TAXONOMY (Broad Classification)

Key to the fungal groups

1. Reproduce asexually by producing conidia or pycnidiospores … **Fungi Imperfecti**
1. Reproduce sexually by producing ascospores or basidiospores… 2
2. Reproduce by producing ascospores … **Ascomycetes**
2. Reproduce by producing basidiospores … **Basidiomycetes**

![Diagram of fungal classification]

Ascomycetes

- Unitunicatae
- Bitunicatae
  - Erysiphales
  - Meliolales
  - Phyllachorales
  - Clavicipitales

**THE ORDER MELIOLALES**


Parasites on vascular plants. Mycelium mostly superficial, appressoriate. Appressoria mostly two celled, rarely many celled. Phialidic (in Meliolaceae), phialides unicellular. Ascomata flattened-globose to globose, ± ostiolate, peridium smooth, surface cells protruded, often supplemented with setae and or appendages; asci born on basal hymenium, unitunicate, 2-8 spored, clavate to cylindrical, evanescent; ascospores 1-4 septate, brown at maturity.
Type family: **Meliolaceae**

**KEY TO THE FAMILIES OF THE ORDER MELIOLALES**

1. Hyphae phialidic; asci clavate; ascospores 3-4 septate  … **Meliolaceae**
1. Hyphae nonphialidic; asci cylindrical to subcylindrical, ascospores 1-2 septate  … **Armatellaceae**

**THE FAMILY ARMATELLACEAE**


Leaf parasites, ectophytes, mycelium with appressoria, phialides absent, mycelial setae absent. Perithecia on superficial hyphae, globose, verrucose; asci 4-8-spored; ascospores 1-2-septate, brown at maturity.

Type genus: **Armatella** Theiss. & Sydow

The family Armatellaceae includes the genera: **Armatella** and **Basavamyces**.

**KEY TO THE GENERA OF THE FAMILY ARMATELLACEAE**

1. Ascospores uniseptate, septum almost median  … **Armatella**
1. Ascospores 2-septate, septa at the distal ends  … **Basavamyces**

**THE FAMILY MELIOLACEAE**


Parasitic on vascular plants; mycelium mostly superficial; appressoriate, phialidic. Ascomata flattened-globose to globose, ± ostiolate, peridium with conoid cells, larviform and striated appendages, or with repent or strong setae. Asci
unitunicate, 2-4-spored, clavate to cylindrical, evanescent; ascospores 3-4-septate, brown at maturity.

Type genus: *Meliola* Fries

**KEY TO THE GENERA OF MELIOLACEAE**

1. Perithecia flattened-globose, hidden in the radiating mycelium  … *Amazonia*

1. Perithecia globose, discrete, not hidden in the radiating mycelium  … 2

2. Mycelial setae present  … *Meliola*

2. Mycelial setae absent  … 3

3. Perithecial setae and larviform appendages present  … 4

3. Both perithecial setae and larviform appendages absent  … *Asteridiella*

4. Both perithecial setae and larviform appendages present  … 5

4. Only perithecial setae present  … *Irenopsis*

5. Only larviform appendages present  … *Appendiculella*

5. Both perithecial setae and larviform appendages present  … *Prataprajella*

**Modified digital formula** (Hosagoudar, 2003)

Beeli (1920) proposed a numerical code to categorize the members of the Meliolaceae. Stevens (1927, 1928) modified and extensively used this code in his work. Hosagoudar (1996), Hosagoudar *et al.* (1997), Hu *et al.* (1996, 1999) and Mibey & Hawksworth (1997) have followed Hansford (1961) in using this code as key character and also supplemented the code with other characters to distinguish the individual taxa. However, the Beeli’s code or formula has certain limitations, such as:

2. The code does not distinguish morphology of the head cells of the appressoria.

3. The code does not distinguish position of the phialides.

In short, Beeli formula is useful in assembling like species, but it does not separate the taxa with clear demarcation. To overcome these difficulties and to incorporate the newly described genera: *Basavamyces* Hosag., *Ectendomeliola* Hosag. & Agarwal, *Endomeliola* Hughes & Pirozynski, *Pauahia* Stevens and *Prataprajella* Hosag., the Beeli’s digital formula has been completely modified here.

The present digital formula consists of three groups of digits. The first group of five digits distinguishes all the genera using fourteen characters. The second group of five digits uses nineteen characters to denote arrangement of appressoria, the morphology of the head cells of appressoria, location of the phialides in the colony, morphology of the mycelial setae and septation of ascospores. The third group of five digits uses twenty three characters. Appressoria are mostly borne just below the septum and can be distinguished based on the distance between appressoria. This shows whether the appressoria are crowded or sparsely arranged. Then, length and breadth of ascospores, diameter of perithecia and length of the mycelial setae are important. Taxa can be further distinguished by noting the position of the colony on the host, nature of the colony, morphology of mycelium, branching pattern, shape of the cells of appressoria, pattern of distribution of setae, ascospore shape, etc. can be used as an additional characters to distinguish the taxa.
I – Group (Generic characters)

(1) Mycelium
   1. endophytic (Endomeliola)
   2. ectophytic
   3. appressoria ectophytic and endophytic (Ectendomeliola)

(2) Ascomata
   1. stromatic (Pauahia)
   2. flattened-globose and in or with radiating mycelium (Amazonia)
   3. globose

(3) Mycelial setae
   0. absent
   1. present (Meliola)

(4) Setae and appendages of Ascomata
   0. absent (Asteridiella)
   1. with larviform appendages (Appendiculella)
   2. with setae (Irenopsis)
   3. with setae and appendages (Prataprajella)

(5) Ascospores and their septation
   1. ascospore 1-septate, septum at the middle (Armatella)
   2. ascospores 2-septate, septa at the distal ends (Basavamyc es)
   3. ascospores 3-4 septate

II – Group (Morphology of appressoria, mycelial setae and position of phialides)

(1) Appressoria (Capitate hyphopodia)
   1. alternate and/or unilateral
   2. opposite
   3. alternate and opposite
(2) Head cells of appressoria
   1.……..entire
   2.……..angulose to slightly lobate
   3.……..sublobate to deeply lobate

(3) Phialides (Mucronate hyphopodia)
   1.…….mixed with appressoria
   2.……..borne on a separate mycelial branch

(4) Mycelial setae
   0.……..absent
   1.……..simple, straight, acute to obtuse at the tip
   2.……..simple, uncinate to coiled
   3.……..dentate or shortly furcate (>30 µm)
   4.……..branched and the branchlets diverged
   1/3……. simple and dentate
   ¼……..simple and branched or furcated

(5) Ascospores
   1.……..1-septate
   2.……..2-septate
   3.……..3-septate
   4.……..4-septate

III Group (Measurements)

(1) Length of mycelial cells
   1.…….. up to 10 µm
   2.……..11-20 µm
   3.……..21-30 µm
   4.……..31-40 µm
   5.……..41 µm and above
(2) Length of ascospores
   1. up to 20 µm
   2. 21-30 µm
   3. 31-40 µm
   4. 41-50 µm
   5. 51-60 µm
   6. 61 µm and above

(3) Width of ascospores
   1. up to 10 µm
   2. 11-20 µm
   3. 21-30 µm
   4. 31 and above

(4) Diameter of Ascomata
   1. up to 100 µm
   2. 101-200 µm
   3. 201-300 µm
   4. 301 µm and above

(5) Length of setae
   0. setae absent
   1. up to 300 µm
   2. 301-500 µm
   3. 501-1000 µm
   4. 1000 µm and above
When applying the modified digital formula, the first four digits make generic distinction as:

13003 – *Endomeliola*  
21003 – *Pauahia*  
22003 – *Amazonia*  
23001 – *Armatella*  
23002 – *Basavamyces*  
23003 – *Asteridiella*

23013 - *Appendiculella*  
23023 - *Irenopsis*  
23033 - *Prataprajella*  
23103 - *Meliola*  
33103 - *Ectendomeliola*

The first species in the Hansford’s Monograph is:


Colonies epiphyllous, up to 1.5 mm in diameter. Hyphae substraight to undulate, branching opposite, acute, densely reticulate and subsolid, cells 15-20 x 10-12 µm. Appressoria alternate, antrorse, straight or slightly bent, mostly 30-35 µm long; stalk cells cuneate, 6-14 µm long; head cells clavate with crenate to sublobate margin, 20-25 x 12-18 µm. Phialides numerous in some colonies, rare in others, mixed with appressoria, opposite or alternate, ampulliform, 22-30 x 8-10 µm, neck elongated. Perithecia scattered, verrucose, up to 290 µm in diameter, perithecial wall cells rounded to obtusely conoid, up to 15 µm high; ascospores ellipsoidal, obtuse, 4-septate, constricted at the septa, 60-75 x 30-34 µm.

On leaves of *Drimys* sp., Brazil, Puiggari, type (SPEG).

This description can be converted into the modified digital formula as:

2300. 12104. 26430  Colonies epiphyllous, dense; hyphae  
Substraight to undulate, closely reticulate  
and subsolid; appressoria antrorse,  
30-35 µm long  … *Asteridiella crustacea*
Identification and Confirmation

The host plant and its family were identified with the help of flora, experts and also from the regional herbaria. Generic identity of the fungus is confirmed with the help of microscope and write the detailed description of the fungus (both macroscopic and microscopic). The description is converted into the digital formula. The description is correlated with its synoptic key, description and host genus and its geographical distribution for confirmation of the species. The line drawings drawn were matched as the final step in the confirmation of the taxon.

After ensuring identity of both hosts and pathogens, material will be kept in manifold or butter paper folders. Later, these folders will be placed in thick paper envelopes of convenient size with the name of the host, locality, date of collection, place of collection, name of the collector with the field number written on the top corner. These envelopes will be serially arranged in a rack, based on their collection numbers. Friction between the envelope and the material will be avoided to keep the fungal parts intact.

The treatment of species and varieties consists of the original citation of the correct name, citation of the world monographs and Indian monographs, relevant synonyms, (if any) based on Hansford’s (1961) and Hosagoudar’s (1996) monographs. The citation is followed by the description based on the present collection which are deposited in TBGT (Tropical Botanic Garden, Thiruvananthapuram) and HCIO (Herbarium Cryptogamae Indiae Orientalis), New Delhi. At the end of the description of each taxon, notes have been provided regarding their identification and distribution. Line drawings have been provided to all the taxa studied, and the number mentioned in the line drawings denotes the corresponding number of the taxon dealt in the text. Host – species index has been provided at the end.
### KEY TO THE SPECIES BASED ON THEIR HOST FAMILIES AND DIGITAL FORMULA

#### ACANTHACEAE

<table>
<thead>
<tr>
<th>Species</th>
<th>Digital Formula</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asteridiella</td>
<td>23003.12104.34220</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>24. <em>A. justiciae</em></td>
</tr>
</tbody>
</table>

#### ANACARDIACEAE

<table>
<thead>
<tr>
<th>Species</th>
<th>Digital Formula</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meliola</td>
<td>23103.121½4.44332</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria alternate, antrorse to subantrorse; head cells ovate, attenuated towards the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to dentate at the tip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53. <em>M. anacardii</em></td>
</tr>
<tr>
<td></td>
<td>23103.111½4.44223</td>
<td>Colonies epiphyllous, subdense; hyphae straight to substraight; appressoria alternate, antrorse to spreading; head cells ovate, globose to subglobose, entire; phialides mixed with appressoria; mycelial setae straight, acute, bi to quadri dentate, cristrate at the tip</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100. <em>M. geniculata</em></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Reference</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>23103.121½4.45323</td>
<td>Colonies hypophyllous, thin; hyphae substraight to slightly crooked; appressoria alternate, antrorse, spreading to recurved; head cells ovate, globose, hamate, entire to angular; phialides mixed with appressoria, alternate to opposite; mycelial setae straight, setae on mycelium were obtuse at the tip, setae around perithecia were 2-3-times dentate at the tip</td>
<td>101. <em>M. glutae</em></td>
</tr>
<tr>
<td>23103.121½4.45333</td>
<td>Colonies amphigenous, mostly hypophyllous, dense; hyphae straight; appressoria alternate, 2% unilateral, straight to variously curved; head cells cylindrical, versiform, attenuated and rounded at the apex, entire to subangular, subantrorse to spreading, straight to curved; phialides few, mixed with appressoria; mycelial setae straight, acute, obtuse to dentate at the tip</td>
<td>120. <em>M. mangiferae</em></td>
</tr>
<tr>
<td>23103.11114.35324</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria alternate, antrorse, straight to recurved; head cells ovate to cylindrical, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
<td>55. <em>M. ardigoosii</em></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>146. M. semecarpianacardii</td>
</tr>
<tr>
<td>--------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>23103.12114.25332</td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria alternate, antrorse to subantrorse; head cells ovoid to globose, entire to angular; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
<td></td>
</tr>
<tr>
<td>23103.321\1/4.34324</td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria alternate to 5% opposite, antrorse to retrorse; head cells cylindrical to clavate, entire, truncate, subangular to rarely sublobate; phialides mixed with appressoria; mycelial setae straight, dichotomously branched, acute to dentate at the tip, branches reflexed</td>
<td></td>
</tr>
</tbody>
</table>

**ANGIOPTERIDACEAE**

**Meliola**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>54. M. angiopteridis var. indica</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.11114.45232</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

**ANNONACEAE**

**Amazonia**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>3. A. goniothalami</th>
</tr>
</thead>
<tbody>
<tr>
<td>22003.11x04.25320</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

**Irenopsis**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>38. I. goniothalami</th>
</tr>
</thead>
<tbody>
<tr>
<td>23023.12104.44220</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

**Meliola**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.121½4.36333</td>
<td>Colonies amphigenous, dense; hyphae straight; appressoria alternate, closely</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>56. M. artabotrydicola</td>
<td>Colonies hypophyllous, subdense; hyphae straight to substraight; appressoria alternate, about 1% opposite, antrorse to closely antrorse; head cells ovate to oblong, entire to slightly angular; phialides mixed with appressoria; mycelial setae straight, obtuse at the tip</td>
</tr>
<tr>
<td>156. M. unonae</td>
<td>Colonies amphigenous, dense; hyphae straight; appressoria opposite, rarely alternate and unilateral, antrorse to closely antrorse; head cells ovate, cylindrical, broadly rounded to attenuated at the apex, entire; phialides mixed with appressoria; mycelial setae uncinate, sickle-shaped, septate, obtuse at the tip</td>
</tr>
<tr>
<td>157. M. unonicola</td>
<td>Colonies amphigenous, dense; hyphae straight to flexuous; appressoria alternate, antrorse to subantrorse; head cells ovate to oblong, rounded, truncate to attenuated at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, dentate to furcate at the tip</td>
</tr>
</tbody>
</table>

**APOCYNACEAE**

**Meliola**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.11^1/2^44.24221</td>
<td>Colonies amphigenous, dense; hyphae straight to flexuous; appressoria alternate, antrorse to subantrorse; head cells ovate to oblong, rounded, truncate to attenuated at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, dentate to furcate at the tip</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>23103.121½4.34221</td>
<td>Colonies epiphyllous, thin; hyphae straight; appressoria closely arranged, alternate, antrorse, straight to curved; head cells ovate to slightly subangular, entire phialides mixed with appressoria; mycelial setae uncinate, coiled, variously curved, broadly rounded to obtuse at the tip</td>
</tr>
<tr>
<td>23103.12214.54232</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae on upper surface of the leaves substraight, hyphae on the lower surface of the leaves strongly adherent and crooked; appressoria alternate, straight, antrorse to spreading; head cells ovate, globose, angular, entire to sublobate; phialides born on a separate mycelial branch; mycelial setae straight, acute at the tip</td>
</tr>
<tr>
<td>23103.1114.43223</td>
<td>Colonies epiphyllous, rarely amphigenous, dense; hyphae straight to flexuous; appressoria alternate, subantrorse to closely antrorse; head</td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>23103.12114.34221</td>
<td>Colonies mostly hypophyllous, rarely amphigenous, dense; hyphae straight to substraight, rarely slightly flexuous; appressoria alternate, antrorse to closely antrorse; head cells ovate, subglobose, oblong, ellipsoidal, slightly attenuated towards apex, entire to rarely angular; phialides many, mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
<tr>
<td>23103.11114.33222</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to substraight; appressoria alternate, about 5% unilateral, antrorse to spreading; head cells globose to subglobose, ovate, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
<tr>
<td>23103.11114.33223</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to slightly undulate; appressoria alternate, about 2% unilateral, antrorse to subantrorse; head cells ovate to cylindrical, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
</tbody>
</table>
23103.31114.24222 | Colonies amphigenous, mostly epiphyllous, thin to dense; hyphae mostly straight to slightly undulate; appressoria alternate, about 5% opposite, antrorse to subantrorse; head cells ovate, globose to subglobose, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip | 75. *M. chilocarpi*

### ASCLEPIADACEAE

**Meliola**

| 23103.12214.33222 | ... | 105. *M. gymnemae*

### ASTERACEAE

**Asteridiella**

| 23003.12104.33220 | ... | 21. *A. cyclopoda*

### BIGNONIACEAE

**Meliola**

| 23103.12114.43221 | ... | 82. *M. crescentiae*

### CAESALPINIACEAE

**Meliola**

<p>| 23103.31114.43222 | Colonies epiphyllous, thin to |
| 23103.3114.33212 | Colonies epiphyllous, dense; hyphae straight to slightly undulate; appressoria opposite, about 1% alternate and unilateral, straight, closely antrorse to antorse; head cells globose to subglobose, entire; phialides mixed with appressoria; mycelial setae straight to uncinate, acute to obtuse at the tip | 45. <em>M. aethiops</em> |
| 23103.3111/24.43212 | Colonies epiphyllous, dense; hyphae straight to crooked; appressoria alternate, up to 5% opposite, antrorse to retrorse; head cells ovoate, globose to subglobose, cylindrical, clavate, straight to curved, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip | 64. <em>M. caesalpiniae</em> var. <em>indica</em> |
| subdense; hyphae undulate to slightly crooked; appressoria alternate to unilateral, about 5% opposite, antrorse to retrorse; head cells globose, straight to slightly curved, entire; phialides few, mixed with appressoria; mycelial setae straight, acute to obtuse at the tip | 46. <em>M. aethiops</em> var. <em>keralica</em> |</p>
<table>
<thead>
<tr>
<th>Kingdom</th>
<th>Phylum</th>
<th>Class</th>
<th>Order</th>
<th>Family</th>
<th>Genus</th>
<th>Species</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLUSIACEAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Meliola</td>
<td>23103.32114.34221</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>123. <em>M. mesueae</em></td>
</tr>
<tr>
<td>COMBRETACEAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Amazonia</td>
<td>22003.12204.34220</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6. <em>A. henryi</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Asteridiella</td>
<td>23003.12204.43210</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19. <em>A. combreti</em> var. <em>leonensis</em></td>
</tr>
<tr>
<td>CONVOLVULACEAE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Meliola</td>
<td>23103.31114.35232</td>
<td>Colonies amphigenous, mostly hypophyllous,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>subdense; hyphae substraight; appressoria</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>closely arranged, mostly opposite, alternate,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>closely antrorse; head cells ovate to</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>obovate, entire; phialides mixed with</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>appressoria; mycelial setae acute to</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>obtuse at the tip</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>96. <em>M. erycibes-paniculata</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Meliola</td>
<td>23103.31114.34223</td>
<td>Colonies epiphyllous, dense; hyphae</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>undulate to slightly crooked; appressoria</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>opposite, 20% alternate, closely antrorse</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>to spreading; head cells globose to subglobe,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ovate,</td>
</tr>
</tbody>
</table>

---
<table>
<thead>
<tr>
<th>ID</th>
<th>Characteristics</th>
<th>Taxonomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.3114.44223</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to slightly crooked; appressoria mostly opposite, about 5% unilateral, antrorse to spreading; head cells ovate to subglobose, entire; phialides mixed with appressoria; mycelial setae, straight, acute to obtuse at the tip</td>
<td>119. <em>M. malacotricha</em> var. major</td>
</tr>
<tr>
<td>23003.12104.43220</td>
<td>...</td>
<td>34. <em>A. triloba</em></td>
</tr>
<tr>
<td>23103.12214.45223</td>
<td>...</td>
<td>154. <em>M. tibigirica</em></td>
</tr>
<tr>
<td>23103.31114.24222</td>
<td>...</td>
<td>91. <em>M. dioscoregena</em></td>
</tr>
<tr>
<td>Family</td>
<td>Genus</td>
<td>Species</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------</td>
<td>-----------</td>
</tr>
<tr>
<td>EBENACEAE</td>
<td>Meliola</td>
<td>92. M. diospyricola</td>
</tr>
<tr>
<td>ERICACEAE</td>
<td>Appendiculella</td>
<td>9. A. gaultheriae</td>
</tr>
<tr>
<td>ERYTHROPALACEAE</td>
<td>Meliola</td>
<td>97. M. erythropali</td>
</tr>
<tr>
<td>EUPHORBIACEAE</td>
<td>Asteridiella</td>
<td>27. A. malloticola</td>
</tr>
<tr>
<td></td>
<td>alternate, antrorse, subantrorse to spreading; head cells ovate, globose, straight to variously curved, entire to mostly irregularly angular to slightly sublobate; phialides numerous, mixed with appressoria; perithecial wall cells conoid</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>20. A. crotonicola</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23003.13104.33220</td>
<td>Colonies epiphyllous, dense; hyphae substraight, flexuous to rarely crooked; appressoria alternate, antrorse, subantrorse to retrorse; head cells ovate, globose, entire, subangular to angular, sublobate to lobate; phialides mixed with appressoria; perithecial wall cells indistinct</td>
<td></td>
</tr>
<tr>
<td>26. A. kombeensis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23003.12104.33220</td>
<td>Colonies epiphyllous, dense; hyphae undulate to slightly crooked; appressoria alternate, antrorse to retrorse; head cells ovate, subangular, entire, subglobose; phialides mixed with appressoria; perithecial wall cells conoid to mammiform</td>
<td></td>
</tr>
<tr>
<td>31. A. sebastianiae</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Irenopsis</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23023.12104.43220</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>37. I. crotonis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.31114.45332</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>49. M. agrostistachydis</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>FABACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asteridiella</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23003.12104.44220</td>
<td>...</td>
<td>28. <em>A. milletiae</em></td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2310. 11114. 33221</td>
<td>Colonies epiphyllous, subdense; hyphae substraight to undulate; appressoria alternate, about 1% unilateral, antrose to spreading; head cells ovate, globose, curved, reflexed, oblong, entire; phialides mixed with appressoria; mycelial setae slightly curved, acute at the tip</td>
<td>135. <em>M. pongamiae</em></td>
</tr>
<tr>
<td>23103.111½4.44222</td>
<td>Colonies hypophyllous, thin; hyphae substraight to crooked; appressoria alternate to unilateral, antorse to retrorse; head cells ovate, globose, cylindrical, straight to curved, entire; phialides mixed with appressoria; mycelial setae straight, obtuse to 2-3-dentate at the tip</td>
<td>59. <em>M. bataanensis</em> var. <em>indica</em></td>
</tr>
<tr>
<td>23103.12114.44222</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae substraight to flexuous; appressoria alternate, antrose to retrorse; head cells globose to obovoid, entire to rarely slightly angulose; phialides</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Strain</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>23103.31114.34231</td>
<td>Colonies epiphyllous, thin; hyphae straight to undulate; appressoria alternate, about 10% opposite, antrorse to spreading; head cells globose to subglobose, ovate, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the apex</td>
<td>138. <em>M. pterocarpi</em></td>
</tr>
<tr>
<td>23103.32114.43223</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria opposite to alternate, about 5% unilateral, subantrorse to spreading; head cells cylindrical, clavate, subglobose, entire to angulose; phialides mixed with appressoria; mycelial setae straight, acute at the apex</td>
<td>61. <em>M. bicornis</em></td>
</tr>
<tr>
<td>23103.311 1/3 4.44233</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to substraight; appressoria alternate, about 5% opposite, antrorse, curved; head cells globose to subglobose, straight to curved, entire; phialides mixed with appressoria; mycelial setae straight, acute to dentate at the tip</td>
<td>62. <em>M. buteae</em></td>
</tr>
<tr>
<td>23103.311 1/3 4.44233</td>
<td>Colonies amphigenous, thin to crustose; hyphae straight to</td>
<td>43. <em>M. abrupta</em></td>
</tr>
<tr>
<td>124. <em>M. milletiae-chrysophyllae</em> var. <em>indica</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.3114.33222</td>
<td>Colonies amphigenous, thin to dense; hyphae substraight to flexuous; appressoria alternate, about 5% opposite, antrorse, subantrorse to retrorse; head cells ovate, globose, straight to curved, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
<td></td>
</tr>
<tr>
<td>86. <em>M. desmodii-pulchelli</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.31114.33222</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria alternate, 1% opposite, antrorse, subantrorse to spreading; head cells mostly globose, entire; phialides mixed with appressoria; mycelial setae straight to slightly curved, acute to bidntate at the tip</td>
<td></td>
</tr>
<tr>
<td>137. <em>M. pseudarthriae</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.31114.44222</td>
<td>Colonies epiphyllous, subdense; hyphae straight; appressoria alternate to unilateral, 2% opposite, antrorse, subantrorse to spreading; head cells straight to curved, globose to subglobose, clavate, entire; phialides mixed with appressoria; mycelial</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Taxonomy</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>23103.311(\frac{1}{2})4.33221</td>
<td>Colonies epiphyllous, very thin; hyphae substraight, flexuous to rarely crooked; appressoria alternate, 5% opposite, antrorse, subantrorse to retrorse; head cells mostly globose, rarely ovate, entire, often variously curved; phialides mixed with appressoria; mycelial setae straight to slightly curved, acute, obtuse to 2-4 times dentate to cristate at the tip</td>
<td>87. <em>M. desmodii-triangulairis</em></td>
</tr>
<tr>
<td>23103.31114.33223</td>
<td>Colonies epiphyllous, thin to subdense; hyphae substraight to slightly undulate; appressoria alternate, few opposite, about 10% unilateral, antrorse to retrorse; head cells ovate to globose, clavate, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
<td>88. <em>M. desmodii-triquetria</em></td>
</tr>
<tr>
<td>GNETACEAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.3(\frac{1}{3})114.45223</td>
<td></td>
<td>102. <em>M. gneti</em></td>
</tr>
<tr>
<td>ICACINACEAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.111(\frac{1}{4})4.33222</td>
<td>Colonies mostly hypophyllous, dense; hyphae straight to flexuous;</td>
<td></td>
</tr>
<tr>
<td>Accession Number</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>23103.12½4.36333</td>
<td>Colonies amphigenous, caulicolous, ramicolous, dense; hyphae straight to substraight; appressoria alternate to unilateral, antrorse to closely antrorse; head cells ovate to globose, entire to rarely angular; phialides mixed with appressoria; mycelial setae straight, curved to uncinate, acute to obtuse at the tip</td>
<td></td>
</tr>
<tr>
<td>23103.31114.34223</td>
<td>Colonies epiphyllous, subdense; hyphae flexuous; appressoria alternate and unilateral, rarely opposite, antrorse to reflexed, spreading; head cells globose, ovate, curved; phialides mixed with appressoria; mycelial straight, acute at the tip</td>
<td></td>
</tr>
<tr>
<td>23103.32214.33222</td>
<td>Colonies amphigenous, caulicolous, mostly epiphyllous; hyphae substraight to undulate; appressoria alternate, about 1% opposite, spreading, mostly antrorse; head cells subglobose, ovate, angular to sublobate; phialides borne</td>
<td></td>
</tr>
</tbody>
</table>

**144. *M. sarcostigmaticola***

**103. *M. gomphandrae***

**89. *M. dimidiatae***
<table>
<thead>
<tr>
<th>Amazonia</th>
<th>22003.11204.23220</th>
<th>…</th>
<th>2. <em>A. dikesinghii</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meliola</strong></td>
<td>23103.11114.33222</td>
<td>Colonies epiphyllous, dense; hyphae undulate to crooked; appressoria alternate, about 10% unilateral, subantrorse to closely antrorse; head cells subglobose, ovate, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
<td>107. <em>M. hyptidis</em></td>
</tr>
<tr>
<td></td>
<td>23103.11114.43221</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae undulate; appressoria alternate, antrorse to spreading, often closely antrorse, straight to curved; head cells ovate, globose to subglobose, entire; phialides mixed with appressoria; mycelial setae septate, acute at the tip</td>
<td>133. <em>M. pogostemonis</em></td>
</tr>
<tr>
<td>LAURACEAE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Armatella</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23001.12001.33220</td>
<td>Colonies epiphyllous, thin; hyphae smooth walled, substraight to slightly undulate; appressoria alternate, antrorse to spreading; stalk cells single celled; head cells ovoid, conoid, angular, entire, outer wall crenulated</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. *A. cryptocaryae*

| 23001.12001.34220 | Colonies hypophyllous, thin; hyphae undulate to crooked; appressoria alternate, antrorse to reflexed; stalk cells aseptate to multisep-tate; head cells globose, narrowly ovate, entire to angular |

11. *A. balakrishnanii*

| 23001.13001.43230 | Colonies hypophyllous, subdense; hyphae crooked; appressoria scattered, not numerous, often some branches devoid of appressoria, alternate to unilateral, 1- several septate, antrorse to spreading, straight to variously curved; stalk cells unicellular to 1-5-septate; head cells ovate, globose, angular, sublobate to deeply lobate, edges of lobes broadly rounded to conoid |

10. *A. apolloniadis*

<p>| 23001.32001.45340 | Colonies hypophyllous, carbonaceous black, dense; hyphae crooked; |</p>
<table>
<thead>
<tr>
<th>2301.13001.53230</th>
<th>Colonies hypophyllous, thin; hyphae flexuous to crooked; appressoria alternate, variously curved; stalk cells aseptate to several septate, flexuous to crooked; head cells ovate to globose, entire to stellately lobate</th>
<th>14. <em>A. katumotoi</em></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meliola</strong></td>
<td><strong>23103.121(\frac{1}{3})4.33223</strong></td>
<td>Colonies hypophyllous, thin to subdense; hyphae crooked; appressoria alternate, antrorse; head cells ovate, globose to subglobose, oblong, entire to angular and truncate at the apex; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to 2-3-times dentate at the tip</td>
</tr>
<tr>
<td>23103.121(\frac{4}{3})4.45223</td>
<td>Colonies hypophyllous, dense; hyphae straight to substraight; appressoria alternate to unilateral, antrorse to reflexed; head cells ovate to globose, subangular to angular, entire; phialides few, mixed with appressoria; mycelial setae straight, acute to variously dentate at the tip</td>
<td>76. <em>M. cinnamomi</em></td>
</tr>
<tr>
<td>Specimen</td>
<td>Description</td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>23103.121½4.44323</td>
<td>Colonies hypophyllous, dense; hyphae flexuous to crooked; appressoria alternate, antrorse to retrorse; head cells ovate, oblong, globose, entire to slightly angular; phialides mixed with appressoria; mycelial setae straight, obtuse to variously dentate at the tip</td>
<td></td>
</tr>
<tr>
<td>104.</td>
<td><em>M. gooseana</em></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.121½4.35233</td>
<td>Colonies hypophyllous, dense; hyphae straight to substraight; appressoria alternate to unilateral, antrorse to reflexed; head cells ovate to globose, subangular to angular, entire; phialides few, mixed with appressoria; mycelial setae straight, acute to variously dentate at the tip</td>
</tr>
<tr>
<td>60.</td>
<td><em>M. beilschmiediae</em> var. <em>cinnamomcola</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.121½4.56333</td>
<td>Colonies amphigenous, mostly hypophyllous, subdense to dense; appressoria distantly placed, alternate, antrorse to retrorse; head cells ovate, globose to subglobose, entire to irregularly angulose; phialides mixed with appressoria; mycelial setae, mostly straight, rarely flexuous to curved at the penultimate end, acute to subacute at the tip, setae around perithecia smaller, dentate to furcate at the tip</td>
</tr>
<tr>
<td>44.</td>
<td><em>M. actinodaphnecola</em></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>23103.11114.54234</td>
<td>Colonies hypophyllous, thin; hyphae crooked; appressoria scattered, alternate, antrorse, subantrorse to retrorse; head cells globose, entire; phialides mixed with appressoria; mycelial setae straight to flexuous, acute at the tip</td>
</tr>
<tr>
<td>23103.12114.44323</td>
<td>Colonies hypophyllous, subdense to dense; hyphae substraight to flexuous; appressoria alternate to unilateral, antrorse to spreading; head cells ovate, oblong, cylindrical, entire to angular; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
<tr>
<td>23103.12114.35332</td>
<td>Colonies hypophyllous, dense; hyphae crooked; appressoria alternate to unilateral, antrorse, spreading; head cells ovate, globose, slightly angular, truncate, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
</tr>
<tr>
<td>23103.12114.34233</td>
<td>Colonies hypophyllous, dense; hyphae crooked; appressoria alternate, distantly placed, subantrorse to spreading; head cells ovate, globose, angulose to irregularly sublobate, straight to variously curved; phialides mixed with appressoria; mycelial setae</td>
</tr>
<tr>
<td>Specimen Code</td>
<td>Description</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>23103.121½4.34323</td>
<td>Colonies epiphyllous, subd dense to dense; hyphae crooked; appressoria alternate, antrorse to retrorse; head cells ovate, globose, angulose, truncate, entire; phialides mixed with appressoria, alternate to opposite, ampulliform; mycelial setae straight, acute to 2-4 dentate at the tip</td>
</tr>
<tr>
<td>23103.12114.45324</td>
<td>Colonies amphigenous, mostly hypophyllous, dense; hyphae crooked; appressoria distantly placed, alternate, antrorse to spreading; head cells ovate, oblong, globose to subglobose, pyriform, straight to curved, entire, subangular; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
<tr>
<td>23103.31114.44223</td>
<td>Colonies epiphyllous, dense; hyphae substraight; appressoria alternate to opposite, antrorse to spreading; head cells subglobose to ovate, cylindrical, clavate, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
</tbody>
</table>

**LECYTHIDACEAE**

*Meliola*

<table>
<thead>
<tr>
<th>Specimen Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23103.31114.44223</td>
<td>Colonies epiphyllous, dense; hyphae substraight; appressoria alternate to opposite, antrorse to spreading; head cells subglobose to ovate, cylindrical, clavate, entire; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
</tr>
<tr>
<td>No.</td>
<td>Culture No.</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
</tr>
<tr>
<td>70.</td>
<td>M. careyae var. indica</td>
</tr>
<tr>
<td>69.</td>
<td>M. careyae</td>
</tr>
<tr>
<td>Meliola</td>
<td>23103.112½4.45221</td>
</tr>
<tr>
<td>136.</td>
<td>M. prataprajii</td>
</tr>
<tr>
<td></td>
<td>23103.321½4.24221</td>
</tr>
<tr>
<td>Order</td>
<td>Family</td>
</tr>
<tr>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MALVACEAE</td>
</tr>
<tr>
<td></td>
<td>MARANTACEAE</td>
</tr>
<tr>
<td></td>
<td>MELASTOMATAEC</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
</tr>
<tr>
<td>23103.1124.54324</td>
<td>Colonies mostly hypophyllous, rarely amphigenous, subdense, spreading; hyphae substraight to crooked; appressoria alternate, antrorse to subantrorse; head cells ovate, globose to subglobose, oblong, elongated, bent, curved, uncinate, entire; phialides mixed with appressoria; mycelial setae straight, slightly curved and often flexuous, acute to obtuse at the tip.</td>
</tr>
<tr>
<td>**47. **M. affinis var. indica</td>
<td></td>
</tr>
<tr>
<td>23103.311/34.43223</td>
<td>Colonies amphigenous, subdense; hyphae straight to substraight; appressoria alternate, about 5% opposite, antrorse to spreading; head cells ovate, globose to subglobose, attenuated and broadly rounded at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to dentate at the tip.</td>
</tr>
<tr>
<td>**58. **M. attayarica</td>
<td></td>
</tr>
<tr>
<td>23103.311½4.43223</td>
<td>Colonies amphigenous, subdense; hyphae straight to substraight; appressoria alternate, about 5% opposite, antrorse to spreading; head cells ovate, globose to subglobose, attenuated and broadly rounded at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to dentate at the tip.</td>
</tr>
<tr>
<td>**122. **Meliola memecyli var. microspora</td>
<td></td>
</tr>
<tr>
<td>MELIACEAE</td>
<td>MENISPERMACEAE</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td><strong>Meliola</strong></td>
</tr>
<tr>
<td>23103.11114.33233</td>
<td>23103.11214.43222</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>77. <em>M. cipadessa</em></td>
<td>83. <em>M. cycleae</em></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Genus</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>MORACEAE</td>
<td>Irenopsis</td>
</tr>
<tr>
<td></td>
<td>Asteridiella</td>
</tr>
<tr>
<td></td>
<td>Meliola</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### MYRISTICACEAE

<table>
<thead>
<tr>
<th><strong>Asteridiella</strong></th>
<th>Colonies mostly hypophyllous, rarely amphigenous, dense; hyphae straight to crooked; appressoria alternate, antrose to subantrorse, rarely retrose; head cells globose, entire, angular to sublobate; phialides mixed with appressoria; perithecial wall cells conoid to mammiform</th>
</tr>
</thead>
<tbody>
<tr>
<td>23003.12104.34320</td>
<td><strong>25. A. knemae var. microspora</strong></td>
</tr>
<tr>
<td>23003.13104.24310</td>
<td>Colonies epiphyllous, dense, crustose; hyphae mostly straight but rarely undulate; appressoria alternate, closely arranged, antrose to subantrorse, mostly straight, rarely recurved; head cells ovate to globose, stellately to irregularly sublobate to deeply lobate; phialides mixed with appressoria</td>
</tr>
<tr>
<td></td>
<td><strong>29. A. myristicacearum</strong></td>
</tr>
</tbody>
</table>

### MYRSINACEAE

<table>
<thead>
<tr>
<th><strong>Amazonia</strong></th>
<th>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to substraight, ; appressoria alternate, antrose to subantrorse; head cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>22003.11104.35320</td>
<td></td>
</tr>
<tr>
<td>Meliola</td>
<td>22003.11104.24240</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Meliola</td>
<td>23103.31114.35223</td>
</tr>
</tbody>
</table>

**MYRTACEAE**

<table>
<thead>
<tr>
<th>Meliola</th>
<th>23103.31114.44223</th>
<th>Colonies amphigenous, thin; hyphae straight to slightly undulate; appressoria alternate, very few are opposite (less than 1%), antrorse to subantrorse; head cells ovate to globose, entire; phialides numerous, mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</th>
<th>112. <em>M. laxa var. indica</em></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23103.121(^1/2)4.44223</td>
<td>Colonies hypophyllous, dense; hyphae substraight to tortuous; appressoria alternate, straight to variously curved, antrorse to spreading; head cells straight to curved, ovate, cylindrical, entire to ovate, globose, subglobose, cylindrical, entire; phialides mixed with appressoria</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>angular; phialides mixed with appressoria; mycelial setae broadly uncinate to arcuate above, very few are straight, acute to obtuse at the tip</td>
<td>85. <em>M. densa</em></td>
<td></td>
</tr>
<tr>
<td>23103.11114.45322</td>
<td>Colonies hypophyllous, thin; hyphae straight to substraight; appressoria alternate, subantrorse; head cells ovate, rounded to slightly attenuated towards the apex; phialides mixed with appressoria; mycelial setae straight, penultimate tip arcuate, obtuse at the tip</td>
<td>150. <em>M. syzygii-benthamianii</em></td>
<td></td>
</tr>
<tr>
<td><strong>OLEACEAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td>Colonies hypophyllous, thin; hyphae straight to substraight; appressoria alternate, subantrorse to spreading; head cells globose, ovate, slightly angular, entire; phialides borne on a separate mycelial branch; mycelial setae straight, acute to obtuse at the tip</td>
<td>111. <em>M. jasmini</em></td>
<td></td>
</tr>
<tr>
<td>23103.12214.45322</td>
<td>Colonies epiphyllous, dense; hyphae straight to slightly undulate; appressoria alternate, antrorse to spreading; head cells ovate, globose, cylindrical, slightly curved, entire; phialides mixed with appressoria;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.11114.23222</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.31114.24223</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to slightly undulate; appressoria opposite (very few unilateral), closely antrorse; head cells subglobose to ovate, entire; phialides few, mixed with appressoria; mycelial setae fairly numerous, straight, acute to obtuse at the tip</td>
<td>99. <em>M. gemellipoda</em></td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
<td></td>
</tr>
<tr>
<td>23103.12114.33222</td>
<td>Colonies hypophyllous, dense; hyphae straight to substraight; appressoria alternate, antrorse to retrorse to spreading; head cells ovate, cylindrical, slightly truncate at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute at the tip</td>
<td>126. <em>M. oleacearum</em></td>
<td></td>
</tr>
<tr>
<td><strong>PANDANACEAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td>23103.12214.24233</td>
<td>128. <em>M. pandanacearum</em></td>
<td></td>
</tr>
<tr>
<td><strong>PERIPLOCAEAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td>23103.11114.33223</td>
<td>106. <em>M. hemidesmicola</em></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>Genus</td>
<td>Catalogue</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>--------</td>
<td>-----------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PIPERACEAE</td>
<td>Meliola</td>
<td>23103.12214.34224</td>
<td>...</td>
</tr>
<tr>
<td>PITTOSPORACEAE</td>
<td>Meliola</td>
<td>23103.11114.33223</td>
<td>...</td>
</tr>
<tr>
<td>POACEAE</td>
<td>Meliola</td>
<td>23103.12214.44212</td>
<td>Colonies epiphyllous, dense; hyphae substraight to undulate; appressoria alternate, antrorse to spreading, reflexed; head cells ovate, entire, subangular to sublobate; phialides borne on a separate mycelial branch; mycelial setae straight, acute at the apex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23103.13214.34223</td>
<td>Colonies amphigenous, subdense; hyphae straight, flexuous to crooked; appressoria alternate, antrorse, subantrorse, retrorse, spreading; head cells ovate, globose to subglobose, angular, slightly to 1-2-times deeply lobate; phialides born on a separate mycelial branch; mycelial setae</td>
</tr>
<tr>
<td></td>
<td>straight to slightly curved, acute at the tip</td>
<td>130. <em>M. panici</em> var. <em>macropodia</em></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td><strong>RHAMNACEAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.311⅔4.43222</td>
<td>...</td>
<td>159. <em>M. zizyphi</em></td>
<td></td>
</tr>
<tr>
<td><strong>RUBIACEAE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Amazonia</strong></td>
<td>Colonies epiphyllous, rarely amphigenous, dense; hyphae substraight to crooked; appressoria alternate, very closely arranged, closely antrorse to subantrorse; head cells ovate to oblong, entire; phialides mixed with appressoria</td>
<td>4. <em>A. goosii</em></td>
<td></td>
</tr>
<tr>
<td>22003.11104.24330</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22003.11104.33240</td>
<td>Colonies hypophyllous, dense; hyphae undulate; appressoria alternate, antrorse; head cells globose, ovate, rarely oblong, entire; phialides mixed with appressoria</td>
<td>5. <em>A. goosii</em> var. <em>microspora</em></td>
<td></td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td>Colonies hypophyllous, subdense; hyphae mostly flexuous; appressoria alternate, antrorse to subantrorse; head cells ovate, globose, entire,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.121⅔4.33223</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Code</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
<td></td>
</tr>
<tr>
<td>sublobate to lobate; phialides mixed with appressoria; mycelial setae straight, flexuous to curved, obtuse at the tip</td>
<td>110. <em>M. ixorae</em> var. <em>psychotriae</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23103.11214.44223</td>
<td>Colonies amphigenous, dense; hyphae substraight to undulate; appressoria alternate, closely antrorse to spreading; head cells ovate, cylindrical, oblong, entire; phialides born on a separate mycelial branch; mycelial setae straight, acute at the apex</td>
<td>48. <em>M. africana</em></td>
<td></td>
</tr>
<tr>
<td>23103.13214.44224</td>
<td>Colonies hypophyllous, dense; hyphae substraight to crooked; appressoria alternate, antrorse to subantrorse; head cells angular to variously lobate, rarely entire, versiform; phialides born on a separate mycelial branch; mycelial setae straight to slightly flexuous, acute to obtuse at the tip</td>
<td>72. <em>M. chandolensis</em></td>
<td></td>
</tr>
<tr>
<td>23103.12214.45332</td>
<td>Colonies amphigenous, dense; hyphae straight to substraight; appressoria alternate, antrorse to spreading, straight to curved; head cells ovate, entire, rarely angular; phialides born on a separate mycelial branch; mycelial setae straight, acute to obtuse at the tip</td>
<td>65. <em>M. canthii-angustifolii</em></td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Species</td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td></td>
</tr>
<tr>
<td>23103.32114.34223</td>
<td>Colonies epiphyllous, thin to dense; hyphae crooked; appressoria alternate and opposite, antrorse to spreading; head cells ovate, globose, entire to angular; phialides mixed with appressoria; mycelial setae straight to curved, acute</td>
<td>125. <em>M. mitragyna</em>ne</td>
<td></td>
</tr>
<tr>
<td>23103.31114.24223</td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria opposite to alternate, unilateral, crowded, antrorse to spreading; head cells ovate to cylindrical, entire; phialides mixed with appressoria; mycelial setae straight, acute to subacute at the apex</td>
<td>141. <em>M. randiicola</em></td>
<td></td>
</tr>
<tr>
<td>23103.12114.33222</td>
<td>Colonies hypophyllous, dense; hyphae flexuous to crooked; appressoria alternate, antrorse, subantrorse, retrorse to rarely closely appressed to the hyphae; head cells ovate, oblong, cylindrical globose, mostly angular, rarely entire to lobate; phialides mixed with appressoria; mycelial setae straight, acute to obtuse at the tip</td>
<td>74. <em>M. chassaliicola</em></td>
<td></td>
</tr>
</tbody>
</table>

**RUTACEAE**

*Amazonia*

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>22003.11104.44320</td>
<td>...</td>
<td>7. <em>A. melicopecola</em></td>
</tr>
<tr>
<td>Irenopsis</td>
<td>23023.12104.23220</td>
<td>…</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------</td>
<td>---</td>
</tr>
<tr>
<td><strong>Meliola</strong></td>
<td>23103.11114.24222</td>
<td>Colonies hypophyllous, dense; hyphae straight to substraight; appressoria alternate, straight to slightly curved, subantrorse to antrorse; head cells subglobose, ovate to cylindrical, entire; phialides mixed with appressoria; mycelial setae straight, acute to subacute at the tip</td>
</tr>
<tr>
<td>23103.311¾4.33223</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae straight to substraight; appressoria alternate and opposite, crowded, antrorse to spreading; head cells ovate, globose to subglobose, entire, rounded at the apex; phialides mixed with appressoria; mycelial straight, acute to dentate at the tip</td>
<td>63. <em>M. cadigensis</em> var. <em>glycosmidis</em></td>
</tr>
<tr>
<td>23103.11144.44331</td>
<td>Colonies amphigenous, dense; hyphae straight to substraight; appressoria alternate, antrorse to spreading; head cells cylindrical, elongated, straight to curved, entire; phialides mixed with appressoria; mycelial setae straight, dichotomously branched, 240 μm long up to first branching, first ray up</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>to 60 µm long, second ray up to 40 µm long and third ray up to 10 µm long, acute to obtuse at the tip, branches reflexed</strong></td>
<td><strong>151. <em>M. tenella</em></strong></td>
<td></td>
</tr>
<tr>
<td><strong>23103.3111/34.34223</strong></td>
<td>Colonies amphigenous, dense; hyphae straight to substraight; appressoria alternate to opposite, about 10% unilateral, antrorse to retrorse, closely packed; head cells cylindrical, ovate, clavate, entire, curved to recurved; phialides mixed with appressoria; mycelial setae straight, acute to variously dentate at the tip</td>
<td><strong>78. <em>M. citricola</em></strong></td>
</tr>
<tr>
<td><strong>SANTALACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>23103.12114.34222</strong></td>
<td>...</td>
<td><strong>145. <em>M. scleropyri</em></strong></td>
</tr>
<tr>
<td><strong>SAPINDACEAE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>23103.211½4.33222</strong></td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria opposite, crowded; head cells conoid, entire; phialides mixed with appressoria; mycelial setae straight, acute to dentate at the tip</td>
<td><strong>68. <em>M. capensis</em> var. schleicherae</strong>*</td>
</tr>
<tr>
<td>ID</td>
<td>Description</td>
<td>Species</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>23103.311½4.23223</td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria opposite to alternate, antrorse to spreading; head cells ovate to cylindrical, attenuated at the apex, entire; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to variously dentate at the tip</td>
<td>67. <em>M. capensis</em> var. <em>malayensis</em></td>
</tr>
<tr>
<td>23103.321½4.34223</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria alternate and opposite, 10% unilateral, antrorse to subantrorse; head cells ovate, globose to subglobose, entire to subangular; phialides mixed with appressoria; mycelial setae straight, acute, obtuse to dentate at the tip</td>
<td>66. <em>M. capensis</em> var. <em>allophylicola</em></td>
</tr>
<tr>
<td>23103.32114.34221</td>
<td>Colonies hypophyllous, subdense; hyphae undulate to crooked; appressoria alternate, about 3% opposite, antrorse, subantrorse to retrorse; head cells ovate, globose, entire to angular; phialides mixed with appressoria; mycelial setae straight, acute to subacute at the tip</td>
<td>90. <em>M. dimocarpi</em></td>
</tr>
<tr>
<td>23103.32114.34223</td>
<td>Colonies hypophyllous, subdense; hyphae straight to substraight, rarely crooked; appressoria opposite, about</td>
<td></td>
</tr>
<tr>
<td>Species</td>
<td>Description</td>
<td>Accession</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><em>Meliola</em></td>
<td>5% alternate, antrorse to subantrorse; head cells globose, subglobose, ovate, rounded to rarely truncate at the apex, entire; phialides mixed with appressoria; mycelial setae straight to curved, acute to obtuse at the tip</td>
<td>23103.311½4.33223</td>
</tr>
<tr>
<td><em>otonephelii</em></td>
<td>Colonies epiphyllous, dense; hyphae straight; appressoria opposite, 1% alternate, antrorse to subantrorse; head cells ovate, mammiform, cylindrical, entire; phialides mixed with appressoria; mycelial setae straight to slightly curved, acute, obtuse to variously dentate at the tip</td>
<td>127. otonephelii</td>
</tr>
</tbody>
</table>

### SCROPHULARIACEAE

<table>
<thead>
<tr>
<th>Genus</th>
<th>Description</th>
<th>Accession</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Meliola</em></td>
<td>155. <em>M. toreniae</em></td>
<td>23103.12114.43223</td>
</tr>
</tbody>
</table>

### STAPHYLEACEAE

<table>
<thead>
<tr>
<th>Genus</th>
<th>Description</th>
<th>Accession</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Prataprajella</em></td>
<td>160. <em>P. turpiinicola</em></td>
<td>23033.13103.46230</td>
</tr>
</tbody>
</table>

### STERCULIACEAE

<table>
<thead>
<tr>
<th>Genus</th>
<th>Description</th>
<th>Accession</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Irenopsis</em></td>
<td>39. <em>I. helicteridis</em></td>
<td>23023.12104.43220</td>
</tr>
<tr>
<td>STILAGINACEAE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Asteridiella</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23003.12104.43220</td>
<td>…</td>
<td>16. <em>A. antidesmaticola</em></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>STRYCHNACEAE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meliola</strong></td>
</tr>
<tr>
<td>23103.32114.33222</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TILIACEAE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Irenopsis</strong></td>
</tr>
<tr>
<td>23023.32104.53210</td>
</tr>
<tr>
<td>Colonies epiphyllous, thin to subdense; hyphae substraight; appressoria alternate, 10% unilateral, antrorse, spreading; head cells ovate, globose, entire to subangular; phialides mixed with appressoria; perithecial setae 6-10, straight, slightly uncinate, subobtuse at the tip, upto 130 µm long</td>
</tr>
</tbody>
</table>

**ULMACEAE**

**Asteridiella**

| Colonies epiphyllous, thin; hyphae substraight to flexuous; appressoria alternate, antrorse to spreading; head cells ovate to cylindrical, entire, angular, sublobate; phialides mixed with appressoria; perithecial wall cells conoid | 17. *A. callista* |

**VERBENACEAE**

**Asteridiella**

| Colonies amphigenous, mostly epiphyllous, dense; appressoria alternate to unilateral, antrorse to spreading; head cells globose, angular, entire to sublobate; phialides mixed | 33. *A. tremae* |

<p>| 23023.12104.44220 | 2303.12104.43320 | 2303.12104.43220 | 2303.12104.44230 |</p>
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23003.11204.44220</td>
<td>Colonies epiphyllous, thin to subdense; hyphae substraight to crooked; appressoria alternate, antrorse to spreading; head cells ovate, globose, entire, rarely subangular; phialides borne on a separate mycelial branch; perithecial cells conoid to mammiform</td>
</tr>
<tr>
<td>22. A. formosensis</td>
<td></td>
</tr>
<tr>
<td>Meliola</td>
<td></td>
</tr>
<tr>
<td>23103.11114.33221</td>
<td>Colonies amphigenous, mostly epiphyllous, dense; hyphae undulate to tortuous; appressoria alternate to unilateral, antrorse to reflexed; head cells ovate, globose, entire; phialides mixed with appressoria; mycelial setae acute to obtuse at the tip</td>
</tr>
<tr>
<td>79. M. clerodendricola</td>
<td></td>
</tr>
<tr>
<td>23103.12114.53221</td>
<td>Colonies epiphyllous, dense; hyphae straight to substraight; appressoria alternate, few unilateral, antrorse to subantrorse, straight; head cells ovate, globose to subglobose, entire to slightly subangular; phialides numerous, mixed with appressoria; mycelial setae straight to slightly curved, subacute to obtuse at the tip</td>
</tr>
<tr>
<td>80. M. clerodendricola var. micromera</td>
<td></td>
</tr>
<tr>
<td>23103.11114.43221</td>
<td>Colonies epiphyllous, subdense; hyphae straight to substraight; appressoria alternate, antrorse; head cells ovate,</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>52</td>
<td>globose, entire; phialides mixed with appressoria; mycelial setae straight to slightly curved, obtuse at the tip</td>
</tr>
<tr>
<td>81</td>
<td>Colonies epiphyllous, subdense; hyphae straight to substraight; appressoria alternate, 10% unilateral, antrorse to spreading; head cells ovate, globose, entire; phialides mixed with appressoria; mycelial setae straight, obtuse at the tip</td>
</tr>
</tbody>
</table>

**VITACEAE**

- **Meliola**
  - No. 71: Colonies epiphyllous, subdense; hyphae straight to substraight; appressoria alternate, 10% unilateral, antrorse to spreading; head cells ovate, globose, entire; phialides mixed with appressoria; mycelial setae straight, obtuse at the tip
  - *M. cayratiae*

**ZINGIBERACEAE**

- **Asteridiella**
  - No. 15: Colonies epiphyllous, subdense; hyphae straight to substraight; appressoria alternate, 10% unilateral, antrorse to spreading; head cells ovate, globose, entire; phialides mixed with appressoria; mycelial setae straight, obtuse at the tip
  - *A. amomi*

**EXPLANATION TO LINE DRAWINGS**

- **a** – appressorium, **b** – phialides, **c** – apical portion of mycelial setae, **d** – ascospores, **e** – perithecial wall cells, **f** – perithecial setae, **g** – perithecial appendages.