

Research Paper :

## Occurrence of die-back of *Dalbergia sissoo* in West Bengal and evaluation of fungicidal control of its pathogen

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### SUMMARY

During a survey in different regions of Burdwan district, West Bengal it was observed that *Dalbergia sissoo* suffered heavy losses due to die-back. The pathogen responsible for the disease was isolated and identified as *Lasiodiplodia theobromae*. *In vitro* the effect of five fungicides viz., Bavistin (carbendazim), Captan, Mancozeb, Topsin M (thiophanate methyl), Tridemorph at different concentrations was evaluated against the pathogen. Among them Bavistin was found to be the most effective followed by Topsin M.

### Key words :

*Dalbergia sissoo*, Die-back, Fungicides, *Lasiodiplodia theobromae*

**S**issoo (*Dalbergia sissoo* Roxb.), of family Papilionaceae, is a large deciduous multipurpose timber tree. In our country, the plant is cultivated in forest plantation as well as avenue tree. On account of the greater strength, elasticity and durability, the wood is highly valued as constructional and general utility timber. The wood is used for furniture, agricultural implements, plywood industries, railway sleepers, musical instruments, tobacco pipes and is also suitable for making laminated skis. A decoction of the leaves is said to be useful in gonorrhoea and in excoriations. The roots are astringent and the wood is useful in cutaneous affection (Wealth of India, 1952). But mortality of sissoo tree has been observed during the last few years in and around Burdwan district of West Bengal. Trees from varying ages right from saplings to mature trees were found to be affected and considered as one of the major problems affecting afforestation in that area. The present studies were undertaken to report and investigate the cause of the disease and evaluate some fungicides against the pathogen under *in vitro* condition.

### MATERIALS AND METHODS

#### Survey of the infected area:

Recently, disease symptoms that resemble die-back disease were observed in sissoo tree of different ages in some areas of Burdwan

district, West Bengal. A survey was conducted to record the symptoms and severity of sissoo decline in the affected localities. To our knowledge, this is the first report of die-back on sissoo in West Bengal. Tissue samples from different portions of the diseased trees were collected.

#### Isolation of the pathogen:

Isolation of the pathogen was made from root and stem of the infected plants. For this purpose, the collected tissue samples were surface sterilized by 0.1% HgCl<sub>2</sub> for one minute followed by washing with sterilized distilled water. Then the tissues were placed on Potato dextrose agar (PDA) medium amended with antibiotics and incubated at 25°C for six days. The isolated fungi were identified with the help of the keys (Nagamani *et al.*, 2006) and they were maintained on PDA slant.

#### Pathogenicity test:

Healthy sissoo seedlings (8 – 10") were transplanted in the sterilized soil of the earthen pots. The pathogenicity of the isolated fungi was tested by making a longitudinal slit (2 cm) on the bark at the lower portion of the shoot of transplanted seedlings with a sterile knife. A piece of sporulating mycelial mat from 7 days old actively growing culture was inserted inside the bark through the slit and inoculated portion was covered with a sterile moist absorbent

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