

## **Selenophoma Kamatii sp. nov. from India**

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Young trees of *Eugenia jambolana* Lam. locally known as "jambol" growing in Poona were found excessively shedding their leaves during August—September 1962. Such affected leaves were brick red in colour with irregular, large necrotic areas, which, subsequently developed abundant pycnidia. Under the binocular the pycnidia were found to release glisening spore-masses through their ostioles in the form of whitish ooze. This interesting pycnidial fungus was later identified as a species of *Selenophoma*. Since this genus has been reported from India but only once a detailed study was made of the Poona collection of the fungus which appeared to be parasitic unlike most of the previously reported species.

The genus *Selenophoma* was established by Maire (1906) with *S. catananches* Maire as type, for a pycnidial fungus with allantoid to fusoid hyaline 1-celled pycnidiospores. Since then a large number of species of this genus have been described mainly from grass hosts, particularly by Petrak (1920—1955) and Sprague & Johnson (1940—45). Venterpool (1947) has reported *Selenophoma linicola* Venterpool from Saskatchewan on *Linum usitatissimum*. The genus has been considered a synonym of such varied genera as *Septoria*, *Falcispora*, *Rhodospora*, *Macrophoma*, *Phoma*, *Lunospora* and *Phyllosticta* by various workers.

The original description of the fungus genus made by Maire (1906) is inadequate in respect of the internal structure of the pycnidium and the manner of spore-formation. Recently Chona & Munjal (1956) have reported *Selenophoma eugeniae* Chona & Munjal as a saprophyte on *Eugenia operculata* Roxb. from New Delhi, India. This is thus the only record on *Eugenia* sp. No detailed description is available regarding the internal structure of the pycnidium and manner of formation of the pycnidiospores. No conidiophores were observed.

In view of the lack of adequate description of the fungus genus, its interesting nature, and a solitary Indian record, the Poona species was carefully studied in respect of its morphological characters, dimensions, internal structure of the pycnidium and cultural behaviour, a brief account of which is presented below.

Pycnidia have a broad central ostiole, through which spores were

seen to ooze out in the form of glissinging drops and when in contact with water in a cirrus they are typically flask-shaped, provided with a prominent dark coloured neck, opening to exterior by a broad ostiole. Pycnidiospores are formed in whorls over short bulbous conidiophores arising in tufts over a basal typically cushion-shaped "mound" of hymenial tissue, very similar in appearance to the structure described for the genus *Anthasthoopa* Subr. (Fig. 1, C).

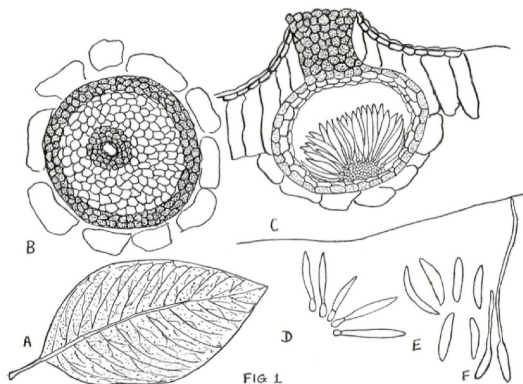


Fig. 1: *Selenophoma kamatii*. — A Habit. — B Pycnidium in surface view  $\times 264$ . — C L. S. of Pycnidium  $\times 264$ . — D Conidiophores and Conidia  $\times 440$ . — E Conidia  $\times 440$ . — F Germinating conidia  $\times 440$

The fungus was readily brought in culture through dilution technique and made good and rapid growth on P. D. A. producing a colony of  $1\frac{1}{2}$ —2 mms. in 2—3 days.

Mycelium submerged to sub-aerial, scanty, usually radial ashy-white. Pycnidial fommation was rapid and fairly good at end of 48 hours and profuse at the end of 7 days. They are in characteristic concentric rings, typically flask-shaped morphologically similar to those from host, but were almost twice as big as on host ( $190$ — $357 \mu$ ). Fresh conidia germinated very capriciously without developing any septation as was observed by Vanterpool (1947) in old spores.

It is very clear from the morphological characters of the pycnidium and its internal structures and above all non-development of septa during germination of spores that the Poona fungus is a typical species of *Selenophoma* Maire. A detailed comparison was therefore, undertaken in respect of pycnidial and conidial dimensions between the Poona

species of *Selenophoma* obtained from *Eugenia jambolana* Lam. and *Selenophoma eugeniae* Chona & Munjal, the results of which are tabulated below:

Species	Pycnidial characters	Pycnidia $\mu$	Pycnidio- spores $\mu$	Neck $\mu$	Authority
<i>Selenophoma eugeniae</i>	Globose to pitcher shape with a protruding ostiole	98—182 × 98—210 $\mu$	15—19 × 3 $\mu$	—	Chona & Munjal (1956)
<i>Selenophoma</i> sp.	Flask-shaped with a prominent neck, opening to exterior	92—148 × 182—260 $\mu$	21—30 × 3.5 $\mu$	42—71.4 × 37—63 $\mu$	Author

The measurements of the Poona species given above are from host. In culture the pycnidia and the pycnidial neck are much bigger than those obtained from host viz. 190—357  $\mu$  and 63—84 × 68—126  $\mu$  respectively.

The morphological characters of the Poona species described above, the typical flask-shaped pycnidia, the presence of a prominent neck opening to exterior through the host, the significantly bigger dimensions of pycnidia and pycnidiospores and the characteristic manner of formation of conidiophores and conidia clearly justify a separate taxon to the Poona species which is therefore, described as a new species with Latin diagnosis:

***Selenophoma kamatii* sp. nov. Kalani.**

Maculae dispersae, irregulares, indeterminatae, amphigenae, cocci-  
neae, pycnidia plerumque hypophylla, dispersa, subepidermalia, depresso-  
globosa, 92—148 × 180—260  $\mu$ , ostiolo breviter cylindraceo, apice plus  
minusve truncato, 42—71  $\mu$  longo, 38—63  $\mu$  crasso, poro rotundato per-  
forato punctiformiter erumpentia; pariete carbonaceo, pseudoparen-  
chymatico, crassiusculo; conidia fusioidea, plus minusve allantoidea vel  
lenissime curvula, utrinque plus minusve attenuata, obtusiuscula vel  
subacuminata, hyalina, continua, 21—30 × 3.5  $\mu$ ; conidiophora stratum  
basale pseudoparchymaticum obtegentia, bevissime cylindraceo-bulbosa,  
continua.

Infection spots indefinite, amphigenous, brick-red, Pycnidia dark  
brown to black, chiefly hypophyllous, scattered, profuse, flask-shaped,  
provided with a prominent neck opening through host tissue by a broad  
ostiole, subepidermal, carbonaceous, leathery, thick-walled, 92—148 ×  
182—260  $\mu$ . Neck dark-coloured, 42—71 × 38—63  $\mu$ , ostiole broad, pro-  
truding out, 16.2 × 21  $\mu$ .

Conidiophores bulbous, hyaline, 1-celled, arising in tufts from a cushion-shaped, basal "mound" of tissue. Conidia 1-celled, hyaline, allantoid to fusoid, slightly curved,  $21-30 \times 3.5 \mu$ , released in a cirrus through ostiole.

Incites defoliation in *Eugenia jambolana* Lam. collected by Miss I. K. Kalani in Aug.—Sept. 1962 at Poona, India, M. A. C. S, Herb. No. 133.

*Selenophoma kamatii* is thus a 2nd record from India and the genus an addition to the fungi of Bombay, Maharashtra. The type is being deposited at C. M. I., Kew, England and Herb. Orientalis, New Delhi, India.

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Artikel/Article: [Selenophoma Kamatii n.spec. from India. 203-206](#)