

## Studies on *Elsinoë* and *Sphaceloma* Diseases of Plants in Maharashtra State (India) — VIII

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Since the publication of the previous paper, several collections of *Elsinoë* and *Sphaceloma* species parasiting plants in Maharashtra were studied, and in the present paper, three new species on some economic plants, and a new record on the custard apple *Annona squamosa* are being reported. The type material of the new species have been deposited at the Bureau of Plant Industry, Beltsville, Md. (B. P. I.) and Instituto Biologico Sao Paulo, Brazil (S. P. I. B.). The type culture of *S. spongamae* and that of *E. annonae* have been deposited at A. T. C. C., Rockville, Md., Centraalbureau voor Scimmelcultures, Baarn, Holland, and Mycology Division, I. A. R. I., New Delhi.

### 1. Scab disease of *Casearia tomentosa*

*Casearia tomentosa* Roxb., a small tree with greenish withe flowers, is widely distributed in deciduous forests of Maharashtra State. Scabbed leaves were collected from many different localities. Laboratory investigations on the pathogen revealed it to be a species of *Sphaceloma* not described so far. The fungus is presented as *Sphaceloma caseariae* Wani & Thirum. The description of the same is given below:

#### ***Sphaceloma caseariae* Wani & Thirum. sp. nov.**

Maculae foliicolae, majusculae, griseo-purpureae, amphigenae, dispersae, orbiculares vel angulosae, paulum elevatae, interdum coalescentes, 0.25 mm diam. Acervuli punctiformes, singulatim fusci gregatim rubrobrunnei, ellipsoidei vel oblongi, 17—29 × 27—48 μ. Conidiophora acervata, luteo-brunnea, continua, antice obtusa, 1.5—3 × 3—4 μ longa. Conidia non visa.

In foliis *Caseariae tomentosae* Roxb. Khandala 24 December, 1959 (Typus), Leg. D. D. Wani. Lanvala 10 October, 1960; Mahabaleshwar 8 January, 1962. Leg. D. D. Wani. B. P. I. No. 91585 S. P. I. B. No. 10140.

Infection spots on leaves are in the form of large greyish-purple patches, amphigenous and chiefly distributed in areas between lateral veins, sometimes concentrated along leaf margin. Individual spots,

\*) Part VII in Sydowia, Ann. Mycol. 1968 (in press).

small, circular to polygonal, slightly raised, coalescing with one another to form scabby lesions, 0.25–4 mm in diameter. Acervuli appearing macroscopically in form of raised dots in areas of coalescence, numerous, dark-reddish-brown, circular to elliptic, 17–29  $\mu$  high and 27–48  $\mu$  broad. Conidiophores compactly grouped in heaped up form, yellowish-brown, non-septate with rounded apex, 1.5–3  $\mu$  broad and 3–4.5  $\mu$  long. Conidia not seen.

## 2. Scab disease of *Lagerstroemia parviflora*

*Lagerstroemia parviflora* Roxb., is commonly found in hilly tracts of South India. The wood of the plant is valued for its timber and leaves are used for rearing tassar silk worms. The scab of host was first noticed on plants growing near Poona. Subsequently it was observed in various other localities, indicating its wide spread distribution in Maharashtra State. The fungus under study differs from *S. woodfordiae* Thirum. & Narasimhan, on *Woodfordia fruticosa* L. Kurz. from the same host family, both in type of symptoms produced and measurement of fruiting bodies. The description of the new species of *Sphaceloma* follows:

### *Sphaceloma lagerstroemiae* Wani & Thirum. sp. nov.

Maculae plerumque epiphyllae, sed etiam in petiolis et surculis tenuibus dispersae, saepissime secus nervos, orbiculares vel angulosae, griseo-albae, saepe aggregatae, 0.25–2 mm diam. Acervuli punctiformes, fuscii, ellipsoidei, fusco-brunnei, intraepidermales, erumpentes, 11–23  $\mu$  crassi, 27–55  $\mu$  diam. Conidiophora e stromate basali, orta dense aggregata, continua, sursum attenuata et acuminata, 4.5–9  $\mu$   $\times$  3  $\mu$ . Conidia globosa unicellularia, hyalina 1.5  $\times$  1.5  $\mu$ .

In foliis et surculis teneribus *Lagerstroemiae parviflora* Roxb. Leg. D. D. Wani (Type); Pimpri 20 September, 1960; 18 December, 1960; 9 January 1961; 14 January 1963 — Leg. D. D. Wani. B. P. I. No. 91589, S. P. I. B. No. 10146.

Infection spots chiefly epiphyllous, also occurring on petioles and younger shoots. On leaves the spots are scattered more often in-between lateral veins, circular to polygonal greyish-white with pale brownish margin, often aggregated to form larger spots by coalescing with one another, 0.25–2 mm in diameter and extending upto 4–5 mm in coalesced condition. On petioles and young shoots the spots are small, oblong, very often coalescent. Acervuli macroscopically not visible in individual spots, elliptic to lenticular, deep brown, intraepidermal, appearing subcuticular, after becoming erumpent, 11–23  $\mu$  high and 27–55  $\mu$  broad, producing conidiophores from basal stroma. Conidiophores, compactly grouped at the base diverging at apex giving spreaded appearance to the acervulus, non-septate with tapering apices, 4.5–

9  $\mu$  long and 3  $\mu$  broad. Conidia produced at the apices, spherical, hyaline, unicellular  $1.5 \times 1.5 \mu$ .

### 3. Spotted anthracnose disease of *Pongamia glabra*.

*Pongamia glabra* Vent., occurs throughout Maharashtra State along the banks of the rivers and rivulets. The plant is of great economic importance, since it yields many useful products. Anthracnose spotting of the leaves tender shoots and pods of the host plant have been noticed from many different localities. The pathogen in association with leaf rust *Ravenalia hobsoni* Cke., *Chaetothyrium pongamiae* Harris and *Phyllachora pongamiae* (Berk & Br.) P. Henn. causes severe damage to the young seedlings and in case of trees brings about early defoliation. Numerous chalky-white spots are the characteristic symptoms of the anthracnose disease. The host being a new genus for the pathogen *Sphaceloma*, it is proposed to be presented as *Sphaceloma pongamiae* Wani & Thirum. as described below:

#### *Sphaceloma pongamiae* Wani & Thirum. sp. nov.

Maculae anthracnosae in foliis et fructibus volutae, lureo-albae, amphigenae, 1—2 mm diam., vel aggregatae plus minusve confluentes et majores. Acervuli plures, intraepidermales, luteo-brunnei, 18—29  $\mu$  crassi, 22—45  $\mu$  diam. Conidiophora e stromate basali orta, dense aggregata, antice conica, 6—9  $\mu \times 3$ —4.5  $\mu$  lati. Conidia globosa, unicellularia hyalina, 1.5—1.5  $\mu$ .

In foliis et fructibus *Pongamiae glabrae* Vent., Vitthalwadi 24 January, 1959 (Type). Leg. D. D. Wani. Lonavala 5 November, 1960; Pimpri 8 January, 1962; Karad 14 January, 1963 Leg. D. D. Wani. B. P. I. No. 91573 S. P. I. P. 10130.

Infection spots on tender shoots and pods are small, numerous, more or less closely grouped, often coalescing with one another, forming greyish-white crusts. On leaves infection spots are numerous, scattered, less often closely grouped, chalky-white greyish-pink margin, amphigenous, conspicuous. Individual spots 1—2 mm in diameter, sparse or aggregated to form larger patches. Acervuli macroscopically visible in the centre of the individual spots as also in the areas of grouping in form of raised pin points, numerous, intraepidermal, to subcuticular, erumpent, Conidiophores developed from basal stroma, compactly grouped with one or two cross septa and conical apex, measuring 6—9  $\mu$  long and 3—4.5  $\mu$  broad. Conidia produced on small sterigmata, unicellular, spherical to oval,  $1.5 \times 1.5 \mu$ .

The fungus was isolated in pure culture on potato dextrose agar medium. Well grown culture incubated at 24° C shows a raised convolute type of growth heaped in the centre. The aerial mycelium is 'Citron green' in colour while submerged mycelium is fawn coloured. The organism produces red diffusible pigment and from reverse side

appears 'Crimson red' in colour. The mycelium is branched, septate producing large number of chlamydospores in older stages. Microconidia were not seen. ATCC. No. 15026.

#### 4. Scab disease of custard apple (*Annona squamosa* L.)

*Annona squamosa*, widely cultivated in Maharashtra State, also occurs wild in the dry forests of the State. Scab disease was first discovered severely attacking plants of *Annona squamosa* in the fields around Poona. A subsequent detailed survey revealed its presence in various other localities of the State. First observed in August, the disease prevails through January. Scab on this plant has not been reported heretofore from India. In tropical America the several *Annona* species parasitised include *A. squamosa*. As found in Maharashtra State in the conidial or *Sphaceloma* stage the pathogen of *A. squamosa* is described below:

##### *Elsinoë annonae* Bitanc. & Jenkins

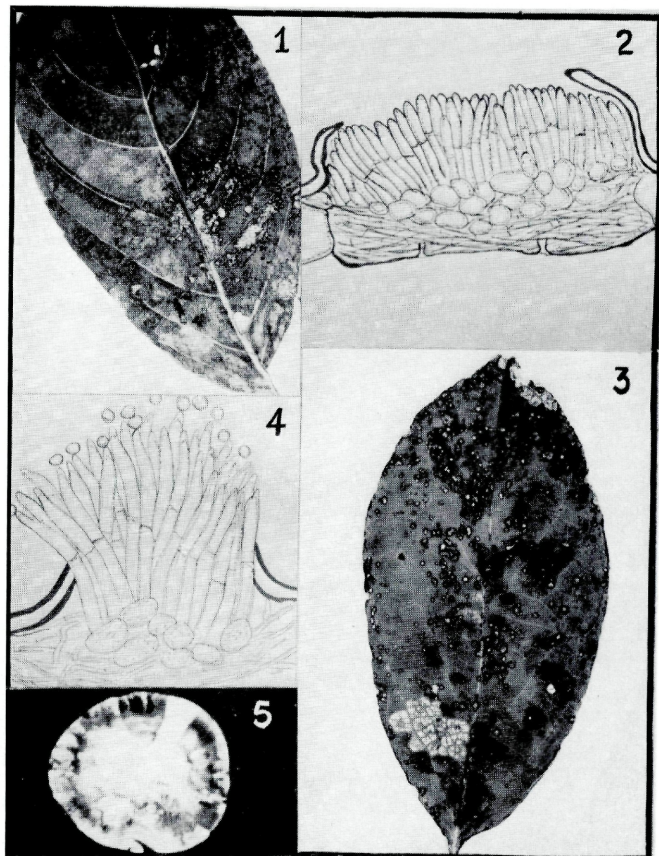
Leaf spots numerous, minute, 0.1—0.5 mm in diameter, epiphyllous, leaving dark areas on the back surface of the leaf, scattered or more often grouped along leaf margin, coalescing with one another in areas of grouping. Individual spots with 'Wood brown' margin and 'Greyish-pink' centre. Acervuli numerous, macroscopically visible in the areas of grouping in form of dark raised pin heads, intraepidermal, erumpent, small measuring 15—24  $\mu$  in height and 28—45  $\mu$  in breadth, producing conidiophores from the basal pseudoparenchymatous stroma. Conidiophores light-brown, crowded to form palisade-like structure, erect 4.5—9  $\mu$  long and 3—4.5  $\mu$  broad. Conidia not detected in the specimen material.

The pathogen was isolated in pure culture on potato dextrose agar medium. It produces raised cerebriform type of growth in culture, which is reddish-pink from above and deep red on the reverse side. The mycelium is branched but does not show any microconidia. However chlamydospores are produced in large numbers in aged cultures. ATCC. No. 15027.

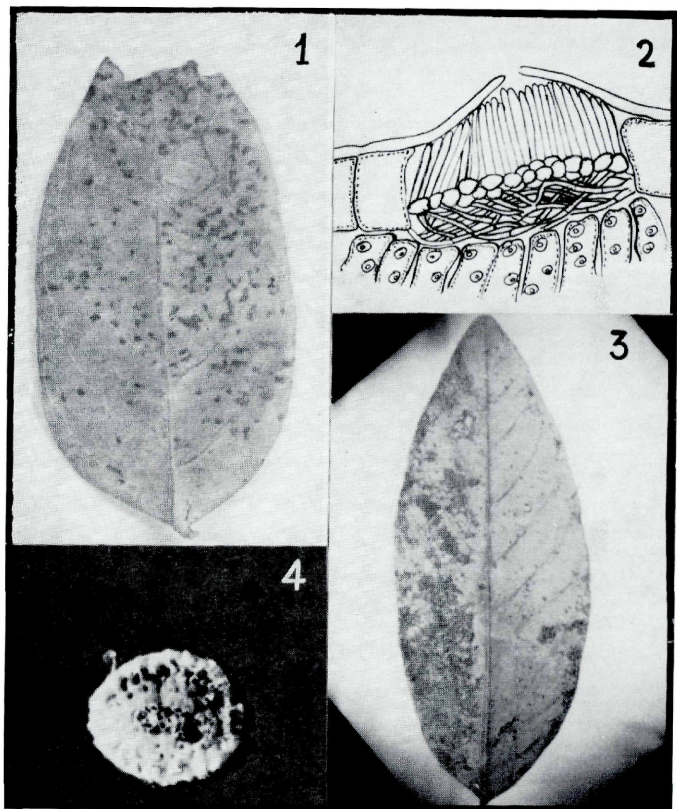
Habit: On leaves of *Annona squamosa* L., Shindewadi, 15 September 1958, Leg. D. D. Wani. Poona, 10 November, 1960; Pimpri, January, 1962; Parola 10 December, 1962, Leg. D. D. Wani, B. P. I. No. 91544, SPIB. No. 10101.

#### Literature

1. Bitancourt, A. A. and Jenkins, A. E., 1940: Novas especies de *Elsinoë* e *sphaceloma* sobre hospedes de importancia economica. — Arq. Inst. Biol. 11, 9: 45—58.
2. — and Jenkins, A. E., 1942: New discoveries of Myriangianguales in the America. Proc. Amer. Sci. Cong. 8th, Washington, 3: 157.











Explanation of Figures  
Plate VIII

- 1) Leaf of *Casearia tomentosa* showing infection — X nat. size spotting. —
- 2) Acervulus of *S. caseariae*.  $\times 600$ . — 3) Infected leaf of *Pongamina glabra*, nat. size. — 4) Acervulus of *S. pongamiae*,  $\times 450$ . — 5) Growth in artificial culture of *S. pongamiae*, nat. size.

Plate IX

- 1) Infected leaf of *Lagerstroemia parviflora*,  $\times$  nat. size. — 2) Acervulus of *S. lagerstromiae*,  $\times 600$ . — 3) Infected leaf of *Annona squamosa*, nat. size.—
- 4) Growth in artificial culture of *E. annonae*, nat. size.

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