

Seiridium cardinale



Taxon	Family / Order / Class / Phylum / Kingdom
<i>Seiridium cardinale</i> (Wagener) Sutton et Gibson (1972)	Amphisphaeriaceae / Xylariales / Ascomycetes / Ascomycota / Fungi

COMMON NAMES (English only)

Cypress canker

SYNONYMS

Coryneum cardinale Wag.

SHORT DESCRIPTION

Seiridium cardinale is a micro-fungus that causes a lethal canker disease on cypress and other related conifers. The first evidence of the disease is a browning or reddening of the live bark around the point of entry of the pathogen. Subsequently, lentiform or elongated cankers develop that may girdle branches or stems of young plants, causing dieback and eventually whole-tree death.

BIOLOGY/ECOLOGY

Dispersal mechanisms

Conidia can be dispersed by wind and rain.

Insects are assumed to be effective vectors (bark beetles, seed bugs). But the most effective long-distance dispersal has probably been through the international trade of infected nursery stock.

Reproduction

S. cardinale produces asexual conidia in minute subepidermal black bodies. The sexual stage has rarely been observed.

Known predators/herbivores

Unknown.

Resistant stages (seeds, spores etc.)

Unknown.

HABITAT

Native (EUNIS code)

G: Woodland, forest and other wooded land

Habitat occupied in invaded range (EUNIS code)

G: Woodland, forest and other wooded land , I2:

Cultivated areas of gardens and parks. The pathogen affects several species of *Cupressus* (especially *C. sempervirens* in Europe), *Chamaecyparis*, *Cryptomeria*, *Cupressocyparis*, *Juniperus*, *Thuja* and related species of Cupressaceae.

Habitat requirements

S. cardinale is the most thermophilic species of the three species of *Seiridium* that cause cypress canker. Infection is optimal at about 25°C. Infection is encouraged by rain and high relative humidity during the infection season (autumn to spring) and by frost or strong winds producing wounds or lesions on trees.



Symptoms of *Seiridium cardinale* canker (branch dieback) in a Cypress plantation

Photo: Stefanos Diamandis, NAGREF, Greece



Close-up of symptoms

Photo: Stefanos Diamandis, NAGREF, Greece

DISTRIBUTION

Native Range

The origin of *S. cardinale* remains uncertain.

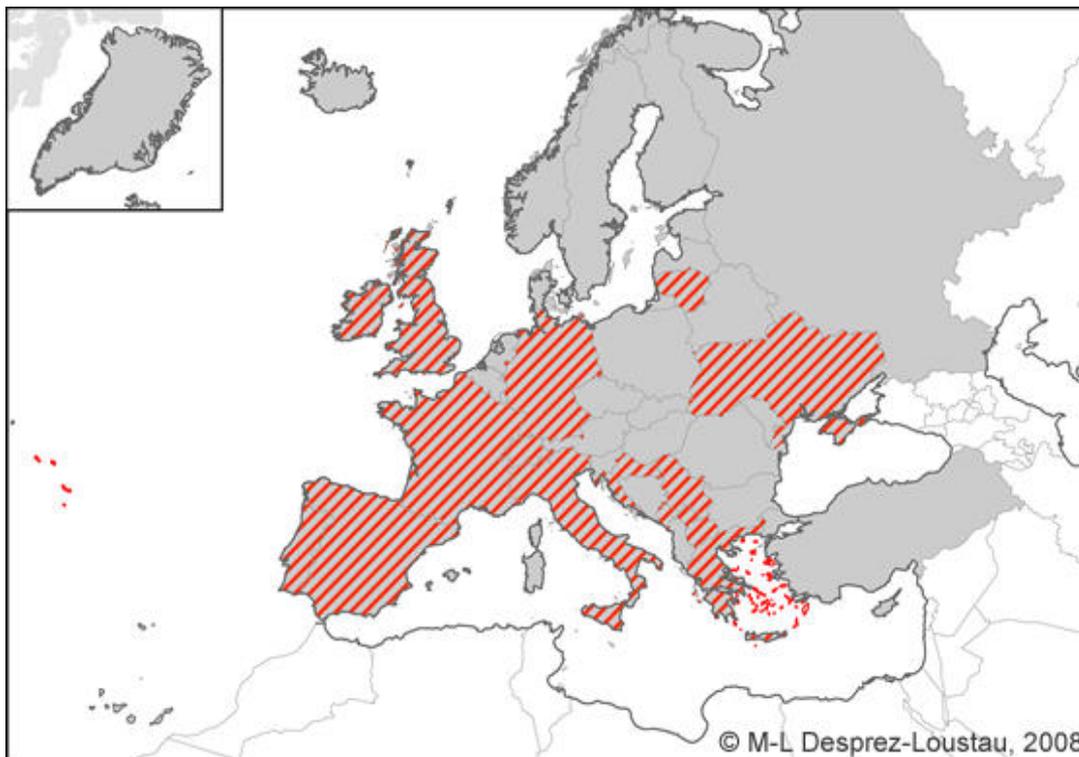
Known Introduced Range

S. cardinale has been reported in all continents. In Europe, most records are from countries surrounding the Mediterranean Sea but the fungus was also found in Germany, Ireland and the UK.

Trend

Unknown.

MAP (European distribution)



Legend

	Known in country		Known in CGRS square		Known in sea
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INTRODUCTION PATHWAY

The outbreak of a destructive cypress blight was first reported from northern California on planted Monterey cypress in 1927. The pathogen was then transported across the Atlantic Ocean into Europe, where it was first reported around the middle of the 20th century. The most likely explanation for both epidemics is an accidental introduction of the pathogen on imported nursery stocks of ornamental trees. This method of introduction is likely to have played an important role in further spread of the fungus.

IMPACT

Ecosystem Impact

The disease has caused the loss of millions of cypress trees in southern Europe but it is much more prevalent and severe in areas where cypress has been introduced, even if introduced a long time ago, than from the region (Greek islands and Anatolia) where it is considered to be native. The incidence and severity has been especially high in some areas of Greece, Italy and southern France, reaching 25 to 75% mortality. An after-effect of the disease is soil erosion in devastated hills.

Health and Social Impact

Italian Cypress is a major feature of the Mediterranean landscape. In ancient times, cypresses were considered as the emblem of wisdom and immortality. Cypress trees today still embellish historical sites and gardens.

Economic Impact

Cypress plantations, grown for highly valued timber and oils for use as pharmaceuticals, have been decimated. Cypresses have also been widely used as efficient windbreaks, so agricultural losses occurred after they were destroyed. Serious economic losses resulting from the disease have affected ornamental cypress trade.

MANAGEMENT

Prevention

Several resistant clones of Italian cypress are now available for planting. Research effort is still put on breeding resistant material while preserving a high genetic variability.

Mechanical

Sanitation measures, including the removal of infected trees and prevention of contact with healthy plants, are key to controlling disease spread.

Chemical

Some fungicides can provide a high degree of control of cypress canker, for use in specific conditions (nurseries, ornamental plantings).

Biological

Unknown.

REFERENCES

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Date Last Modified: November 5th, 2006