versity. A voucher specimen was submitted to the University Herbarium (voucher number Husain-33701).

The dried and powdered leaf material of *R. alata* (1 kg) was defatted with light petrol and extracted with EtOH. The EtOH extract was concentrated and the residue was refluxed with light petrol and benzene, and treated with boiling water. Since the petrol-soluble fraction of EtOH extract and the straight petrol extract show similar components on TLC, they were mixed together. The combined petrol-soluble fraction was chromatographed over a silica gel column. The column was run with light petrol. The fractions eluted with light petrol were crystallized from hexane to give white crystals of RA5 (100 mg, m.p. 129°C). It was found to be dimethylterephthalic acid. Then the column was eluted with petrol-benzene (9:1:1), which gave inseparable mixtures of urushiol derivatives. Elution with benzene and benzene-EtOAc (9:1, 8:2) gave a greenish mass of chromatographically comparable components, which solidified on trituration with CHCl₃-EtOH. The solid mass, after repeated crystallization from CHCl₃-MeOH, gave two isomeric products, RA9 (50 mg, m.p. 283–284°C, Rₜ 0.56, benzene-acetone 5:1) and RA10 (60 mg, m.p. 260–261°C, Rₜ 0.48 benzene-acetone 5:1). RA9 was characterized as benulin (I) and RA10 as semimonic acid (II).

RA9: ¹H NMR (CDCl₃), δ: 4.72 and 4.62 (1H, br s each, =CH₂), 4.24 and 3.72 (1H, ABD each, J = 8 Hz, −CH₂O−), 1.66 (3H, br s, vinyl CH₃), 1.00 (3H, s, CH₃), 0.94 (6H, s, 2 × CH₃), 0.84 (3H, s, CH₃). MS m/z (rel. int.): 470 (M⁺, 26%), 455(1), 452(2), 439(2), 424(9), 409(2), 397(5), 313(13), 223(18), 205(20), 203(10), 201(13), 189(34), 187(34), 175(26), 163(24), 161(20), 159(19), 155(15), 133(34), 121(50), 119(53), 109(68), 107(60), 105(66), 44(100).

RA10: ¹H NMR (CDCl₃), δ: 5.16 (1H, brs, =CH−), 4.28 and 3.72 (1H, AB d each, J = 8 Hz, −CH₂O−), 0.98–0.92 (12H, overlapping s, 4 × CH₃), 0.84 and 0.72 (3H s each, 2 × CH₃). MS m/z (rel. int.): 470 (M⁺, 15%), 452(4), 426(70), 424(41), 411(8), 409(8), 397(9), 246(10), 236(55), 203(32), 191(15), 190(80), 189(68), 175(46), 163(100), 133(22), 121(27), 119(38), 109(30), 107(35), 105(40).

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### TWO NEW SPECIES OF PSEUDOCERCOSPORA FROM INDIA

A. N. RAI and KAMAL*

Department of Botany, Dr. H. S. Gour Vishwavidyalaya, Sagar 470 003, India
*Department of Botany, University of Gorakhpur, Gorakhpur 273 009, India

During a survey for plant parasitic fungi, two interesting foliicolous hypomycetes were collected. These fungi proved to be two new taxa of species rank. They are described below:

*Pseudocercospora tephrosiae* A. N. Rai et Kamal sp. nov.

Maculae plerqueae epigenosae, interdum in superficie inferiori parvae, dispersae per totam superficiem folii, atro-brunnea; coloniae plerqueae epiphyllosae et raro hypophyllosae, seriae, velate brunneaes;
mycelium hypharum immersum, septatum, angustum, ramosum; stromata bene formata, immersa, pseudoparenchymatosa, fusce olivacea, 27.6 μm diametro; conidiophori caespitosi, parvi (in fasciculis densis), macronematosi, mononematosi, suberecti, vix flexuosi, aliqui genericulati, usque 3-transverse septati, raro ramosi, cum parietibus laevisibus, pallide vel moderate olivacei, 16.0-59.8 × 3.5-6.9 μm; cellulae conidigenousae integratae, terminales, polyblastoae, sympodialae, denticulateae, cum denticulis stipatis brevibus et acutis vel late conoidibus, cum cicatricibus spissis; conidia simplicia solitaria, arida, acroleurogenosa, pallide olivacea, cylindrata vel obclavato-cylindrata, cum parietibus laevisibus, 2-6 transverse septata, cum apice subacuto vel obtuso et basi obconico-truncate vel subtruncata et hilis spissis, 20.7-64.4 × 3.5-4.6 μm.

Infection spots predominantly epigenous sometimes on the undersurface, small, distributed all over the leaf surface, blackish brown; colonies predominantly epiphyllous and rarely hypophyllous, velveta, dull brown; mycelium of hyphae immersed; stromata pseudoparenchymatous, dark olivaceous, 27.6 μm in diameter; conidiophores caespitose, small (in loose) to large (in dense) fascicles, macronematous, mononematous, suberect, somewhat flexuous, some geniculate, up to 3-transversely septate, rarely branched, smooth-walled, light to mid-olivaceous, 16.0-59.8 × 3.5-6.9 μm; conidigenous cells integrated, terminal, polyblastoae, sympodialae, denticulateae, with short pointed to broad conidial closely set denticles with thickened scars; conidia simple solitary, dry acroleurogenous, light-olivaceous, cylindric to obclavato-cylindric, smooth-walled, 2-6-transversely septate, with subacute to obtuse apex and obconico-truncate to subtruncate base and thickened hila, 20.7-64.4 × 3.5-4.6 μm (figure 1).

On living leaves of Tephrosia purpurea (L.) pers. (Fabaceae); September, 1979; Gorakhpur (Gorakhpur South Forest Division); leg. A. N. Rai, KR 370, type IMI 246396.

A survey of the literature shows that many Pseudocercospora species have been reported on the host family1-8. However, of all the species of Pseudocercospora described so far, the present collection comes close only to P. pantoleuca (Sacc.) Deighton1. For justifying the distinct identity of the proposed taxon, a comparative account of the morphological characters of the two is given in table 1.

Table 1 reveals that the present collection resembles P. pantoleuca in stroma, conidiophores and conidia to some extent only. But it differs from the latter in having darker stroma; distinctly cicatrizated, comparatively longer and much wider conidiophores and shorter conidia bearing thickened hila. Besides, the proposed species also differs from P. pantoleuca in having predominantly epigenous spots and predominantly epiphyllous colonies as against amphibious spots and amphiophyllous colonies distributed on both the leaf surfaces in P. pantoleuca.

The present collection therefore warrants description as a new species. It is also noteworthy that no species of Pseudocercospora is reported on the host genus in question.

Pseudocercospora tinosporae A. N. Rai et Kamal sp. nov.

Maculae amphibious, perparvae vel majores, necroticae, nervisequeae, irregulares, griseobrunneae, interdum halone viridi circumeincateae; coloniae amphibiousae, ad partem necroticum limitatae, griseobrunneae; hyphae immersae, septatae, glabrae, ramosae; stromata bene evoluta, irregulata, pseudoparenchymatica, medio-olivacea, 9.2-23.0 μm diametro; conidiophora macronematata, mononematata, caespitosa, dense conferta, usque 3-septata, ramosa, suberecta, apices versus subflexuosa, pallide olivacea, 11.5-59.8 × 3.5-4.6 μm; cellulae conidiferae integratae, terminales, polyblastoae, sympodialae, denticulis brevibus vellatis subacuti interdum dense confertis ornate;
<table>
<thead>
<tr>
<th>Species</th>
<th>Stromata</th>
<th>Conidiophores</th>
<th>Conidia</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>P. pantoleuca</em></td>
<td>Small, 15–25, composed of a knot of rather pale oliv. swollen hyphae</td>
<td>In dense fascicles, smooth, straight or sinuous, sometimes slightly geniculate, usually simple but occasionally with a short lateral branch, continuous or the longer ones septate, conidial scars inconspicuous</td>
<td>Rather pale oliv. 15–40 long, occasionally up to 52 long 2.0–3.5 wide</td>
</tr>
<tr>
<td><em>P. tephrosiae</em></td>
<td>27.6 μm in diam., pseudoparench., dark oliv.</td>
<td>In small (loose) to large (dense) fascicles, smooth, suberect, somewhat flexuous, some geniculate, rarely branched, septate (up to 3) denticles with thickened scars</td>
<td>Light to mid oliv. 16.0–59.8 × 3.5–6.9</td>
</tr>
</tbody>
</table>
conidia simplicia, solitaria, sicca, acropleurogena, pallide olivacea, usque 8 transverse septata, oblata usque subcylindrica ad bases obconicotruncaata vel subtruncata, ad apices subacuta usque obtusa hilo non increassato donata, glabra. 27.6–59.8 × 2.8–4.6 μm.

Infection spots amphiogenous, very small to considerably large, necrotic, irregular, greyish-brown, sometimes surrounded by green haloes; colonies amphiphlyllous, confined to the necrotic region of the spots, greyish-brown; hyphae immersed, septate, smooth, branched; stromata well-developed, irregular, pseudoparenchymatous, mid-olivaceous, 9.2–23.0 μm in diameter; conidiophores macronematous, mononematous, caespitose, densely packed, up to 3-septate, branched, suberect, slightly flexuous towards the apices, light-olivaceous, 11.5–59.8 × 3.5–4.6 μm; conidiogenous cells integrated, terminal, polyblastic, sympodial, denticulate, with short broad to slightly pointed denticles, sometimes denticles closely set; conidia simple, solitary, dry, acropleurogenous, light-olivaceous, up to 8-transversely-septate, obclavate to subcylindric, bases obconicotruncaate to subtruncate, apices subacutae to obtusae, hila unthickened, smooth, 27.6–59.8 × 2.8–4.6 μm (figure 2).

On living leaves of Tinospora cordifolia (Willd.) Miers (Menispermaceae); October, 1979; Nichlau (North Gorakhpur Forest Division); leg. A. N. Rai, KR 324, type IMI 243041.

The present fungus bears some resemblance of P. cocculi (H. Syd.) Deighton, one of the two species that have been reported earlier on the host family.

The length of conidiophores is more or less the same in both species. However, the author's collection differs from P. cocculi in other characters such as well-developed stroma; denticulate and narrower conidiophores; smooth, much shorter and narrower conidia with a small number of septa in the former, compared to less-developed stroma; nondenticulate and wider conidiophores; smooth, wrinkled or verruculose, much longer and wider conidia with a larger number of septa in P. cocculi. Hence, the new collection is described as a new species, P. tinosporae. So far no species of Pseudocercospora has been reported on the host genus.

The authors are grateful to the Director, CMI, Kew, England, for identifying the fungus.

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**Figure 2.** Pseudocercospora tinosporae A. N. Rai et Kamal sp. nov. a. Stroma; b. conidiophores; c. conidia.

**FIRST REPORT OF OCCURRENCE OF OOSPORES OF PSEUDOPERONOSPORA CUBENSIS ON TWO CUCURBITACEOUS HOSTS**

P. P. SINGH and S. S. SOKHI
Department of Plant Pathology, Punjab Agricultural University, Ludhiana 141 004, India

Downy mildew of muskmelon (Cucumis melo L.) and other cucurbitaceous plants, caused by Pseudoperonospora cubensis (Berk and Curt) Rostow, is a serious disease that occurs annually under favourable climatic conditions. Under Punjab conditions, the pathogen is known to perpetuate in the form of active mycelium on self-sown or cultivated sponge gourd (Luffa aegyptiaca Mill.) vines growing in sheltered places during severe winter and also in open spaces during milder winters. Bains et al. also reported the occurrence of oosporic stage on a wild host Melothria maderaspata. The present communication reports the occurrence of oosporic stage of P. cubensis on two cucurbitaceous hosts, pumpkin (Cucurbita moschata Duchesne) and sponge gourd (Luffa aegyptiaca Mill.) under local conditions.