Malcolmia africana, a new host for powdery mildew disease caused by *Erysiphe cruciferarum* in Iran

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Abstract. Powdery mildew disease of *Malcolmia africana* caused by *Erysiphe cruciferarum* is newly recorded from Iran. This is the first report of this fungal pathogen on *Malcolmia africana* worldwide.

Malcolmia africana, African mustard, is an annual, dicotyledonous herb, belonging to the Brassicaceae family. It is distributed in southern Europe, North Africa, central and south-west Asia and China and is documented as a weed of saffron fields in Khorasan province, Iran (Makarian *et al.* 2008).

In February 2010, powdery mildew symptoms were observed on the stems, and occasionally the rosetta leaves of approximately 10 plants of *M. africana* in the Siyujan region (32°53'N, 59°13'E), southern Khorasan, Iran. Dense white mycelial patches ranging from 5 mm to 25 mm in length were present on stems (Fig. 1). Hyphae were also present on the upper surface of the leaves, although severe symptoms on infected leaves were not noted (Fig. 2). A representative specimen has been deposited in The University of Guilan Mycological Herbarium, voucher number 670.

Fresh powdery mildew mycelia were detached from the symptomatic stems and leaves of five infected plants with a

razor blade, mounted on a microscope slide and examined in water under a light microscope. At least 50 measurements for each character were taken per sample.

Conidia were hyaline, cylindrical, single (occasionally in short chains), germinated at the ends and measured 25–40 × 12.5–17.5 µm with a length-to-width (L/W) ratio greater than two (Fig. 3). Appressoria were moderately lobed and conidiophores were hyaline, unbranched, straight, composed of 3–4 cells, 75–112 × 9–12 µm (Figs 4 and 5). Foot cells were cylindrical, measuring an average of 20–26 × 8–10 µm. Fibrosin bodies were not present. The teleomorphic state of this fungus was not found, but the observed morphological characteristics were consistent with *Erysiphe cruciferarum* (Braun 1987, 1995; Kaur *et al.* 2008).

Although *Erysiphe cruciferarum* has been reported previously on numerous species in the Brassicaceae family, including *Malcolmia maritima* and *M. incana* from Canada, France, Germany and Italy (Farr *et al.* 2009), to our knowledge this is

Fig. 1. Powdery mildew symptoms on stems of *Malcolmia africana* infected with *Erysiphe cruciferarum*.

Fig. 2. Powdery mildew symptoms on leaves of *Malcolmia africana*.

Fig. 3. Germinating conidium of *Erysiphe cruciferarum* on *Malcolmia africana*. Bar = 10 μ m.

Fig. 4. Lobed appressorium produced by *E. cruciferarum* on *Malcolmia africana*. Bar = 5 μ m.

the first report of *E. cruciferarum* infecting a species in the genus *Malcolmia* in Iran and *M. africana* worldwide.

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Fig. 5. Conidiophore of *Erysiphe cruciferarum* on *Malcolmia africana*. Bar = 20 μ m.

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Manuscript received 17 June 2010, accepted 8 September 2010