas RG (2006) Asparagus rust (*Puccinia asparagi*) Updated on 7/28/2016 Available online: PaDIL - <http://www.padil.gov.au>

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2.2. URL

Live link: <http://www.padil.gov.au:80/pests-and-diseases/Pest/Main/136598>

2.3. Facets

Status: Exotic Regulated Pest - absent from Australia

Group: Fungi

Commodity Overview: Horticulture

Commodity Type: Fresh Stems

Distribution: Cosmopolitan

2.4. Other Names

Aecidium asparagi Lasch

Dicaeoma asparagi (DC.) Kuntze

Persooniella asparagi (DC.) Syd.

Puccinia discoidearum var. *asparagi* (DC.) Wallr.

Uredo asparagi Lasch

2.5. Diagnostic Notes

Symptoms:

Puccinia asparagi is a macrocyclic and autoecious fungi. Usually symptoms are first noticeable on the growing shoots in spring/summer with a latent period of 8 to 12 days (Johnson 1990). Basidiospores, aeciospores and urediniospores can infect asparagus. The pycnia are produced about 7 days after infection by basidiospores, and subsequently produce aecia (oval yellowish spots). Urediniospores are the most common inoculum and produce blister-like pustules (uredinia), which are filled with powdery masses of spores. The primary uredinia produce by hyphal growth, successive rings of uredinia for several weeks. With the appearance of secondary uredinia, brown teliospores form among the golden urediniospores in the primary uredium. By the time the tertiary uredinia appear, the primary uredinia are filled with teliospores (Lubani & Linn (1962). Infected stems begins to yellow, defoliate and die back prematurely (Irvine & Beasley 2004). Severe rust infections stunt or kill young asparagus shoots, causing foliage to fall prematurely, and reduce the ability of the plant to store food reserves in the crown (University of Illinois 1990)

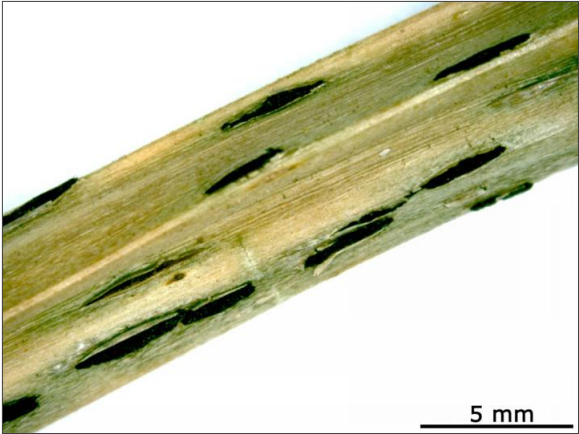
The fungus: Pycnia punctiform, brownish, preceding the aecia then surrounding or amongst them. Aecia caulicolous, gregarious, cupulate or short-cylindric. Aeciospores globose to oval, 15-21 x 18-27 µm, wall nearly hyaline, 1 µm thick, finely and closely verrucose. Uredia caulicolous, powdery, cinnamon-brown. Urediospores globose to ellipsoid, 19-30 x 18-25 µm, wall golden, 2µ thick, minutely echinulate, usually 4 equatorial pores. Telia caulicolous, blackish-brown. Teliospores 30-50 x 19-26 µm, rounded above, slightly

constricted at the septum, wall chestnut-brown, to 10 µm thick at the apex, pedicel up to twice the length of the spore. Mesospores occasional, up to

2.6. References

Arthur JC & Cummins GB (1962) Manual of the rusts in United States and Canada. (Hafner Publishing Company: New York). 438p. CAB International (1996) Distribution maps of plant diseases. *Puccinia asparagi*. Map 216. 4 ed. Davis RD (2001) Asparagus rust recorded in Australia. *Australasian Plant Pathology* 30: 183-184. Elmer WH (2001). The economically important diseases of asparagus in the U.S. *Plant Health Progress*. Available online at: <http://www.plantmanagementnetwork.org/pub/php/review/asparagus/> (updated 21 May 2001). Irvine G. & Beasley D (2004) Asparagus Rust (*Puccinia asparagi*). Department of Primary Industries. Vegetable Matters-of-Facts 12. Available online at: <http://www.dpi.vic.gov.au/agvic/ihd/projects/prints/vmf-12-200402.pdf> (6 March 2006). Johnson DA (1990) Development of rust on asparagus cultivars after inoculation with basidiospores, aeciospores and urediniospores of *Puccinia asparagi*. *Phytopathology* 80: 321-325. Lubani KR & Linn MB (1962) Entrance and invasion of the asparagus plant by urediniospore germ tubes and hyphae of *Puccinia asparagi*. *Phytopathology* 52: 115-119. Planck J & Davis B (2005) Emerging plant pests. Asparagus rust. Department of Primary Industries and Fisheries. Available online at: <http://www2.dpi.qld.gov.au/health/4238.html> (updated 03 March 2005). Simpson WR (1967) Rust on fence row Asparagus. *Plant Disease Reporter* 51: 542-543 University of Illinois (1990) Report on Plant Disease 934. Available online at: http://web.aces.uiuc.edu/vista/pdf_pubs/934.pdf Waterston JM (1965) *Puccinia asparagi*. CMI Descriptions of pathogenic fungi and bacteria. No. 54. (Commonwealth Mycological Institute: Kew, UK).

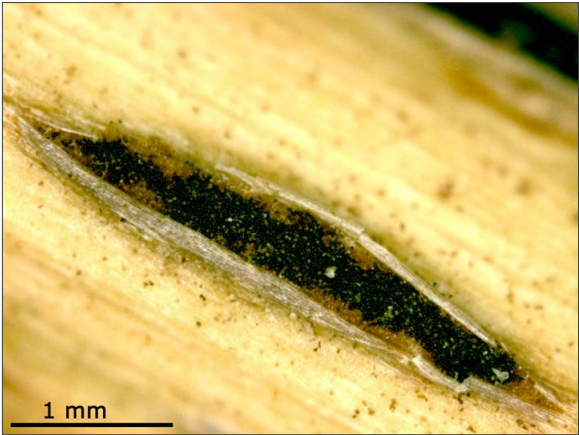
3. Diagnostic Images



Pustules on asparagus stem (BRIP 45006)
 Host Symptoms: Dr Jose R. Liberato DPI&F



Pustules on asparagus stem (BRIP 42203)
 Host Symptoms: Dr Jose R. Liberato DPI&F



Pustule on asparagus stem (BRIP 45006)
 Host Symptoms: Dr Jose R. Liberato DPI&F



Pustule on asparagus stem (BRIP 45006)
 Host Symptoms: Dr Jose R. Liberato DPI&F



Pustules
 Host Symptoms: Dr Dean Beasley DPI&F



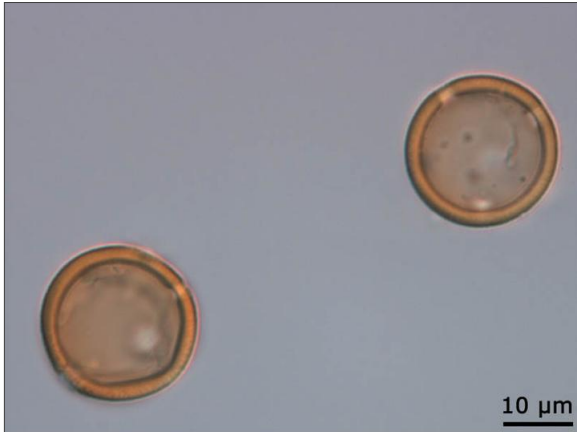
Pustules
 Host Symptoms: Dr Dean Beasley DPI&F



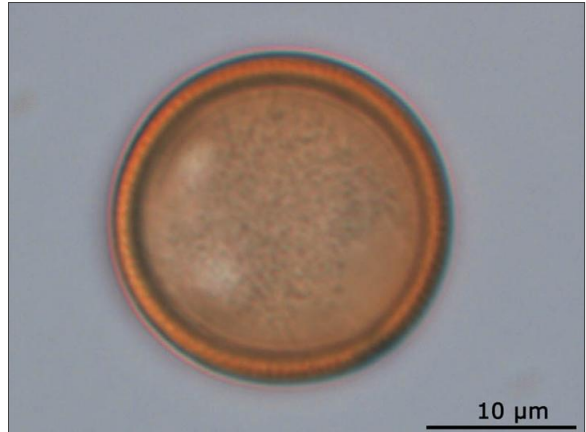
Pustules
Host Symptoms: Dr Dean Beasley DPI&F



Urediniospores (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Urediniospores (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Urediniospore (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



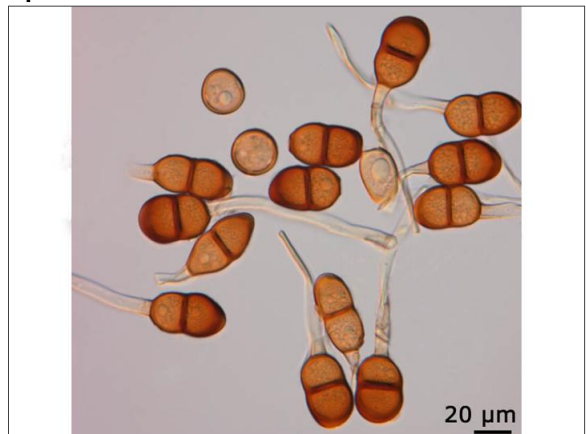
Urediniospores (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Teliospores (immature teliospores are unicellular) (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



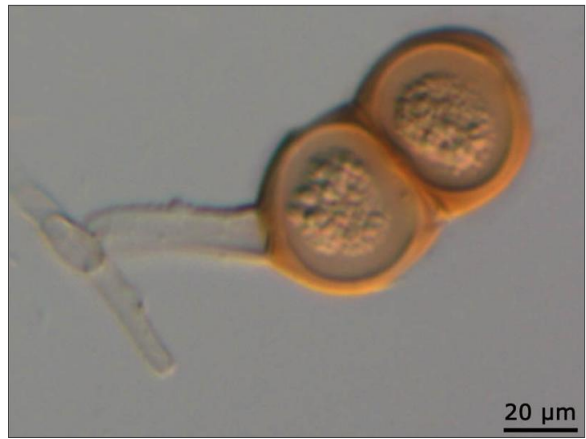
Teliospores (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Teliospores (bicellular) and urediniospores (unicellular) (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



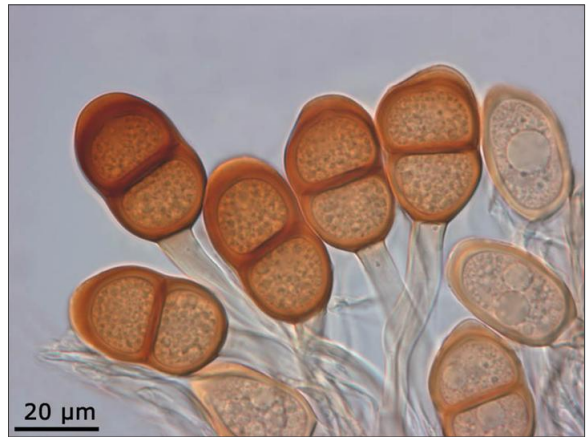
Teliospore (bicellular) and urediniospore (unicellular) (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Teliospore (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F



Teliospores (BRIP 45006)
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Teliospores (BRIP 45006)
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Teliospore (BRIP 45006)
Spores-LM: Dr Jose R. Liberato DPI&F

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