

## Two new *Schiffnerula* Höhn species from India

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### Abstract

During the study of foliicolous fungi in the palode forests of Thiruvananthapuram district Kerala state, collections of *Sarcinella catharanthi* on *Catharanthus roseus* and *S. fumosa* on *Aegle marmelos* revealed their ascigerous states. Since the teleomorph supersedes anamorph, these two taxa have been described and illustrated as new species, namely, *Schiffnerula catharanthi* and *Schiffnerula girijae*, respectively.

**Keywords:** black mildew, foliicolous fungi, India, new species, *Sarcinella*, *Schiffnerula*

### INTRODUCTION:

The genus *Schiffnerula*, a member of the family Englerulaceae (Arx & Muller, 1975) is characterized by the ectophytic brown mycelium with lateral unicellular appressoria. Thyrothecia are similar to Asterinaceae members; but the upper portion dissolves and the globose asci are exposed. The affinity of the genus *Schiffnerula* is more towards Asterinaceae than Engluraceae because of its scutate fruiting with the upper radiating cells. The genus *Schiffnerula* is pleiomorphic in nature and has *Digitosarcinella*, *Mitteriella*, *Questieriella* and *Sarcinella* as its synanamorphs. The genus *Clypeolella* has become synonymous to it (Hughes 1983, 1984, 1987).

During the survey of the foliicolous fungi in the Palode forests of Thiruvananthapuram district in Kerala state, authors made several collections and of which the following two taxa belonging to the genus *Schiffnerula* were found new and are described and illustrated here in detail.

*Schiffnerula catharanthi* Hosagoudar et Archana, sp. nov. (Plate-1, Fig.-1)

Anamorph: *Sarcinella catharanthi* Hosag. & H. Biju, J. Econ. Taxon. Bot. 28: 198, 2004.

Coloniae epiphyllae, densae, ad 4 mm on diam., confluentes. Hyphae subrectae vel flexuosae, opposite, alternatim vel irregulariter acuteque vel laxe ramosae, laxe vel arte reticulatae, cellulae 11-21 x 3-7 µm. Appressoria alternata, opposita, unilateralis, globosa, ovata, integra, 6-12 x 6-10 µm. Conidia *Questieriella* plerumque disconnecta, germinationis, pallide lutea,

ellipsoidea, curvula, 3-septata, attenuata ad ambi terminalis, acuta vel late roundata ad apicem, 28-35 x 8-12 µm. Conidia *Sarcinella* producentes conidiophoris, conidiophora hyphis lateralis, simplices, recta, flexuosa vel curvula, 0-3 septata, 9-24 x 6-8 µm; cellulae conidiogenae integratae, plerumque terminalis, saepe intercalariae, rectae vel curvulae, pallide luteae, monoblasticæ, determinatae; conidia simplices, solitaria, acrogena, glabra, sarciniformis, 2-8 cellula, constrictus ad septata, nigra, 25-32 x 20-29 µm. Thyrothecia dispersa vel aggregata, orbicularis, ad 85 µm in diam.; asci ovati, clavati, octospori, 19-25 x 20-26 µm; ascosporae oblongae, congregatae, brunneae, uniseptatae, constrictus ad septatae, 17-24 x 6-11 µm, parietus glabrus.

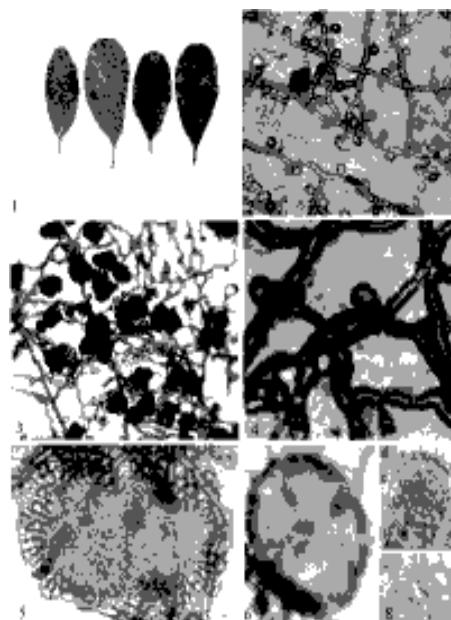
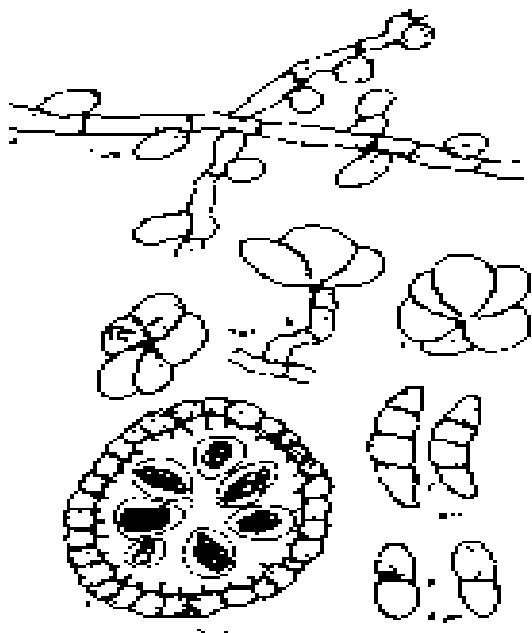


Plate 1. *Schiffnerula catharanthi* sp.nov.

1. Infected leaves, 2. Appressoriate mycelium,
3. *Sarcinella* conidia, 4. Germinating *Questieriella*
5. Thyrothecium, 6. Thyrothecium with exposed ascii,
7. Ascus, 8. Ascospore

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Colonies epiphyllous, dense, up to 4 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite, alternate to irregular at acute to wide angles, loosely to closely reticulate, cells 11-21 x 3-7  $\mu\text{m}$ . Appressoria alternate, opposite, unilateral, globose, ovate, entire, 6-12 x 6-10  $\mu\text{m}$ . *Questieriella* conidia mostly detached, scattered in the colonies, germinating, pale yellow, ellipsoidal, curved, 3-septate, attenuated at both ends, acute to broadly rounded at the tip, 28-35 x 8-12  $\mu\text{m}$ . *Sarcinella* type of conidia borne on conidiophores, conidiophores produced laterally from the hyphae, simple, straight, flexuous to curved, 0-3 septate, 9-24 x 6-8  $\mu\text{m}$ ; conidiogenous cells integrated, mostly terminal, often intercalary, straight to curved, pale yellow, monoblastic, determinate; conidia simple, solitary, acrogenous, smooth, sarciniform, 2-8 celled, constricted at the septa, charcoal black, 25-32 x 20-29  $\mu\text{m}$ . Thyrothecia scattered to grouped, orbicular, up to 85  $\mu\text{m}$  in diam.; asci ovate, clavate, octosporous, 19-25 x 20-26  $\mu\text{m}$ ; ascospores oblong, conglobate, brown,



**Figure 1.** *Schiffnerula catharanthi* sp.nov.

- a. Appressoriate mycelium
- b. Conidiophore of *Sarcinella*
- c. Conidia of *Sarcinella*
- d. Conidia of *Questieriella*
- e. Thyrothecium with exposed asci
- f. Ascospores

uniseptate, constricted at the septum, 17-24 x 6-11  $\mu\text{m}$ , wall smooth.

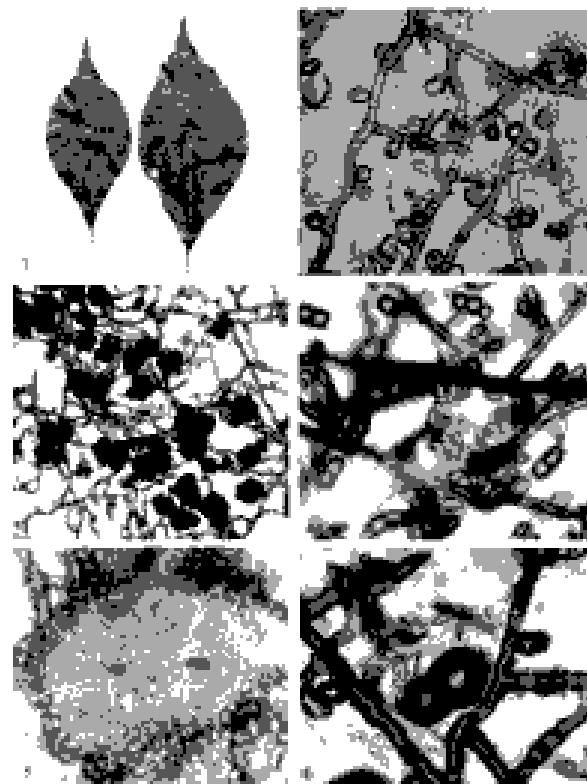
**Materials examined:** On leaves of *Catharanthus roseus* (L.) G. Don (Apocynaceae), Karimancode, Palode, Thiruvananthapuram, Kerala, Jan. 21, 2008, G.R. Anjana HCIO 49290 (holotype), TBGT 3535 (Isotype); TBGRI Campus, Palode, Aug. 8, 2001, H. Biju HCIO 44135 (Holotype of anamorph), TBGT 514 (Isotype of anamorph).

The present collection revealed its teleomorph. The specific epithet is after its host.

*Schiffnerula girijae* Hosagoudar et Archana, sp. nov.  
(Plate 2; Fig.2)

Anamorph: *Sarcinella fumosa* Sahni, Mycopath. Mycol. Appl. 23: 328-338, 1964; Hosag., Zoos' Print Journal 18(4): 1076, 2003.

Coloniae hypophyliae, crustosae, subdensae, ad 3 mm diam., confluentes. Hyphae subrectae vel flexuosaes, opposite, alternate vel irregulariter acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 8-32 x 3-5  $\mu\text{m}$ . Appressoria alternata, opposita vel unilateralis, sessilis, globosa, ovata, integra, 6-11 x 6-10  $\mu\text{m}$ . Conidia *Questieriella* dispersa, pallide brunnea, fusiformis, curvula, 3-septata, constrictus ad septata, attenuata ad ambi apicem, 24-39 x 6-9  $\mu\text{m}$ . Conidiophora *Sarcinella* micronemata, simplices, ramose, recta vel flexuosa, pallide brunnea, 0-2 septata, 8-20 x 3-8  $\mu\text{m}$ ; cellulae conidiogenae monoblasticae, integratae, plerumque terminalis, cylindraceus; conidia solitaria, sicca simplices, subspherica vel sarciformis, 2-8 cellula, brunnea ad initio, nigra ad maturitata, sarcinatim septata, constrictus ad septata, 16-40  $\mu\text{m}$  diam. Thyrothecia pauca, orbicularis, ad 90  $\mu\text{m}$  diam.; asci globosi, octospori, 16-25 x 11-16  $\mu\text{m}$ ; ascosporeae

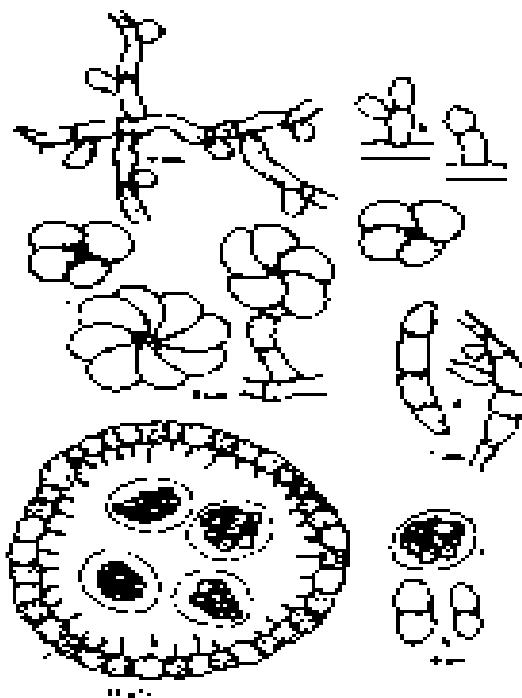


**Plate 2.** *Schiffnerula girijae* sp.nov.

1. Infected leaves
2. Appressoriate mycelium
3. *Sarcinella* conidia
4. Germinating *Questieriella*
5. Thyrothecium
6. Ascospore

oblongae, conglobatae, brunneae, uniseptatae, constrictus ad septatae, 16-24 x 8-10 µm, parietus glabrus.

Colonies hypophylloous, crustose, subdense, up to 3 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite, alternate to irregular at acute to wide angles, loosely to closely reticulate, cells 8-32 x 3-5 µm. Appressoria alternate, opposite to unilateral, sessile, globose, ovate, entire, 6-11 x 6-10 µm. Conidia of *Questieriella* scattered, pale brown, fusiform, curved, 3-septate, constricted at the septa, tapering towards both ends, 24-39 x 6-9 µm. *Sarcinella* conidiophores micronematous, simple, branched, straight to flexuous, pale brown, 0-2 septate, 8-20 x 3-8 µm; conidiogenous cells monoblastic, integrated, mostly terminal, cylindrical; conidia solitary, dry, simple, subspherical to sarciniform, 2-8-celled, brown when young, carbonaceous black at maturity, sarcinately septate, constricted at the septa, 16-40 µm in diameter, wall



**Figure 2.** *Schiffnerula girjae* sp.nov.

a. Appressoriate mycelium, b. Conidiophore of *Sarcinella* conidia, c. Conidia of *Sarcinella*, d. Conidia of *Questieriella*, e. Thyrothecium with exposed asci, f. Ascus, g. Ascospores.

smooth. Thyrothecia few, orbicular, up to 90 µm in diam.; asci globose, octosporous, 16-25 x 11-16 µm; ascospores oblong, conglobate, brown, uniseptate, constricted at the septum, 16-24 x 8-10 µm, wall smooth.

**Materials examined:** On leaves of *Aegle marmelos* (L.) Corr. (Rutaceae), Karimancode, Palode, Thiruvananthapuram, Kerala, Jan. 8, 2008, K. Girija HCIO 49292 (holotype), TBGT 3537 (Isotype); TBGRI

campus, Palode, Dec.18, 2000, H. Biju HCIO 46275, TBGT 1921; Jan.17, 2001, H. Biju HCIO 46127, TBGT 1890; June 21, 2001, M. Kamarudeen HCIO 44205, TBGT 583.

The specific epithet is after its collector.

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