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SOUTH AFRICAN PERISPORIACEAE

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SOUTH AFRICAN PERISPORIACEAE.

BY ETHEL M. DOIDGE, M.A., D.Sc., F.L.S.

(With Plates V and VI.)

(Read June 19, 1918.)

IV. NEW SPECIES FROM THE COAST DISTRICTS.

Of the nine new species of fungi described below, six belong to the genus *Meliola*, of which forty-two species have now been recorded as occurring in South Africa.

Meliola Evansii is closely related to *M. ganglifer*, from which it differs chiefly in the size of the spores and in the size and form of the hyphopodia.

The section characterised by the presence of perithecial appendages is a comparatively small one, and up to the present only one species has been described—*M. Bosciae*, from the Natal coast. Three more species belonging to the section have now been collected, and these may be distinguished by the following characters:

Section II, B: Spores 4-septate, setae perithecial.

a. Spores less than $40\ \mu$ long.

x. Setae straight, *M. Kentaniensis*.

xx. Setae uncinata, *M. claviculata*.

b. Spores $40\text{--}50\ \mu$ long.

x. Spores $10\text{--}14\ \mu$ broad, *M. Bosciae*.

xx. Spores $15\text{--}17\ \mu$ broad, *M. comata*.

The two remaining species belong to the large section with 4-septate spores and simple mycelial setae.

M. Loxostylidis is closely allied to *M. Rhois*, from which it differs in the form and number of the mycelial setae. *M. Cryptocaryae* comes nearest to *M. microthecia*, but is distinguished from that species by the larger size of the perithecia and by other minor differences.

Meliola comata Doidge n. sp.

Amphigena, plerumque epiphylla, maculas atras, 1–3 mm. diam. efficiens; hyphis fuscis, subflexuosis, $7\text{--}8\ \mu$ crassis; ramis plerumque oppositis; hyphopodiis capitatis alternis, stipitatis, $18\text{--}25 \times 9\text{--}10\ \mu$, cellula basali $4\text{--}6\ \mu$ longa, prope hypham attenuata, cellula superiore ovata v. angulata; hyphopodiis

mucronatis oppositis v. unilateralibus, inter hyphopodias capitatas interspersis, piriformibus v. ampullaceis, saepe curvatis, $18-20 \times 6-7 \mu$; setis mycelicis nullis; setis perithecialibus numerosis (circ. 20), $100-150 \mu$ long., basi brunneis, 6μ crassis, ad apicem pellucidem, 3μ cr. attenuatis; plerumque plus minusve incurvatis, et nonnumquam uncinatis, non-septatis; peritheciis gregariis, atris, globulosis, carbonaceis $200-240 \mu$ diam., verrucosis; ascis bisporis, evanescentibus; sporidiis cylindraceis brunneis, 4-septatis, vix constrictis, leniter utrinque attenuatis, $40-43 \times 15-17 \mu$.

In foliis ? *Ipomeae* sp. Woodville Forest, George, 15/11/17, E. M. Doidge (11020).

This fungus is very much overgrown by a number of parasites, chiefly *Dimerium intermedium*, *Speggazinia* sp., and an ascomycete with thyriothechia of the Microthyriaceae type which is frequently found parasitic on various species of *Meliola*, but up to the present always in an immature condition.

Meliola Cryptocaryae Doidge n. sp.

Hyphophylla, maculas rotundas v. enormes, $4-10 \mu$ diam. efficiens; hyphis undulatis, $6-7 \mu$ crassis; ramis oppositis v. irregularibus, cellulis $20-30 \mu$ longis; hyphopodiis capitatis alternis, breviter stipitatis, $26-33 \times 8-10 \mu$, tenuibus, undulatis, uncinatis v. sub-lobatis, cellula basali $6-7 \mu$ long.; hyphopodiis mucronatis oppositis pallidioribus, ampullaceis, curvatis, $15-16 \mu$ long.; setis mycelicis paucis, sparsis, sed circum perithecia numerosis, rectis v. sub-flexuosis, basim abrupte geniculatis, $400-500 \mu$ longis, opacis, $6-7 \mu$ crassis, paulatim ab imis ad apicem pellucidem, 3μ cr. attenuatis; peritheciis gregariis, atris, globosis, verrucosis, $240-260 \mu$ diam.; ascis bisporis evanescentibus; sporidiis 4-septatis cylindraceis, leniter constrictis, utrinque sub-attenuatis rotundatis que, $50-57 \times 18-20 \mu$.

In foliis *Cryptocaryae latifoliae*, Umbilo, Natal, 29/10/16, leg. P. van der Bijl (N. H. 517) (11016); Stella Bush, Durban, January, 1917, P. v. d. Bijl (N. H. 518).

In foliis *Cryptocaryae Woodii*, Mayville, Natal, 22/7/15, leg. J. Medley Wood (9025).

The mycelium is more undulate, and the setae more wavy in the collections on *C. latifolia* than in those on *C. Woodii*. This is probably to be attributed to the tomentose under-surface of the leaves in the former species. On *C. Woodii* the setae are as a rule quite straight.

Meliola Evansii Doidge n. sp.

Amphigena, plerumque epiphylla, maculas atras rotundas, 3-5 mm. diam. efficiens: mycelio conferto, copiose ramoso, anastomosante; hyphis brunneis $6-8 \mu$ diam.; cellulis circ. 20μ long.; ramis alternis, ad articulas cum hyphis abrupte attenuatis; hyphopodiis capitatis alternis, stipitatis, $26-36 \times 13-16 \mu$, cellula basali $8-10 \mu$ long.; ad articulum cum hypha

abrupte attenuata, cellula superiore cylindrica, uncinata, v. ovata, irregulariter lobulata; hyphopodiis mucronatis pallidioribus, haud numerosis, piriformibus, ca. $20 \times 7 \mu$; setis mycelicis sparsis, satis numerosis, rectis, simplicibus, opacis $300-400 \mu$ long., $7-8 \mu$ cr., ad apicem pellucidam paulatim attenuatis; peritheciis sparsis, haud numerosis, atris, globosis, carbonaceis, verrucosis, $200-240 \mu$ diam.; ascis bisporis, evanescentibus; sporidiis brunneis, 3-septatis, constrictis, sub-curvatis, cellulis mediis majoribus, $48-54 \times 18-20 \mu$.

In foliis *Celastrineae* cujusdam, Mossel Bay, 22/7/15, leg. I. B. Pole Evans (9067), in foliis *Mystroxydon euclaeformis*, Qudeni Forest, Zululand, leg. G. W. Davies (11237); Woodbush, Zoutpansberg Dist., February, 1914, leg. A. J. O'Connor (Economic Herb. No. 10222).

M. gangliferae affinis.

Meliola Kentaniensis Doidge n. sp.

Amphigena, plerumque epiphylla, maculas atras $3-5$ mm. diam. efficiens; hyphis brunneis, subflexuosis, $5-7 \mu$ crassis, cellulis $18-23 \mu$ long.; ramis oppositis; hyphopodiis capitatis alternis v. unilateralibus, $15-20 \times 8-10 \mu$, brevissime stipitatis, cellula basali circ. 3μ long., et 6μ cr.; cellula superiore, irregularis, plerumque ovata sed plus minusve angulata tuberculataque; hyphopodiis mucronatis non numerosis, inter hyphopodias capitatas interspersis, ampullaceis, collo longo curvato, $15-17 \times 6-8 \mu$; setis mycelicis nullis; setis perithecialibus $5-12$, rectis v. leniter flexuosis, pellucidis, leniter attenuatis ad apicem obtusum, basim sub-bulbosis, septatis, $60-90 \times 5-7 \mu$; peritheciis atris, carbonaceis, globosis, verrucosis, $160-200 \mu$ diam.; ascis evanescentibus; sporidiis 4-septatis, brunneis, cylindraceis, utrinque rotundatis, leniter constrictis, $35-38 \times 14-16 \mu$.

In foliis ? *Rhus* sp. Kentani, C.P., 6/9/15, leg. A. Pegler (Pegler No. 2354) (9130).

Meliola claviculata Doidge n. sp.

Amphigena, maculas minutas, atras, creberrimas efficiens, superficiem foliae tecta; hyphis brunneis, undulatis, $6-7 \mu$ crassis; cellulis brevibus, $12-15 \mu$ long.; hyphopodiis capitatis alternis, breviter stipitatis, $17-20 \times 8-10 \mu$, saepe ad hyphas appressis, cellula basali $3-5 \mu$ long.; cellula superiore subovata, plerumque apice complanata; hyphopodiis mucronatis oppositis, ampullaceis, curvatis $14-20 \times 6-7 \mu$; setis mycelicis nullis; setis perithecialibus $3-7$, omnino pellucidis, non-septatis, $100-120 \times 6-7 \mu$, apice haud attenuatis, uncinatis v. contortis; peritheciis gregariis, atris, globulosis, verrucosis, $206-230 \mu$ diam.; ascis bisporis, evanescentibus; sporidiis 4-septatis, cylindraceis, loculis aliquanto irregularibus, leniter constrictis, $36-40 \times 15-18 \mu$.

In foliis *Oncoba* sp. Quelimane, Portuguese East Africa, 8/9/13, leg. I. B. Pole Evans (7388).

Meliola Loxostylidis Doidge n. sp.

Hypophylla, maculas atras 3–4 μ diam. efficiens; hyphis tortuosis, fuscis, torulosis, 5–9 μ crassis; ramis irregularibus, anastomosantibus; hyphopodiis capitatis alternis v. plerumque unilateralibus, stipitatis, 20–30 $\times$ 10–17 μ , cellula basali rectis v. curvatis, 10–17 $\times$ 5–7 μ , cellula superiore ovata, uncinata v. triangularis; hyphopodiis mucronatis non numerosis, oppositis alternis v. unilateralibus, pyriformibus, 13–17 $\times$ 6–7 μ ; setis mycelicis raris, simplicibus, rectis v. basim abrupte geniculatis, omnino pellucidis, haud apice acuto attenuatis, nonnunquam ad septa constrictis, 140–240 μ long., 6–7 μ crassis; peritheciis non numerosis, sparsis, atris, globosis, carbonaceis, verrucosis, 200–240 μ diam.; ascis 2–4 sporis, evanescentibus; sporidiis 4-septatis, cylindratis, compressis, vix constrictis, utrinque rotundatis 37–47 $\times$ 17–20 μ .

In foliis *Loxostylidis alatae*, van Stadens Pass, C.P., 13/11/17, leg. E. M. Doidge (10921).

In foliis fruticis incognitis, 22/7/15, Mayville, Natal, leg. J. Medley Wood (9026).

Zukalia parenchymatica Doidge n. sp.

Epiphylla, effusa, pelliculam tenuem, fuscam efficiente mycelio pallidiore, fuliginoso, hyphis 3.5–5 μ cr., copiose ramosis anastomosantibus; cellulis 10–15 μ long.; hyphis ad septa constrictis, pelliculam plecten chymaticam, praesertim prope perithecia efficientibus; peritheciis globuloso-depressis, deinde pulvinatis; sparsis, parenchymaticis, membranaceis, 300–400 μ diam.; ascis numerosis paraphysatis, ellipsoideis-ovatis breviter pedicellatis, 50–60 $\times$ 20–30 μ ; paraphysibus filiformis, ascos parum superantibus; sporidiis oblique distichis v. conglobatis hyalinis v. flavescentibus, 5–7 septatis, ellipsoideis nonnunquam sub-curvatis, ad septa vix constrictis, 30–40 $\times$ 8–10 μ .

In foliis *Xymalos monosporae* Kentani, 3/3/15, leg. A. Pegler (Pegler No. 1999) (8864).

Zukalia Woodiana Doidge n. sp.

Hypophylla, maculas ferrugineae 10–15 μ diam. efficiens; mycelio pallidiore, fuligineo; hyphis tenuibus, circ. 3 μ crassis, copiose ramosis, anastomosantibus; hyphopodiis nullis; peritheciis numerosis, atris, sub-globosis, carbonaceis, verrucosis, pseudo-ostiolatis 95–115 μ diam.; ascis 8-sporis, paraphysatis, ellipsoideis v. ovatis, breviter pedicellatis, apice tunicatis 30–40 $\times$ 13–17 μ ; sporidiis hyalinis-flavescentibus, distichis v. parallelis, linearis-ellipsoideis v. sub-clavatis; primo sub-equaliter 1-septatis, deinde 3–5 septatis, medio facile divisio, 18–24 $\times$ 4–5 μ .

In foliis *Celastris albat*i, 20/5/15, Winkle Spruit, Natal, leg. E. M. Doidge (9008).

In foliis *Celastrineae* ejusdam, 22/7/15, Durban, Natal, leg. J. Medley Wood (9061).

Phaeodimeriella asterinicola Doidge n. sp.

Peritheciis in mycelio *Asterinae* quaedam parasiticis, hyphis parcissime 3-3.5 μ cr. evolutis, aggregatis, ovatis usque globosis, atris, membranaceis, superne angustatis papilliformiter productis et poro pertusis, 70-100 μ diam., setis 4-10 coronatis; setis 40-50 μ long., brunneis, apice obtusis et sub-uncinatis v. curvatis; ascis fasciculatis, numerosis, paraphysatis, clavato-cylindraceutis, sessilibus, 8-sporis, 40-45 $\times$ 10-12 μ ; sporidiis distichis, sub-fusiformibus, 1-septatis haud v. vix constrictis, loculo supero plerumque latiore, 13-14 $\times$ 3.5-5 μ .

Parasitic in *Asterina* quadam ad folia *Tylophorae Flanaganii*, 14/8/15, Brander's High Forest, Victoria East C.P., leg. P. v. d. Bijl (9458).

EXPLANATION OF PLATES V AND VI.

[All drawings were made with the aid of the camera lucida with a Zeiss objective DD and No. 5 ocular.]

FIG.

1. *Meliola comata*. (A) Mycelium with capitate and mucronate hyphopodia; (B) perithecial setae; (C) spores; (D) superficial cells of the perithecium.
2. *M. Cryptocaryae*. (A) Mycelium with capitate hyphopodia; (B) mycelium with mucronate hyphopodia; (C) spores.
3. *M. Evansii*. (A) Mycelium with capitate hyphopodia; (B) mucronate hyphopodium; (C) spores; (D) superficial cells of perithecium.
4. *M. Kentaniensis*. (A) Mycelium with capitate hyphopodia; (B) mucronate hyphopodia; (C) spores; (D) perithecial setae.
5. *M. claviculata*. (A) Mycelium with capitate hyphopodia; (B) with both capitate and mucronate hyphopodia; (C) spores; (D) superficial cells of perithecium; (E) perithecial setae.
6. *Meliola Loxostylidis*. (A) Mycelium with capitate hyphopodia; (B) with mucronate hyphopodia; (C) spores; (D) superficial cells of perithecium.
7. (A) Spores of *Zukalia parenchymatica*; (B) spores of *Z. Woodiana*; (C) spores, and (D) mycelial setae of *Phaeodimeriella asterinicola*.

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FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

FIG. 7.