
DISEASES OF TROPICAL ACACIAS

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Diseases of *Acacia* species in Thailand

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Abstract

The disease survey was carried out in plantations and field trials of four species of *Acacia* namely, *Acacia auriculiformis*, *A. mangium*, *A. aulacocarpa* and *A. crassiparva*. Most observations were made on *A. auriculiformis* because of the availability of two major provenance trials of this species. Stem and branch cankers of *A. auriculiformis* in the international provenance trial at Lampao-lamsai became severe after the trees were stressed by low soil fertility and severe drought. The incidence of this disease was also investigated at Sakaerat where trees have not been stressed and comparisons were made of the performance of provenances at both sites. Cooper Creek provenance appeared to be less affected by disease than other seedlots on the stressful site. Stem diseases of *A. mangium* and *A. aulacocarpa* were reported but not studied in detail. Foliar diseases of *Acacia* spp. caused by fungi included powdery mildew, black mildew, brown and black spots and phyllode blight. The main foliar pathogens were *Colletotrichum* sp., *Pestalotiopsis* sp. and *Cephaleuros virescens*, (which caused an algal spot). *Colletotrichum* sp. can also infect pods of *A. auriculiformis* and become a seed-borne pathogen.

Introduction

Twelve *Acacia* species (not including *A. mangium*) were introduced in 1985 for field trials in Thailand. *A. auriculiformis*, *A. aulacocarpa* and *A. crassiparva* exhibited good growth performance and showed the best survival percentage at almost every trial site (six sites throughout Thailand) (Chittachumnonk and Sirilak, 1991). *A. auriculiformis* was the first species introduced to Thailand in 1935 followed by *A. mangium*. The latter is widely planted but few field trials have been established so far. *A. aulacocarpa* and *A. crassiparva* were first planted in 1985. Disease problems of *A. auriculiformis* in Thailand were reported earlier in Thai by Pongpanich (1991). The list included diseases of seed, seedlings and established trees. Some diseases such as powdery mildew caused by *Oidium* sp. and leaf spot caused by *Colletotrichum* sp. have also been reported in India (Mohan and Sharma 1988).

Materials and Methods

The general disease survey was carried out in plantations and field trials of *Acacia* spp. Disease symptoms, causal pathogens, impact on the stands and distribution of disease were recorded. Disease samples were collected for detection of causal pathogens by;

- direct examination of infected plant tissues using stereo- and compound-microscopes
- incubation of leaf and shoot samples in moist chambers at room temperature (25-28°C) for 2-5 days before examination
- isolation from diseased tissue on potato dextrose agar (PDA) by:
 1. immersion in 10% chlorox for 1-3 minutes
 2. washing in sterile distilled water twice
 3. blotting on sterile filter paper
 4. transfer to sterile PDA under aseptic conditions
 5. incubation at 26°C for 3-5 days, subculturing and further incubation to allow sporulation
- identification of fungi associated with the diseases.