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NOTE

Pathogenicity of Fungi Affecting Black Locust (*Robinia pseudoacacia*) in Greece

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The main fungi affecting black locust (*Robinia pseudoacacia* L.) were recorded during a survey which took place in northern Greece in 1997. It was found that *Phomopsis oncostoma* (Thüm.) v. Höhn, *Aglaospora profusa* (Fr.) de Not. and *Cucurbitaria elongata* (Fr.) Grev. cause necroses of twigs, branches and even entire trees. The pathogenicity of these fungi was confirmed by inoculation experiments in which typical disease symptoms appeared with re-isolation of the respective fungi from the inoculated plants.
KEY WORDS: Black locust; *Robinia pseudoacacia; Phomopsis oncostoma; Aglaospora profusa; Cucurbitaria elongata*.

Black locust (*Robinia pseudoacacia* L.) has long been planted in Greece as an ornamental and for soil stabilization purposes on slopes, and in river beds and watershed basins. In recent years it has been used also for wood and fodder production, apiculture, soil improvement, restoration of disturbed ecosystems, etc. However, a great number of trees were found to suffer from necroses of twigs and branches and in many cases even entire trees were dead. Necroses begin from wound sites caused by different factors, hail being one of the commonest. Necroses are a typical dieback without canker formation and on dead branches one can easily discern masses of fruit bodies of different fungi.

In order to record the fungi affecting this tree species, a survey was undertaken during August and September 1997 in the Thessaloniki region in northern Greece. Fifty trees between 10 and 15 years of age and from different places, which had more than 50% dead branches, were examined. From each tree a sample of four dead branches was taken; thus 200 branches were examined in total. The fungi affecting them were identified either directly by their fruit bodies or after culturing on potato dextrose agar (PDA). In many cases branches were simultaneously affected by more than one fungus. The fungi recorded as well as the respective percentage of their appearance, are as follows:

Phomopsis oncostoma (Thüm.) v. Höhn.	65%
Aglaospora profusa (Fr.) de Not.	31%
Cucurbitaria elongata (Fr.) Grev.	25%
Diplodia sp. Fr.	2%
Pestalotiopsis sp. Steyaert	1%
Fusarium sp. Link ex Fr.	1%
Cytosperma chrysosperma (Pers.) Fr.	1%
Eutypella sp. (Nitschke) Sacc.	1%
Other	3%

The three fungi found in greatest abundance, *i.e., P. oncostoma, A. profusa* and *C. elongata*, were isolated in pure cultures in order to test their pathogenicity by inoculation experiments. Isolations were made from areas where necrotic and healthy areas meet. Outer tissues were removed after surface sterilization, in order to expose underlying ones from which small pieces were cut and plated out on PDA. Inoculations took place in June 1998 on 3-year-old plants of black locust under local field conditions. Each

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of the above fungi was inoculated on 20 plants while another 20 plants were used as control. The site of inoculation was surface sterilized with absolute ethanol; a wound 5×3 mm in size was made by removing the bark with a scalpel. Plugs of actively growing fungal culture, 7×4 mm, were cut and placed on the wounds. The inoculated area was then covered with wet cotton wool and wrapped with a plastic band. The same procedure was followed for control plants except that the plugs used in this case did not bear mycelium. The inoculated plants evinced the same symptoms as those infected naturally and the stem of the plants above the inoculation site died to the following extents: *P. oncostoma*, 100%; *A. profusa*, 85%; and *C. elongata*, 80%. In most cases fruit bodies of the inoculated fungi were formed within 40 days and in all cases the respective fungi were re-isolated from inoculated plants. Symptoms were not observed on control plants and no fungi were re-isolated.

Not much research has been conducted on fungi affecting black locust. *Cucurbitaria elongata* with its *Camarosporium* state, *A. profusa* and *Diaporthe oncostoma* (Duby) Fuckell with its *Phomopsis* state have been found on dead twigs and branches of black locust (2). In addition, cankers on twigs and branches and death of the distal portion, as well as twig and branch dieback, may be due to, or had been associated with, the fungi *Aglaospora anomala* and *D. oncostoma* (1,5,6). In Greece, *Diplodia profusa* de Not. and *Hendersonia obscura* Pass. have been reported on black locust (3,4).

In conclusion, it can be stated that *P. oncostoma*, *A. profusa* and *C. elongata* are fungi pathogenic to black locust in Greece, as proved by the inoculation experiments in this work. Their action on this host provokes necroses of shoots, branches and even death of entire trees. The main way of gaining entrance in the host is through wounding by different factors with possibly hail being the main one.

REFERENCES

1. Arnaud, G. and Barthelet, J. (1933) Les chancres du Cedrela et du Robinia. *Rev. Pathol. Veg.* 20:323-32. *R.A.M.* 1934, p. 479
2. Ellis, M. and Ellis, P. (1985) Microfungi on Land Plants – An Identification Handbook. Croom – Helm, London, UK.
3. Maire, R. and Politis, J. (1940) Fungi Hellenici. *Actes Inst. Bot. Univ. Athenes* 1:27-79.
4. Pantidou, M. (1973) Fungus – Host Index for Greece. Benaki Phytopathological Institute, Kiphissia, Athens, Greece.
5. Pirone, P. (1978) Diseases and Pests of Ornamental Plants. 5th ed. J. Wiley & Sons, New York, NY.
6. Viennot-Bourgin, G. (1949) Les Champignons Parasites des Plantes Cultivées. Masson et Cie, Editeurs, Paris, France.