

NOTES ON NEW FORMOSAN FOREST FUNGI⁽²⁾
 V. A LIST OF POLYPORACEAE FOUND IN TAIWAN.

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Abstract: The flora of Polyporaceae, (Aphyllphorales, Hymenomycetes, Basidiomycetes) of Taiwan has been studied through the wide-range field collection since 1973. More than 2,000 specimens were collected and classified into the appropriate genera and species. In total, the following 30 genera and 91 species (listed in parenthesis of each genus) were recognized including the majority of Polyporaceae reported from Taiwan by Sawada (1919-1959). *Amaurodera* (1), *Bjerkandera*, (1) *Coriolus* (5), *Cryptoderma* (6), *Cyclomyces* (1), *Daedalea* (1), *Daedalopsis* (2), *Elfvingia* (1), *Favolus* (1), *Fomes* (2), *Fomitopsis* (7), *Ganoderma* (5), *Gloeoporus* (1), *Gloeophyllum* (4), *Hexagona* (2), *Hirschioporus* (1), *Inonotus* (2), *Irpex* (1), *Laetiporus* (1), *Microporus* (7), *Onnia* (1), *Phaeolus* (1), *Phellinus* (7), *Piptoporus* (1), *Polyporus* (3), *Poria* (8), *Porodisculus* (1), *Pycnoporus* (2), *Rigidoporus* (4), *Trametes* (11). Among them, two genera, i. e., *Cyclomyces* and *Porodisculus*, ten species, i. e., *Coriolus pinstitus* (Fr.) Pat., *Cyclomyces fuscus* Kunze, *Poria carneolutes* Rodway & Cleland, *P. cinerascens* (Bres.) Sacc. & Syd., *P. nigra* (Berk.) Cooke, *P. nigrescens* Bres., *P. reticulata* (Pers. ex Fries) Cooke, *P. versipora* (Pers.) Romell, *Porodisculus pendulus* (Schw.) Murr., and *Trametes suaveolens* (L.) Fr., are reported here as new records from Taiwan.

INTRODUCTION

The Polyporaceae in Aphyllphorales, basidiomycetes with a poroid hymenophores, are mostly wood-inhabiting organisms with great economic importance. They are among the most important agents causing heartrot of living trees and decay of forest debris and wood in service. The distribution of the species is strongly affected by the available substrate. In Taiwan, a tremendous variety of woody plants, along with highly varied climatic conditions, combine to produce a rich flora of polypores. The region has not been explored intensively by current mycologists in this region. Sawada (1919-59) contributed much of the flora of Polyporaceae of Taiwan but his taxonomic treatment toward this group of fungi was the conservative one—exclusively those of the Friesian System. The modern concept of taxonomy of Polyporaceae as shown in the contributions of Donk (1960), Imazeki (1943), and Pegler (1973), require precise knowledges of the comparative anatomy including an analysis of hyphal systems, pigmentation, clamp-connections, all hymenial structures and spores; cultural features; and ontogeny of each species. Based on this modern concept and research methods, the Formosan Polyporaceae has been revised and expanded survey has been carried out since 1973.

This paper presents preliminary taxonomic information which has been developed as part of a general research program directed toward a treatment of the Polyporaceae of Taiwan. The synopsis and detailed description of each species will be offered sometime in near future when the distribution of each species on this Island becomes clear.

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METHODS

The wide range of field survey and frequent collection trips were carried out since 1973. In total, more than 2,000 specimens has been collected. The present list of Formosan Polyporaceae was based on those materials primarily. All specimens were examined for both macroscopic and microscopic characteristics of each fruiting body. For the latter, observations were made from thin sections cut freehand with a razor blade, mounted first in ninety-five per cent ethyl alcohol to remove air and to wet the material, then in two per cent potassium hydroxide solution to swell it to normal size. Characteristics of the context tissue were obtained from sections cut parallel to the course of the hyphae, or from tissue teased apart with needles. Tubes were usually cut longitudinally to obtain tramal and hymenial details. Macroscopic examinations were made with the aid of a stereomicroscope (10-20×). Nomenclature and taxonomy of Formosan Polyporaceae are based mainly on those treatment of Pegler (1973), but some genera, viz. *Hexagona* and *Onnia*, are adapted from Imazeki (1943). In each species, the synonym previously reported by Sawada by 1959, accompany with the source of information are listed for the convenience of native workers.

RESULTS

As shown in the list, about ninety-one species belonging to thirty genera has been obtained. The most of species and genera previously recorded in Taiwan by Japanese workers have been recovered. In addition, two genera: *Cyclomyces* and *Porodisculus* and ten species: *Coriolus pinsitus* (Fr.) Pat., *Cyclomyces fuscus* Kunze, *Poria carneolutea* Rodway & Cleland, *P. cinerascens* (Bres.) Sacc. & Syd., *P. nigra* (Berk.) Cooke, *P. nigrescens* Bres., *P. reticulata* (Pers. ex Fries.) Cooke, *P. versipora* (Pers.) Romell, *Porodisculus pendulus* (Schw.) Murr. and *Trametes suaveolens* (L.) Fr. are reported from Taiwan for the first time.

No adequate information of each species has been gathered to warrant the discussion of geographic distribution and economic as well as ecological significance at this moment.

List of Formosan Polyporaceae

1. *Amauroderma rugosum* (Bl. et Nees) Imaz.
Ganoderma rugosum Pat., VII 105**.
2. *Bjerkandera adusta* (Willd. ex Fr.) Karst.
Polyporus adustus Fr., XI 107.
3. *Coriolus hirsutus* (Wulf. ex Fr.) Quel.
Polystictus hirsutus (Wulf.) Fr., VII 88.
4. *C. pargamenum* (Fr.) Pat.
Polyporus pargamenum Fr., XI 111.
Polystictus pargamenum (Fr.) Fr., XI 111.
- * 5. *C. pinsitus* (Fr.) Pat., patouillard, Ess. Tax. 94, 1900.
6. *C. polyzonus* (Pers.) Imaz.
Polystictus polyzonus (Pers.) Cooke, I 508, XI 112.
7. *C. versicolor* (L. ex Fr.) Quel.
Polystictus versicolor (L.) Fr., V 74.
Polystictus versicolor (L.) Sacc., VII 94.
8. *Cryptoderma citrinum* Imaz.
Polyporus illicicola Lloyd., XI 108.

*: New record from Taiwan.

** : Volume and page number of Sawada's Descriptive Catalogue of Formosan Fungi.

9. *C. fastuosum* (Lev.) Imaz.
Pyropolyporus fastuosus (Lev.) Murr., I 511.
10. *C. lamaoense* (Murr.) Imaz.
Fomes lamaoensis (Murr.) Sacc. et Trott., IV 86.
F. noxius Corner, VII 97, IX 149.
11. *C. pectinatum* (Klotzsch) Imaz.
Fomes pectinatus (Klot.) Cke., XI 104.
12. *C. pini* Imaz.
Fomes pini Karst., XI 104.
13. *C. substygium* (Berk. et Br.) Imaz., Bull. Gov. Forest Exp. St. Tokyo, 57: 102, 1952.
- *14. *Cyclomyces fuscus* Kunze.
15. *Daedalea biennis* (Bull.) Fr.
Polyporus rufescens (Pers.) Fr., VII 79.
16. *Daedalopsis phaea* Imaz.
Polystictus phaeus Lev., I 508, XI 112.
17. *D. tenuis* (Hook. ex Fr.) Imaz.
Favolus tenuis (Hook.) Murrill, I 511.
18. *Elfvigia applanatus* (Pers.) Karst.
E. tornata (Pers.) Murrill, I 511.
Fomes applanatus Wollr., V 76.
F. australis Fr., V 76.
F. leucophaeus Mont., V 76.
F. nigro-laccatus Cke., I 505.
Ganoderma applanatum (Pers.) Pat., VII 101.
19. *Favolus arcularius* (B. ex Fr.) Ames.
Polyporus arcularius (Batsch.) Fr., V 69.
20. *Fomes annularis* (Fr.) Lloyd., XI 103.
21. *Fomes rhicolor* Lloyd., XI 104.
22. *Fomitopsis castanea* Imaz.
Fomes melanosporus Mont., I 504.
23. *F. caliginosa* (Berk.) Imaz., Bull. Gov. Forest Exp. St. Tokyo, 57: 110, 1952.
24. *F. insularis* (Mull.) Imaz.
Polystictus persoonii Fr., I 507.
Trametes persoonii Mont., VII 110.
25. *F. perzoomii* (Fr.) Imaz.
Polystictus formosae Yasuda, I 507.
26. *F. pinicola* (Swartz. ex Fr.) Karst.
Fomes pinicola Fr., V 76.
27. *F. rhodophaeus* (Lev.) Imaz.
Polystictus rhodophaeus Lev., XI 110.
Polyporus semilaccatus Sawada, V 71.
28. *F. semilaccatus* (Berk. ex Cke.) Imaz.
Polystictus semilaccatus Berk., V 71.
29. *Ganoderma fornicatum* (Fr.) Pat., VII 105.
30. *G. lucidum* (Leys. ex Fr.) Karst.
Polyporus lucidus (Leys.) Fr., I 505.
Ganoderma japonicum (Fr.) Sawada, V 76.
31. *G. tropicum* (Jungh.) Bres., VII 108.
Ganoderma lucidum Sawada, Trans. Nat. Hist. Soc. Formosa, 24 (134), 302.

32. *G. tsugae* Murrill, Imaz, & Hongo, Col. Ill. (1957), p. 143.
33. *G. tsumodae* (Yasuda) Trott., VII 110.
34. *Gloeoporus dichrous* (Fr.) Bres., XI 105.
35. *Gloeophyllum odoratum* (Wulf. ex Fr.) Imaz.
Trametes odora Fr., V 78.
36. *G. striatum* (Swartz.) Murr.
Lenzites striata Swartz., I 510.
37. *G. subferrugineum* (Berk.) B. et G.
Lenzites subferruginea Berk., V 80, VII 116.
38. *G. trabeum* (Pers. ex Fr.) Murr.
Lenzites trabea (Pers.) Fr., VII 119.
39. *Hexagona apiaria* (Pers.) Fr., V 79.
40. *H. heteropora* (Mont.) Imaz.
Trametes heteropora Mont., I 509, XI 106.
41. *Hirschioporus versatilis* (Berk.) Imaz.
Polystictus versatilis Berk., V 73.
42. *Inonotus cuticularis* (Bull. ex Fr.) Karst.
Polyporus mikadoi Umem., V 71.
43. *I. kanehirae* (Yas.) Imaz.
Polyporus kanehirae Yasuda, XI 109.
44. *Irpex lacteus* Fr., XI 106.
45. *Laetiporus sulphureus* (Bull. ex Fr.) Bond. et Sing.
Polyporus sulfureus (Bull.) Fr., VII 80.
46. *Microporus affinis* (Bl. et Nees ex Fr.) Kuntz.
Polystictus affinis Nees, V 72.
Polystictus affinis (Bl. et Nees) Fr., VII 83.
47. *M. flabelliformis* (Kl. ex Fr.) Kuntz.
Polystictus flabelliformis Klotz., V 72.
P. flabelliformis (Klotz.) Cooke, VIII 86.
48. *M. luteus* (Bl. et Nees) Kuntz.
Polystictus luteus Bl. et Nees, V 72.
49. *M. microloma* (Lev.) Cunningham
Polystictus carneo-nigra Berk., V 72.
50. *M. porphyritis* (Berk.) Imaz.
Polystictus porphyritis Berk., XI 112.
51. *M. vernicipes* (Berk.) Imaz.
Polystictus vernicipes Berk., VII 93.
52. *M. xanthopus* (Fr.) Pat.
Polyporus perula (Beauv.) Fr., I 506.
Polystictus xanthopus Fr., V 74.
53. *Onnia cumingii* (Berk.) Imaz., Bull. Gov. Forest Exp. St. Tokyo, 57: 114, 1952.
54. *Phaeolus schweinitzii* (Fr.) Pat.
Polyporus schweinitzii Fr., V 71.
55. *Phellinus bicolor* (Jungh.) Cunningham
Polyporus bicolor Jungh., V 71.
56. *Ph. conchatus* (Fr.) Quel.
Fomes conchatus (Fr.) Gillet., XI 103.
57. *Ph. gilvus* (Fr.) Pat.
Polyporus gilvus Schw. ex Fr., XI 108.

58. *Ph. igniarius* (Fr.) Quel.
Fomes igniarius (Fr.) Kickx., XI 103.
59. *Ph. robustus* (Karst.) Bourd. et Galz.
Fomes robustus Karst., XI 105.
60. *Ph. senex* Imaz.
Polyporus caryophyleas Sawada, V 71.
Fomes senex Nees et Mont., XI 105.
61. *Ph. torulosus* (Pers.) Bourd. et Galz.
Fomes torulosus (Pers.) Lloyd., VII 98.
62. *Piptoporus betulinus* (Bull. ex Fr.) Karst.
Lenzites betulina Fr., V 80, VII 113.
63. *Polyporus discoideus* Berk. et Cartis, XI 107.
64. *P. ostreiformis* Berk., I 506.
65. *P. squamosus* Mich. ex Fr., Chen, *Taiwania* 20 (2): 201-212, 1975.
- *66. *Poria carneolutes* Rodway & Cleland., Chen, *Taiwania* 21(2): 87-91, 1976.
- *67. *P. cinerascens* (Bres.) Sacc. & Syd., Chen, 1976.
68. *P. cocos* (Fr.) Wolf. *Pachyma cocos* Fr. V. 131.
- *69. *P. nigra* (Berk.) Cooke. Chen, 1976.
- *70. *P. nigrescens* Bres. Chen, 1976.
- *71. *P. reticulata* (Pers. ex Fries) Cooke, Chen, 1976.
- *72. *P. versipora* (Pers.) Romell. Chen, 1976.
73. *P. xylina* Yasuda, I 503.
- *74. *Porodisculus pendulus* (Schw.) Murr.
75. *Pycnoporus cinnabarinus* Karst.
Polystictus cinnabarinus (Jacq.) Sacc., VII 84.
76. *P. sanguineus*
Polyporus sanguineus (L.) Murr, I 506.
Polystictus sanguineus (L.) Fr., I 508, VII 90.
77. *Rigidoporus durns* (Jungh.) Imaz., Bull. Gov. Forest Exp. St. Tokyo, 57: 117, 1952.
78. *R. geotropus* (Cke.) Imaz.
Fomes ulmarius Fr., VII 100.
79. *R. lignosus* (Klotz.) Imaz., Bull. Gov. Forest Exp. St. Tokyo 57: 118, 1952.
80. *R. zonalis* (Berk.) Imaz.
Polyporus zonalis Berk., XI 110.
81. *Trametes acuta* (Berk.) Imaz.
Lenzites acuta Berk., XI 107.
82. *T. aneba* (Berk.) Imaz.
Polyporus anebus Berk., V 69.
83. *T. brunneola* (Berk.) Imaz., XI 113.
84. *T. dickinsii* Berk., I 509, XI 113.
85. *T. gibbosa* (Fr.) Fr. XI 114.
Lenzites tenuis Lev., V 80.
86. *T. kusanoana* Imaz., XI 114.
87. *T. mulleri* Berk., I 510, V 78, XI 114.
88. *T. orientalis* (Yas.) Imaz., XI 115.
89. *T. pallisoti* (Fr.) Imaz.
Lenzites repanda Fr., V 80, VII 114.
90. *T. scabrosa* (Pers.) Cunningham
Earliella corrugata (Pers.) Murr., I 511.
- *91. *T. suaveolens* (L.) Fr. Chen, *Taiwania* 20(2): 201-212, 1975.

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