



First report of garlic leaf blight caused by *Stemphylium vesicarium* in Iran

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Garlic (*Allium sativum* L.) is an economically important vegetable for Iran, and area under cultivation is about 21,000 hectares. During spring of 2019, symptoms of a new disease were observed on garlic leaves in many fields of Pars Abad region of Ardabil province of Iran (39.532 N 48.003 E). White flecks lesions with yellow to brown borders started from the middle and was continued to the tip of the leaf over time. The disease incidence was higher than 90% in some fields and it caused the loss of more than 50% of the leaves in advanced stages. Symptomatic leaves were collected from six fields and 2–3 leaves were surface disinfected in 2% sodium hypochlorite solution. Small pieces of diseased tissue were plated on PDA and incubated at 25 °C for five days and all colonies were transferred to PCA and were incubated at 21 °C for 15 days. Based on the morphological characteristics, 21 isolates were identified as *Stemphylium vesicarium* (Wallroth) Simmons (1969). Brownish matured conidia, cylindrical to rectangular, with 5–6 transverse septa, 2–5 longitudinal septa and 22–39 × 9–19 µm in size were observed. Two out of 21 isolates of *S. vesicarium* were selected for molecular identification and pathogenicity test. Total genomic DNA was isolated and part of the *gpdh* gene and ITS region was amplified using primers *gpd-f/gpd-r* and ITS1/ITS4, respectively (Spadoni et al. 2020). The two sequences of *gpdh* gene region showed 100% similarity with the same sequences of *S. vesicarium* (KU850707 and KU850704) and 99% with the same ITS sequences (KU850560 and KU850557). The resulting sequences of one

isolate were deposited in the NCBI database (MW337300 and MW231895). Pathogenicity test of the isolates were performed by inoculation of three leaves of three different garlic plants using 10 µl conidial suspension (1×10^5 conidia/ml) and sterile distilled water was used as control. Plants were incubated at 21 °C and 90% relative humidity as in Vitale et al. (2017). The lesions developed after 10 days with brown margins on inoculated leaves, whereas no symptoms developed on the control leaves. The fungus was re-isolated from the lesions. This to our knowledge is the first report of garlic leaf blight caused by *S. vesicarium* in Iran.

Hereby, we (Kasra Sharifi, Shahrzad Sheykhi and Ebrahim Magami) consciously assure that for the manuscript “First report of garlic leaf blight caused by *Stemphylium vesicarium* in Iran” the following is fulfilled:

- All authors state that there are no conflicts of interest.
- All authors declare that this article does not contain any studies with human or animal subjects.
- Informed consent was obtained from all individual participants included in the study.

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