

Lignicolous fungi of eastern Lesser Hinggan Mts. of Heilongjiang Province

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Abstract: This is the first report of the lignicolous fungi from eastern Lesser Hinggan Mts. of Heilongjiang Province. 105 species of polypores and 19 species of corticoid fungi were identified based on 416 collected samples. Among them, one hydneous fungus, *Mucronella calva*, is newly recorded from China. An illustrated description of this species is given based on the Chinese material. Two alphabetical checklists of these 124 lignicolous fungi with substrate and collecting data are given.

Key words: corticoid fungi, polypores, hydneous fungi, *Mucronella calva*, taxonomy

黑龙江小兴安岭东部的木生真菌

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摘要: 本文首次对黑龙江省小兴安岭东部的大亮子河、凉水自然保护区及鹤北联营林场的木生真菌进行了报道。根据对采集的 416 号木材腐朽真菌的野外调查及室内鉴定研究,共发现多孔菌 105 种,革菌 19 种。其中光滑尖齿菌 *Mucronella calva* 为我国齿状木生真菌新记录种。根据采集的标本,对该种进行了详细的描述及显微结构绘图。并分别列出了这 124 种木生真菌的名称,同时给出了每种的采集信息。

关键词: 革菌, 多孔菌, 齿状真菌, 光滑尖齿菌, 分类

INTRODUCTION

Heilongjiang Province has the most important boreal and temperate forest resources in China. There are many nature reserves for protecting different type of

forest and animals in the province. Huzhong Nature Reserve which located in the Greater Hinggan Mts. in the northwestern part of the province is mainly for protecting *Larix* forest; Fenglin Nature Reserve in northern Lesser Hinggan Mts. is mainly covered by

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virgin pine forest and mixed forest; Ning'an is a protected area for crater forest in the southeastern part of province. Lignicolous fungi in the above mentioned forests are rich, and poroid wood-inhabiting fungi were already preliminarily investigated (Dai *et al.* 2000, 2004b; Dai & Penttilä 2006; Yuan *et al.* 2006). In addition, several reports on wood-decaying fungi and their functions from the province were published (Dai 2004; Wei & Dai 2004; Yu *et al.* 2004; Xiong *et al.* 2007a, 2007b; Dai & Cui 2008; Dai & Xiong 2008). However, the knowledge of lignicolous fungi in eastern Lesser Hinggan Mts. was still poorly known.

A grant was obtained from National Natural Science Foundation of China, so that an investigation on the diversity of lignicolous fungi in eastern Lesser Hinggan Mts. could be carried out during August to September of 2008. The present study supplied the checklist of polypores and corticoid fungi identified from the specimens collected from the studied areas.

1 MATERIALS AND METHODS

The studied materials were collected by the authors from Daliangzihe Nature Reserve in Tangyuan County, Liangshui Nature Reserve in Dailing County and Lianying Forest Farm in Hegang County (Fig. 1).

The studied specimens are deposited at the herbarium of the Institute of Applied Ecology, Chinese Academy of Sciences (IFP). The microscopic methods employed in the present study are the same as that described by Dai & Niemelä (1997).

In the following list the poroid and corticoid lignicolous fungi are arranged alphabetically by genus and species. The authors of scientific names are according to the second edition of *AUTHORS OF FUNGAL NAMES* (<http://www.indexfungorum.org/AuthorsOfFungalNames.htm>). Substrate and collection data are supplied after the name of each species, and the hosts are listed alphabetically.

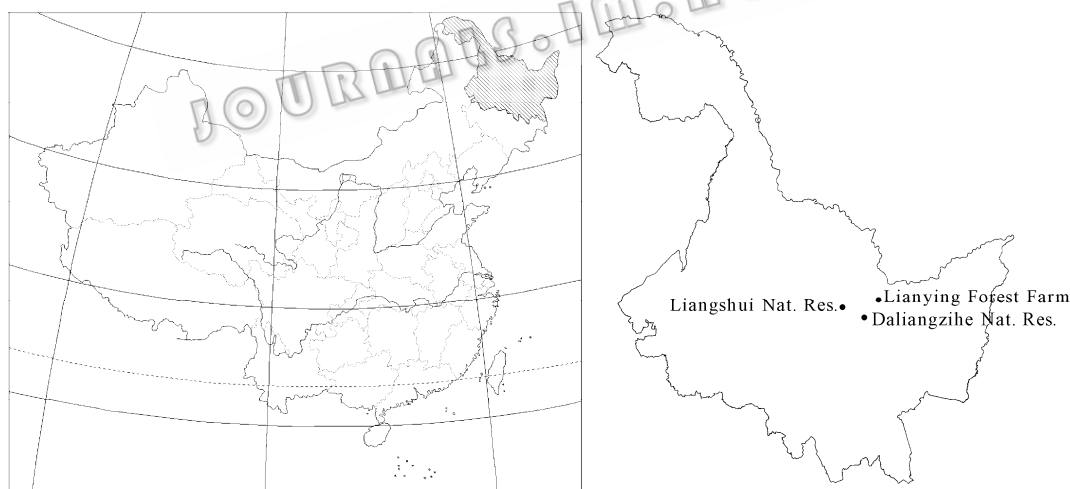


Fig. 1 The location of Heilongjiang Province in China and the areas investigated (black dots, in right map).

2 RESULTS AND DISCUSSIONS

2.1 The checklist of poroid fungi

1. *Anomoporia flavissima* Niemelä, fallen trunk of *Abies*, Yuan 5102, 5124; fallen gymnosperm trunk, Yuan 4917; rotten wood of *Pinus*, Yuan 5202
2. *Antrodia albida* (Fr.:Fr.) Donk, fallen angiosperm trunk, Yuan 5065, 5181; angiosperm twig, Yuan 5128; fallen trunk of *Betula*, Yuan 5048
3. *Antrodia heteromorpha* (Fr.:Fr.) Donk, fallen trunk of *Pinus*, Yuan 5060, 5110, 5138, 5276
4. *Antrodia malicola* (Berk. & M.A. Curtis) Donk, fallen branch of *Acer*, Yuan 5052; fallen trunk of *Quercus*, Yuan 5075
5. *Antrodia serialis* (Fr.) Donk, fallen trunk of *Abies*, Yuan 5093, 5192; fallen trunk of *Picea*, Yuan 5007, 5099; fallen trunk of *Pinus*, Yuan 4979, 5108, 5112, 5289

6. *Antrodia sitchensis* (Baxter) Gilb. & Ryvarden, fallen trunk of *Picea*, Yuan 5101
7. *Antrodia vaillantii* (DC.:Fr.) Ryvarden, fallen trunk of *Pinus*, Yuan 4092
8. *Antrodia xantha* (Fr.:Fr.) Ryvarden, fallen trunk of *Picea*, Yuan 5172; fallen trunk of *Pinus*, Yuan 5141, 5254, 5272
9. *Antrodiella aurantilaeta* (Corner) T. Hatt. & Ryvarden, fallen angiosperm trunk, Yuan 5222
10. *Antrodiella gypsea* (Yasuda) T. Hatt. & Ryvarden, rotten wood of *Abies*, Yuan 5130, 5180, 5205; fallen gymnosperm branch, Yuan 4951; fallen trunk of *Picea*, Yuan 5292; fallen trunk of *Pinus*, Yuan 5187
11. *Bjerkandera adusta* (Willd.:Fr.) P. Karst., rotten angiosperm wood, Yuan 4975, 5210, 5236; stump of *Betula*, Yuan 5012; fallen trunk of *Betula*, Yuan 5027, 5140; fallen trunk of *Quercus*, Yuan 5080
12. *Cerrena unicolor* (Bull.:Fr.) Murrill, dead angiosperm tree, Yuan 5002, 5201, 5281; fallen branch of *Betula*, Yuan 4941, 5024
13. *Climacocystis borealis* (Fr.) Kotl. & Pouzar, living tree of *Picea*, Yuan 5081; dead tree of *Picea*, Yuan 5009; stump of *Pinus*, Yuan 5079, 5097, 5139
14. *Daedalea dickinsii* Yasuda, fallen trunk of *Quercus*, Yuan 5129
15. *Daedaleopsis confragosa* (Bolton:Fr.) J. Schröt., dead tree of *Acer*, Yuan 5280; fallen angiosperm trunk, Yuan 4913
16. *Daedaleopsis sinensis* (Lloyd) Y.C. Dai, dead tree of *Alnus*, Yuan 4916; dead angiosperm tree, Yuan 5213; fallen angiosperm trunk, Yuan 4907, 4955, 4971, 5227
17. *Daedaleopsis tricolor* (Bull.:Mérat) Bondartsev & Singer, dead tree of *Acer*, Yuan 5132; fallen trunk of *Alnus*, Yuan 4930; fallen angiosperm trunk, Yuan 5085, 5228
18. *Diplomitoporus flavescens* (Bres.) Domański, dead tree of *Pinus*, Yuan 5295; fallen trunk of *Pinus*, Yuan 4931, 4933
19. *Diplomitoporus lindbladii* (Berk.) Gilb. & Ryvarden, fallen branch of *Pinus*, Yuan 5251; rotten wood of *Pinus*, Yuan 4945
20. *Fomes fomentarius* (L.:Fr.) Fr., dead tree of *Alnus*, Yuan 4928; dead angiosperm tree, Yuan 4938, 5294; dead tree of *Quercus*, Yuan 5107
21. *Fomitiporia punctata* (P. Karst.) Murrill, dead angiosperm tree, Yuan 4967, 5308; fallen angiosperm branch, Yuan 4901, 4952, 4993; living tree of *Quercus*, Yuan 5223
22. *Fomitopsis cajanderi* (P. Karst.) Kotl. & Pouzar, fallen trunk of *Pinus*, Yuan 5083, 5137, 5182, 5229, 5243
23. *Fomitopsis pinicola* (Sw.:Fr.) P. Karst., dead tree of *Pinus*, Yuan 4969, 5113; fallen trunk of *Pinus*, Yuan 4912, 5266
24. *Funalia cervina* (Schwein.:Fr.) Y.C. Dai, fallen trunk of *Quercus*, Yuan 5022, 5066
25. *Funalia trogii* (Berk.) Bondartsev & Singer, fallen angiosperm trunk, Yuan 4981, 4997; fallen trunk of *Populus*, Yuan 5175
26. *Ganoderma lipsiense* (Batsch) G.F. Atk., stump of *Alnus*, Yuan 5098; angiosperm stump, Yuan 5258, 5282; stump of *Betula*, Yuan 4956; fallen trunk of *Betula*, Yuan 4949
27. *Gloeophyllum odoratum* (Wulfen:Fr.) Imazeki, stump of *Pinus*, Yuan 5158
28. *Gloeophyllum sepiarium* (Wulfen:Fr.) P. Karst., rotten wood of *Abies*, Yuan 5007; fallen trunk of *Pinus*, Yuan 5275
29. *Gloeophyllum trabeum* (Pers.:Fr.) Murrill, fallen angiosperm trunk, Yuan 5117; fallen trunk of *Pinus*, Yuan 5312
30. *Gloeoporus dichrous* (Fr.:Fr.) Bres., fallen trunk of *Betula*, Yuan 4935; fallen angiosperm trunk, Yuan 4922, 5153, 5226
31. *Haploporus odoratus* (Sommerf.) Bondartsev & Singer, dead tree of *Syringa*, Yuan 4910
32. *Heterobasidion insulare* (Murrill) Ryvarden, fallen trunk of *Abies*, Yuan 5103; stump of *Pinus*, Yuan 4920, 5147; fallen trunk of *Pinus*, Yuan 5087, 5179, 5186
33. *Hyphodontia flavipora* (Cooke) Sheng H. Wu, fallen branch of *Alnus*, Yuan 5279; fallen angiosperm trunk, Yuan 5072, 5120, 4900; fallen trunk of *Betula*, Yuan 5036, 5157, 5188
34. *Inocutis rheades* (Pers.) Fiasson & Niemelä, dead tree of *Populus*, Yuan 4974

35. *Inonotus radiatus* (Sowerby:Fr.) P. Karst., dead tree of *Alnus*, Yuan 5004, 5010, 5265, 5268; stump of *Alnus*, Yuan 4924; dead tree of *Betula*, Yuan 4921, 4953; stump of *Fraxinus*, Yuan 4957
36. *Irpex hydroides* Y.W. Lim & H.S. Jung, fallen branch of *Acer*, Yuan 5260; fallen angiosperm branch, Yuan 5096, 5273; fallen branch of *Quercus*, Yuan 5016
37. *Irpex lacteus* (Fr.:Fr.) Fr., fallen trunk of *Alnus*, Yuan 5297; fallen angiosperm trunk, Yuan 4998; fallen trunk of *Betula*, Yuan 5162; angiosperm twig, Yuan 5006
38. *Ischnoderma benzoinum* (Wahlenb.:Fr.) P. Karst., fallen trunk of *Picea*, Yuan 5290; fallen trunk of *Pinus*, Yuan 5105
39. *Junghuhnia collabens* (Fr.) Ryvarden, fallen trunk of *Abies*, Yuan 5199; fallen trunk of *Pinus*, Yuan 5114
40. *Junghuhnia fimbriatella* (Peck) Ryvarden, fallen trunk of *Quercus*, Yuan 5084, 5095
41. *Junghuhnia nitida* (Pers.:Fr.) Ryvarden, fallen angiosperm branch, Yuan 4999, 5029, 5145, 5173, 5253; angiosperm twig, Yuan 4936; fallen trunk of *Fraxinus*, Yuan 4908, 5217
42. *Laetiporus sulphureus* (Bull.:Fr.) Murrill, fallen trunk of *Quercus*, Yuan 5021, 5073
43. *Lenzites betulinus* (L.:Fr.) Fr., fallen angiosperm trunk, Yuan 4962, 5116; fallen trunk of *Betula*, Yuan 4988, 5302; fallen trunk of *Quercus*, Yuan 5030
44. *Leucophellinus irpicoides* (Pilát) Bondartsev & Singer, fallen trunk of *Acer*, Yuan 5034, 5043
45. *Oligoporus obductus* (Berk.) Gilb. & Ryvarden, stump of *Betula*, Yuan 5091
46. *Oligoporus rennyi* (Berk. & Broome) Donk, fallen trunk of *Pinus*, Yuan 5194
47. *Oligoporus sericeomollis* (Romell) Bondartseva, stump of *Abies*, Yuan 4942; rotten wood of *Abies*, Yuan 4992; fallen branch of *Pinus*, Yuan 4987, 5203, 5235, 5248
48. *Onnia tomentosa* (Fr.) P. Karst., stump of *Pinus*, Yuan 4923
49. *Oxyporus corticola* (Fr.) Ryvarden, angiosperm stump, Yuan 5126; fallen trunk of *Quercus*, Yuan 5028
50. *Oxyporus populinus* (Schumach.:Fr.) Donk, living tree of *Acer*, Yuan 5247; fallen trunk of *Alnus*, Yuan 5106; living tree of *Populus*, Yuan 5015; living tree of *Quercus*, Yuan 5055; fallen trunk of *Quercus*, Yuan 5086
51. *Parmastomyces mollissimus* (Maire) Pouzar, fallen trunk of *Pinus*, Yuan 5171
52. *Parmastomyces transmutans* (Overh.) Ryvarden & Gilb., fallen trunk of *Abies*, Yuan 5142; fallen trunk of *Pinus*, Yuan 5146
53. *Perenniporia maackiae* (Bondartsev & Ljub.) Parmasto, fallen trunk of *Betula*, Yuan 5023, 5051
54. *Perenniporia narymica* (Pilát) Pouzar, fallen angiosperm trunk, Yuan 5041, 5214; fallen trunk of *Pinus*, Yuan 5070
55. *Perenniporia subacida* (Peck) Donk, fallen branch of *Abies*, Yuan 4906; fallen gymnosperm trunk, Yuan 4915; rotten wood of *Pinus*, Yuan 4925, 4977
56. *Phellinidium ferrugineofuscum* (P. Karst.) Fiasson & Niemelä, fallen trunk of *Abies*, Yuan 5094
57. *Phellinidium sulphurascens* (Pilát) Y.C. Dai, fallen gymnosperm trunk, Yuan 5215, 5237
58. *Phellinus baumii* Pilát, dead tree of *Alnus*, Yuan 4929, 5218; angiosperm tree, Yuan 4909, 5303; fallen trunk of *Syringa*, Yuan 5115, 5255
59. *Phellinus ferreus* (Pers.) Bourdot & Galzin, twig of *Alnus*, Yuan 5005; fallen angiosperm branch, Yuan 5219
60. *Phellinus gilvus* (Schwein.:Fr.) Pat., fallen trunk of *Betula*, Yuan 5074; fallen branch of *Quercus*, Yuan 5020, 5035, 5050
61. *Phellinus igniarius* (L.:Fr.) Quél., fallen trunk of *Acer*, Yuan 5209; angiosperm twig, Yuan 4965
62. *Phellinus laevigatus* (P. Karst.) Bourdot & Galzin, fallen trunk of *Betula*, Yuan 5163
63. *Phellinus lundellii* Niemelä, fallen angiosperm trunk, Yuan 5127; fallen trunk of *Betula*, Yuan 5207, 5212, 5240, 5245
64. *Phellinus yamanoi* (Imazeki) Parmasto, dead tree of *Picea*, Yuan 5299
65. *Physisporinus vitreus* (Pers.: Fr.) P. Karst., rotten angiosperm wood, Yuan 5204
66. *Piptoporus betulinus* (Bull.:Fr.) P. Karst., fallen angiosperm trunk, Yuan 4926; dead tree of *Betula*, Yuan 5309

67. *Polyporus mongolicus* (Pilát) Y.C. Dai, fallen branch of *Tilia*, Yuan 5221
68. *Polyporus mori* (Pollini:Fr.) Fr., fallen angiosperm tree, Yuan 4939; twig of *Acer*, Yuan 5046
69. *Polyporus tubaeformis* (P. Karst.) Ryvarden & Gilb., gymnosperm wood, Yuan 4903
70. *Polyporus varius* Pers.:Fr., dead angiosperm tree, Yuan 4968; fallen angiosperm trunk, Yuan 5067; twig of *Populus*, Yuan 4934
71. *Poriodontia subvinosa* Parmasto, fallen trunk of *Abies*, Yuan 5185
72. *Postia alni* Niemelä & Vampola, fallen branch of *Fraxinus*, Yuan 4905; fallen branch of *Quercus*, Yuan 5056
73. *Postia caesia* (Schrad.:Fr.) P. Karst., fallen trunk of *Pinus*, Yuan 5167, 5232
74. *Postia ceriflua* (Berk. & M.A. Curtis) Jülich, fallen trunk of *Abies*, Yuan 5183
75. *Postia fragilis* (Fr.:Fr.) Jülich, fallen trunk of *Abies*, Yuan 5088, 5242; fallen trunk of *Picea*, Yuan 5100; fallen trunk of *Pinus*, Yuan 5241
76. *Postia leucomallella* (Murrill) Jülich, rotten angiosperm wood, Yuan 5174
77. *Postia pileata* (Parmasto) Y.C. Dai & Renvall, fallen angiosperm trunk, Yuan 5234
78. *Postia placenta* (Fr.) M.J. Larsen & Lombard, fallen trunk of *Abies*, Yuan 5225
79. *Postia stiptica* (Pers.:Fr.) Jülich, fallen angiosperm trunk, Yuan 5011, 5136, 5246
80. *Postia undosa* (Peck) Jülich, fallen trunk of *Picea*, Yuan 4990; fallen trunk of *Pinus*, Yuan 5230, 5244
81. *Pycnoporellus fulgens* (Fr.) Donk, fallen trunk of *Abies*, Yuan 5045; fallen trunk of *Picea*, Yuan 5177
82. *Rigidoporus crocatus* (Pat.) Ryvarden, fallen trunk of *Pinus*, Yuan 5166
83. *Rigidoporus eminens* Y.C. Dai, rotten angiosperm wood, Yuan 5216
84. *Skeletocutis kuehneri* A. David, fallen trunk of *Abies*, Yuan 5118; fallen trunk of *Pinus*, Yuan 5143
85. *Skeletocutis nivea* (Jungh.) Jean Keller, fallen angiosperm trunk, Yuan 4960, 5064; twig of *Quercus*, Yuan 4973, 5121; fallen trunk of *Pinus*, Yuan 5151; fallen trunk of *Synga*, Yuan 5264
86. *Skeletocutis vulgaris* (Fr.) Niemelä & Y.C. Dai, fallen trunk of *Pinus*, Yuan 5135; rotten wood of *Pinus*, Yuan 5154
87. *Spongipellis delectans* (Peck) Murrill, fallen trunk of *Quercus*, Yuan 5032, 5042, 5062
88. *Spongipellis spumeus* (Sowerby:Fr.) Pat., dead angiosperm tree, Yuan 5274
89. *Trametes conchifer* (Schwein.:Fr.) Pilát, fallen twig of *Acer*, Yuan 5250; twig of *Betula*, Yuan 5125
90. *Trametes gibbosa* (Pers.:Fr.) Fr., fallen angiosperm trunk, Yuan 5071
91. *Trametes hirsuta* (Wulfen:Fr.) Pilát, fallen angiosperm trunk, Yuan 4976, 4988, 5176
92. *Trametes ochracea* (Pers.) Gilb. & Ryvarden, fallen trunk of *Alnus*, Yuan 4954
93. *Trametes suaveolens* (Fr.:Fr.) Fr., living tree of *Salix*, Yuan 5160; dead tree of *Salix*, Yuan 5000; fallen trunk of *Slis*, Yuan 5296
94. *Trametes velutina* (Fr.:Fr.) G. Cunn., fallen angiosperm trunk, Yuan 5270, 5284
95. *Trametes versicolor* (L.:Fr.) Pilát, angiosperm stump, Yuan 5259; fallen trunk of *Betula*, Yuan 4946, 5122
96. *Trechispora candidissima* (Schwein.) Bondartsev & Singer, fallen branch of *Abies*, Yuan 4982, 4985
97. *Trechispora mollusca* (Pers.:Fr.) Liberta, stump of *Pinus*, Yuan 4948; rotten wood of *Pinus*, Yuan 4937, 5082
98. *Trichaptum abietinum* (Pers.:Fr.) Ryvarden, fallen branch of *Pinus*, Yuan 5315
99. *Trichaptum fuscoviolaceum* (Ehrenb.:Fr.) Ryvarden, twig of *Abies*, Yuan 5109; dead tree of *Pinus*, Yuan 4950; fallen trunk of *Pinus*, Yuan 5189
100. *Trichaptum laricinum* (P. Karst.) Ryvarden, fallen trunk of *Abies*, Yuan 5220
101. *Trichaptum pargamenum* (Fr.) G. Cunn., fallen trunk of *Betula*, Yuan 4978, 5104
102. *Trichaptum polycystidiatum* (Pilát) Y.C. Dai, fallen trunk of *Quercus*, Yuan 5059
103. *Tyromyces canadensis* Overh. ex J. Lowe, fallen trunk of *Pinus*, Yuan 5150
104. *Tyromyces chioneus* (Fr.) P. Karst., angiosperm twig, Yuan 5025, 5283, 5305; fallen branch of *Betula*, Yuan 4996, 5123, 5131; fallen branch of *Fraxinus*, Yuan 4911

105. *Tyromyces kmetii* (Bres.) Bondartsev & Singer, fallen angiosperm branch, Yuan 5018, 5076; angiosperm twig, Yuan 5058

2.2 The checklist of corticoid fungi

1. *Dentipellis fragilis* (Pers.) Donk, fallen angiosperm trunk, Yuan 4972, 5252; rotten angiosperm wood, Yuan 4980
2. *Dentipellis separans* (Peck) Donk, fallen trunk of *Pinus*, Yuan 5193
3. *Hericium coralloides* (Scop.) Pers., fallen angiosperm trunk, Yuan 5069; fallen trunk of *Quercus*, Yuan 5090
4. *Hericium erinaceus* (Bull.) Pers., fallen trunk of *Quercus*, Yuan 5033, 5063, 5068; rotten wood of *Quercus*, Yuan 5026
5. *Hyphodontia* cf. *spatulata* (Schr.) Parmasto, fallen trunk of *Abies*, Yuan 5208
6. *Laurilia sulcata* (Burt) Pouzar, stump of *Pinus*, Yuan 5263
7. *Merulius tremellosus* Schrad., fallen trunk of *Acer*, Yuan 5039; fallen trunk of *Alnus*, Yuan 5089
8. ***Mucronella calva* (Alb. & Schwein.) Fr.**, fallen gymnosperm trunk, Yuan 4918
9. *Mycorrhaphium adustum* (Schwein.) Maas Geest., fallen angiosperm branch, Yuan 5078; ground of mixed forest, Yuan 5031, 5049
10. *Plicatura crispa* (Pers.) Rea, fallen angiosperm branch, Yuan 5155
11. *Pseudohydnum gelatinosum* (Scop.) P. Karst., stump of *Pinus*, Yuan 5164
12. *Radulodon copelandii* (Pat.) N. Maek., fallen trunk of *Quercus*, Yuan 5044, 5054
13. *Rectipilus fasciculatus* (Pers.) Agerer, fallen trunk of *Pinus*, Yuan 5206
14. *Schizophyllum commune* Fr., fallen trunk of *Pinus*, Yuan 5148
15. *Serpula himantoides* (Fr.) P. Karst., stump of *Pinus*, Yuan 5195
16. *Steccherinum laeticolor* (Berk. & M.A. Curtis) Banker, fallen branch of *Pinus*, Yuan 5159
17. *Steccherinum murashkinskyi* (Burt) Maas Geest., fallen angiosperm branch, Yuan 5288; fallen branch of *Ulmus*, Yuan 4943
18. *Steccherinum ochraceum* (Pers.) Gray, fallen branch of *Alnus*, Yuan 5307; fallen angiosperm branch, Yuan 5001; twig of *Betula*, Yuan 4958; fallen branch of *Quercus*, Yuan 5014, 5170
19. *Steccherinum subglobosum* H.S. Yuan & Y.C. Dai, fallen trunk of *Quercus*, Yuan 5038

2.3 Description

***Mucronella calva* (Alb. & Schwein.) Fr.**, Hymenomyc. Eur. (Upsaliae): 629, 1874 Fig. 2

— *Isaria calva* (Alb. & Schwein.) Fr., Syst. Mycol. (Lundae) 3(2): 277, 1832

— *Mucronia calva* (Alb. & Schwein.) Fr., Summa Veg. Scand., Section Post. (Stockholm): 329, 1849

Fruitbody — Basidiocarps annual, consisting of numerous single subulate spines, white and soft when fresh, without odour or taste, becoming straw to buff, wax-alike and fragile when dry; spread out 15cm long and 8cm wide. Spines subulate, terete, straight to flexuous, unforked, 0.3–0.6mm long and 0.1–0.2mm thick, crowd distributed, 3–6 per mm. Subiculum absent.

Hyphal structure — Hyphal system monomitic; generative hyphae mostly with simple septa, occasionally bearing clamp connections, IKI–, CB–; tissues unchanged in KOH.

Spines — Generative hyphae hyaline, thin-walled, occasionally bearing clamp connections; tramal hyphae at the base of spine inflated, moderately branched, 4–10µm diam.; tramal hyphae at the central and top of spines occasionally branched, subparallel along the spines, 1.8–4µm diam.; cuboid crystals scattered in trama. Cystidia absent. Basidia clavate, with a basal simple septum and four sterigmata, 11–14 × 4–5µm; basidioles in shape similar to basidia, but slightly smaller.

Spores — Basidiospores oval to ellipsoid, hyaline, thin-walled, smooth, IKI–, CB–, (4.3–)4.4–5.2(–5.4) × 2.9–3.6(–3.8)µm, L = 4.78µm, W = 3.14µm, Q = 1.52 (n=30/1).

Specimens examined — China. Daliangzihe Nat. Res., Tangyuan County, Heilongjiang Prov., on fallen gymnosperm trunk, 26.VIII. 2008 *Yuan 4918* (IFP).

Microscopical characters suggest this collection is identical with *Mucronella calva* which has not been reported in China previously (Dai *et al.* 2004a). *Mucronella bresadolae* (Quél.) Corner is recently reported from Jilin Province (Xiong & Dai 2008), and it resembles *M. calva* by having hydneous hymenophore and the absence of subiculum. However, *M. bresadolae*

has longer spines (2mm vs. 0.3–0.6mm in *M. calva*) (Breitenbach & Kränzlin 1986). Microscopically, *M. bresadolae* has bigger, ellipsoid to subglobose basidiospores ($5.9\text{--}9.2 \times 4\text{--}6\mu\text{m}$), and clamp connections are frequently present in generative hyphae. On the contrary, *M. calva* has smaller, oval to ellipsoid basidiospores ($4.3\text{--}5.4 \times 2.9\text{--}3.8\mu\text{m}$), and clamp connections are occasionally present in generative hyphae.

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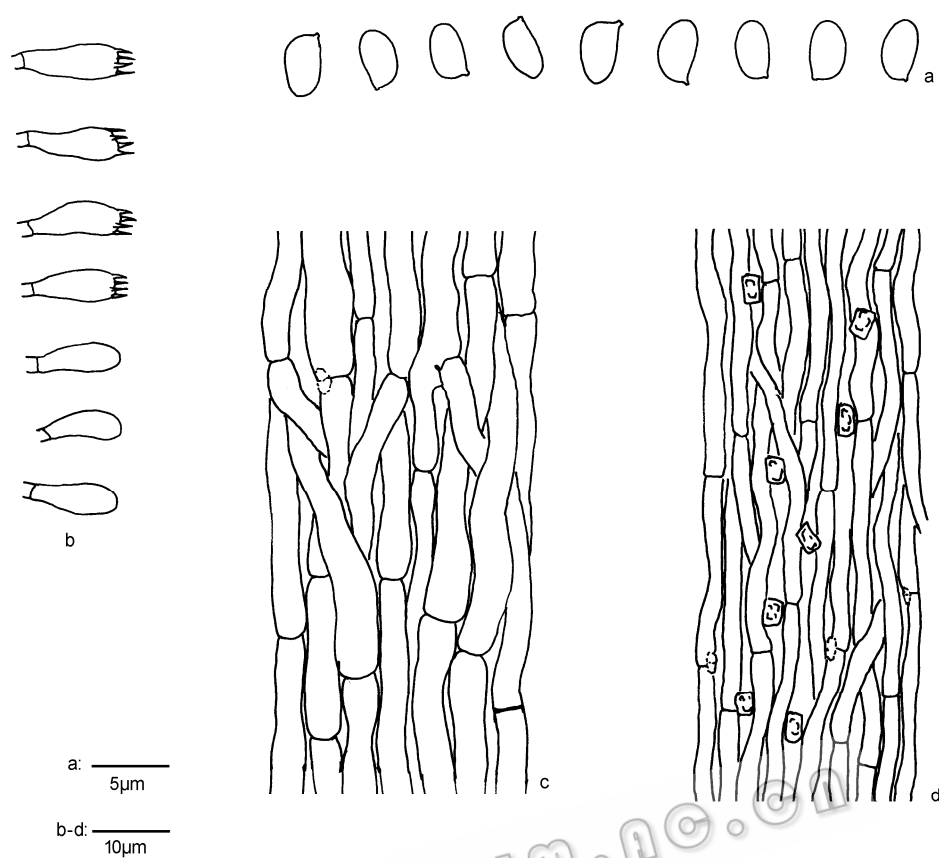


Fig. 2 Microscopic structures of *Mucronella calva* (Alb. & Schwein.) Fr. a: Basidiospores; b: Basidia and basidioles; c: Hyphae from basal spine trama; d: Hyphae from central spine trama.