

Survival of *Mycosphaerella musicola* ascospores in banana leaves

N. THAMMAIAH, M.S. KULKARNI AND SRIKANT KULKARNI

See end of article for
authors' affiliations

Correspondence to :
N. Thammaiah
Department of Plant Pathology,
K.R.C. College of Horticulture,
ARABHAVI (KARNATAKA)
INDIA

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ABSTRACT

Low relative humidity during day followed by high relative humidity at night preserved germinability for longest periods and dischargeability was preserved longest at 53 per cent relative humidity during the day and at night 100 per cent relative humidity. At 75 per cent during day and 100 per cent relative humidity during night time preserved good germinability.

Key words : Survival, Germinability, Dischargeability,
Ascospores, Banana.

Banana (*Musa* sp) is one of the important tropical fruit crop. The crop is affected by several diseases caused by fungi, bacteria, viruses, nematodes and abiotic factors. Among these Sigatoka leaf spot caused by *Mycosphaerella musicola* ex. Mulder is most serious destructive disease in banana which results in drying and defoliation of leaves and premature ripening of fruits (Vala, 1996). Frossard (1963) reported that the viability of ascospores of *M. musicola* found on banana leaves could be stored in a refrigerator at 6°C atleast for one month.

MATERIALS AND METHODS

An experiment was conducted during 2002-2003 at K.R.C. College of Horticulture, Arabhavi. Banana leaves of the Rajapuri (AAB) cultivar infected naturally with *M. musicola* (Leach), were tested for the presence of viable ascospores. Small samples of infected leaf tissue bearing perithecia were removed, wetted and placed over slides coated with water agar. Those leaf specimens discharging abundant ascospores with 90 per cent or more germination were pooled, cut into one inch squares, thoroughly mixed and distributed among a set of humidity chambers consisting of desiccator jars with ground glass tops sealed with vasline.

Relative humidity in the chambers were maintained with saturated salt solutions as follows: Mg(NO₃)₂·6H₂O, 53 per cent ;NaCl, 75 per cent; NH₄H₂PO₄, 93 per cent;distilled water 100 per cent. Since the containers were stored at a room temperature of 26°C. Leaf pieces were removed from four of the chambers at two week intervals to test ascospore discharge and percentage germination on slides coated with water agar. Another

set of leaf pieces was removed from chambers at 53,75 and 93 per cent relative humidity each afternoon at 3.55 pm and placed in chamber of 100 per cent relative humidity until 8.30 pm the following day. This was done to stimulate alternating low day and high night relative humidity such as outdoors. Chambers of the continuous humidity treatment were also opened briefly daily for aeration and to make all treatments comparable. Ascospore stage of the banana leaf spot caused by *Mycosphaerella musicola* and its role in epidemiology was studied. Ascospores were produced in greatest numbers during the wet weather. Ascospore survival in different environments was studied to determine what happened to ascospores present in infected banana leaves during long periods of dry spell.

RESULTS AND DISCUSSION

Infectivity of ascospores is dependent on expulsion from the perithecia into moving air, deposition on a susceptible leaf surface, germination and leaf invasion under tropical climatic conditions (Arabhavi conditions).

Low relative humidity during day followed by high night relative humidity preserved the germinability for the longest period (Table 1). In 100 per cent relative humidity, the germinability decreased after 6 to 8 weeks and no germination was observed after 10 weeks of storage.

Even similar trend was observed on 93 per cent day relative humidity and 100 per cent night relative humidity decreased germinability after 8 weeks.

Germination was decreased rapidly from 6 weeks onwards and no germination was observed beyond 12 weeks in samples stored at 75 per cent relative humidity. The longest germinability of the spores were preserved in case of 53 per cent relative humidity during day time and 100 per cent relative humidity during night time.