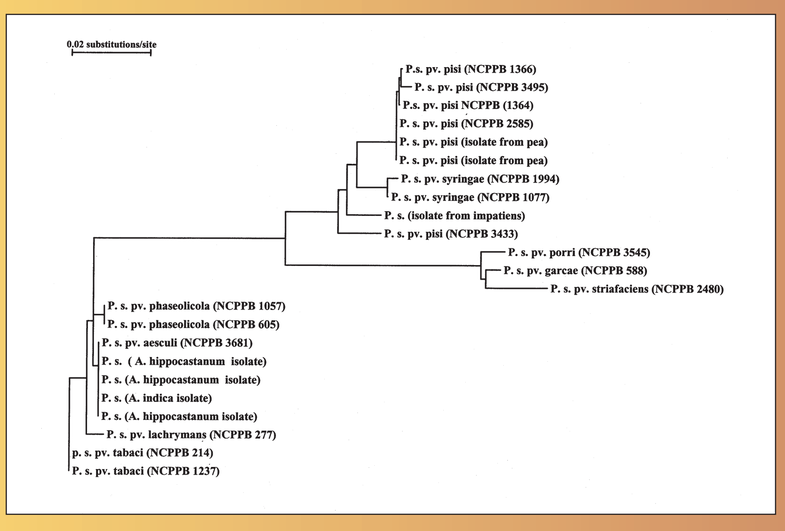
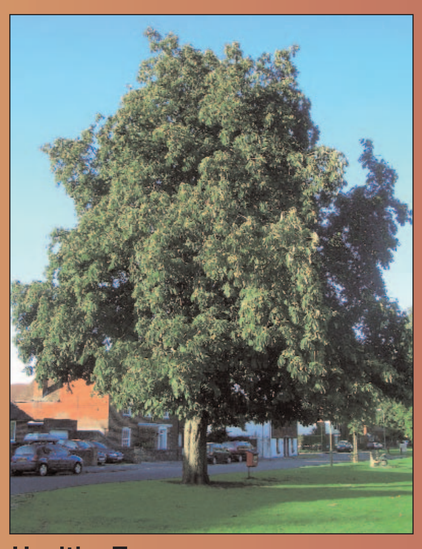
Characterisation of a Possible Causal Agent of Horse Chestnut Bleeding Canker in the UK

Stem bleeding on horse chestnut in the UK was first reported in the 1970s, when the cause was attributed to *Phytophthora*. Over the past four or five years, the number of reports of horse chestnut trees (*Aesculus hippocastanum*) with 'bleeding cankers' has increased markedly in the UK as well as in Belgium, France, Germany and the Netherlands. Closer investigation has revealed that the most frequently isolated agent appears to be a gram-negative fluorescent bacterium. Whole cell fatty acid analysis has identified a number of isolates as *Pseusomonas syringae*. Further investigation is underway to confirm whether this organism, either singly or in combination with other pathogens, could be the cause of the current epidemic.

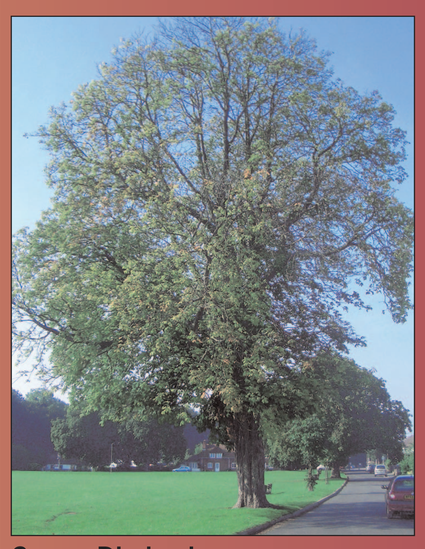
Symptoms visible on affected trees include bleeding areas on their stems and sometimes on their scaffold branches. In the later stages, loss of foliage and crown die back develop.



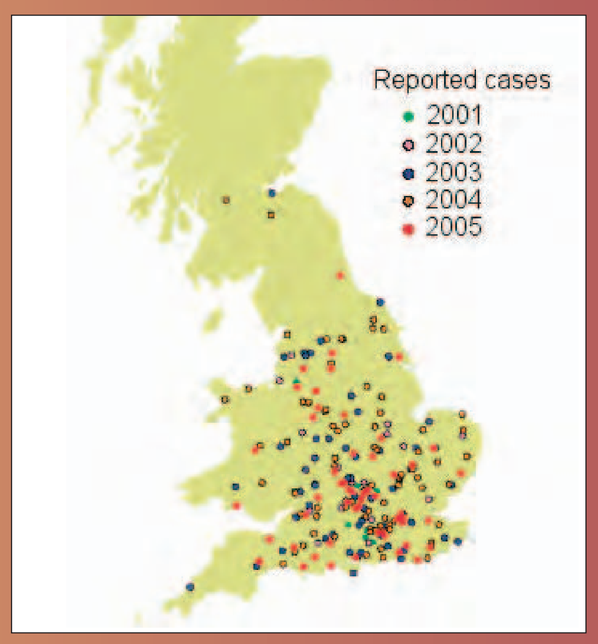
Sequenceing of the *gyrase B* gene (*gyrB*) has indicated the presence of a single strain of *Pseudomonas syringae* in infected trees in different areas of the UK. The *gyrB* sequence of the isolates from bleeding canker was found to be identical to that of *Pseudomonas syringae* pv *aesculi* (NCPPB 3681), originally isolated from *Aesculus indica* in India in the 1970's (Durgapal and Singh, 1980), and also to a recently isolated *P. syringae* strain from *A. indica* in the UK.



Healthy Tree



Crown Die back



Isolates of the *P. syringae* strain have induced leafspots on *A. hippocastanum* and *A. indica* but have not yet been proven to induce bleeding stem cankers.

For more information see:
www.forestresearch.gov.uk/bleedingcanker

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Reference

Durgapal, J.C. and Singh, B. (1980). Taxonomy of pseudomonads pathogenic to horse-chestnut, wild fig and wild cherry in India. Indian Phytopathology 33, 533-535

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