**DISEASE NOTE**

A New Variant of *Puccinia striiformis* f. sp. *tritici*, the Cause of Stripe Rust on Wheat and Barley in Egypt

Shahin, A.A.1; Omara, R.I.1; Khalil, A.E.1; Sehsah, M.D.1; Youssef, W.; El-Shawy, S.E.2 and Atwa, A.A.2

Received: 23 August 2022 / Accepted: 13 September 2022 / Published online: 14 September 2022.

©Egyptian Phytopathological Society 2022

*Puccinia striiformis* Westend is an obligate parasite, has the capabilities to infect wheat (*Triticum aestivum*) and barley (*Hordeum vulgare*) causing yellow (stripe) rust, which is extremely a very dangerous disease. Several formae specialis of the rust fungus *P. striiformis*, including *P. striiformis* f.sp. *tritici* (Pst) and *P. striiformis* f.sp. *hordei* (Psh), are classified based on host specialization. In 1920, *P. striiformis* f.sp. *tritici* (Pst), which causes wheat stripe rust, was discovered for the first time in Egypt (Britton-Jones, 1920 and Britton-Jones, 1925). In 2022, wheat varieties, Gremeliza-11, Sids-12, Misr-1 and Misr-2 are susceptible to yellow rust, meantime symptoms of yellow rust caused by *P. striiformis* f.sp. *tritici* were observed on barley line, Sawsan/Badia//Arar/3/Gloria’S'/Copal’S'/6/Rhn-03/Eldorado5/5/Rhn-03//Lignee527/4/Lignee527/Chn-01/3/Alanda for the first time in the Smart Agricultural Clinic Project plots area at Sakha Agricultural Research Station (hot spot) (Fig. 1). Yellow pustules aligned linearly between the lateral veins bundles of leaves are among the disease symptoms as well as the glumes are filled by the fungus uredospores (Fig. 1.A, B, D, E, C and F). Yellow rust symptoms typically appeared early in the 2022 season and caused severe epidemics because of the availability of suitable climatic conditions (low-temperature and high humidity %). The isolates collected from infected barely leaves were virulent on the wheat differential variety; Chinese 160 at seedling stage under greenhouse condition. Also, the obtained results showed virulence's to *Yr1*, *Yr17*, *Yr27* and *Yr32* under field conditions (Fig. 2). Also, collected samples from barley and wheat were sent to Global Rust Reference Center (GRRC) in Denmark to identify this race. The uredospores and teliospores of yellow rust fungus were found to be comparable in shape and size upon light microscopic examination (Fig. 3A, B, C and D).

**Keywords:** Wheat, *Triticum aestivum*, Barely, *Hordeum vulgare*, Stripe rust, *Puccinia striiformis*

*Correspondence: Omara, R.I.*
redaomara43@gmail.com

Atef A. Shahin
https://orcid.org/0000-0001-8380-6242

Reda I. Omara
https://orcid.org/0000-0002-9776-0238

Ashraf E. Khalil
https://orcid.org/0000-0002-2761-995X

Mohamed D. Sehsah

Wasif Youssef
1- Plant Pathology Research Institute, Agricultural Research Center, 12619, Giza, Egypt.

Sayed E. El-Shawy
2- Field Crop Research Institute, Agricultural Research Center, 12619, Giza, Egypt.

Atwa A. Atwa
https://orcid.org/0000-0003-4438-3835
3- Plant Protection Research Institute, Agricultural Research Center, Giza, Egypt.

Fig. (1): Symptoms of stripe rust of wheat and barley (A, B, C, D, E and F).
Fig. (2). Symptoms of stripe rust on Chinese 166 (Yr1), Yr17/6*Avocet S, Yr32/6*Avocet S, and Yr27/6*Avocet S.

Fig. (3): Uredospores and teliospores of wheat (A and B) and barely (C and D), 400x.

REFERENCES


