

## Black mildew disease on *Acacia* species in India

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Black mildew disease, *Meliola melanoxylois*, was known on *Acacia melanoxylois* and *Acacia simata*. *A. mangium* and other species of *Acacia* were found infected with this fungus. This fungus which was known to have a narrow host range is getting wide host range and may become a threat to indigenous and exotic *Acacia* species.

**Key words:** *Meliola*, *Acacia*, black mildew

### INTRODUCTION

India is a tropical country, comprising all eco-climatic zones ranging from sandy deserts, snow clad mountains and tropical evergreen forests. The forests in India cover 77.01 million hectares (23%), and large number of populations depend on the forest for their livelihood. Because of the natural calamities and biotic interference, the forests are being shrunk day by day. To meet the needs of the overgrowing population, fast growing trees like Australian Wattle (*Acacia* sp.) were introduced into the western region of peninsular India under social forestry and agro-forestry programmes. Most of these are getting attacked by the black mildew disease, *Meliola melanoxylois* Hosag. and Pillai (Hosagoudar *et al.*, 1994).

Infection mostly on the upper surface of the phyllode, later cover the entire surface of the phyllodes and gets extended to the petioles and soft tender green stem portions. Colonies subdense to dense, velvety, confluent. Hyphae substraight to crooked, branching alternate, opposite to irregular and acute to wide angles, loosely to closely reticulate, cells 15-22 × 3-5 µm. Appressoria mostly opposite, rarely alternate to solitary, straight to curved, antrorse, subantrorse to recurved, 12-18.5 µm long; stalk cells cylindrical to cuneate, 3-6.5 µm long; head cells ovate, globose, cylindrical, entire to angular, 9-13 × 6-10 µm. Phialides mixed with appressoria, alternate to opposite, 12-16 × 6-8 µm. Mycelial

setae numerous, scattered to grouped around perithecia, simple, straight, obtuse to 2-3 times dentate at the tip, up to 650 µm long. Perithecia scattered, globose, verrucose, up to 150 µm in diameter, ascospores oblong, brown, 4-septate, slightly constricted at the septa, 34-40 × 15-16 µm.

### Materials examined

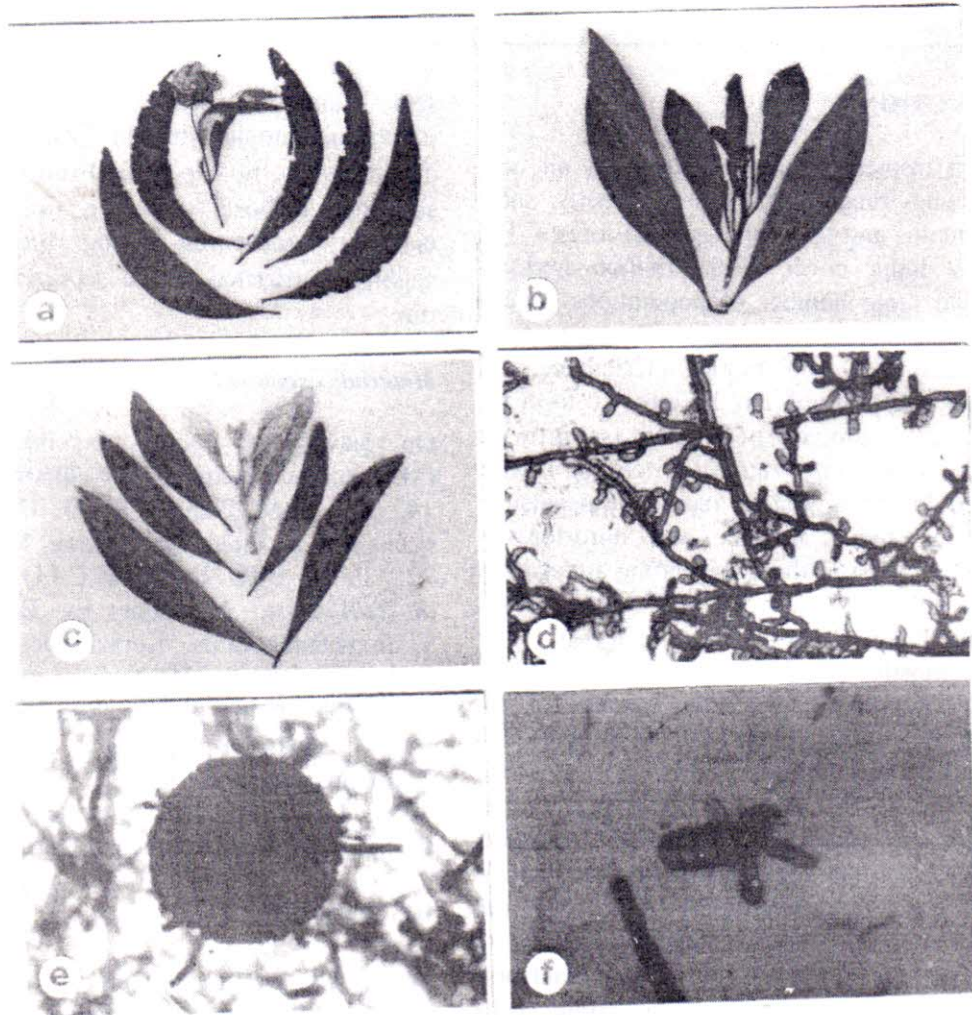
On leaves of *Acacia melanoxylois* R. Br. (Mimosaceae), Vettiye, Mavelikara, Kerala, Sept. 14, 1992, C.M. Pillai, H.C.I.O. 42763; *A. simata* (Lour.) Merr., Sampaje, Kodagu, Karnataka, Dec. 22, 1991, B.R. Dayal H.C.I.O. 30832; *A. auriculiformis*, A. Cunn. Ex Benth., Kallara, Thiruvananthapuram, Kerala, Oct. 20, 1998, S. Shiburaj T.B.G.T. 225; *Acacia* spp., Kerala Forest Research Institute, Peechi, Kerala, June 5, 1997, K.V. Sankaran T.B.G.T. 142; Kallara, Thiruvananthapuram, Oct. 20, 1998, S. Shiburaj T.B.G.T. 223. Host range: *Acacia* spp. Distribution: Goa, Kerala and Karnataka

### DISCUSSION

*Acacia simata* (Lour.) Merr. Is from the tropical jungles of India, especially in the Deccan (Santapau and Henry, 1983). Most of the phyllode forming *Acacia* species were introduced in India as fast growing trees. *A. auriculiformis* A. Cunn. Ex Benth. was planted in lower altitudes.

*A. melanoxyton* R. Br. was introduced into higher altitudes, like Nilgiris. During the recent past, *A. mangium* Willd., commonly known as 'Mangium', has been introduced in Kerala for its timber yielding capacity (Bahuguna and Lal, 1995). This plant hybridizes naturally with *A. auriculiformis* and produces hybrids that grow faster than parents (Anonymous, 1979). Hosagoudar *et al.* (1994) described *Meliola melanoxytonis* Hosag. and Pillai on *Acacia melanoxyton* from Kerala. Later, it was reported

on *A. sinuata* from Karnataka. Now, it is also known on the potential timber yielding *A. mangium*. Soon after the rain, this disease takes a turn of severity, infects almost all the green surface, forming thick, wooly colonies. This disease partially obstructs the entry of light to the host cells, increases temperature by 1-1.5 °C, hinders efficiency of chlorophyll and brings a hormonal imbalance (Hosagoudar *et al.* 1997). Black mildews are host specific and obligate parasites. Host range among the species and



**Fig 1.** Diseased specimens of *Acacia* species. Black colonies on the leaves of, a) *Acacia auriculiformis*, b) *Acacia mangium*, c) *Acacia sp.*; Colonies mounted *in situ*. d) Mycelium with two celled appressoria and few ampulliform phialides. e) Perithecium with mycelium setae. f) Germinating ascospore

genera are not uncommon. *Meliola buteae* Hafiz, Azmulla and Kafi infects *Butea monosperma* and *B. parvifolia*, while, there is a generic range, such as *Meliola grotena* Sydow which infects *Embelia viridifolia* and *Maesa indica*. *Meliola melanoxylonis* Hosag. and Pillai has now shown wide range of host species and it appears to be a threat to the native and introduced *Acacia* species. Ultrastructure studies, etymology and biochemical changes in the infected leaves of Wattles may lead to the better management of these forest crops.

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