

Mini data sheet on *Alternaria* brown spot

Added in 1998 - Deleted in 2001

Reasons for deletion:

The pest *Alternaria* brown spot has been included in EPPO Alert List for more than 3 years and during this period no citrus-growing countries have expressed concerns. In 2001, it was therefore considered that sufficient alert has been given and the pest was deleted from the Alert List.

Alternaria brown spot of *Minneola tangelos*

Why	<i>Alternaria</i> brown spot of <i>Minneola tangelos</i> came to our attention because it was described in 1989 in Israel, as an unusual disease of citrus.
Where	Australia (first report in 1966), Israel (in 1989), South Africa (at least since the early 1980s) Turkey (in 1995), USA (Florida, in 1976). Reported as present in Spain in 2000, symptoms were observed for the first time near Valencia in 1998 on Fortune mandarins.
On which plants	<i>Minneola tangelos</i> (<i>Citrus reticulata</i> cv. Dancy x <i>C. paradisi</i> cv. Duncan). Dancy and Ellendale mandarins, Murcott tangor (mandarin x sweet orange), Nova and Idith mandarin hybrids, Calamondin (mandarin x kumquat (<i>Fortunella</i>)), and Sunrise and Redblush grapefruits.
Damage	Infected fruit show sunken, dark brown spots (quality is reduced) and many of them drop prematurely. Leaves present brown necrotic areas, and in severe cases apices of young shoots can be completely defoliated.
Possible identity	This disease observed in Israel was thought to be similar to 'brown spot of Emperor mandarins' which was first reported in Australia in 1966 (Pegg, 1966) and to 'Alternaria brown spot' of Dancy tangerines, and of <i>Minneola</i> and Orlando tangelos which was then reported in Florida (US) in 1976 (Whiteside, 1976). It was considered that <i>Alternaria</i> brown spot was caused by <i>Alternaria alternata</i> pv. <i>citri</i> , although there was discussion on the validity of pathovars for <i>Alternaria alternata</i> . In the literature, the disease has sometimes been attributed to <i>Alternaria citri</i> , but the latter causes quite other symptoms and has a different host range. More recently, morphotaxonomic and molecular studies have showed that the disease is caused by several species of <i>Alternaria</i> (described as new species, distinct from <i>A. alternata</i>).
Pathway	Citrus host plants for planting (fruits with leaves?, fruits?) from countries where it occurs.
Possible risks	Disease of citrus (although it does not attack all citrus) which can affect yield and quality. Already present in Israel and recently found in Turkey. Control reported as difficult (some fungicide resistance is reported). The fungus can overwinter in lesions on leaves and stems, so it is likely to be transmitted by propagating material.
Source(s)	Canihos, Y.; Erkilic, A.; Timmer, L.W. (1997) First report of <i>Alternaria</i> brown spot of <i>Minneola tangelo</i> in Turkey. <i>Plant Disease</i> , 81(10), p 1214. Peever, T.L.; Canihos, Y.; Olsen, L.; Ibañez, A.; Liu, Y.C.; Timmer, L.W. (1999) Population genetic structure and host specificity of <i>Alternaria</i> spp. causing brown spot of <i>Minneola tangelo</i> and rough lemon in Florida. <i>Phytopathology</i> , 89(10), 851-860. Pegg, K.G. (1966) Studies of a strain of <i>Alternaria citri</i> Pierce, the causal organism of brown spot of Emperor mandarin. <i>Queensland Journal of Agriculture and Animal Science</i> , 23(1), 15-28. Simmons, E.G. (1999) <i>Alternaria</i> themes and variations (226-235). <i>Classification of citrus pathogens</i> . <i>Mycotaxon</i> , 70, 263-323. Solel, Z. (1991) <i>Alternaria</i> brown spot on <i>Minneola tangelos</i> in Israel. <i>Plant Pathology</i> , 40, 145- 147. Solel, Z.; Kimchi, M. (1997) Susceptibility and resistance of citrus genotypes to <i>Alternaria alternata</i> pv. <i>citri</i> . <i>Journal of Phytopathology</i> , 145(8-9), 389-391. Solel, Z.; Oren, Y.; Kimchi, M. (1997) Control of <i>Alternaria</i> brown spot of <i>Minneola tangelo</i> with fungicides. <i>Crop Protection</i> , 16(7), 659-664. Solel, Z.; Timmer, L.W.; Kimchi, M. (1996) Iprodione resistance of <i>Alternaria alternata</i> pv. <i>citri</i> from <i>Minneola Tangelo</i> in Israel and Florida. <i>Plant Disease</i> , 80(3), 291-293. Swart, S.H.; Wingfield, M.J.; Swart, W.J.; Schutte, G.C. (1998) Chemical control of <i>Alternaria</i> brown spot of <i>Minneola tangelo</i> in South Africa. <i>Annals of applied Biology</i> , 133(1), 17-30.

- Timmer, L.W.; Solel, Z.; Gottwald, T.R.; Ibañez, A.M.; Zitko, S.E. (1998) Environmental factors affecting production, release, and field populations of conidia of *Alternaria alternata*, the cause of brown spot of citrus. *Phytopathology*, 88(11), 1218-1223.
- Vicent, A.; Armengol, J.; Sales, R.; García-Jiménez, J. (2000) First report of *Alternaria* brown spot of citrus in Spain. *Plant Disease*, 84(9), p 1044.
- Whiteside, J.O. (1976) A newly recorded *Alternaria*-induced brown spot disease on Dancy tangerines in Florida. *Plant Disease Reporter*, 60(4), 326-329.
- Whiteside, J.O. (1988) *Alternaria* leaf spot of rough lemon. In: *Compendium of citrus diseases* (Ed. by Whiteside, J.O.; Garnsey, S.M.; Timmer, L.W.), p 8. APS, St. Paul, USA.

EPPO RS 98/179, 2000/064, 2000/065, 2000/066, 2001/050

Panel review date 2001-01

Entry date 1998-10