

NEW AND UNUSUALLY REPORTS

Alternaria alternata (Fr.) Keissler – New Pathogen on Sugar Beet Leaf in Slovakia

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The fungus *Alternaria alternata* (Fr.) Keissler is a widespread facultative pathogen of many important plants, mainly of sunflower (GODIKA *et al.* 2000), tomato (MORRIS *et al.* 2000), pepper, eggplant (OUF *et al.* 1998) and many others. Recently the fungus has been described as an important pathogen of sugar beet causing *Alternaria* leaf spot) in some countries (EL-KHOLI *et al.* 1994; RAGAB *et al.* 1994). Wild beet can be a source of inoculum of *A. alternata* for other crops, for example cotton. Some isolates pathogenic to both crops may occur (BASHAN *et al.* 1991).

For the first time in 2000 and 2001, the occurrence of *Alternaria* leaf spot (ALS) on sugar beet was observed in Slovakia, at Bučany and Nitra. According to keys (FASSTIOVÁ 1979; SAMSON *et al.* 1995), *Alternaria alternata* (Fr.) Keissler (syn. *A. tenuis* C.G. Nees) was identified as the causal agent of these spots. This agrees with results of EL-KHOLI *et al.* (1994). The fungus is commonly widespread as a facultative pathogen on sunflower and other crops, also in Slovakia. It is a member of the seed mycof-

lora of many crops, including sugar beet seed and a causal agent of storage spoilage (KOWALIK & LECHOWICZ 1984). The form of host attack found now (ALS symptoms) is completely new for Slovakia. *Alternaria brassicae* on sugar beet leaves has also been mentioned as a secondary pathogen, but none of our isolates was this species.

EL-KHOLI *et al.* (1994) described typical dark brown irregular spots. The ALS symptoms we observed on sugar beet leaf were rather different: the size of spots was 0.3–1 cm, rarely larger. They were mostly oval, at first light brown and dark brown to black brown with age. The typical concentric circles were observed in the centre of the spots, and a dark layer of sporulation under moist conditions. The spots appeared on the margin of leaves, but some were also observed in the centre. Sometimes there was fusion between spots. In general, according to the results of EL-KHOLI *et al.* (1994) and RAGAB *et al.* (1994), ALS occurs on flavescent and older leaves. But under our conditions, the spots occurred on healthy and young leaves as well, suggesting a higher aggressiveness or virulence of the pathogen.

A reduction of chlorophyll, sugar and carotene in the leaves, and different sensitivity of cultivars were observed. The severity of disease depends on the number of infected plants and on the degree of assimilatory surface reduction (RAGAB *et al.* 1994). Under our conditions, the occurrence of ALS on sugar beet was sporadic only, consequently the severity of the disease was low. Screening for the pathogen is necessary, to monitor its occurrence and virulence.

References

- BASHAN Y., LEVANONY H., OR R. (1991): Wild beets as an important inoculum source of *Alternaria alternata*, a cause of leaf blight of cotton in Israel. *Can. J. Bot.*, **12**: 2608–2615.

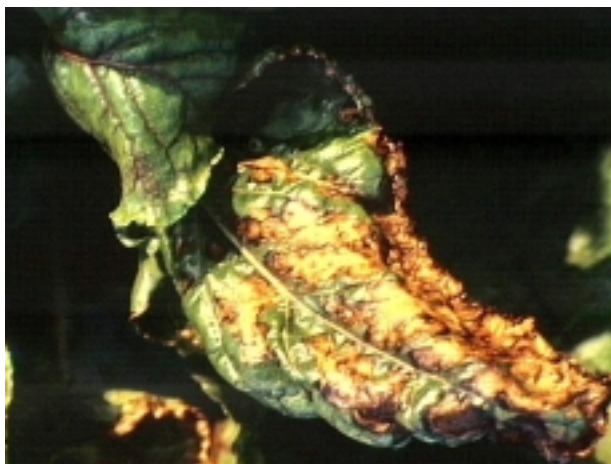


Fig. 1. Typical ALS symptoms on sugar beet leaf, Nitra 2000

- EL-KHOLI M.M., RAGAB M.M., HUSSEIN M.Y., RAGAB M.M. (1994) *Alternaria* leaf spot of sugar beet in Egypt. Egypt. J. Phytopathol., **2**: 179–193.
- FASSATIOVÁ O. (1979): Plísňe a vláknité houby v technické mikrobiologii. SNTL, Praha.
- GODIKA S., AGRAWAL K., SINGH T. (2000): Incidence of *Alternaria alternata* in sunflower seeds grown in Rajasthan. J. Myc. Plant Pathol., **1**: 112–113.
- KOWALIK M., LECHOWICZ J. (1984): Mycoflora of sugar beet seeds. Acta Mycol., **2**: 219–224.
- MORRIS P.F., CONNOLLY M.S., CLAIR D.A. (2000): Genetic diversity of *Alternaria alternata* isolated from tomato in California assessed using RAPDs. Myc. Res., **3**: 286–292.
- OUF M.F., GABER M.R., HUSSEIN N.A., EL-BANA A.A. (1998): Studies on *Alternaria* fruit rot of pepper and eggplant. Egypt. J. Microbiol., **2**: 195–216.
- RAGAB M.M., EL-KHOLI M.M., HUSSEIN M.Y., RAGAB M.M. (1994): Physiological studies on *Alternaria* leaf spot of sugar beet. Egypt. J. Phytopathol., **2**: 195–205.
- SAMSON A., HOEKSTRA E.S., FRISVAD J.C., FILTENBORG O. (1995): Introduction to food-borne fungi. 4. Baarn and Delft: Centraalbureau voor schimmelcultures: 322. ISBN 90-70351-27-7.

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