

Daño foliar de pino

Description

Daño foliar del pino (*Phytophthora pinifolia*) was first observed in Radiata pine (*Pinus radiata*) plantations in Chile in 2004. It is characterised by the appearance (in late autumn and early winter) of translucent bands – seen at first glance as black bands – on pine needles, and later as a generalised discoloration of foliage (initially golden and brown), resulting in a greyish aspect of the crown. The crown turns reddish brown by the end of spring as a consequence of necrosis of affected foliage, eventually leading to defoliation. Repeated infection causes growth loss of mature trees, while severe infection can kill young (1–2 years old) trees.

Primary hosts

Radiata pine (*P. radiata*) is the main species affected.

Symptoms

Initial symptoms are a pale area at the base of needles and dark resinous bands on green needles, which at first glance appear as black bands. The bands appear translucent when held to the light. The most obvious signs of infection are a chlorosis and reddening of the past year's needles, which eventually die and appear grey-red before falling. Often these needles hang on trees for some time. The first needles to display these symptoms are often on the lower side of branches. The current year's needles are not affected. When infection reaches the base of needles, resin exudes from the point of attachment, causing death of cambial cells surrounding the fascicles, resulting in small cankers on the stem. Affected needles often hang at right angles from branches. On younger trees (less than four years old), lesions form on young shoots and needles causing the terminal shoots to wilt and die. Resin can be found exuding profusely from these young tissues.

What it can be confused with

It can be confused with *Dothistroma* needle blight, due to the general appearance of needle blight. Needles infected with *Dothistroma septosporum* can be distinguished by characteristic red-banding. It can also be confused with *Cyclaneusma* needle cast, due to the general appearance of chlorosis and needle blight; but needles infected with *Cyclaneusma minus*



Pale area at base of needles and resinous bands



Grey-red needles in lower crown



Drops of resin at base of infected needles



have a yellow-brown mottled appearance. Symptoms of Daño foliar del pino, *Dothistroma* needle blight and *Cyclaneusma* needle cast may be present on a tree at the same time, and the presence of one may mask low level infection of another.

It can also be confused with the exotic Red needle cast (*Phytophthora pluvialis*), due to general appearance of needle blight, and also black resinous bands. These two *Phytophthora* species require laboratory examination to distinguish. Any suspect symptoms should be reported.

Plant part showing symptoms

Symptoms are apparent on the foliage of infected trees. On mature trees the symptoms usually start lower on the crown and spread upwards. On young trees stems and young shoots are affected.

Age of plant

Seedling to mature trees.

Time of year pest is most likely to be seen

In Chile's Mediterranean climate, symptoms are generally observed from autumn to late spring, during the rainy season. Infection is most severe from winter to early spring, with defoliation mostly during spring. In Australia the disease will be most pronounced during prolonged wet periods.

Further information

Duran A, Gryzenhout M, Slippers B, Ahumada A, Rotella A, Flores F, Wingfield BD and Wingfield MJ (2008) *Phytophthora pinifolia* sp. nov. associated with a serious needle disease of *Pinus radiata* in Chile. *Plant Pathology* 57: 715–727.

Ahumada R, Rotella A, Poisson M, Duran A and Wingfield MJ (2013) *Phytophthora pinifolia*: the cause of Daño Foliar del Pino on *Pinus radiata* in Chile. In: *Phytophthora: a global perspective* (ed K. Lamour) CABI



Tissue discoloration on affected branch

If you see anything unusual, call the Exotic Plant Pest Hotline

**EXOTIC PLANT PEST HOTLINE
1800 084 881**

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