

[< Previous](#)[Next >](#)

DISEASE NOTES



First Report of *Exserohilum pedicellatum* Causing Root Rot of Wheat in Azerbaijan

G. Özer, M. E. Göre, M. Alkan, T. Yaman, and A. A. Dababat

Affiliations 

Authors and Affiliations

G. Özer^{1 †}M. E. Göre¹M. Alkan¹T. Yaman¹A. A. Dababat²¹Department of Plant Protection, Faculty of Agriculture and Natural Sciences, Bolu Abant İzzet Baysal University, Bolu, Turkey²International Maize and Wheat Improvement Centre (CIMMYT), Emek, Ankara, Turkey**Published Online:** 19 Apr 2019 | <https://doi.org/10.1094/PDIS-09-18-1678-PDN>

Wheat (*Triticum aestivum* L.) is the most widely grown crop in Azerbaijan, covering about 590,000 ha of total cultivation area. In June 2017, a survey was conducted to determine root pathogens of the main wheat growing regions in Azerbaijan. Symptomatic plants exhibiting root rot and dark brown root lesions were obtained from 76 different fields, and the roots of the samples were excised and labeled. The roots were washed under running tap water for 5 min, and 5-cm lengths were cut from the roots. After surface sterilization with 1% sodium hypochlorite for 1 min, the excised roots were rinsed twice with sterile distilled water, air dried on sterile tissue papers in a laminar flow, and then chopped into 1-cm lengths. The root sections were placed on 1/5 strength potato dextrose agar amended with streptomycin (0.1 g/liter) and chloramphenicol (0.05 g/liter) and incubated at 24°C for 4 days with a 12-h photoperiod. A dematiaceous hyphomycete producing abundant conidia was consistently recovered from 13 samples representing seven fields, alone or with other common pathogens. The conidia ($n = 50$) were mostly fusiform, straight, four to seven distoseptate, olivaceous brown to dark brown, and measured 52.9 to 86.8 × 18.8 to 24.3 μm (average 77.2 × 21.6 μm). These morphological characteristics identified the fungus as

Exserohilum pedicellatum (A.W. Henry) K.J. Leonard & Suggs according to [Sivanesan \(1987\)](#) and [Hernández-Restrepo et al. \(2018\)](#). To confirm the identification, the internal transcribed spacer (ITS) region of rDNA (amplified with ITS1/ITS4 primers) and a nuclear gene encoding glyceraldehyde-3-phosphate dehydrogenase (*gapdh*) (amplified with *gpd1* + *gpd2* primers) of a representative isolate (Azerbaijan_01) were sequenced ([Berbee et al. 1999](#)). The ITS and *gapdh* sequences (MH818807 and MH809684, respectively) were 99 to 100% identical to those of *E. pedicellatum* isolates (CBS 322.64 and CBS 375.76) in GenBank. For assessing pathogenicity, sterilized nursery soil was inoculated with a conidial suspension of Azerbaijan_01 isolate to obtain a density of 300 to 500 conidia/g. Two seeds of Seri 82 (spring bread wheat) genotype were sown in each plastic pot (13 cm long and 3 cm diameter) filled with the inoculated soil or with sterilized soil as a control. Five replicates each were used for the inoculated and control plants. Plants were maintained in a growth chamber with a 12-h photoperiod at 24°C for 4 weeks. Plants sown in inoculated soil showed symptoms on their roots identical to those observed in the field, whereas the roots of the control plants remained asymptomatic. The fungus was reisolated from the symptomatic roots and confirmed by both morphological and molecular characteristics described above, fulfilling Koch's postulates. The pathogen might be present in wheat growing regions of the country as a minor pathogen. To our knowledge, this is the first report of *E. pedicellatum* on wheat in Azerbaijan. *E. pedicellatum* also has been reported on species of *Zea*, *Triticum*, *Oryza*, *Paspalum*, *Setaria*, *Sorghum*, and *Echinochloa* as a pathogen causing dark brown root lesions and root rots in Australia, the United States, Egypt, India, Pakistan, and South Africa ([Gilbert 2003](#); [Sivanesan 1987](#)).

The author(s) declare no conflict of interest.



The American Phytopathological Society

(APS)

📍 3340 Pilot Knob Road, St. Paul, MN 55121 USA

☎ +1.651.454.7250

FAX +1.651.454.0766



© 2019 The American Phytopathological Society. Powered by Atypon® Literatum.