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A NOTE ON THE EXISTENCE OF EXOCORTIS VIRUS IN INDIA

TILL now the existence in India of two citrus virus diseases, viz., Tristeza complex and Greening has been experimentally proved.^{1,2} In this note the existence of a new citrus virus disease, viz., Exocortis virus, is reported.

During periodical observations of the Musambi root stock trials laid out in the orchard of the Citrus Die-back Scheme, Shrirampur, bark of Rangpur lime (*Citrus limonia*, Osbeck) stock (Plant No. 10/13 of Replication II) bearing a top of Ganeshkhind Musambi (*C. sinensis*, Osbeck) was found to be scaled (Fig. 1). The scaling starts on the trunk from the bud joint and proceed downwards. This scaling is not accompanied with brown rot and gummosis caused by *Phytophthora* sp. Scaling of bark of Rangpur lime is the most prominent symptom of the disease caused by Exocortis virus. None of the other trees of Rangpur lime bearing a top of Musambi showed bark scaling.

With a view to establishing the existence of Exocortis virus in the tree under reference, it was indexed in November, 1966 on potted 1-year-old Rangpur lime seedlings grown in insect-free cages. Each pot contained four seedlings, three of which were inoculated with buds taken from the tree showing bark scaling and the fourth seedling was kept as control. Thus 12 Rangpur lime seedlings in four pots were bud-inoculated and the pots were kept for observations in the greenhouse of the scheme. Inoculated as well as uninoculated seedlings were cut back 20 days after inoculation and the new growth was observed periodically.

In April 1967, 6 of the 12 inoculated seedlings showed yellow patches on twigs followed by splitting of bark which ultimately scaled out. Deposition of gum was observed in places where bark had scaled out. These symptoms were similar to those observed by

Moreira³ who demonstrated the use of Rangpur lime as a fast indicator of Exocortis virus. Not a single control uninoculated seedling developed the above-mentioned symptoms.

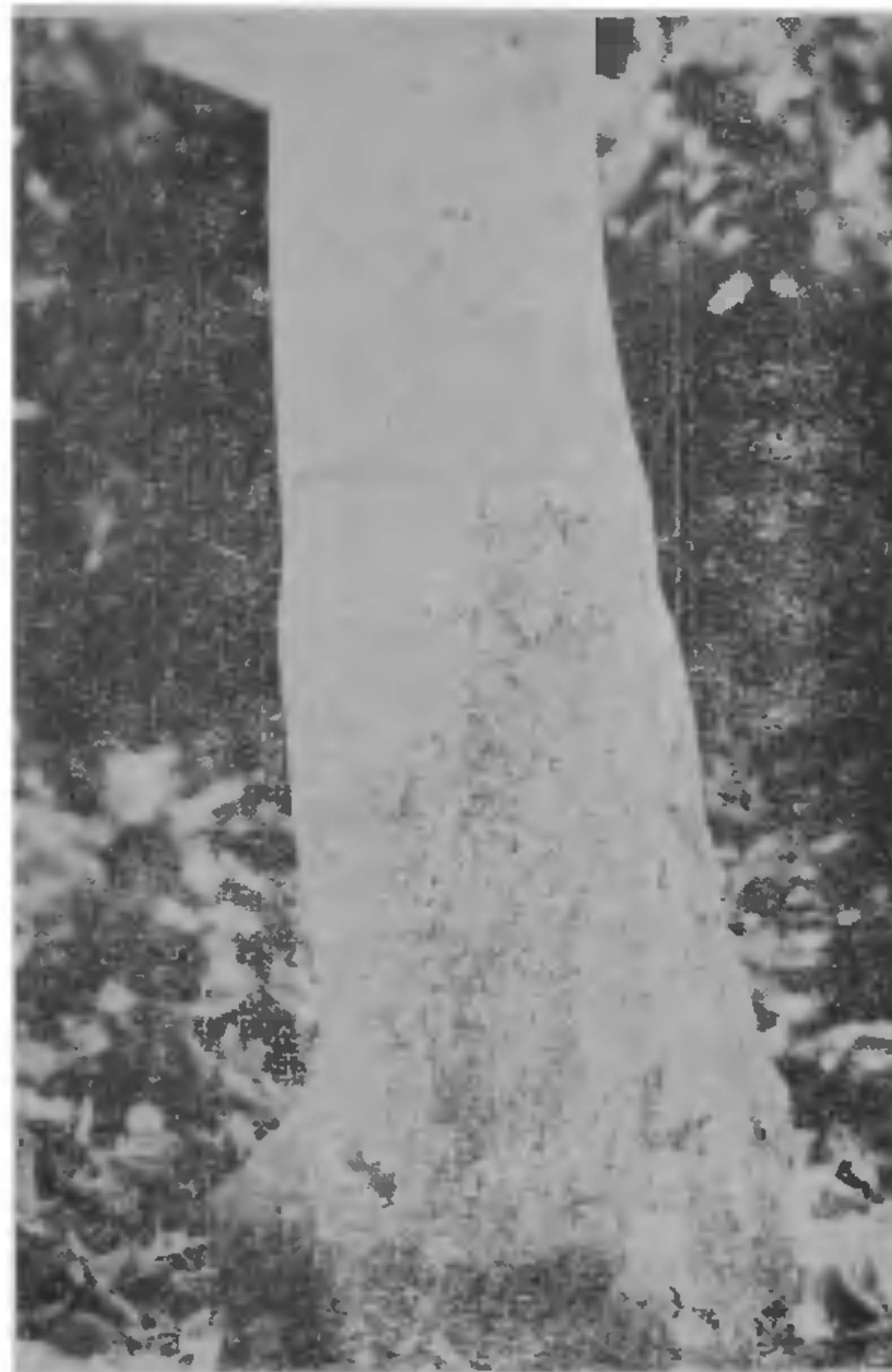


FIG. 1. Scaling of bark of Rangpur lime stock under natural condition.

Incubation period has been treated as the most important criteria for judging strains of the Exocortis virus. As the symptoms in the present experiment appeared within 135 days from the start of the experiment, the Exocortis virus reported here appears to be a severe strain of the virus.

Non-appearance of symptoms on the remaining 6 inoculated seedlings may either be due to (i) the buds used for inoculating these seedlings may not be carrying the virus or (ii) the buds may be carrying a mild strain, symptoms of which may appear after 8-10 months from the start of the experiment. A review of literature on Exocortis virus reveals that the virus may be distributed unevenly in the affected plant and that mild and severe strains of the virus can exist in one and the same plant.

The existence of Exocortis virus has pointed out dangerous potentials in the use of Rangpur lime or *Poncirus trifoliata* as rootstocks for sweet orange of this country without bud certification.

Citrus Die-back Res. Station,
Shrirampur,
September 9, 1967.

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TABLE I

Species	Habit	Pycnidia	Pycnidio- spores	Remarks
<i>S. minuta</i>	Sub-cuticular, Hemi-spherical	111-160 × 37-62 μ	4-5 × 0.8-1.2 μ	Dehiscence irregular
Indian species	Sub-epi- dermal, Shield shaped	117-285 × 38-60 μ	6-7 × 2.4 μ	Dehiscence by pore

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SCHIZOTHYRA INDICA SP. NOV. A NEW RECORD FROM INDIA

A LEPTOSTROMATACEOUS fungus was recently collected by the writer growing saprophytically on dried bark of snake gourd (*Trichosanthes anguina* L.) from the crop museum of the Agricultural College, Poona (India) and which on examination was identified as a species of the form genus *Schizothyra* Bat. and Costa on the basis of the gross morphological characters. This fungus genus was established by Batista *et al.* (1957) with *S. minuta* as type collected on *Stigmatodopsis caseariae* from Brazil. Besides, the genus is monotypic and has not been previously reported from India. This collection was, therefore, critically compared with the type species and found to be distinct from it, in respect of habit, morphological characters, dimensions and host relationship (*vide* comparative Table I).

Schizothyra indica GARUD SPEC. NOV.

Free mycelium lacking, pycnidia sub-epidermal, stromatic, scattered, uni-loculated, lenticular, carbonaceous, smooth, walls provided with an indistinct apical pore, 117-285 × 38-60 μ, epistroma black, uniformly thick, 15-22 μ, hypostroma 3-4 μ, conidiophores in wall layers, cylindrical, hyaline, 6-11 μ. Pycnidiospores 1-celled, hyaline, cylindrical, guttulate, 6-7 × 2.4 μ.

On dried bark of *Trichosanthes anguina* L., collected by A. B. Garud at Poona (India) on 15th December 1966, M.A.C.S. Herb. No. 405 (Type).

Latin Diagnosis.—Mycelio libero nullo, Pycniospormata sub-epidermate, sparsa, uniloculata, lenticular atra carbonica, glabra superior rimam poris dehiscentes, 117-285 × 38-60 μ, paries superior carbonaceæ continue 15-22 μ, paries inferior 3-4 μ, conidiophoreis in curtis cylindreus hyaline 6-11 μ, pycnidiosporæ cylindræus, gutulados, hyaline catenulate 6-7 × 2.4 μ.

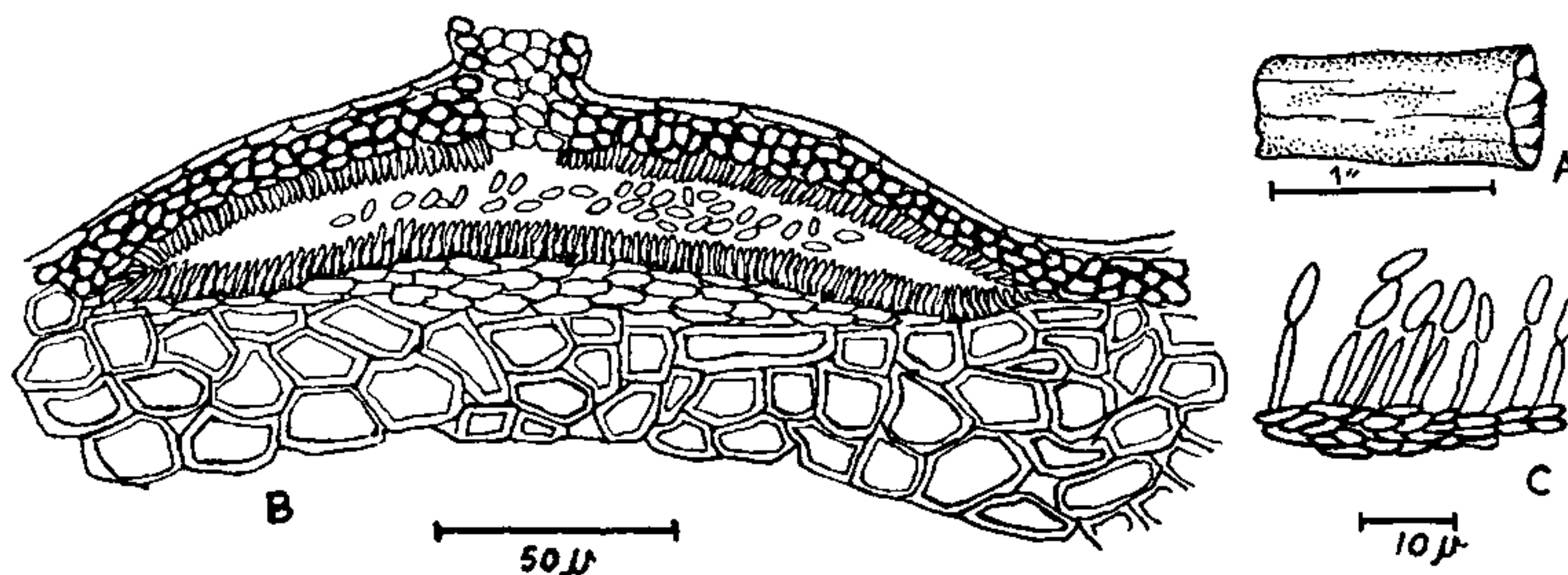


FIG. 1. A-C. A. Habit. B. Pycnidium with pycnidiospores. C. Pycnidiohores and pycnidiospores.

The Indian collection, in addition, is characterised by a sub-epidermal habit, lenticular nature of the pycnostroma and provision on an apical pore for dehiscence, which clearly distinguish this fungus from the type species thus meriting its accommodation in a new taxon.

The form genus *Schizothyra* Batista is a new generic addition to Indian fungi and the second known species of this form-genus.

The type material of this fungus is being deposited at M.A.C.S. Mycological Herbarium under No. 405.