

Studies on *Elsinoë* and *Sphaceloma* diseases of Plants in Maharashtra (India)-V

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*) Studies on *Elsinoë* and *Sphaceloma* diseases of plants in Maharashtra — IV. Sydowia (in press).

In the previous paper *) studies on *Elsinoë* and *Sphaceloma* diseases of plants in Maharashtra State with reference to their morphology of spore forms and characters in artificial cultures in a few cases were given. The present work is a continuation of those studies on three new *Sphaceloma* species and a new host record for *Sphaceloma terminaliae* Bitanc. The type material of new *Sphaceloma* species have been deposited in Mycological collections of Bureau of Plant Industry, Beltsville, Maryland, U.S.A.; Instituto Biologico, S'ao Paulo, Brazil and Herb. Crypt. Ind. Orient., New Delhi.

1) Scab disease of *Barleria gibsonii*.

Barleria gibsonii Dalz. is an ornamental shrub with large violet-pink flowers. It is distributed in Western Ghats and is also common in hilly places. Scab disease of this suscept was discovered from several localities. It affects leaves and stems, sometimes severely. A noticeable leaf symptom is the large chalky-white patches developed from initial small localised lesions. A spotted anthracnose or scab of *Barleria* or any other member of Acanthaceae has not been reported previously.

Sphaceloma barlericola Wani & Thirum. Sp. nov.

Infectionis maculae 2—5 cms. constantes a punctis foliiculis minutis, apparentes in forma seriei amplae calcareo-albae, saepe occurrentes in locis inter nervos laterales, vulgo epiphyllae, circulares vel irregulariter angulares, paulum depressae, producentes elevationem in pagina inferiore foliorum, 1—2 mm. diam. Acervuli apparentes up puncta accum fusca in infectionis maculis, plures, elliptici vel pyriformes, fusce brunnei vel brunneo-rubri, intra-epidermales, compacte aggregati, bicellares constrictione tenui ad septa transversa, rotundata ad apicum. 3—9 μ longi, 1.5—3 μ lati. Conidia non visa.

In foliis et caule *Barleriae gibsonii* Dalz., Mahabaleshar, 14 mensis martii anni 1958 (Typus). Leg. D. D. Wani. Lingamala fall mensis Januarii 1960, Leg. D. D. Wani.

Infection patches on leaves 2 to 5 cms., composed of numerous, small spots, appearing in form of chalky-white layers, often occurring in areas between lateral veins, epiphyllous in initial stages, later leaving dark areas on the back side. On stems spots are small, numerous, closely grouped forming crusts. Individual spots small, circular to angular, slightly depressed producing elevation on the lower side to the leaf, 1—2 mm. in diameter. Acervulli when viewed from above appear as dark raised pin heads, scattered over the infection patches, when seen in transverse section they are numerous, dark brown to brownish-red, elliptic to pyriform, intraepidermal, erumpent, 10—24 μ high and 30—62 μ broad. Conidiophores generally develop from basal stroma, light brown, compactly grouped like palisade, erect, 1 septate with slight constriction at the cross septum and rounded at apex, 3—9 μ long and 1.5—3 μ broad. Conidia not seen.

The pathogen when isolated on potato dextrose agar medium, showed raised, crustose type of growth. The surface of the colony is fluffy due to the production of cottony white aerial mycelium. Colonies appear deep red from above and reddish-brown from the reverse side. In early stages micro-conidia are produced while in aged colonies typical *Sphaceloma* stage and numerous chlamydospores are formed. B. P. I. No. 51549; S. P. I. B. No. 10106.

2) *Spotted anthracnose of Silk Cotton tree.*

Bombax malabaricum DC., a tall tree, has got prickly trunk and bright red flowers. It is distributed throughout the state and it produces number of products of commercial importance.

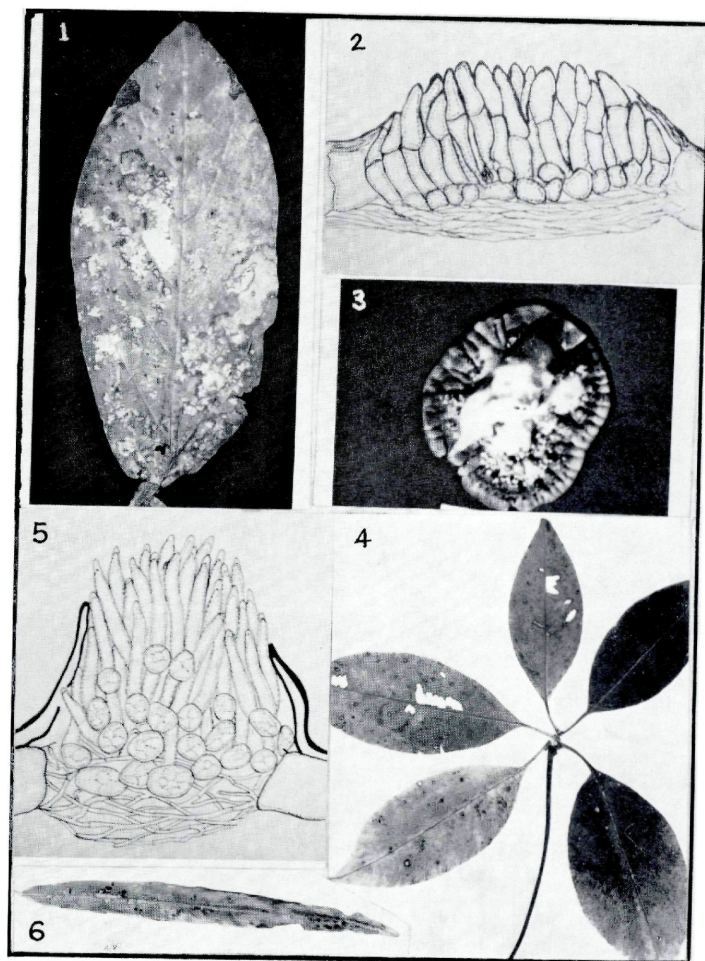
Anthrachnose spotting of leaves incited by a *Sphaceloma* species was discovered first on plants from Khandala and subsequently from many different localities. *Sphaceloma* or *Elsinoë* species, inciting disease on this host genus has not been reported heretofore.

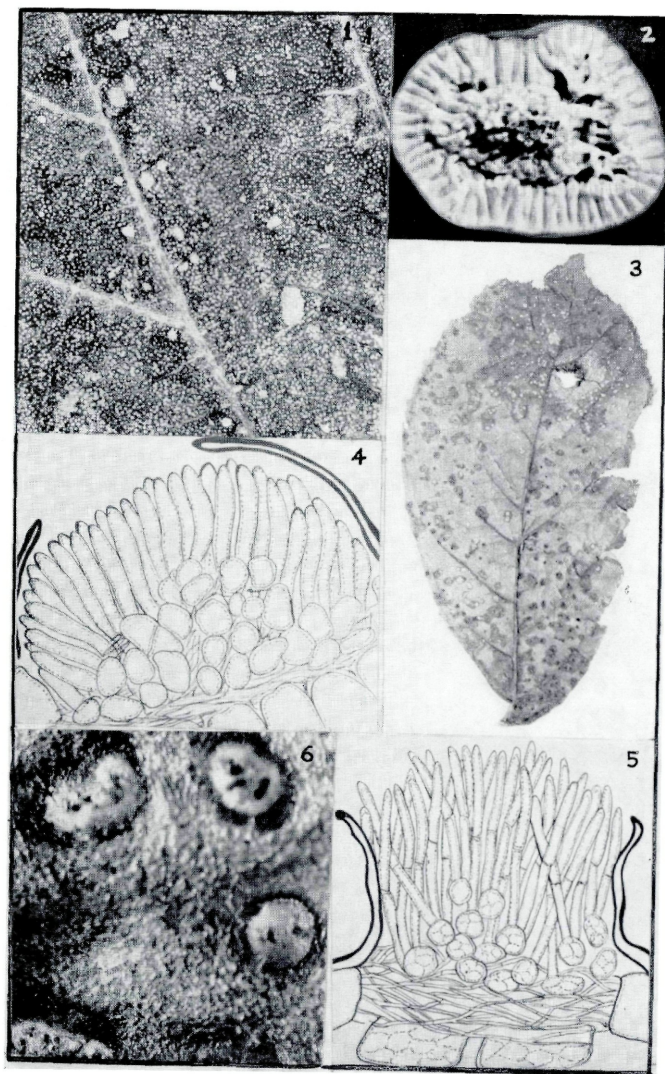
Sphaceloma bombacis Wani & Thirum. Sp. nov.

Infectionis maculae ut plurimum epiphyllae, plures, dispersae vel vulgo aggregatae secundum foliorum margines coalescentes inter se; maculae singulae paulum elevatae, circulares vel polygonales, marginibus 'Briar-wood' colore, centro cereo-albo, 0.5—2 mm. diam. Acervuli macroscopice distincti ut puncta elevata fusca, ovati vel ellipsoidei, intraepidermales, erumpentes, 18—35 μ alti, 30—75 μ lati, conidiophoris compacte aggregatis, paulum divergentibus ad apicem, non septatis, brunneo-rubris, 4.5—7 \times 3—4.5 μ . Conidia non visa.

In foliis et petiolis *Bombax malabaricum* DC. = *Salmaliae malabaricae* Sch. & Endl. Mahabaleshwar 24 Septembris anni 1959 (Typus); Leg. D. D. Wani, Khandala 25, Novemberis — 1961; Vitthaldwadi 15, Decemberis — 1962, Leg. D. D. Wani.

Infection spots chiefly epiphyllous, numerous, scattered, often





grouped along leaf margin, coalescent with one another in severe stages of infection. Individual spots slightly raised, circular to polygonal with 'Briar-wood' margin and wax-white centre, 0.5–2 mm. in diameter. Acervuli appearing macroscopically as dark raised pin-heads, ovate, ellipsoid, intraepidermal, erumpent, 18–35 μ high and 30–75 μ broad. Conidiophores compactly grouped, slightly divergent at apex and measuring 4.5–7 \times 3–4.5 μ . Conidia not seen. B. P. I. No. 91550, S. P. I. B. No. 10107.

3) Leaf scab disease of *Homonoia riparia*.

Homonoia riparia Lour., occurs along the river beds. It is ever-green shrub producing dioecious flowers in axillary spikes. Scabbing of the leaves of the suspect was discovered on plants from Vitthalwadi in 1960. Subsequent survey for the disease has shown its occurrence in many different localities from Maharashtra State.

Sphaceloma homonoiae Wani & Thirum. Sp. nov.

Infectionis maculae calcareo-albae, dispersae vel secundum nervum medium, polygonales vel irregulariter angulares, coalescentes inter se secundum nervum medium, 0.5–4 mm. diam. Acervuli plures, cinnamomeo-brunnei, intraepidermales, erumpentes 10–25 μ alti, 27–39 μ lati, constantes ex stromate basali quod producit conidiophoros, erectos, compacte aggregatos, paulum divergentes, pallide brunneos, non-septatos, 4.5–6 μ longos, 1.5–3 μ latos. Conidia non visa.

In foliis *Homonoiae ripariae* Lour. In Mutha fluminis alvo, Vitthalwadi 5, Mai 1960 (Typus). Leg. D. D. Wani; Khandala 15, Martii 1961; Phaltan 26, Martii 1963. Leg. D. D. Wani.

Infection spots appearing as 'chalky white' specks, scattered, more often running along midrib and veinlets forming scabby lesions by coalescence, epiphyllous, leaving dark areas on the lower surface of the leaf. 0.5–4 mm. in diameter, polygonal to irregularly angular. Conidial stroma acervular, intraepidermal in origin but later due to erumpence appear subcuticular, scattered largely over the surface of the scab, elliptic to oblong, 10–25 μ high and 27–39 μ broad, basal stroma giving rise to erect, compactly grouped conidiophores. Conidiophores slightly divergent at apex, light-brown non-septate, 4.5–6 μ long und 1.5–3 μ broad. Conidia not observed. B. P. I. No. 91562, S. P. I. B. No. 10119.

4) Anthracnose disease of *Terminalia arjuna*.

Terminalia arjuna W. & A., a large tree with dull-yellow flowers is widespread along river banks in hilly parts of Maharashtra State. The bark of the plant contains 20–25% of tannin. Anthracnose spotting of the leaves of the suspect was discovered on plants from Khandala and other localities from State. Laboratory studies of the pathogen have

revealed it to be identical with *Sphaceloma terminaliae* Bitanc. described on *T. catappa* from Brazil. Thirumalachar recorded it on *T. bellerica* (Gaertn.) Roxb. from Mysore. However, it is not recorded on this species.

Sphaceloma terminaliae Bitanc.

Anthraxose spots on petioles, leaves and stems. On leaves the infection spots are small, numerous, mostly restricted to veins and veinlets, closely grouped to form larger patches. On petioles and stems spots are elongated, closely grouped giving crustose appearance. Individual spots, small, raised, circular to polygonal, ashy-pink, 0.25–2 mm. in diam. Acervuli numerous in centre of individual spots or irregularly distributed in areas of grouping, intra-epidermal to subcuticular, erumpent, dark-brown, elliptic to pyriform, 24–36 μ high and 40–75 μ broad, composed of basal stroma and erect, cylindrical conidiophores, produced in closely appressed form, 4.5–9 μ long and 3–4.5 μ broad. Conidia and the ascigerous stage described by Reid on the susceptible genus were not detected.

On leaves, petioles and stems of *Terminalia arjuna* W. & A. Khadala, 24 September, 1960, Khopoli, 17 December, 1961, Bombay, 24 December, 1962, Leg. D. D. Wani. B. P. I. No. 91580, S. P. I. No. 10138.

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Explanation of Plate XI

Fig. 1. Infection spots of *S. barlericola* \times nat. size. — Fig. 2. Acervulus \times 1000. — Fig. 3. Growth in artificial culture \times 5. — Fig. 4. Infection spots of *S. bombacis* \times $\frac{1}{2}$ nat. size. — Fig. 5. Acervulus \times 1000. — Fig. 6. Infection spots of *S. homonoiae* \times nat. size.

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