

species to the other. The advantages of somatic hybridization with sorghum, in particular, are the transfer of apomixis, drought resistance and C_4 synthetic pathway. To achieve the desired objective, successful plant regeneration has to be obtained from the heterokaryons. It should also be noted that the problems of evaluation of the regenerated plants, the introgression of useful genes and the elimination of the undesirable genes are as great as those experienced in conventional breeding.

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A NEW SPECIES OF PHAEORAMULARIA MUNTANOLA

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DURING periodical surveys of the forest flora for the plant parasitic fungi, an interesting fungal specimen was collected which on detailed taxonomic observation was found to be a new taxon of species rank. It is described below:

Phaeoramularia asiatica A. N. Rai et Kamal sp. nov.

Coloniae hypophyllosae, effusae, fusce olivaceae; mycelium hypharum immersum, tenue, angustum, laeve, septatum et ramosum; stromata bene formata, partim immersa et partim superficialia, erumpentia, bulbosa, pseudoparenchymatosa, moderate vel fusce olivacea, 23–69 μ m diametro; conidiophori caespitosi, in fasciculis magnis, macronematosi, mononematosi, exiliter septati, septa transverse 3 et interdum plura, non ramosi (simplices), sympodiales, erecti vel suberecti, recti vel flexuosi, interdum geniculati, laeves, subhyalini vel pallide oli-

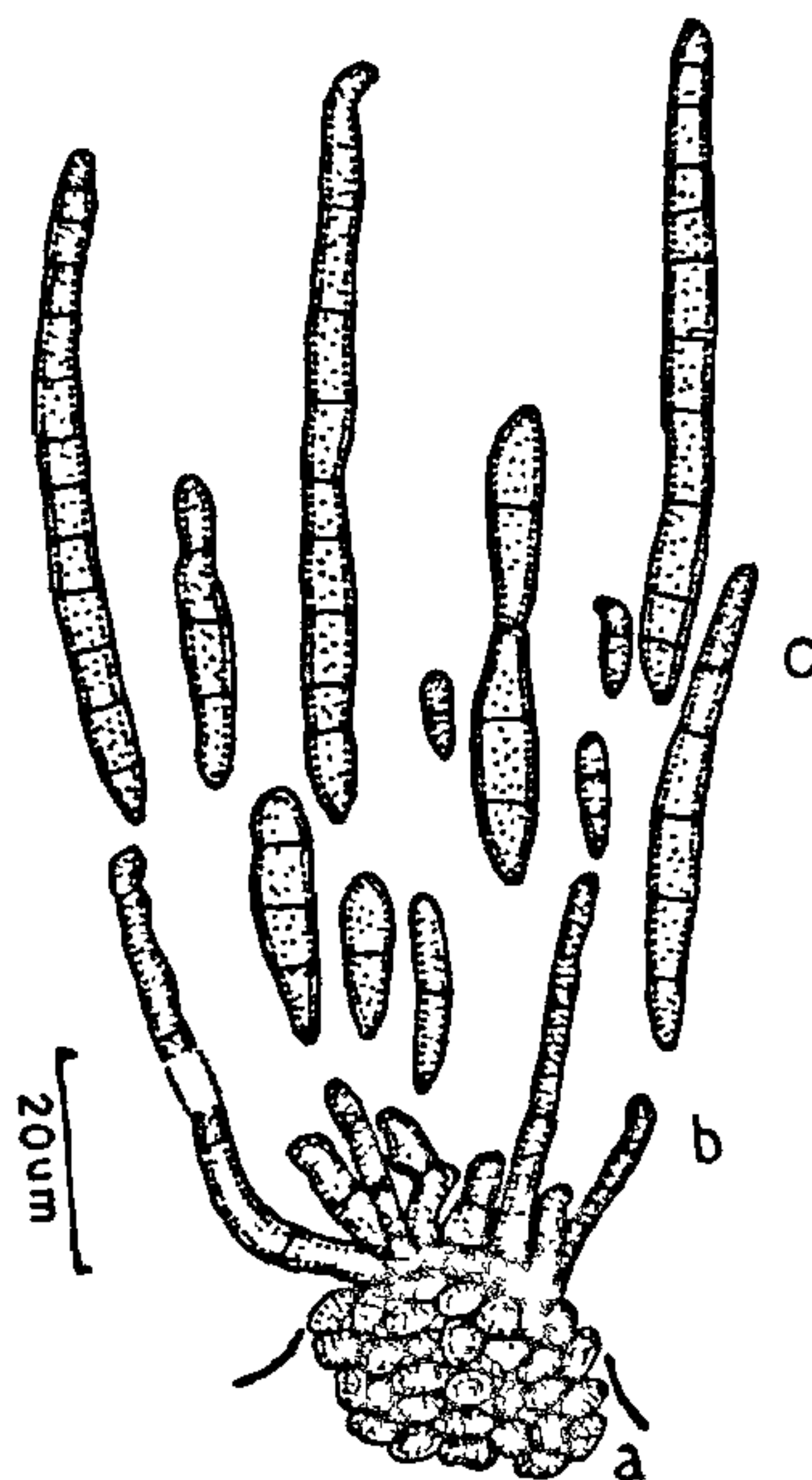


Figure 1. *Phaeoramularia asiatica* A. N. Rai et Kamal sp. nov. a—stroma, b—conidiophores, c—conidia.

Table 1.

| Species | Stromata | Conidiophores | | | Conidia | | |
|-----------------------------------|--|--|---------------------------|----------------------------|---|--|-------------------------|
| | | Structure | Colour | Size (μm) | Structure | Colour & septation | Size (μm) |
| <i>P. leptadeniae</i> | Pseudoparen., golden br. | Unbranched | Golden br. | up to $75 \times 4-6$ | Solitary to catenate, obclavato-cyl to obcl. | Pale golden br. or oliv. br. 1-12 trans. | $30-120 \times 4-8$ |
| <i>P. cucurbiticola</i> | Swollen hyphae, prosen. up to $30 \mu\text{m}$ wide $30 \mu\text{m}$ high, rather pale oliv. | Numerous in dense divergent, fascicles, sometimes simple but more often branched substraight, sometimes slightly geniculate towards the apex, smooth septate | Rather pale oliv. | up to $100 \times 3.5-5.5$ | Catenate, sometimes in branched chains, often swollen towards the apex, sub-cylindric, smooth, hila thickened | Rather pale or slightly more pale oliv. mostly 1 or 3 sometimes 0 or 4 and rarely 5 trans. | $17-80 \times 3.5-5$ |
| <i>P. asiatica</i> (proposed sp.) | Pseudoparen., partly superficial, erumpent, bulbous, mid to dark oliv., $23-69 \mu\text{m}$ in diam. | In large fascicles, simple, erect to suberect straight to flexuous, sometimes geniculate, smooth, sparsely septate | Subhyaline to light oliv. | $9.2-80.5 \times 2.9-4.6$ | Catenate, in unbranched chains, clavate to clavato-cyl. hila slightly thickened | Subhyal. to light oliv., 1-12 trans. | $6.9-69 \times 2.9-5.8$ |

vacei, $9.2-80.5 \times 2.9-4.6 \mu\text{m}$; cellulae conidiogenosae integratae, terminales, polyblastae, sympodiales, indistincte cicatricatae; conidia simplicia, catenata in catenis non ramosis, arida, acropleurogenosa, subhyalina vel pallide olivacea, clavata vel cylindrata vel obclavato-cylindrata, apices obtusi, bases obconicotruncatae, 1-12 transverse septata, $6.9-69 \times 2.9-5.8 \mu\text{m}$.

Infection spots amphigenous, irregular, coalescing to cover major portion to leaf surface, necrotic on the upper surface, dull white to dull grey on the upper surface while dark olivaceous brown on the lower surface; colonies hypophyllous, effuse, dark olivaceous; mycelium of hyphae, immersed, thin, narrow, smooth, septate and branched; stromata well-developed, partly immersed and partly superfi-

cial, erumpent, bulbous, pseudoparenchymatous, mid to dark olivaceous, $23-69 \mu\text{m}$ in diam.; conidiophores caespitose, fascicles large, macronematous, mononematous, sparsely septate, septa transverse up to 3 or sometimes more, unbranched (simple), sympodial, erect to suberect, straight to flexuous, sometimes geniculate, smooth, subhyaline to light olivaceous, $9.2-80.5 \times 2.9-4.6 \mu\text{m}$; conidiogenous cells integrated, terminal, polyblastic, sympodial, indistinctly cicatrized; conidia simple, catenate in unbranched chains, dry, acropleurogenous, subhyaline to light olivaceous, clavate to cylindric to obclavato-cylindric, apices obtuse, bases obconicotruncate, 1-12 transversely septate, hila unthickened to slightly thickened, $6.9-69 \times 2.9-5.8 \mu\text{m}$ (figure 1).

On living leaves of *Nyctanthes arbor-tristis* Linn. (Oleaceae), January, 1981; Suhelwa (East Bahar-
ach Forest Division); leg. A. N. Rai, KR 531, type,
IMI 259300

A survey of literature shows¹⁻⁷ that no species of
Phaeoramularia has hitherto been described on the
host family. However, among the species of this
genus described so far only *P. leptadeniae* (Chiddar-
war) Deighton (Ellis²) and *P. cucurbiticola* (P.
Henn.) Deighton (Ellis²; Deighton⁴) are found
slightly comparable to the present collection
(table 1).

In size of the conidiophores, the proposed species
resembles both *P. leptadeniae* and *P. cucurbiticola*.
However, it differs from the latter in having simple
to branched conidiophores. With catenate conidia
(unbranched chains with slightly thickened hila), the
proposed species resembles *P. leptadeniae* in conidial
colour and septation while differs from *P.*
cucurbiticola in having conidia in branched chains
with almost half the number of septa (up to 5 as
against 12). Moreover, the size of conidia also differs
markedly in the two.

Therefore, the present collection cannot be
accommodated justifiably with any of the known
species of *Phaeoramularia* and deserves its disposal
as a new species.

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Kew, England, for identifying the fungus.

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ASPERGILLUS KAMBARENSIS, A NEW REPORT FROM INDIA

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THE taxonomy of Aspergilli belonging to the
Aspergillus flavus group and their toxin-producing
capacity¹ which reveals a new species of *Aspergillus*
flavus group is described here from India

Aspergillus kambarensis Sugiyama, J. Fac. Univ.
Tokyo, Sect. 3. Bot. 9:377-405. Also see M.
Christensen, *Mycologia*, LXXII, 1071, (1981),
(figures 1 and 2).

Colonies on Czapek's agar medium 3-6 cm in dia
at 25°C in 10 days and 5-7 cm in 5 days at 37°C;
conidial heads yellow green, near rainette green
(R., XXXI) but shifting in age to darker yellow hue,
near yellowish olive (R., XXX); reverse colourless.
Conidial heads radiate to loosely columnar, mostly
150-450 µm in dia; conidiophores long and rough-
ened throughout its length; vesicles subglobose to
globose, 15-83 µm dia; conidium bearing elements
biseriate in about 45% of the heads; matulae mostly
10-18 × 5-8 µm and phialides 10-12 µm long;
conidia roughened oval to ellipsoidal highly variable
in size, 4.5-9 × 4-7 µm usually 6.5-7 × 4.8-6 µm;
sclerotia not observed.

Colonies on malt extract agar medium growing
rapidly, heavy sporulation, more abundant conidio-
phores and loose, radiate heads. Other characte-
ristics are similar to those described in Czapek's
solution agar.

A. kambarensis, thought¹ to be a probable
synonym of *Aspergillus oryzae* var. *oryzae* was
found nearer to *A. flavus* species² than to *A. oryzae*
as all the characteristics support Sugiyama's views
for the placement of *A. kambarensis* as a separate
species in *Aspergillus flavus* group.

Description is based on culture No. BT-9 isolated
from stored wheat and maize. Culture has been
deposited in B.S.M. Culture Collection, Botany
Department, University of Allahabad, Allahabad
and is also being deposited in A. K. Sarbhoy
Culture Collection, IARI, New Delhi.