

Actual and New Needle Diseases of Christmas Trees in Austria

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Abstract – The main conifer species cultivated as Christmas tree in Austria are Nordman's fir (*Abies nordmanniana*), Grand fir (*A. grandis*) and Colorado spruce (*Picea pungens*). Since there is no Austrian seed-production, seeds or young plants are imported. Therefore the risk of introduction of invasive pathogens is high. Furthermore, the production of Christmas trees in monocultures creates favourable conditions for the spread of pathogens.

This contribution gives examples for actual and new fungal pathogens on Christmas trees in Austria as well as for probable future invasive species.

The most common fungal species in Christmas tree plantations, especially on Nordman's fir, is Grey mould (*Botrytis cinerea* Pers.), which spreads in cool and rainy spring periods leading to irregular branching by killing young shoots. Another needle cast-species of Nordman's fir and Grand fir is *Kabatina abietis* Butin & Pehl. This species has become of increasing importance during the last decade. The characteristic symptom of *Kabatina abietis*, the reddening of the distal needle half, can probably also be produced by other fungal species, which are under investigation at present.

Three species of rust fungi cause loss of needles in Christmas tree plantations:

- *Pucciniastrum epilobii* (Pers.) Oth on firs growing in vicinity of *Epilobium* – species.
- *Chrysomyxa abietis* (Wallr.) Unger on spruces has only local importance.

The alpine rust *Chrysomyxa rhododendri* (DC.) De Bary infects only *Picea abies* growing close to Rhododendron-species.

Local epidemics by species of *Rhizosphaera* are a rare phenomenon in Austria.

Rhizosphaera kalkhoffii Bubák sometimes produces needle cast of spruces, on firs it is also *Rhizosphaera oudemansii* Maubl.

Colorado spruces are often infected by Lirula-needle cast (*Lirula macrospora* (R.Hartig) Rehm)). The infected needles of the previous year show a violet colour.

Since 2004, local epidemics of the hyphomycete *Thysanophora penicillioides* (Roum.) Kendrick are known from *Abies nordmanniana*. *Thysanophora penicillioides*, commonly known as a non host specific rather saprophytic fungal species, sporulates on green needles, which are shed subsequently. *Phaeocryptopus nudus* (Peck) Petr., known from Scandinavian countries as a new pathogen of firs, has not yet been observed in Austria.

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