

RECORDS OF THE DOTHISTROMA NEEDLE BLIGHT PATHOGENS IN BELARUS

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Introduction. Red band needle blight, or Dothistroma needle blight is one of the most common and harmful diseases of pine. The causative agents of the disease are pathogenic micromycetes *Dothistroma septosporum* (Dorogin) M. Morelet. and *Dothistroma pini* Hulbary. Dothistroma needle blight has already become widespread in the neighboring countries of Belarus (Poland, Baltic countries, Ukraine, Russia). Red band needle blight was first detected in Belarus in 2012, but till now information about this disease in the country is fragmentary. The aim of this research was to conduct a pine trees survey in botanical gardens, arboretums, urban territories and ornamental tree nurseries in Belarus to detect Dothistroma needle blight and estimate potential risks, caused by of *Dothistroma septosporum* blight for pines in the country.

Material and methods. Phytopathological inspection of trees of both exotic (*Pinus sibirica*, *P. mugo*, *P. strobus*, *P. pallasiana*, *P. banksiana*, *P. nigra*, *P. peuce*, *P. ponderosa*, *P. pumila*, *P. rigida*, *P. cembra*, *P. korainensis*, *P. hamata*, *P. contorta*, *P. kochiana*) and aborigen (*P. sylvestris*) for Belarus pine species from more than 30 localities was being carried out during 2016–2020. Symptomatic needles were initially examined under light microscope by standard mycological methods. The identification of the species, that was the disease causative agent, has been confirmed by molecular genetic assay.

Results. In this study we updated information about the current prevalence of Dothistroma needle blight in botanical gardens, arboretums, urban territories and ornamental tree nurseries in Belarus. Dothistroma needle blight was diagnosed in individual trees of *Pinus mugo*, *P. nigra* and *P. ponderosa* in the stands of the Central Botanical Garden of NAS of Belarus, arboretum of the State experimental forestry establishment “Glubokskij experimental forestry enterprise”, nurseries of ornamental plants in the Grodno and Minsk regions. The invasive species *Dothistroma septosporum* was identified. The pathogen caused needle blight and premature defoliation. In infected needles, symptoms initially appear in late autumn and are represented by spots that turn brown to reddish-brown color, gradually enlarge and form bands around the needles. Warm and wet weather favours needle blight, as under moist conditions fruiting bodies produce spores. Twigs of heavily infected pines typically have only last year's needles. Mostly, 2- and 3-year old needles tend to shed.

Conclusion. Currently, the incidence of *Dothistroma septosporum* is low (4.8–7.2 %). The portion of observation sites, where this disease was detected was at 60 %. According to the research, Dothistroma needle blight is a chronic disease in urban green spaces and botanical gardens. In ornamental tree nurseries, Dothistroma needle blight was detected, mainly, on planting material imported from abroad, that indicates a transboundary route of *D. septosporum* entering to the country. Analysis of literary sources and the research results indicate the potential danger of red band needle blight for pine stands in the country, which in turn requires to organize regular monitoring of the disease appearance and develop the methods to limit the spread of *D. septosporum*. The pathogen from exotic to aborigen (*Pinus sylvestris*) pine species is worth special attention and caution.

References

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