

Four new Ascomycetes from India

U.S. Patel*, A. K. Pandey** and R.C. Rajak**

*Dept of Botany, NES Science collage, Jabalpur (M.P.)

**Dept of Biological Sciences, Rani Durgavati University
Jabalpur – 482001 (M.P.) INDIA.

ABSTRACT

Four new ascomycetes, *Cryptosphaeria sessilis* (Diatrypaceae, Sphaeriales), *Linospora dioscoreae* (Diaporthaceae, Diaporthales), *Nitschkia cananii* (Nitschkiaceae, Coronophorales) and *Trichothyria isoparasitica* (Trichothyriaceae, Dothidiales) collected from tropical, moist and mixed forests of Shahdol, Madhya Pradesh, India are described and illustrated. The genus *Trichothyria* is reported for the first time from India.

Key words : Ascomycetes / India / Systematics

Introduction

Ascomycete taxonomy has changed in the last few years, and the change has been rapid. New classifications have been proposed and rejected¹⁻⁹. About 30,000 species of ascomycetes are currently accepted, and over 6,000 generic names exist, making the group far larger than the basidiomycetes¹⁰. Some mycologists estimate the total of ascomycete species in the world to be over 100,00¹⁰. If this is so, only a small proportion, is know. Therefore, it is not a matter of surprise if new species, genera, families and even orders are still described.

During the course of mycofloristic studies of tropical, moist and mixed forests of Shahdol region Madhya Pradesh, several interesting fungi were collected, including four new species of ascomycetes. The specimens have been deposited in the herbarium of C.A.B. International Mycological Institute, Surrey, England

(IMI), and Department of Biological Sciences, Rani Durgavati University, Jabalpur (HDBJ) Indian Agricultural Research Institute, New Delhi (HCIO).

Cryptosphaeria sessilis Patel, Pandey and Rajak sp. Nov.

Stromata laxa effusa, aegre crescreta, intus corticis in totum, utque ad 1 mm crassa, pustulosuma. Acomata globasa, 400-500 μm longa et 50-80 μm lata, patefacio collectiveter. Ascomata parietes circa 40 μm crassi, externus regionis 4-5 stratosus, bruneus, textura angularis, cellulae 5-6 μm diam., cell wall ca. 2.5 μm crassi; internus regionis 5-6 μm stratosus, textura oblita, subhyalinae vel hyalinae, cellulae 3-4 μm diam., cell wal ca. 1.5 μm crassi. Asci clavati, 18 – 30 \times 6 – 8 μm , sessilis, unitunicati, octospori, spice simplici. Ascosporae allantoidae, 5- 8 \times 2 μm . unicellulae, subhyalinae vel olivaceae. Paraphyses nonne observata (Fig. 1).

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Stromata wide-spreading, poorly developed, immersed entirely in bark, ca. 1 mm in thickness, evident only as a pimpling or blistering of the host tissue. Ascumata, globose 400 – 500 μm diam., embedded in more than one layer within the dark, black, Papilla 800 μm long and 50 – 80 μm wide, collectively erumpent. Ascumatal wall ca. 40 μm thick, outer region composed of 4 – 5 layers of brown, angular cells 5 – 6 μm diam., thickness of cell wall ca. 2.5 μm ; inner region composed of 5 – 6 layers of flattened, subhyaline to hyaline cells, 3 – 4 μm diam., thickness of cell wall ca. 1.5 μm . Asci clavate, 18 – 30 \times 6 – 8 μm , sessile, unitunicate, 8 – spored, attached to the hyamenium when young, floating free at maturity, ascus apex simple. Ascospores allantoid, 5 – 8 \times 2 μm , unicellular, subhyaline to olivaceous. Paraphyses not observed.

Specimen Examined. India, Madhya Pradesh : Amarkantak, Lakshmandhara, on an unidentified angiospermous dead wood, *Shorea robusta* Gaertn. Dominated mixed forest, Oct. 1991, U.S. Patel (Holotype IMI 356757, ISOTYPE HDBJ 252).

Cryptosphaeria sessilis differs from other species of the genus *Cryptosphaeria* Graville^{1,8,11-16} in possessing sessile asci.

Linospora dioscoreae Patel, Pandey and Rajak *Sp. Nov.*

Ascumata subglobosa, 150 – 120 \times 240 – 320 μm . dispersa, solitaria, clypeatusa, Papilla, 80 – 100 μm longa et 30 – 35 μm lata, ecentralis, Parietes circa 25 μm crassi, externus regionis 3 – 4 stratosus, brunneae, textura angularis, cellulae ca. 5 μm diam., cell wall ca. 2 μm crassi; internus regionis 2

– 3 stratosus, textura oblita, cellulae 3 μm diam., cell wall ca. 1 μm crassi. Asci cylindric clavati, 76 – 100 \times 8 – 10 μm , sessilit, unitunicati, octospori, apice simplici. Ascospores filiformes, 60 – 80 \times 3 – 3.5 μm , unicellulae, hyalinae, 4 – 10 guttulate, Paraphyse, nonne observata (Fig.2).

Ascumata subglobosa, 150 – 200 \times 240 – 320 μm ; scattered, single, beneath a thin, black clypeus. Papilla ecentric, 80 – 100 μm long and 30 – 35 μm wide. Ascumatal wall ca. 25 μm thick, outer region composed of 3 – 4 layers of brown, angular cells ca. 5 μm diam., thickness of cell wall ca. 2 μm ; inner region composed of 2 – 3 layers of flattened cells 3 μm diam. Thickness of cell wall ca. 1 μm . Asci cylindric – clavate, 76 – 100 \times 8 – 10 μm , sessile, unitunicate, 8 – spored, apex simple. Ascospores filiform, 60 – 80 \times 3. 3.5 μm , unicellular, hyaline, 4-10 guttulate. Paraphyses not seen.

Specimen Examined. India Madhya Pradesh : Shahdol, Bandhavgarh National Park, on dead twigs of *Dioscorea bulbifera* L., Dec. 1992, U.S. Patel (HOTOTYPE IMI 356762; ISOTYPE HDBJ 352, HCTO 41527).

Within *Linospora* Fuckel^{1,8,17-21} *L. dioscoreae* is most similar to *L. capreae* (de Candolle) Fuckel in morphological characteristics but the ascospores of *L. capreae* are longer (80 – 120 \times 2 μm).

Nitschkia conanii Patel, Pandey and Rajak *sp. nov.*

Subicula dispersa, sparsa ex hyphis brunneae, septatae, laevis, 4 – 8 μm crassi compositum. Ascumata superficialia, turbinata, 320 – 480 \times 600 – 800 μm , gregaria, episubicula, quando arida collapsum in

cupularis modus, nigra, non-ostiolata, laevia. Quellungskörper presentes. Ascomata lateralis parietes 100 – 180 μm crassi, bi-regiones sistens; externus regionis 8 – 10 stratosus, brunneae, texture angularis, cellulae 4 – 32 \times 4 – 20 μm , cell wall 8 – 12 μm crassi; internus regionis 2-4 stratosus, subhyalinae, textura oblita, cellulae 4 – 8 μm diam. Continuous suprabasis, cell wall 3 – 4 μm crassi. Ascomata basis circa 300 μm crassa, 25 – 30 stratosus, continuous colateralis parietes. Asci clavati, 100 – 148 \times 15 – 18 μm , stipitati, unitunicati, multisporei ca. 64, apex simple. Ascosporeae allantoidae, 7.5 – 11.5 \times 3.5 – 4 μm , unicellulae, hyalinae vel subhyalinae, 1 – 4 (-2) guttulate, Paraphyses nonne observata (Fig. 3).

Subiculum spreading, sparse, of brown, septate, smooth-walled, 4 – 8 μ thick hyphae. Ascomata superficial, turbinate, 320 – 480 \times 600 – 800 μm , gregarious seated on the subicle, collapsing and cupshaped when dry, black, non ostiolata, smooth. Quellungskörper present. Lateral ascomatal wall 100 – 180 μ thick, comprising two regions; outer region composed of 8 – 10 layers of brown, angular cells 4 – 32 \times 4 – 20 μm , thickness of cell wall 8 – 12 μm ; inner region composed of 2 – 4 layers of subhyaline, flattened cells 4 – 8 μm diam., thickness of cell wall 3 – 4 μm , are continuous over the base. Ascomatal base ca. 300 μm thick, of 25 – 30 layers, continuous with the lateral walls. Asci clavate, 100 – 148 \times 15 – 18 μm , stalked, unitunicate, multispored ca. 64, apice simplici. Ascospores allantoid, 7.5 – 11.5 \times 3.5 – 4 μm , unicellular, hyaline to subhyaline, 1 – 4 (-2) guttulate. Paraphyses not observed.

Specimen Examined. India, Madhya Pradesh : Amarkantak, Kapildhara, on dead wood and bark of *Shorea robusta* Gaertn. Feb. 1992, U.S. Patel (Holotype IMI 354056; ISOTYPE HDBJ 296, HClO 41523).

Nitschka cananii is most similar microscopically to North American species, *N. callista* (Berk. & Curt.) Nannf.^{2-5, 20, 22-24} but differs from it is possessing larger ascomata that are seated on a sparse brown subicle. Ascomata of *N. callista* are 250 – 400 μm in diam.

Trichothyria isoparasitica Patel, Pandey and Rajak *sp. Nov.*

Ascomata rotunda vel subrotunda, 120 – 180 μm diam., caespitosa, glabrotunicata, nigra, ostiolata, cupulata quando aresco. Ostiola centralis, circularis, collare de ostiolum deficio setae et foramen, Ascomata parietes 4 – 5 stratosus, textura prismatica, cellulae 4 – 6 μm diam., brunnae in externus regionis cell wall 1.5 – 2 μm crassi, Asci clavati, 35 – 55 \times 12 – 15 μm , octosporei, bitunicati, sessilis, apice simplici. Ascosporeae ellipticae, elliptic-fusifformes, 14 – 18 \times 4.5 – 6 μm , 1-3 septatae, hyalinae, guttulate, Pseudoparaphyses filiformesa, 2 μm crassa, aseptata. (Fig. 4)

Ascomata circular to subcircular, 120 – 180 μm diam. caespitose, smooth walled, shiny black, ostiolate, cupulate when dry. Ostioles central, circular, ostiolar collar without holes and setae. Ascomatal wall composed of 4 – 5 layers of rectangular to cuboidal cells 4 – 6 μm diam., cells at wall exterior brown but darker around ostiole and at margin; cells at wall interior olivaceous, thickness of cell wall 1.5 – 2 μm . Asci clavate, 35 – 55 \times 12 – 15 μm , 8-spored, bitunicate, sessile, spex simple. Ascospores

ellipsoidal to elliptic-fusiform, $14 - 18 \times 4.5 - 6 \mu\text{m}$, 1 - 3 septate, hyaline, guttulate. Pseudoparaphyses filiform, $2 \mu\text{m}$ thick, aseptate.

Specimen Examined India, Madhya Pradesh: Shahdol, Ghunghuti forest, on bark of *Engenia jambolana* Lam., Oct. 1991, U.S. Patel (HOLOTYPE IMI 357486, ISOTYPE HDBJ 273, HCIO 41521).

The present collection is close to *Trichothyria parasitica* (Fabre) von Arx, but the ascospores lack cilia.

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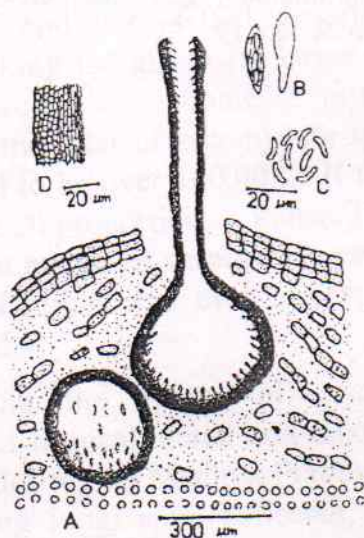


Fig.1. *Cryptosphaeria sessilis*
A. Perithecium. B. Ascus. C. Ascospores. D. Perithecial wall Scale bars : A = $300 \mu\text{m}$, B, C, D = $20 \mu\text{m}$.

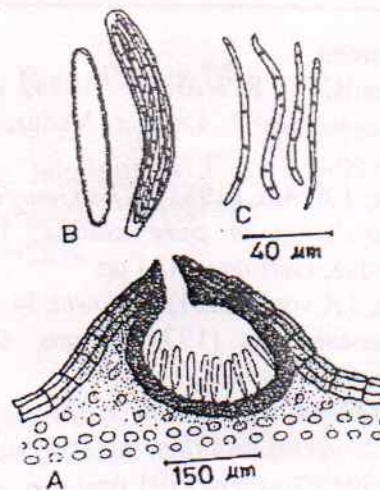


Fig.2. *Linospora dioscoreae*
A. Perithecium. B. Ascus. C. Ascospores. Scale bars : A = $150 \mu\text{m}$, B, C = $40 \mu\text{m}$.

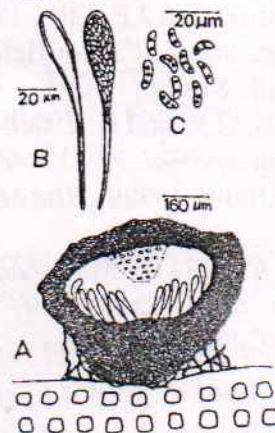


Fig.3. *Nitschkia cananii*
A. Perithecium. B. Ascus. C. Ascospores. Scale bars : A = $160 \mu\text{m}$, B, C = $20 \mu\text{m}$.

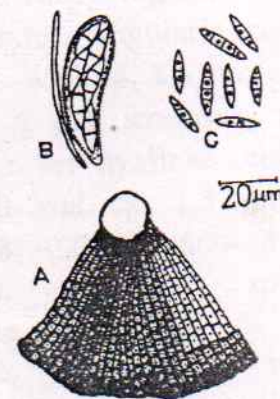


Fig.4. *Trichothyria isoparasitica*
A. Thyriothecium. B. Ascus and Pseudoparaphysis. C. Ascospores. Scale bars : A, B, C = $20 \mu\text{m}$.

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