CSIRO PUBLISHING
www.publish.csiro.au/journals/apdn *Australasian Plant Disease Notes*, 2009, **4**, 124–125

Albugo candida causing white rust on *Erysimum crassicaule* in Iran

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Abstract. White rust of *Erysimum crassicaule* caused by *Albugo candida* is newly reported from Iran. This is the first record of this fungal disease on *E. crassicaule* both in Iran and worldwide.

Keywords: Albuginaceae, desert plant, Oomycete, white blister.

Albugo candida (Pers.) Roussel (Oomycota: Albuginaceae), the causal agent of white rust disease, is newly reported on *Erysimum crassicaule* Boiss. The host plant is a desert therophyte belonging to the Brassicaceae and is distributed in Iran and Pakistan. During July 2007 and May 2009, diseased *E. crassicaule* showing typical symptoms of white rust were collected from a rangeland in the Birjand region (Esfahroud and Sarab), Eastern Iran. Approximately 50% of the plants in the surveyed area (0.1 ha) showed typical white rust symptoms including white-to-cream coloured, blister-like sori on the leaves. Sori were mostly coalescent, rarely solitary (Figs 1 and 2), formed mostly on the lower side of the leaves. Sori were whitish, mostly circular or irregular and variable in size (mostly 1–4 mm in diameter). Sporangiophores were hyaline and clavate, 15–20 × 27–42.5 µm. Sporangia were produced in chains, spherical-to-oval, subhyaline, vacuolate, 15–20 µm diameter (Figs 3 and 4). Oospores were verrucose, dark brown, 44–50 µm diameter (Fig. 5). The causal agent was determined as *Albugo candida* on the basis of the above-mentioned characters and identity of the host plant (Choi and Priest 1995). Although there are numerous records of this pathogen on several species of *Erysimum* in Europe, Central and East Asia and also the USA (Farr *et al*. 2009), this is the first record of *A. candida* infecting *E. crassicaule* worldwide. A voucher specimen was deposited

Fig. 1. Coalescent and solitary sori of *Albugo candida* on upper leaf surface of *Erysimum crassicaule.*

Fig. 2. Coalescent sori of *Albugo candida* on leaf underside of *Erysimum crassicaule*.

 10.1071/DN09050 1833-928X/09/010124

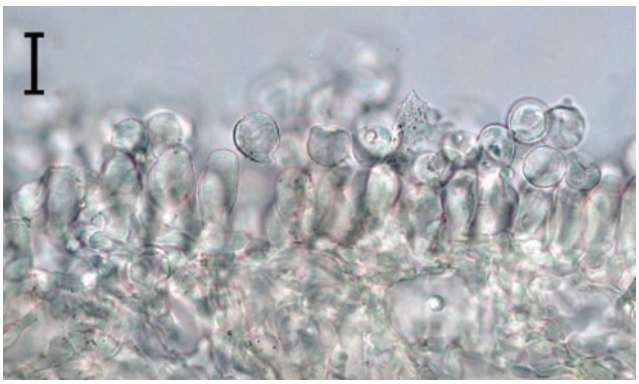

Fig. 3. Sporangia and sporangiophore produced by *Albugo candida* on *Erysimum crassicaule*. Bar = 20 µm.

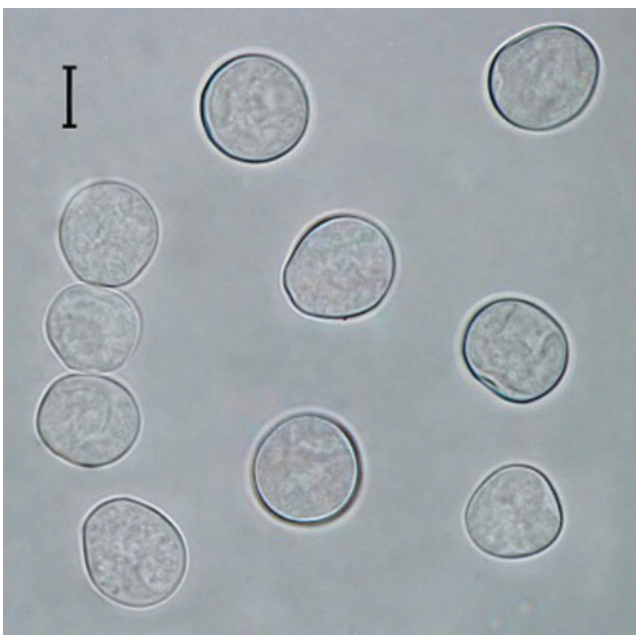

Fig. 4. Sporangia produced by *Albugo candida* on *Erysimum crassicaule*. Bar = 10 µm.

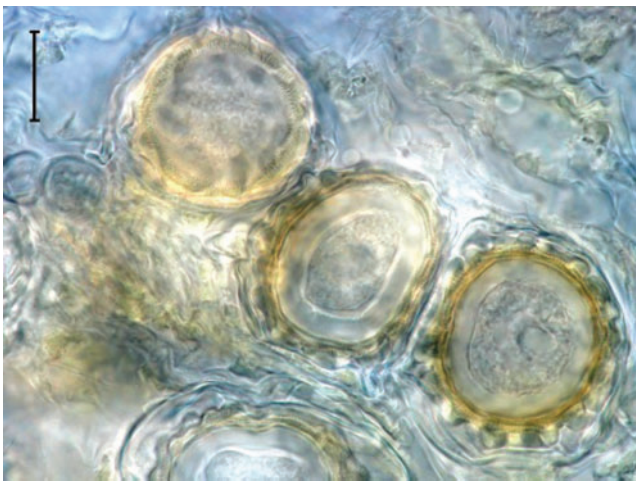

Fig. 5. Oospore produced by *Albugo candida* on *Erysimum crassicaule*. Bar = 20 µm.

at the fungal collection of the Ministry of Agriculture, Tehran, Iran (*IRAN 14219 F*).

Acknowledgements

The authors are grateful to Gh. Haderbadi for his advice and A. Ghavipanjah for her technical assistance.

References

Choi D, Priest MJ (1995) A key to the genus *Albugo*. *Mycotaxon* **53**, 261–272.

Farr DF, Rossman AY, Palm ME, McCray EB (2009) 'Fungal databases, systematic botany and mycology laboratory, ARS, USDA.' Available at http://nt.ars-grin.gov/fungaldatabases/ (verified 12 November 2009).

Manuscript received 16 September 2009, accepted 17 November 2009