# New Reports of Dothistroma Needle Blight in Eurasian Countries

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**Extended abstract –** One of the most serious needle diseases that affect pines (*Pinus* spp.) is Dothistroma needle blight (DNB). Two species of fungi are responsible for causing this disease (Barnes et al. 2004). These are *Dothistroma septosporum* (teleomorph: *Mycosphaerella pini*) that has a worldwide distribution and infects a wide range of *Pinus* spp. and *D. pini* (teleomorph unknown), which has thus far been reported only from the North-Central U.S.A. on the non-native *Pinus nigra* (Barnes et al. 2004). In recent years, there have been increasing numbers of reports of DNB from new hosts and new geographic regions of the Northern Hemisphere (Bradshaw 2004, Bednářová et al. 2006). Moreover, there has been an increase in the intensity of this disease in some parts of Europe and North America (Koltay 2001, Aumonier 2002, Brown et al. 2003, Jankovský et al. 2004, Woods et al. 2005).

Since 2004, we have conducted surveys and inspections of trees in Austria, Bhutan, Hungary, Ukraine and South-Western Russia. These have helped to document DNB on several native and non-native pine species, and to unmask its presence in situations where disease symptoms and signs were not obvious or not typical (Barnes et al. 2007). In 2004, non-native *Pinus peuce* trees in an arboretum in Vienna (Austria) were found to suffer from DNB. In 2005, a non-native *Pinus radiata* tree in Western Bhutan was found with typical DNB symptoms. Further east in Central Bhutan, native *Pinus wallichiana* trees in conifer forests at high elevations, had needle blight symptoms atypical of DNB. These, and other pine needle collections from Hungary, Ukraine and South-Western Russia, with typical DNB symptoms formed the basis of this study.

Isolates from the various hosts and countries were examined morphologically and compared using DNA sequence data. Conidia for all collections were elongated, straight to slightly curved, hyaline and they had one to five septa. Conidial dimensions varied considerably when measured from conidiomata produced on needles and in culture. Detailed measurements indicated that *D. pini* has slightly wider conidia than *D. septosporum*, as has

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previously been shown by Barnes et al. (2004). However, these differences are so small that distinguishing *D. septosporum* from *D. pini* based on morphology is virtually impossible.

Comparisons of DNA sequence data for the ITS region of the rDNA and parts of the β-tubulin gene region, were used to unambiguously identify the *Dothistroma* pathogens collected from symptomatic needles. *Pinus peuce* from Austria, *P. radiata* and *P. wallichiana* from Bhutan as well as *Pinus mugo* from Hungary were all found to be infected by *D. septosporum*. In contrast, *Pinus pallasiana* from the Kherson region in Ukraine and the nearby Rostov region in South-Western Russia were infected by *D. pini*. These results represent a new host record for *D. septosporum* on *P. peuce* and a new country report for *D. septosporum* from Bhutan. They also confirm that *D. septosporum* occurs in Hungary. Results also provide a new host report for *D. pini* on *P. pallasiana* and new country reports for *D. pini* in Ukraine and South-Western Russia. The latter records represent the only reports of *D. pini* from outside the North-Central U.S.A. The new host and country records provided here are consistent with the continuing trend of reports of the DNB pathogens from new hosts and new geographic areas during the last two decades, particularly in the Northern Hemisphere.

***Dothistroma septosporum* / *Dothistroma pini* / *Mycosphaerella pini* / Bhutan / Russia / Ukraine**

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