

Mini data sheet on Citrus sudden death

Added in 2003 - Deleted in 2007

Reasons for deletion:

The pest Citrus sudden death has been included in EPPO Alert List for more than 3 years and during this period no particular international action was requested by the EPPO member countries. Import of citrus from outside the EPPO region is prohibited (no pathway). In 2007, it was therefore considered that sufficient alert has been given and the pest was deleted from the Alert List.

Citrus sudden death (a lethal citrus disease of unknown aetiology)

Why	Citrus sudden death came to our attention because it is a new disease which has led to the death of approximately 1 million citrus trees in Brazil. An important campaign has been launched in Brazil to control this lethal disease and start research programmes. The cause of citrus sudden death remains unknown but a pathogen is suspected.
Where	Brazil (Minas Gerais, São Paulo).
On which plants	Sweet orange (<i>Citrus sinensis</i> cvs. Baia, Baianinha, Hamlin, Natal, Pera, Rubi, Rio, Westin, Pineapple, Valencia), mandarins (<i>C. reticulata</i> cv. Cravo, Ponkan), tangelos (<i>Citrus x tangelo</i> cv. Orlando), all grafted on Rangpur lime (<i>C. limonia</i>). So far, the disease has not been seen on mandarins (<i>C. reticulata</i> cv. Cleopatra, <i>C. sunski</i>), on citrumelo (<i>Poncirus trifoliata</i> x <i>C. paradisi</i> cv. Swingle) or on <i>Poncirus trifoliata</i> rootstocks. In Brazil, because of the presence of <i>Citrus tristeza closterovirus</i> (CTV - EPPO A2 quarantine pest) and the considerable losses it caused in the 1930-40s, 85 % of citrus trees are now grafted on Rangpur lime (<i>C. limonia</i>) which is a CTV-resistant rootstock.
Possible cause	Spatio-temporal studies suggested a biotic cause (possibly a vector-borne pathogen). Remarkable similarities with spatial patterns presented by CTV-infected trees in the presence of its most efficient aphid vector <i>Toxoptera citricida</i> were observed. So far, all attempts to detect fungi, bacteria, phytoplasmas and viroids failed, only CTV was detected in symptomatic trees (as well as in asymptomatic trees) by using electron microscopy, serology, and comparison of dsRNA patterns. Finally, symptoms observed are similar to the quick-decline form of CTV. Therefore, it is suggested that a particular strain of CTV could be involved in this lethal disease.
Damage	Initial symptoms are a generalized foliar discoloration. Affected trees show partial defoliation, fewer new shoots, absence of internal shoots, and finally die. Fruits are usually normal, but remain attached to the dying or dead trees. Death of large portions of roots is observed. A yellow stain can develop in the phloem of <i>C. limonia</i> . Trees can be killed within 1 to 12 months after the first appearance of symptoms. Pictures can be viewed on Internet (http://www.fundecitrus.com.br/msubita.html).
Transmission Pathway	Unknown, but spatio-temporal studies suggested that vectors could be involved. If the causal agent is indeed a particular strain of CTV, a possible pathway could be: Citrus plants for planting from infected regions in Brazil (but normally this pathway is closed), fruits with leaves and peduncles, viruliferous vectors.
Possible risks	Citrus are important crops in Mediterranean countries mainly for fruit production but also for ornamental purposes. The risk of establishment of this particular CTV strain (if this hypothesis is verified) is difficult to predict as the Mediterranean epidemiological situation differs from the Brazilian one: in the Mediterranean region most sweet oranges are still grafted on sour orange rootstocks (<i>C. aurantifolia</i>) and the most efficient vector <i>Toxoptera citricida</i> is broadly absent. However, as the disease is so devastating in Brazil, precautions should be taken not to introduce it into the EPPO region.
Source(s)	Bassanezi, R.B.; Bergamin Filho, A.; Amorim, L.; Gimenes-Fernandes, N.; Gottwald, T.R.; Bové, J.M. (2003) Spatial and temporal analyses of citrus sudden death as a tool to generate hypotheses concerning its etiology. <i>Phytopathology</i> , 93(4), 502-512.

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Morte Súbita dos citros. <http://www.fundecitrus.com.br/msubita.html>
Partnerships are the way to speed up solutions. <http://www.fundecitrus.com.br/editorus.html>

EPPO RS 2003/090
Panel review date

2007-03

Entry date 2003-06