A NEW SPECIES OF *SEPTOCYTA* PETRAK, FROM INDIA

D. K. PUROHIT and G. C. CHAWLA
Department of Botany, University of Jodhpur, Jodhpur 342 003, India.

DURING a survey of Coelomycetes from Mount Abu in October 1985, the authors collected dead twigs of *Rosa indica* L. bearing black fruiting bodies. On examination it was found to be a species of *Septocyta* Petrak. *Septocyta ruborum* (Lib) Petrak, the only species previously described in this genus occurs in Australia and UK on stems of *Rubus plicatus*, *R. sulcatus*, *R. fruticosus* and *Rubus* sp[1,2]. The present species differs from *S. ruborum* in size shape and septation of conidia (table 1). Therefore, it is described here as *Septocyta rosarum* sp. nov. a new species.

Conidiomata eustromatis, primum immersa postremo erumpentia, dispersa, unilocularis-pluriloculari, nonostiolata, brunnea-nigri, 220-275 μ diam, parietibus ex strato externo subscleritico et interno, pseudoparenchymato compositis, cellulae conidiogenae ex cellulis supernis stromatis formata, holoblasticae, sympodiales, indeterminatae, ampulliformes vel lageniformes, haud ramosa, hyalina, levia, 5.4–8.1×2.7–5.4 μ. Conidia cylindracea vel subcylindracea, leniter curvatae, apicibus rotundatis, basibus truncatis, plerumque 1-septata raro 2-3 septata, hyalina, levia 27–40.5×2.7–4.05 μ.

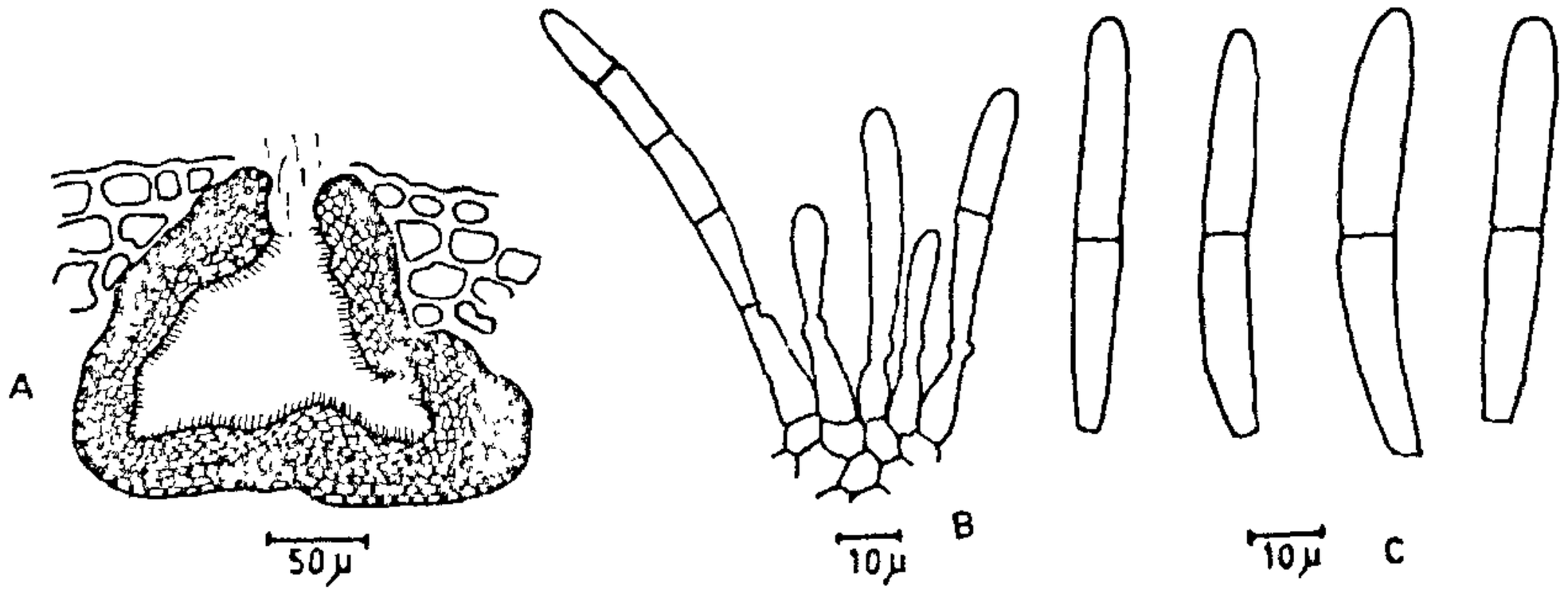
Conidiomata eustromatic, immersed at first and then erumpent, scattered, unilocular to multilocular, nonostiolate, brown-black, 220-275 μ diam, with almost sclerotioid outer wall layers, pseudoparenchymatous inner wall layers, (figure 1A). Conidiogenous cells arising from the upper cells of the stroma, holoblastic, sympodial, indeterminate, ampulliform or lageniform, unbranched, hyaline, smooth-walled, 5.4–8.1×2.7–5.4 μ (figure 1B). Conidia cylindrical or subcylindrical, slightly curved, with a rounded apex and a truncate base, mostly 1-septate, rarely 2–3 septate, hyaline, smooth walled 27–40.5×2.7–4.05 μ (figure 1C).

Collected from dead twigs of *Rosa indica* L, October 1985, Coll. No. JUML-36. Type specimen deposited with CMI, Kew, Herb. IMI-298832.

This is the first record of this genus from India and from this host[3–5].

Table 1 *Comparison of S. ruborum* and *S. rosarum**

Species	Host	Conidial-shape	Conidial size	Conidial septation
S. ruborum	*Rubus plicatus* and *R.* sp.	Acicular straight or curved	31–32×1.5 μ	1-3-Septate, mostly 3–septate
S. rosarum	*Rosa indica*	Cylindrical to subcylindrical, straight or curved	27–40× 2.7–4.05 μ	Mostly 1–septate, rarely 2–3–septate



Figures 1A-C. Camera lucida drawings of **A.** Conidiomata; **B.** Developing Conidia; **C.** Conidia.

The authors are grateful to Dr B. C. Sutton and Dr E. Punithalingam, CMI, Kew, for help in the identification of the fungus and to UGC, New Delhi for financial help.

2 March 1987

1. Petrak, F., *Sydowia*, 1968, **21**, 240.
2. Sutton, B. C., *The Coelomycetes*, CMI, Publication, 1980, p. 247.
3. Bilgrami, K. S., Jamaluddin and Rizwi, M. A., *Fungi of India, Part I*, Today and Tomorrow's Printers and Publishers, New Delhi, 1979.
4. Bilgrami, K. S., Jamaluddin and Rizwi, M. A., *Fungi of India, Part II*, Today and Tomorrow's Printers and Publishers, New Delhi, 1981.
5. Mathur, R. S., *The Coelomycetes of India*, Bishan Singh, Mahendra Pal Singh, Dehradun, 1979.

PURE CULTURE SYNTHESIS OF *PINUS PATULA* ECTOMYCORRHIZAE WITH *SCLERODERMA CITRINUM*

K. KANNAN and K. NATARAJAN*

Department of Botany, A. V. V. M. Sri Pushpam College, Poondi 613 503, India.
**CAS in Botany, University of Madras, Madras 600 025, India.*

MYCORRHIZAE or fungus-root associations are the norm for most vascular plants[1]. The relationship between the fungus and the host is a symbiotic one, the fungus helping the host by increased water and nutrient uptake, affording tolerance to drought, soil toxicity, extreme pH and protection against root pathogens and in return the fungus obtains from the host simple sugars and vitamins[2].

Mycorrhizae are generally divided into two main groups the ectomycorrhizae and the endomycorrhizae. The forest trees like pines form ectomycorrhizal association with their fungal symbionts and the fungi forming ectomycorrhizae are primarily Agaricales and Gasteromycetes. Among the mycorrhiza forming Gasteromycetes, much work has been carried out mainly with *Pisolithus tinctorius* in USA and with *Rhizopogon* spp. in Australia and South Africa[2] and only meagre information is available on the formation of pine mycorrhiza with *Scleroderma aurantium*[3], a synonym of *Scleroderma citrinum* Pers.

S. citrinum has been shown to be in mycorrhizal association with many species of *Pinus*, but *Pinus patula* is not one among them[4]. The occurrence of *S. citrinum* in India has been reported earlier[5]. The occurrence of fruitbodies of this species in large numbers in *P. patula* plantations of Kodaikanal, indicates that it is probably a mycorrhizal former with this tree. As Melin[6] and Modess[7] have considered that presumed hyphal connections between the sporophore and the host plant could not be taken as a proof for mycorrhizal association and only synthesis experiments under controlled conditions can furnish conclusive proof for the mycorrhiza-forming ability of a given fungus, pure culture synthesis of mycorrhiza of *P. patula* was attempted with *S. citrinum*.

The mature fruitbodies of *S. citrinum* were collected and the mycelial cultures were isolated from the surface-sterilized aseptically germinated basidiospores on Hagem's agar medium[7] and subsequently subcultured on the same medium in petri plates. Mycelial plugs were cut from the growing margin of a 21-day-old colony of the fungus and were aseptically transferred to sterilized 250 ml Erlenmeyer flasks, each containing glass beads and 100 ml of Melin-Norkrans' solution[8] and were placed in thermostatically controlled (temp. at 25 ± 1°C) rotary shaker to obtain mycelial suspension.

Seeds of *P. patula* were aseptically germinated and grown following the procedure of Ekwebelam[9]. Seeds were surface-sterilized in 30% H_2O_2 for 1 hr, repeatedly washed in sterile distilled water, aseptically transferred to petri plates containing Hagem's agar[7] and incubated at 25 ± 1°C in dark. Seedlings (2 cm long) were aseptically transferred to previously sterilized 500 ml Erlenmeyer flasks, each containing 30 g of vermiculite moistened with 120 ml of nutrient solution[9]. Each flask was inoculated with a single seedling. The seedlings were grown in a growth chamber at 20 ± 1°C with 16 hr photoperiod with light intensity at 1000 lux using cool-day tubelights.

After two months growth, the seedlings were inoculated with mycelial suspension of *S. citrinum*, 10 ml per flask. At the same time, 20 ml of Melin-Norkrans' solution[8] were added aseptically into each flask. Two months after inoculation, the seedlings were removed from the flasks, their roots washed with water and the cleaned roots were examined for the presence of mycorrhiza by using a binocular zoom stereoscopic microscope. Mycorrhizal roots were fixed in formalin-propiono-alcohol, embedded in paraffin, microtomed and 10 μm thick sections were double stained with safranin-