

## ORCHID WILT INCITED BY *SCLEROTIUM ROLFSI* ON SOME INDIAN ORCHIDS

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During routine monitoring of orchid diseases at National Research Centre for Orchid (ICAR), Pakyong 737106, Sikkim a destructive disease was noticed. The disease was first found to infect pseudobulbs of *Coelogyne corymbosa* causing pseudobulb rot and death of entire plant in the community pot in the month of June 2001. The fungus was found later to infect several other orchid hosts as well. Some of the orchid hosts found to be affected by the disease during 2001-2002 at the Centre were as follows: *Coelogyne corymbosa*, *Spathoglottis sp.*, *Habenaria sp.*, *Aerides sp.*, *Dendrobium sp.*, *Eria coronaria* and *Cattleya sp.*

In all cases symptoms included basal rot of pseudobulbs, and leaves become yellow and detached from the pseudobulbs. Eventually, the entire plant would become dry and senescent. Numerous small brown-coloured sclerotia were observed on affected pseudobulbs and white mycelial growth was found associated with leaf bases.

To isolate and identify the causal agent, small pieces (1 cm) of diseased plant parts were surface sterilized with 1.0 % sodium hypochlorite for 1 minutes. Then they were dried by blotting with sterilized paper and incubated on Potato dextrose Agar (PDA) at 25-30° C for 5 days in petri dishes. Isolation was made from all infected orchid hosts. The fungus produced white mycelia with septate hyphae on PDA. Hyphae exhibited clamp connection at each septum. The fungus also produced numerous spherical or ellipsoidal (0.5-1.99 mm in diameter), white coloured sclerotia, which at maturity turned into brown colour. The dense mycelium covered the entire petri plate with abundant aerial hyphae, which sometimes touched the lid of plate. The fungus also produced white mycelial growth as well as sclerotia abundantly on host surface. The disease causing organism was identified as *Sclerotium rolfsii* Sacc. based on the morphological and cultural characters (Punjab, 1985). This pathogen was consistently isolated from these plants. Cultures of the fungus are maintained in the plant Pathology Section, National Research Center for Orchid (ICAR), Pakyong 737106, Sikkim, India.

For pathogenicity test, healthy test plants of the naturally diseased orchids (*Coelogyne corymbosa*, *Spathoglottis sp.*, *Habenaria sp.*, *Aerides sp.*, *Dendrobium sp.*, *Eria coronaria* and *Cattleya sp.*) were planted with sterilized potting mixture (charcoal + leaf mould) in pots. The inoculum of *Sclerotium rolfsii* was multiplied on sand maize media and 150 g of this culture was mixed with each of potting mixture in 15 cm plastic pot. The control treatment consisted of an uninoculated plant of each species. The pots were kept at natural weather conditions (26-30°C and 70-85% RH) with frequent watering. Only those plant species were used for pathogenicity tested, which were infected in orchid house naturally. After 20-35 days typical symptoms and sclerotia were seen on the host plants tested. Koch's postulates were successfully proved for the pathogen, *Sclerotium rolfsii*.

The disease was noticed after the annual reporting of the plant with newly collected leaf mould (from forest) as one of the component of the potting mixture. Regular careful observations also confirmed that the fungus was present on leaf mould heap and pits with actively growing mycelia and

numerous white (young) and brown (old) coloured sclerotia. This indicated that the fungus spread through leaf mould collected from forest or any other sources. More over the disease was noticed in orchids grown in community pots during warmer period i. E. June- August when temperature rose here at Pakyong, Sikkim (1300M mol) from 26-29 0 C and Relative Humidity (RH) ranged from 65-80%.

Sclerotium rolfsii has been reported to cause southern blight on *Cattleya*, *Phaius* *trankervilleae*, *Dendrobium*, *Spathoglottis plicata* and *Vanda* in the United States (Simone and Burnett, 2002), on *Phaius flavus* and *Paphiopedilum venustum* in India (Bag, 2003) but critical survey of Indian literatures confirms that there is no report of orchid disease caused by *Sclerotium rolfsii* on *Coelogyne corymbosa*, *Spathoglottis* sp., *Habenaria* sp., *Aerides* sp., *Dendrobium* sp, *Eria coronaria* and *Cattleya* sp. In India (Bilgrami et al., 1991; Madhu Meeta and Jindal, 1994; Sohi, 1992 and Sarbhoy et al., 1996). Therefore the present report constitutes as new report of orchid disease incited by *Sclerotium rolfsii* on *Coelogyne corymbosa*, *Spathoglottis* sp., *Habenaria* sp., *Aerides* sp., *Dendrobium* sp, *Eria coronaria* and *Cattleya* sp in India.

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