About the cover for October 2016

ISSN: 0191-2917

plant disease

Editor-in-Chief: Alison E. Robertson
Published by The American Phytopathological Society

October 2016, Volume 100, Number 10
Page 2163
http://dx.doi.org/10.1094/PDIS-02-16-0242-PDN

DISEASE NOTES

First Report of *Puccinia hemerocallidis* Causing Daylily Rust in Europe

E. Silva and **R. Carvalho**, LEAF-Linking Landscape, Environment, Agriculture and Food, Instituto Superior de Agronomia, Universidade de Lisboa, Lisbon, Portugal; **N. Nunes**, Direção Regional de Florestas e Conservação da Natureza, Secretaria Regional do Ambiente e dos Recursos Naturais, Governo da Região Autónoma da Madeira, Funchal, Madeira, Portugal; and **A. P. Ramos** and **P. Talhinhas**, LEAF-Linking Landscape, Environment, Agriculture and Food, Instituto Superior de Agronomia, Universidade de Lisboa, Lisbon, Portugal.

ABSTRACT

Starting in November 2015, rust symptoms were observed on daylily plants in gardens in Portugal, namely in the Lisbon and Tavira areas, and at Funchal on Madeira island. Diseased plants presented bright orange pustules frequently entirely covering the leaves of *Hemerocallis lilioasphodelus* L. plants (25 to 75% of leaf surface covered with pustules), with most plants symptomatic (85 to 90% of plants affected). Diseased plants were recorded in six out on nine gardens surveyed. Microscopic examination of pustules revealed the presence of urediniospores and teliospores. Uredinia were subepidermal and yellow or orange-yellow but soon erumpent and bright orange. Urediniospores were globose to ellipsoid, 19 to 24 × 16 to 21 µm, pale yellow, uniformly echinulate. Telia were subepidermal and blackish-brown. Teliospores were produced in locules, clavate to ellipsoid, 30 to 40 × 12 to 15 µm, pedicellate, and surrounded by brown paraphyses. Morphological characteristics match the description of *Puccinia hemerocallidis* von Thümen (EPPO 2009). Specimens were stored in the fungal collection of the "João de Carvalho e Vasconcelos" herbarium (LISI-Fungi) under accession numbers LISI-Fungi-00063 to 00066. Detached leaves of healthy *H. lilioasphodelus* and *H. minor* Mill plants (five leaves per species) were inoculated by spraying a urediniospore suspension as described by Mueller et al. (2003). Inoculated leaves were maintained in a wet chamber under darkness at 20°C. Uredinia were observed 4 days after inoculation on *H. lilioasphodelus* leaves and 12 days after inoculation on *H. minor* leaves. The experiment was repeated twice with similar results.

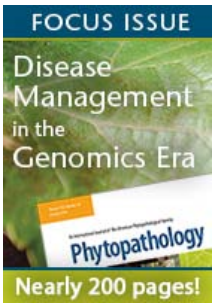
Article History

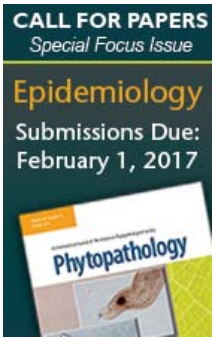
Issue Date: 14 Sep 2016

Published: 13 Jul 2016

First Look: 23 May 2016

Accepted: 13 May 2016





Symptoms and the morphology of urediniospores were similar to those observed in field infections. *Hemerocallis* is a monocotyledonous genus originating from eastern Asia, with several species cultivated as perennial garden plants in many parts of the world, regarded by horticulturalists as easy to cultivate. Daylily rust has been reported from different areas of eastern and southeastern Asia, including Siberia (Russia) where *P. hemerocallidis* was first described in 1880 on *H. fulva* L. It was not until the 21st century that the disease was reported from all continents (in Australia, South Africa, Brazil, Colombia, Venezuela, Panama, Canada, and the United States) (EPPO 2009) except Europe, where it is part of the A1 list of quarantine pests (EPPO 2015). The European Plant Protection Organization (EPPO) pointed out the risk of inoculum survival as urediniospores overwintering on foliage-retaining plants under mild winter conditions in southern European countries (EPPO 2009), similar to the scenario in the southern United States (Williams-Woodward et al. 2001). In cooler climates, where daylilies lose their leaves during winter, the disease cycle is naturally broken as urediniospores are unable to survive and overwintering teliospores fail to continue the *P. hemerocallidis* life cycle due to the virtual absence of the aecial host (*Patrinia* spp.) in Europe and North America (EPPO 2009). This represents the first report of this disease in Portugal and in Europe, raising concern on its dissemination into the European daylily industry (with over 2,000 European-bred cultivars), as most cultivars tested in the United States are susceptible (Blythe et al. 2015; Mueller et al. 2003).

References:

Section: Choose

Blythe, E. K., et al. 2015. HortTechnology 25:551. [ISI]

EPPO. 2009. EPPO Bull 39:48. 10.1111/j.1365-2338.2009.02235.x [CrossRef]

EPPO. 2015. EPPO A1 AND A2 lists of pests recommended for regulation as quarantine pests. EPPO, Paris.

Mueller, D. S., et al. 2003. HortScience 38:1137. [ISI]

Williams-Woodward, J. L., et al. 2001. Plant Dis. 85:1121. 10.1094/PDIS.2001.85.10.1121C [Abstract]

Citation