Entomophthora syrphi, a new species of Entomophthorales for Iran

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After heavy rainfalls in late Apr. of 2010 in Tehran, an epizoic occurred amongst hoverflies (Epeudes corollae Fabricius) population in green spaces of Iranian Research Institute of Plant Protection, caused by an entomopathogenic fungus. Infected flies fixed to the upper part of white topots (Lepidium draba L.) and small tumbleweed mustard (Sisymbrium loesii L.) plants with their proboscis and clasped legs, their head went backwards and their wings spread laterodorsally (Fig. 1, a, b). The fungus produced conidiophores, which ruptured the host cuticle at the intersegmental membranes, resulting in cream-coloured mycelial bands on the abdomen or in a complete cover of the dorsal abdomen. They forcibly discharged around primary conidia, many of them landed on the wall of primary conidium (Fig. 1, f-h). They produced secondary mycelia which ruptured the host cuticle at the intersegmental membranes, and they produced conidiophores, which produced secondary conidia, many of them landed on the wall of primary conidium (Fig. 1, i-k). Hence no rhizoids and cystidia were observed. Based on morphological and molecular evidences, this pathogen was identified as Entomophthora syrphi (Keller, which was recorded in Iran for the first time in Sisymbrium corollae (Fabricius) (Lepidium draba L.) of 19.2-25.6 (19-28) m (L/D=1.15-1.32). They contained 13-23 nuclei with a m (Fig. 1, c-e). Primary conidia were conical and of 19.2-25.6 (19-28) m (L/D=1.13-1.30), containing 13-23 nuclei with a m (Fig. 1, a, b). They had a distinct apical point, a flat to slightly rounded papilla and the projected ones were surrounded by a halo which was the residual of ruptured outer wall of primary conidium (Fig. 1, f-h). They produced secondary conidia which were homogenous in shape, measuring 21.2-26.17-21.3 (20-29 × 16-25) m (L/D= 1.15-1.32). They contained 11-23 nuclei, with no apical point or surrounding halo (Fig. 1, i-k). Hence no rhizoids and cystidia were observed. Based on these data, the fungus was identified as Entomophthora syrphi Giard (Keller 2002). E. syrphi has been reported from Europe on smaller syrphids (e.g. Melanostomus spp. and Platycherus spp.); Epeudes corollae and larger syrphids were supposed to be the host of another species, Entomophthora grandis Keller, which has few differences from E. syrphi with larger conidia, less pronounced apical point on primary conidia and more nuclei per conidia. As species of Entomophthora have a narrow host range, it seems that molecular evidences or further morphological features are needed for recognition of these two species. This fungus was reported by Ghazavi & Baniameri (2008).

Materials examined: On Epeudes corollae (Fabricius), Farrokhi, 26.4.2010; on the same host, Zangeneh, 2.5.2010 (IRAN 14649 F).

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Australia, 2006, for the identification of host insect

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