A new leaf spot disease of Salvia leucantha Cav. from India

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Introduction

Salvia leucantha Cav. being a pretty straggling shrub is commonly grown in ornamental gardens in long borders and also in small tubs in green houses, because of its perennial growth habit and attractive violet flowers. During our visit to the gardens of the Karnatak University, Dharwar, a severe leaf spot disease of this shrub was noticed due to which the plants were subjected to severe defoliation. A careful microscopic examination of the infection spots revealed the presence of a Dematiaceous hyphomycete and was diagnosed as a species of *Corynespora* Gussow. As none of the species of *Corynespora* have been reported to cause disease to this host, a detailed investigation into this disease was therefore undertaken as presented here.

Symptoms (fig. 1)

The symptoms were found on leaves and petioles both young and old. In the initial stages, the infection spots were circular with necrotic white centre surrounded by dark brown margin. Later such spots enlarge considerably and become irregular measuring upto 2 mm; the necrotic area in the centre becomes ashy grey with distinctively characterised margin. In later stages such spots coalesce each other leading to the formation of patches. In severely infected plants, defoliation was the marked symptom and each leaf was found to have 15—35 infection spots. The tips of the leaves dry up and wither away.

Morphology and Identity of the Fungus (figs. 2 & 3)

Conidiophores dark-brown, septate, singly come out of the host epidermis, 60—310 × 3—4 µ. Conidia olivaceous brown, broader at the base and tapering at the tip, 4—18 celled, singly produced at the tip of Conidiophores, 40—200 × 6—18 µ.

A comparison with the related species of *Corynespora* revealed that the present fungus resembled *Corynespora cassiicola* in all the essential morphological characters. The diagnosis of species was further determined by the artificial inoculation on healthy leaves of *Vigna*

sinessis, Phaseolus mungo and *Glycine max* with rich conidial suspension, since this fungus is reported on these hosts and also other hosts by Olive et al (1945), Seaman et al (1969), Stone and Jones (1960), Addy and Mohanty (1960), Jone's (1961), Mohanty and Mahapatra (1968), Spencer and Walters (1969) and Fazalnoor et al (1971).

Methods and Results

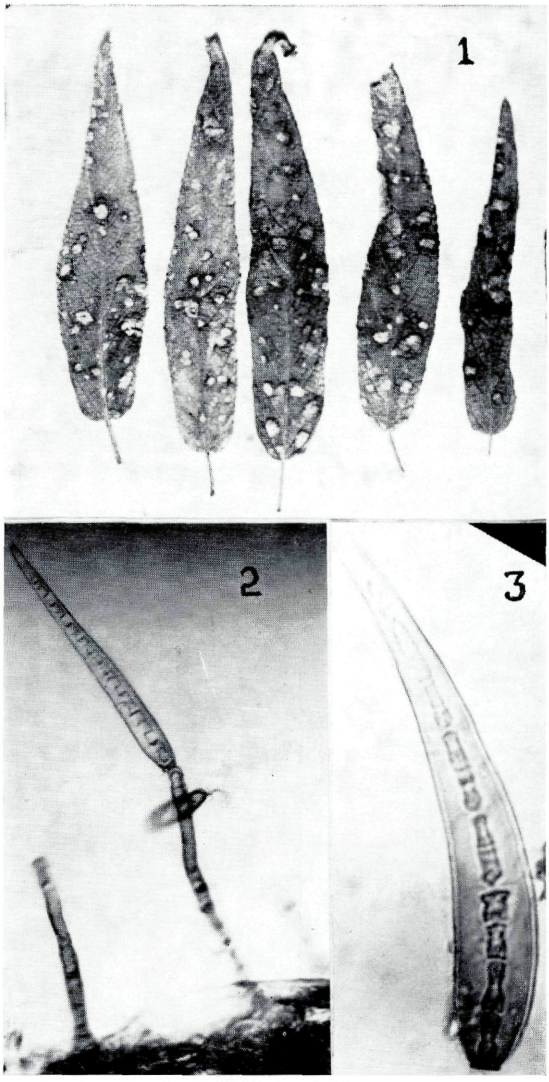
Isolation of the fungus: Infected leaves from the garden were collected, washed in sterile water, cut into small segments and surface sterilised in 0.1% mercuric chloride solution for 30 seconds. The segments were then rinsed for 2 minutes in each of four changes of sterile water to remove the mercuric chloride. Each segment was then plated in potato-dextrose agar and incubated at 27° C for 4 days. The fungus growth that had grown was picked separately with a flamed needle, isolated and identified. The morphological characters of conidia and conidiophores of the isolated fungus resembled to those of *C. cassiicola* obtained on the host leaves.

Pathogenicity test: The pathogenicity of the isolated fungus was tested in the laboratory conditions by growing the fungus on potato dextrose agar for 8 days at 27° C and incoulating the healthy leaves of *Salvia leucantha* plants grown in pots. Two methods were employed.

One and half month old healthy plants were selected which were free of fungal infection. Rich conidial suspension (prepared in sterile water) was sprayed on healthy leaves with the help of a hand automizer and the leaves were covered with paper bags.

In this case the healthy leaves were injured by Pin pricks and then were inoculated with conidial suspension of the fungus as described earlier. Equal number of healthy leaves were washed in sterile water in both methods and were kept as control; the leaves were duly covered with paper bags.

The infection was noticed in the former method after a week and the spots were manifested in the form of black specks and assumed the typical shape after a period of 15 days. So also the infection was noticed in the latter method after 5 days and the characteristic spots were seen after 11 days, thus proving the pathogenic nature of *Corynespora cassiicola*. The control leaves looked free of infection and healthy.



1. Leaves showing the infection spots. — 2. Photomicrograph showing conidiophore with conidium obtained from the host. — 3. Conidia (Enlarged view) obtained from host.

Cultural characters: The fungus made good growth on Potato dextrose agar medium at the Room temperature (27°—28° C) with diurnal light assuming the colony diameter 8 cm. in 9 days. The colonies were grey in colour with smooth margin and with slight aerial mycelium. Sporulation was abundant. In some Petridishes, sectors were observed.

Host range: The host range of the fungus was tested on some economically important field crops such as *Vigna sinensis, Phaseolus mungo, Glycine max* and was found to be pathogenic to these host plants.

Discussion

The results show that the fungus *Corynespora cassiicola* was the cause of leaf spot disease of *Salvia leucantha* Cav. The fungus isolated from this host caused infection on *Vigna sinensis, Phaseolus mungo* and *Glycine max* thus exhibiting its wide host range and highly parasitic nature.

On Potatodextrose agar the fungus produced sectors. Sectors were fan-shaped and vary in colour from white to dull green, in the former no sporulation and in latter rich sporulation compared to normal one. This sectoring may be due to the heterokaryotic nature of the conidia commonly observed in Deuteromyates.

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