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Two new species of *Meliola* (*Ascomycetes*) from Kenya

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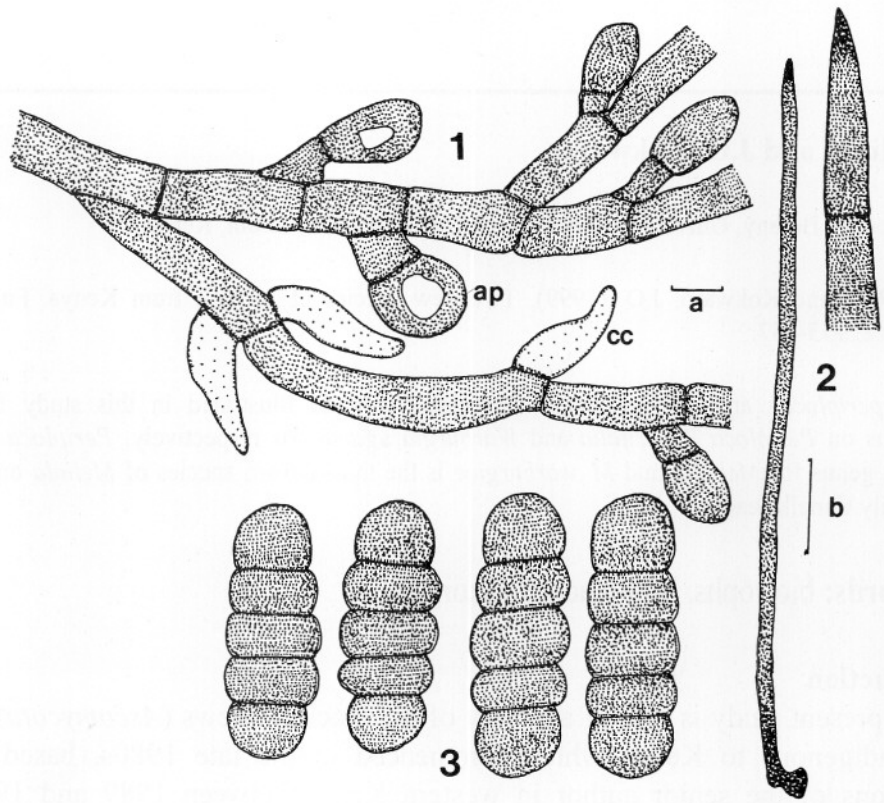
Meliola periplocae and *M. warburgiae* are described and illustrated in this study from collections on *Periploca linearifolia* and *Warburgia ugandensis* respectively. *Periploca* is a new host genus for *Meliola*, and *M. warburgiae* is the third known species of *Meliola* on the host family Canellaceae.

Key words: biotrophs, Meliolaceae, taxonomy.

Introduction

The present study is part of a survey of the black mildews (*Ascomycota*) on trees indigenous to Kenya which commenced in the late 1980s, based on collections of the senior author in western Kenya between 1989 and 1990. Other results have been published elsewhere (Mibey, Kokwaro and Mukunya, 1996a, b).

Four species of *Meliola* have been recorded from Africa on the host family Asclepiadaceae. These include *M. asclepiadacearum* Hansf. on *Cynanchum abyssinicum* var. *tomentosum* from Uganda, *M. secamonis* Hansf. on *Secamone platystigma* from Uganda, and *S. myrtifolia* from Sierra Leone and Ghana, *M. hughesiana* Hansf. on *Telosma africana* from Ghana, and *M. congoensis* (Beeli) Hansf. on indet. Asclepiadaceae from the Democratic Republic of Congo, *Tylophora* sp. and *Pergularia* sp. from Uganda, and *Secamone frutescens* from South Africa (Hansford, 1961). Only two species of *Meliola* have been recorded on the host family Canellaceae worldwide, and include *M. cinnamodendri* Stevenson on *Cinnamodendron axillare* from Brazil, and *M. canellae* Cif. on *Canella alba* from the Dominican Republic and *Winterana* sp. from Puerto Rico (Hansford, 1961). Recent work by Mibey and Hawksworth (1997) in the coastal region of Kenya did not include black mildews from the host families Asclepiadaceae and Canellaceae. Thus, the occurrence of *Meliola* species on *Periploca* and *Warburgia* are new records.



Figs. 1-3. *Meliola periplocae* (from holotype). **1.** Hyphae with appressoria (ap) and conidiogenous cells (cc). **2.** Simple, septate mycelial setae with acute apices. **3.** 4-septate ascospores with obtuse ends. Bars: a = 10 µm, b = 80 µm.

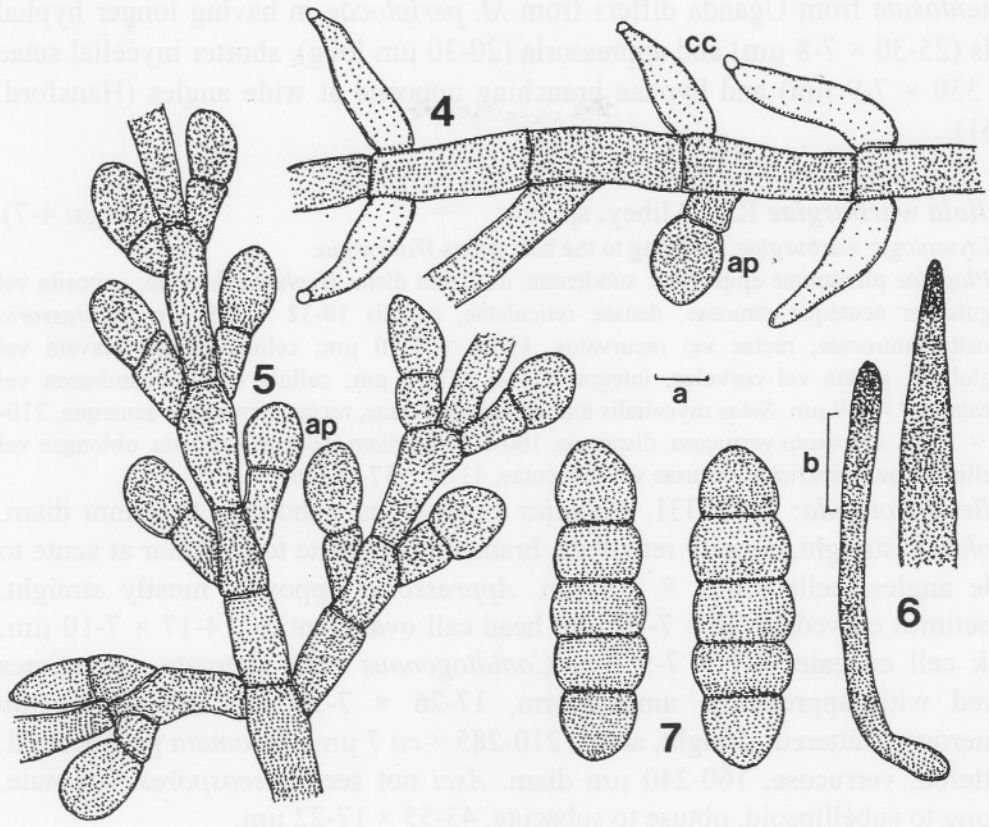
Taxonomy

Meliola periplocae R.K. Mibey, sp. nov. (Figs. 1-3)

Etymology: *periplocae*, referring to the host genus *Periploca*.

Plagulae amphigenae, tenuis vel densae, ad 3 mm diam. *Hyphae* subrectae, laxe reticulatae, alternata acuteque ramosae, cellulis 13-18 × 5-7 µm. *Appressoria* alternata, antrorsa, rectae vel curvulae, 18-24 × 9-12 µm; cellula apicali ovata, apicem laxe rotundatus, integra; cellula basali cuneata, 4-7 × 5-7 µm. *Cellula conidiogenae* opposita vel irregulariter, illis appressoria commixta, ampullacea, 13-20 × 5-7 µm. *Setae* myceliales dispersae, plerumque rectae, septata, simplices, apicem acuteque, 300-405 × 8 µm. *Ascomata* dispersae, verrucosa, 135-270 µm diam. *Sporae* 4-septata, constrictae, 43-52 × 12- 16 µm.

Beeli Formula: 31115232. *Colonies* amphigenous, thin to dense, to 3 mm diam. *Hyphae* straight, loosely reticulate, branching alternately at acute angles,



Figs. 4-7. *Meliola warburgiae* (from holotype). **4.** Hyphae with opposite conidiogenous cells (cc) and a subglobose appressorium. **5.** Hyphae branching opposite at wide to acute angles with opposite appressoria (ap). **6.** Simple, aseptate mycelial setae with obtuse and acute apices. **7.** 4-septate ascospores. Bars: a = 10 µm, b = 80 µm.

cells 13-18 × 5-7 µm. *Appressoria* alternate, antrorse, straight to curved, 18-24 × 9-12 µm; head cell ovate, widely rounded at the apex, entire; stalk cell cuneate 4-7 × 5-7 µm. *Conidiogenous cells* mixed with appressoria, opposite to irregular, ampulliform, 13-20 × 5-7 µm. *Mycelial setae* scattered, mostly straight, septate, simple, acute, 300-405 × *ca* 8 µm. *Ascomata* perithecioid, scattered, verrucose, 135-270 µm diam. *Asci* not seen. *Ascospores* 4-septate, rather deeply constricted, cylindric, obtuse, 43-52 × 12-16 µm.

Holotype: KENYA, Mau Forest, on leaves of *Periploca linearifolia* Dill., 15 Aug. 1990, R.K. Mibey 129 (NAI - holotypus).

Host: *Periploca linearifolia* Dill. (Asclepiadaceae).

Meliola asclepiadacearum Hansf. on *Cynanchum abyssinicum* var. *tomentosum* from Uganda differs from *M. periplocae* in having longer hyphal cells (25-30 × 7-8 µm) and appressoria (20-30 µm long), shorter mycelial setae (to 330 × 7-9 µm) and hyphae branching opposite at wide angles (Hansford, 1961).

Meliola warburgiae R.K. Mibey, sp. nov. (Figs. 4-7)

Etymology: *warburgiae*, referring to the host genus *Warburgia*.

Plagulae plerumque epiphyllae, subdensae, ad 2 mm diam. *Hyphae* subrectae, opposita vel irregulariter acuteque ramosae, densae reticulatae, cellulis 18-32 × 7-9 µm. *Appressoria* opposita, antrorsae, rectae vel recurvatus, 19-24 × 7-10 µm; cellula apicali clavata vel subglobosa, rectae vel curvulae, integra, 11-14 × 7-10 µm; cellula basali cylindracea vel cuneata, 4-7 × 7-9 µm. *Setae* mycelialis numerosus, dispersae, rectae, simplices, acuteque, 210-285 × 7 µm. *Ascomata* verrucosa, dispersae, 160-240 µm diam. *Sporae* 4-septata, oblongae vel subellipsoidae, constrictae, obtusae vel subacutae, 43-55 × 17-22 µm.

Beeli Formula: 31125331. *Colonies* epiphyllous, subdense, to 2 mm diam. *Hyphae* ± straight, densely reticulate, branching opposite to irregular at acute to wide angles, cells 18-32 × 7-9 µm. *Appressoria* opposite, mostly straight, sometimes curved,19-24 × 7-10 µm; head cell ovate, entire, 14-17 × 7-10 µm; stalk cell cuneate, 4-7 × 7-9 µm. *Conidiogenous cells* alternate, sometimes paired with appressoria, ampulliform, 17-26 × 7-10 µm. *Mycelial setae* numerous, scattered, straight, acute, 210-285 × *ca* 7 µm. *Ascomata* perithecioid, scattered, verrucose, 160-240 µm diam. *Asci* not seen. *Ascospores* 4-septate, oblong to subellipsoid, obtuse to subacute, 43-55 × 17-22 µm.

Holotype: KENYA, Mau Forest, on leaves of *Warburgia ugandensis* Sprague, 4 July 1989, R.K. Mibey 114 (NAI - holotypus).

Host: *Warburgia ugandensis* Sprague (Canellaceae).

Meliola canellae differs from *M. warburgiae* in having smaller ascospores (36-44 × 15-18 µm) and hyphal cells (15-25 × 7-8 µm) and much longer mycelial setae (to 1000 × 8-11 µm). *Meliola cinnamodendri* differs from *M. warburgiae* in having alternate appressoria and 2-6 dentate mycelial setae (Hansford, 1961).

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