

Mini data sheet on *Brenneria quercina*

Alert List: added in 2005 - deleted in 2007

Reasons for deletion: *Brenneria quercina* was removed from the EPPO Alert List in 2007 because was considered to be a common and secondary pest in Spain.

Brenneria (Erwinia) quercina (bark canker and drippy nut of *Quercus*)

Why	In 1967, a new bacterial disease of oak caused by <i>Erwinia quercina</i> (later reclassified as <i>Brenneria quercina</i>) was reported in California (US) and called drippy nut, due to significant bacterial ooze observed on acorns. Apparently, this disease was no longer observed in USA nor reported from other countries until 1992, when the bacterium was found on forest oaks in Spain, causing slightly different types of damage (i.e. bark cankers and bacterial ooze on leaf buds).
Where	EPPO region: Spain (near Madrid and Segovia; first isolated in 1992 on <i>Q. ilex</i> ; in 2001, also reported in Comunidad Valenciana). North America: USA (California, first description made in 1967 and apparently no further reports were made since then).
On which plants	<i>Quercus</i> spp. (<i>Q. agrifolia</i> and <i>Q. wislizenii</i> in California, <i>Q. ilex</i> and <i>Q. pyrenaica</i> in Spain). More data is needed on the susceptibility of other European <i>Quercus</i> species.
Damage	In California, the disease was described as 'drippy nut'. The first visible symptoms were darkening and oozing at insect punctures in the acorns. Bacterial ooze was observed at the base of the nut. Rotting of the nuts was also observed. After the nut had fallen, in some cases the acorn cup produced bacterial ooze. The disease occurred in later summer when day temperatures were hot (average around 29°C). In Spain the disease presented some additional symptoms. The first symptoms were bark cankers, although the 'drippy nut' symptom was observed in later surveys. A frequent symptom was the presence of irregular, longitudinal cankers of a few centimetres in size on the trunk and branches (reaching in some cases up to 20 cm). These cankers, variable in depth, showing necrosis of the affected tissues and copious exudations, usually appeared on the bark surface of the lower trunk. Necrotic lesions extended to inner bark. Oak trees seriously affected by bark cankers were usually mature (more than 20 years old), showing a progressive loss of vigour, foliage reduction and early leaf senescence. Exudates were frequently observed in growing acorns. Copious, sticky, honey-like sap appeared under the acorn cup and caused severe fruit drop. In many cases, acorns rotted. Exudates from leaf buds were also observed in some <i>Q. pyrenaica</i> trees, which were not described in California. Surveys done in forests near Madrid since 1996 have shown that symptoms were very widespread and that approximately 30 to 40 % of the acorns were affected. Acorns are a valuable source for wildlife, as well as for feeding pigs.
Dissemination	It is suspected that the bacteria enter through wounds, but it is not known whether the lesions observed in natural conditions are produced by or just used by the bacterium to enter into the plant. In California, it has been suggested that the bacterium entered the acorns through holes made by insects, especially by Cynipidae. Water most probably plays a role in disseminating the bacterium.
Pathway	Plants for planting of <i>Quercus</i> , seeds?
Possible risks	Oaks are important forest and amenity trees. No control methods are available against <i>B. quercina</i> . Although more details are needed on the host range, biology, geographical distribution, epidemiology, the observations made in Spain suggested that <i>B. quercina</i> could be damaging to other oak species elsewhere in the EPPO region. The possible role of <i>B. quercina</i> in the oak decline symptom has to be further studied.

Source(s) Biosca EG, González R, López- López M, Soria S, Montón C, Pérez-Laorga E, López MM (2003) Isolation and characterization of *Brenneria quercina* causal agent for bark canker and drippy nut of *Quercus* spp. in Spain. *Phytopathology* 93(4), 485-492.
CMI (1981) Descriptions of pathogenic fungi and bacteria: *Erwinia quercina*, no. 693, CABI, Wallingford, United Kingdom, 2 pp.
Hildebrand DC, Schroth MN (1967) A new species of *Erwinia* causing the drippy nut disease of live oaks. *Phytopathology* 57, 384-397.
INTERNET
Centre d'Informació i Documentació Ambiental de la Comunitat Valenciana. Resultados de la prospección año 2001.
<http://www.cma.gva.es/cidam/emedio/biodiversidad/Insectos/Enfermedades/Brenneria%20quercina.htm>

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