

## Polypores (Basidiomycota) from Qin Mts. in Shaanxi Province, central China

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133 species of polypores were identified based mostly on collections from Qin Mts. of southern Shaanxi Province, central China. A checklist of the polypores with substrate and collecting data is supplied. Two new species, *Polyporus rhododendri* Y.C. Dai & H.S. Yuan and *Postia qinensis* Y.C. Dai & Y.L. Wei, are described and illustrated. The former is an elegant species growing on *Rhododendron*, and it has almost sessile basidiocarps; microscopically it is characterized by fusiform basidiospores. The latter is characterized by white, soft, resupinate to effused-reflexed basidiocarps, abundant gloeocystidia, cylindrical to slightly allantoid basidiospores.

Key words: checklist, new species, taxonomy, wood-inhabiting fungi

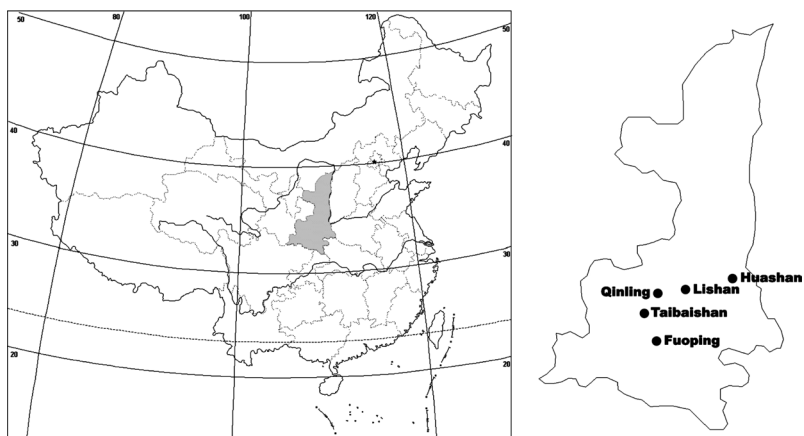
Shaanxi Province is located in the north-western of China, middle reaches of Yellow River, between 31°42'–39°35'N and 105°29'–10°15'E. The northern part of Shaanxi is loess plateau, central part is farmland, and the southern part is Qin mountainous area. The forest vegetation in the province is restricted to the mountains only, and the forests vary from warm temperate forest in the lower part to boreal forest close to the timberline. Three main types of forest grow in the mountain: broadleaved deciduous forests, mixed coniferous and broadleaved forests, and coniferous forests.

The plant flora in the province is well known, and around 1700 species of seed plants, including more than 480 kinds of woody plants grow there

(Zhang 2002). But knowledge of the fungal flora is incomplete, and around 52 polypores were recorded in the province previously (Pilát 1940, Zhao & Zhang 1992, Mao & Zhuang 1997, Zhao 1998). This paper is a continuation of a series of studies on wood-decaying fungi from western China (Dai *et al.* 2007a, 2007b). Four field trips were made during 2002 to 2006 and around 400 specimens were collected from the forest areas in the province. 133 poroid wood-decaying fungi were identified, most of them not previously recorded in the province, and in this paper we provide a checklist of the polypores, and the host of each species is supplied in the list.

The study is based mostly on the materials collected at five localities from Qin Mts.:

**Fig. 1.** The location of Shaanxi Province (shaded area) in China and the investigated areas (black dots).



(1) Qinling Forest Park, (2) Huashan Park, (3) Lishan Park, (4) Taibaishan Nature Reserve and (5) Fuoping Nature Reserve (Fig. 1). The studied specimens are deposited at the herbarium of Institute of Applied Ecology, Chinese Academy of Sciences (IFP). In addition, around 60 specimens collected from the same province by other mycologist were examined, too, and these specimens are preserved at the Herbarium of the Institute of Microbiology, Chinese Academy of Sciences (HMAS), Beijing, China.

The microscopic routine used in the study follows Niemelä *et al.* (2004). In the text the following abbreviations are used: KOH = 5% potassium hydroxide, CB = Cotton Blue, CB+ = cyanophilous, CB- = acyanophilous, IKI = Melzer's reagent, IKI- = inamyloid and indextrinoid,  $L$  = mean spore length (arithmetical average of all spores),  $W$  = mean spore width (arithmetical average of all spores),  $Q$  = range of the variation in  $L/W$  ratio, and  $n$  = the number of spores measured from given number of specimens. Special colour terms follow Rayner (1970) and Peterson (1996).

## Checklist

In the following an alphabetical list (according to genera) of polypores is given, and the authors of scientific names are according to the second version of Authors of Fungal Names (<http://www.indexfungorum.org/AuthorsOfFungalNames.htm>). Substrate and collection number are sup-

plied after the name of each polypore, and the hosts are listed alphabetically. In the case of the same host tree, they are arranged in the order: living tree, dead tree, fallen twig, fallen branch, fallen trunk, rotten wood, stump and root. The concept of polypores circumscribed here is in a wide sense, including the Polyporaceae, Ganodermataceae, and poroid species in the Hymenochaetaceae, Corticiaceae and Tremellaceae.

*Anomoporia vesiculosa* Y.C. Dai & Niemelä, fallen decorticated trunk of *Pinus*, Yuan 2847.

*Antrodia albida* (Fr. : Fr.) Donk, HMAS 33270, 61807, 61810, 63682; angiosperm wood, Yuan 2546, 2576, 2578; rotten wood of *Betula*, Yuan 2862.

*Antrodia heteromorpha* (Fr. : Fr.) Donk, fallen twig of *Pinus*, Yuan 2796.

*Antrodia malicola* (Berk. & M.A. Curtis) Donk, fallen angiosperm branch, Dai 7646a; Yuan 2586, 2604, 2617, 2791; rotten angiosperm wood, Dai 7719; angiosperm stump, Yuan 2549, 2562, 2582, 2602.

*Antrodia serialis* (Fr.) Donk, fallen gymnosperm branch, Dai 7646b.

*Antrodia wangii* Y.C. Dai & H.S. Yuan, dead tree of *Prunus*, Dai 5761 & 5763.

*Antrodia xantha* (Fr. : Fr.) Ryvarden, fallen trunk of *Pinus*, Yuan 2856; living tree of *Juniperus*, Wang 47.

*Antrodiella albocinnamomea* Y.C. Dai & Niemelä, fallen angiosperm trunk, Yuan 2651, 2751, 2753; angiosperm stump, Wang 70, 91, 94, Yuan 2620; angiosperm root, Dai 7675, Wang 87; stump of *Betula*, Yuan 2615; stump of *Quercus*, Wang 85; fallen trunk of *Michelia*, Dai 7667; living tree of *Salix*, Yuan 2534.

*Antrodiella brunneimontana* (Corner) T. Hatt., fallen trunk of *Betula*, Yuan 2663; fallen trunk of *Quercus*, Yuan 2833; stump of *Quercus*, Yuan 2756.

*Antrodiella zonata* (Berk.) Ryvarden, fallen trunk of *Juglans*, Wang 38.

*Bjerkandera adusta* (Willd. : Fr.) P. Karst., fallen angio-

sperm twig, *Yuan* 2551; angiosperm stump, *Yuan* 2601; fallen trunk of *Betula*, *Wang* 12; stump of *Betula*, *Dai* 5745, *Yuan* 2526, *Yuan* 2543; fallen branch of *Vitis*, *Wang* 36, *Yuan* 2531.

*Bjerkandera fumosa* (Pers. : Fr.) P. Karst., living angiosperm tree, *Wang* 8.

*Ceriporia alachuana* (Murrill) Hallenb., stump of *Parthenocissus*, *Wang* 522.

*Ceriporia purpurea* (Fr.) Donk, fallen angiosperm trunk, *Yuan* 2717.

*Ceriporia viridans* (Berk. & Broome) Donk, fallen angiosperm trunk, *Yuan* 2744, 2747, 2752; rotten angiosperm wood, *Dai* 7642, 7648, 7705; angiosperm stump and dead polypores, *Yuan* 2771.

*Ceriporiopsis gilvescens* (Bres.) Domański, fallen angiosperm branch, *Dai* 7659, *Yuan* 2654, 2722; rotten wood of *Populus*, *Yuan* 2633; rotten wood of *Quercus*, *Yuan* 2785.

*Ceriporiopsis mucida* (Pers. : Fr.) Gilb. & Ryvarden, fallen angiosperm trunk, *Yuan* 2624; living tree of *Juniperus*, *Wang* 51; rotten wood of *Pinus*, *Dai* 7725; fallen branch of *Quercus*, *Dai* 7656, 7722.

*Cerrena unicolor* (Bull. : Fr.) Murrill, angiosperm stump, *Yuan* 2571; dead angiosperm tree, *Dai* 7701; dead tree of *Prunus*, *Dai* 7727; dead tree of *Piptanthus*, *Dai* 7742.

*Coltricia cinnamomea* (Jack.) Murrill, HMAS 61812.

*Coltricia perennis* (L. : Fr.) Murrill, HMAS 61808.

*Coriolopsis strumosa* (Fr. : Fr.) Ryvarden, fallen angiosperm branch, *Yuan* 2556; angiosperm stump, *Wang* 96, *Yuan* 2786; fallen trunk of *Diospyros*, *Wang* 46.

*Cyclomyces xeranticus* (Berk.) Y.C. Dai & Niemelä, HMAS 62501; living angiosperm tree, *Yuan* 2598; angiosperm stump, *Yuan* 2581, 2585, 2613, 2622, 2806.

*Daedalea dickinsii* Yasuda, fallen angiosperm trunk, *Yuan* 2685, 2707; living tree of *Quercus*, *Wang* 88; stump of *Quercus*, *Dai* 5747, 5751, 7689.

*Daedaleopsis confragosa* (Bolton : Fr.) J. Schröt., fallen angiosperm branch, *Dai* 7663, *Yuan* 2812, 2816, 2841, 2861; living tree of *Salix*, *Wang* 21; dead tree of *Salix*, *Yuan* 2537.

*Daedaleopsis tricolor* (Bull. : Mérat) Bondartsev & Singer, HMAS 10410, 32966, 61826; fallen angiosperm trunk, *Yuan* 2671.

*Datronia mollis* (Sommerf.) Donk, dead angiosperm tree, *Yuan* 2536; fallen angiosperm branch, *Yuan* 2566, 2580, 2638; angiosperm stump, *Wang* 24, *Yuan* 2527.

*Datronia stereoides* (Fr.) Ryvarden, fallen angiosperm twig, *Yuan* 2814; fallen angiosperm branch, *Yuan* 2592.

*Diplomitoporus lindbladii* (Berk.) Gilb. & Ryvarden, fallen trunk of *Pinus*, *Yuan* 2822.

*Fibroporia radiculosa* (Peck.) Parmasto, fallen gymnosperm trunk, *Yuan* 2666.

*Fomes fomentarius* (L. : Fr.) Fr., fallen trunk of *Betula*, *Dai* 7710, *Wang* 2, 5, 17, *Yuan* 2643, 2866; stump of *Betula*, *Wang* 81; fallen trunk of *Prunus*, *Yuan* 2732.

*Fomitiporia punctata* (P. Karst.) Murrill, dead angiosperm tree, *Yuan* 2802; fallen angiosperm trunk, *Yuan* 2789; living tree of *Ligustrum*, *Dai* 7746; fallen trunk of *Salix*, *Wang* 95.

*Fomitiporia punicata* Y.C. Dai, B.K. Cui & Decock, living tree of *Punica*, *Dai* 5755, 7732, 7733, 7734, 7735, 7736, 7737.

*Fomitopsis feei* (Fr.) Kreisel, fallen angiosperm branch, *Yuan* 2557; fallen angiosperm trunk, *Yuan* 2635, 2842.

*Fomitopsis palustris* (Berk. & M.A. Curtis) Gilb. & Ryvarden, HMAS 33187.

*Fomitopsis pinicola* (Sw. : Fr.) P. Karst., fallen angiosperm trunk, *Yuan* 2755; fallen trunk of *Pinus*, *Yuan* 2758.

*Fomitopsis rosea* (Alb. & Schwein. : Fr.) P. Karst., fallen trunk of *Pinus*, *Yuan* 2727.

*Funalia cervina* (Schwein. : Fr.) Y.C. Dai, fallen angiosperm trunk, *Yuan* 2760; fallen trunk of *Quercus*, *Yuan* 2710.

*Funalia trogii* (Berk.) Bondartsev & Singer, HMAS 30255; dead angiosperm tree, *Dai* 7695; fallen angiosperm wood, *Yuan* 2564; living tree of *Juglans*, *Wang* 53; stump of *Populus*, *Wang* 56.

*Ganoderma australe* (Fr.) Pat., angiosperm stump, *Dai* 5754, living tree of *Ligustrum*, *Dai* 7740, 7744.

*Ganoderma lipsiense* (Batsch) G.F. Atk., angiosperm stump, *Wang* 34; dead tree of *Betula*, *Yuan* 2865; fallen trunk of *Betula*, *Wang* 15; stump of *Betula*, *Yuan* 2614; living tree of *Celtis*, *Dai* 7718; stump of *Populus*, *Wang* 66; rotten wood of *Quercus*, *Dai* 7709.

*Ganoderma lucidum* (W. Curtis. : Fr.) P. Karst., HMAS 59836, 66066.

*Gloeophyllum sepiarium* (Wulfen : Fr.) P. Karst., HMAS 23136; fallen trunk of *Pinus*, *Yuan* 2761, 2765.

*Gloeophyllum trabeum* (Pers. : Fr.) Murrill, fallen decorated trunk of *Pinus*, *Yuan* 2773.

*Gloeoporus dichrous* (Fr. : Fr.) Bres., dead angiosperm tree, *Yuan* 2569; fallen angiosperm branch, *Yuan* 2567, 2605; angiosperm wood, *Yuan* 2542.

*Gloeoporus taxicola* (Persoon) Gilb. & Ryvarden, fallen twig of *Pinus*, *Yuan* 2640; fallen branch of *Pinus*, *Yuan* 2776, 2781, 2783, 2787, 2831; fallen trunk of *Pinus*, *Yuan* 2852.

*Haploporus odoratus* (Sommerf.) Bondartsev & Singer, dead angiosperm tree, *Yuan* 2860, 2869; living tree of *Salix*, *Dai* 7665, *Wang* 77, *Yuan* 2768, 2795; dead tree of *Salix*, *Yuan* 2867.

*Haploporus subtrameus* (Pilát) Y.C. Dai & Niemelä, fallen angiosperm trunk, *Yuan* 2844.

*Hexagonia tenuis* (Hook) Fr., fallen angiosperm branch, *Yuan* 2584.

*Hydnopolyporus fimbriatus* (Fr.) D.A. Reid, HMAS 66196.

*Hyphodontia flavipora* (Cooke) Sheng H. Wu, living tree of *Acer*, *Wang* 76; dead angiosperm tree, *Dai* 5759, *Yuan* 2857; rotten angiosperm wood, *Dai* 7668; fallen trunk of *Quercus*, *Dai* 7721, 7730, *Yuan* 2553; dead part of living tree of *Rosa*, *Dai* 7741; dead tree of *Sabina*, *Wang* 23.

*Hyphodontia latitans* (Bourdot & Galzin) Ginns & M.N.L. Lefebvre, fallen angiosperm trunk, *Yuan* 2680.

*Hyphodontia radula* (Pers.) Langer & Vesterh., fallen angiosperm branch, *Yuan* 2593.

*Inocutis rheades* (Pers.) Fiasson & Niemelä, HMAS 33139.

*Inocutis tamaricis* (Pat.) Fiasson & Niemelä, living tree of *Tamarix*, *Dai* 5756.

*Inonotus andersonii* (Wll. & Everh.) Černý, fallen angiosperm trunk, *Wang* 50.

*Inonotus compositus* Han. C. Wang, living tree of *Quercus*, *Wang* 52.

*Inonotus cuticularis* (Bull. : Fr.) P. Karst., HMAS 66206.

*Inonotus obliquus* (Pers. : Fr.) Pilát, dead tree of *Betula*, *Dai* 5744.

*Inonotus radiatus* (Sowerby : Fr.) P. Karst., dead tree of *Betula*, *Dai* 5743.

*Irpex lacteus* (Fr. : Fr.) Fr. *sensu lato*, fallen angiosperm twig, *Wang* 98, *Yuan* 2550; fallen angiosperm branch, *Dai* 7658, 7702, 7708, *Wang* 30, 33, *Yuan* 2572, 2696, 2851; dead tree of *Prunus*, *Dai* 7729; living tree of *Robinia*, *Wang* 62.

*Ischnoderma resinoseum* (Fr.) P. Karst., HMAS 33176; fallen angiosperm trunk, *Yuan* 2641.

*Jahnoporus hirtus* (Cooke) Nuss, fallen angiosperm branch, *Dai* 7694.

*Junghuhnia nitida* (Pers. : Fr.) Ryvar den, fallen angiosperm branch, *Yuan* 2547, 2637, 2660, 2673, 2759, 2788; rotten angiosperm wood, *Dai* 7713; fallen trunk of *Quercus*, *Yuan* 2775.

*Laetiporus sulphureus* (Bull. : Fr.) Murrill, fallen angiosperm trunk, *Yuan* 2626; angiosperm stump, *Wang* 11.

*Lenzites betulinus* (L. : Fr.) Fr., HMAS 61768, 61795, 63061, 63568, 66173, 66208; fallen angiosperm trunk, *Yuan* 2688; angiosperm stump, *Yuan* 2590; fallen trunk of *Betula*, *Yuan* 2629.

*Leucophaellinus irpicoides* (Pilát) Bondartsev & Singer, dead angiosperm tree, *Yuan* 2690.

*Nigroporus ussuriensis* (Bondartsev & Ljub.) Y.C. Dai & Niemelä, dead tree of *Celtis*, *Dai* 7647.

*Oligoporus balsameus* (Peck) Gilb. & Ryvar den, angiosperm stump, *Wang* 93.

*Onnia flavida* (Berk.) Y.C. Dai, dead tree of *Betula*, *Yuan* 2762.

*Oxyporus corticola* (Fr.) Ryvar den, dead angiosperm tree, *Dai* 7715; fallen angiosperm branch, *Dai* 7714; fallen angiosperm trunk, *Dai* 7679, *Yuan* 2743, 2826; fallen trunk of *Betula*, *Yuan* 2837.

*Oxyporus ginkgonis* Y.C. Dai, dead part of living *Quercus*, *Dai* 7739.

*Oxyporus obducens* (Pers. : Fr.) Donk, fallen angiosperm trunk, *Yuan* 2583, 2636 2647, 2657; angiosperm stump, *Yuan* 2577; rotten wood of *Pinus*, *Dai* 7670; fallen trunk of *Populus*, *Yuan* 2627, 2659, 2661, 2672, 2678, 2693; fallen trunk of *Quercus*, *Yuan* 2828, 2839.

*Oxyporus populinus* (Schumach. : Fr.) Donk, living tree of *Acer*, *Dai* 7698, *Wang* 82, 83; fallen trunk of *Populus*, *Yuan* 2631.

*Oxyporus subulatus* Ryvar den, fallen angiosperm trunk, *Yuan* 2780; angiosperm stump, *Yuan* 2733.

*Perenniporia fraxinea* (Bull. : Fr.) Ryvar den, rotten wood of *Planatus*, *Dai* 7743; stump of *Populus*, *Wang* 59; living tree of *Robinia*, *Dai* 5753, 5762.

*Perenniporia japonica* (Yasuda) T. Hatt. & Ryvar den, fallen angiosperm branch, *Wang* 69; stump of *Populus*, *Wang* 68; living tree of *Punica*, *Dai* 5757; stump of *Robinia*, *Dai* 7731.

*Perenniporia subacida* (Peck) Donk, fallen trunk of *Quercus*, *Yuan* 2792.

*Perenniporia tenuis* (Schw.) Ryvar den var. *tenuis*, dead part of living tree of *Cotinus*, *Dai* 7738.

*Phellinus baumii* Pilát, HMAS 33225, 33226.

*Phellinus chinensis* Pilát, fallen trunk of *Populus*, *Yuan* 2830, 2834.

*Phellinus collinus* Y.C. Dai & Niemelä, HMAS 33578.

*Phellinus conchatus* (Pers. : Fr.) Qué l., dead angiosperm tree, *Yuan* 2667, 2721, 2821; fallen angiosperm trunk, *Yuan* 2662; angiosperm stump, *Yuan* 2541; living tree of *Fraxinus*, *Dai* 7652; living tree of *Salix*, *Yuan* 2587.

*Phellinus contiguus* (Pers. : Fr.) Pat., living angiosperm tree, *Yuan* 2713.

*Phellinus gilvus* (Schwein. : Fr.) Pat., fallen angiosperm twig, *Yuan* 2792, 2807; fallen angiosperm branch, *Yuan* 2589, 2714; rotten angiosperm wood, *Dai* 7697, *Yuan* 2539, *Yuan* 2545; angiosperm stump, *Dai* 5760; fallen trunk of *Juglans*, *Wang* 39; fallen branch of *Robinia*, *Wang* 41, *Yuan* 2530.

*Phellinus ferreus* (Pers.) Bourdot & Galzin, fallen angiosperm trunk, *Yuan* 2625.

*Phellinus ferruginosus* (Schrad. : Fr.) Pat., dead angiosperm tree, *Dai* 7645.

*Phellinus laricis* (Jaczewski) Pilát, stump of *Larix*, *Dai* 5740.

*Phellinus laevigatus* (P. Karst.) Bourdot & Galzin, fallen trunk of *Betula*, *Wang* 3.

*Phellinus lundellii* Niemelä, fallen angiosperm trunk, *Yuan* 2825; fallen trunk of *Betula*, *Yuan* 2769.

*Phellinus mcgregori* (Bres.) Ryvar den, living angiosperm tree, *Wang* 78.

*Phellinus pini* (Brot. : Fr.) A. Ames, living tree of *Pinus*, *Yuan* 2632, 2763.

*Phellinus torulosus* (Pers.) Bourdot & Galzin, living tree of *Fagus*, *Wang* 48.

*Phellinus tuberculatus* (Baumg.) Niemelä, living tree of *Prunus*, *Dai* 7726; living tree of *Syringa*, *Dai* 7747.

*Phellinus vaninii* Ljub., fallen angiosperm trunk, *Yuan* 2868; fallen trunk of *Populus*, *Yuan* 2764, 2858.

*Phylloporia ribis* (Schumach. : Fr.) Ryvar den, living angiosperm tree, *Wang* 72.

*Physisporinus vitreus* (Pers. : Fr.) P. Karst., fallen angiosperm branch, *Dai* 7649, 7650, 7657.

*Piptoporus betulinus* (Bull. : Fr.) P. Karst., HMAS 33337; fallen trunk of *Betula*, *Yuan* 2757.

*Piptoporus soloniensis* (Dubois : Fr.) Pilát, HMAS 63681, 66211.

*Polyporus arcularius* Batsch : Fr., HMAS 22986, 22987, 32954, 32955, 33205, 33206.

*Polyporus badius* (Pers. : Gray) Schwein., fallen angiosperm trunk, *Yuan* 2711, 2745, 2832; angiosperm stump, *Yuan* 2681.

*Polyporus brumalis* Pers. : Fr., living angiosperm tree, *Wang* 92.

*Polyporus ciliatus* Fr. : Fr., fallen branch of *Betula*, *Wang* 19.

*Polyporus leptoccephalus* (Jacq.) Fr., HMAS 23453, 26256, 33182, 33278, 61815.

*Polyporus mongolicus* (Pilát) Y.C. Dai, fallen angiosperm twig, *Wang* 7; fallen angiosperm trunk, *Yuan* 2669, 2746, 2749, 2804, 2813; fallen trunk of *Betula*, *Yuan* 2829; rotten wood of *Betula*, *Wang* 18.

*Polyporus mori* (Pollini : Fr.) Fr., fallen angiosperm twig, *Yuan* 2565; fallen angiosperm branch, *Dai* 7653.

*Polyporus squamosus* (Huds. : Fr.) Fr., HMAS 22731,



22733, 33330, 61831.

*Polyporus umbellatus* (Pers.) Fr., HMAS 22594, 22740, 32968.

*Postia alni* Niemelä & Vampola, fallen angiosperm branch, *Yuan* 2597, 2648, 2650, 2724; angiosperm stump, *Yuan* 2538.

*Postia caesia* (Schrad. : Fr.) P. Karst., HMAS 61289; fallen trunk of *Pinus*, *Yuan* 2656, 2818.

*Postia fragilis* (Fr. : Fr.) Jülich, fallen trunk of *Pinus*, *Yuan* 2766; stump of *Pinus*, *Yuan* 2616.

*Postia lactea* (Fr. : Fr.) P. Karst., rotten angiosperm wood, *Dai* 7696; fallen trunk of *Betula*, *Wang* 1.

*Postia undosa* (Peck) Jülich, fallen angiosperm trunk, *Wang* 89.

*Protomerulius caryae* (Schwein.) Ryvardeen, fallen angiosperm trunk, *Yuan* 2645, 2712.

*Pycnoporus cinnabarius* (Jacq. : Fr.) P. Karst., fallen trunk of *Castanea*, *Wang* 42.

*Pycnoporus sanguineus* (L. : Fr.) Murrill, HMAS 27448, 32957, 33246; fallen angiosperm trunk, *Yuan* 2535, 2809; angiosperm wood, *Yuan* 2544.

*Pyrrhoderma scaura* (Lloyd) Ryvardeen, dead angiosperm tree, *Yuan* 2725; angiosperm stump, *Yuan* 2560, 2719.

*Rigidoporus crocatus* (Pat.) Ryvardeen, rotten angiosperm wood, *Dai* 7666.

*Rigidoporus eminens* Y.C. Dai, fallen angiosperm trunk, *Yuan* 2652; angiosperm stump, *Yuan* 2548, 2720; dead tree of *Pinus*, *Yuan* 2790.

*Skeletocutis lilacina* A. David & Jean Keller, fallen branch of *Pinus*, *Yuan* 2777.

*Skeletocutis nivea* (Jungh.) Jean Keller, fallen angiosperm branch, *Dai* 7660, 7680, *Yuan* 2619, 2682; fallen twig of *Betula*, *Yuan* 2767.

*Skeletocutis vulgaris* (Fr.) Niemelä & Y.C. Dai, fallen trunk of *Pinus*, *Yuan* 2772, 2824, 2863.

*Trametes gibbosa* (Pers. : Fr.) Fr., HMAS 61824, 61819; fallen angiosperm trunk, *Yuan* 2715, 2739; angiosperm stump, *Yuan* 2573, 2608; stump of *Betula*, *Wang* 80.

*Trametes hirsuta* (Wulfen : Fr.) Pilát, dead angiosperm tree, *Dai* 7707; fallen angiosperm branch, *Dai* 7662, 7700, *Wang* 43, 44, *Yuan* 2554, 2805, 2808, 2850, 2859; angiosperm stump, *Wang* 29; living tree of *Ligustrum*, *Wang* 54; stump of *Platanus*, *Wang* 60; stump of *Populus*, *Wang* 58.

*Trametes ljubarskyi* Pilát, fallen angiosperm trunk, *Yuan* 2735.

*Trametes ochracea* (Pers.) Gilb. & Ryvardeen, angiosperm stump, *Wang* 90, *Yuan* 2695; fallen trunk of *Betula*, *Wang* 20.

*Trametes orientalis* (Yasuda) Imazeki, HMAS 3679, 63067, 66094.

*Trametes pubescens* (Schumach. : Fr.) Pilát, dead tree of *Prunus*, *Dai* 7724; fallen branch of *Vitis*, *Wang* 37.

*Trametes suaveolens* (Fr. : Fr.) Fr., living tree of *Salix*, *Yuan* 2609b, 2611.

*Trametes velutina* (Fr. : Fr.) G. Cunn., fallen angiosperm trunk, *Yuan* 2628, 2811; stump of *Quercus*, *Yuan* 2774.

*Trametes versicolor* (L. : Fr.) Pilát, dead angiosperm tree, *Dai* 7684; fallen angiosperm trunk, *Yuan* 2595; angiosperm stump, *Dai* 7673, *Wang* 74; fallen branch of *Betula*, *Dai* 5742, *Wang* 13; fallen trunk of *Betula*, *Wang* 14, 16; living tree of

*Juniperus*, *Wang* 28; stump of *Populus*, *Wang* 57.

*Trichaptum abietinum* (Pers. : Fr.) Ryvardeen, dead tree of *Pinus*, *Dai* 7728; fallen twig of *Pinus*, *Yuan* 2618; fallen trunk of *Pinus*, *Dai* 7692, *Yuan* 2817.

*Trichaptum pargamenum* (Fr.) G. Cunn., fallen angiosperm trunk, *Yuan* 2748; angiosperm wood, *Yuan* 2555; angiosperm stump, *Yuan* 2533; fallen trunk of *Betula*, *Yuan* 2843.

*Tyromyces chioneus* (Fr.) P. Karst., dead angiosperm tree, *Yuan* 2644; fallen branch of *Betula*, *Yuan* 2848.

## New species

*Polyporus rhododendri* Y.C. Dai & H.S. Yuan, *sp. nova* (Fig. 2)

*Carpophorum annuum, substipitatum; facies pororum cremea; pori rotundi vel angulati, 3–5 per mm. Systema hypharum dimiticum, hyphae generatoriae fibulatae, hyphae skeletales contexti 3–6 μm in diam. Sporae fusiformes, hyalinae, IKI–, CB–, 7.5–10.5 × 3.2–3.8 μm.*

TYPE: China. Shaanxi Prov., Mei County, Taibaishan Nature Reserve, alt. 2800 m, on fallen branch of *Rhododendron*, 7.VIII.2004 *Dai* 5746 (holotype IFP, isotypes HMAS, H).

ETYMOLOGY. *Rhododendri* (Lat.): referring to the genus *Rhododendron*.

*Basidiocarps* annual, pileate, with a flattened base attached to the substrate, solitary or a few fused at the base, corky when fresh, hard corky upon drying. Pileus semicircular, flabelliform or spatulate, projecting up to 2.5 cm, 3.5 cm wide and 5 mm thick at the centre. Pileal surface cinnamon buff to yellowish brown, finely velutinate when juvenile, then rough to glabrous with age, with indistinctly radially aligned stripes, when dry dark brown to pale chestnut brown; margin acute, even or undulate, incurved when dry. Pore surface cream when fresh, yellowish when bruised, brownish upon drying; pores round to angular, 3–5 per mm; dissepiments thin, entire or slightly lacerate. Context cream, corky, up to 3 mm thick. Tube layer concolorous with the pore surface, tubes up to 2 mm long. Stipe or flattened base very short, bearing a very small black cuticle.

HYPHAL STRUCTURE. Hyphal system dimitic; generative hyphae bearing clamp connections;

skeletal-binding hyphae dominant, with dendritic branching and branches tapering, IKI–, CB+; tissue unchanged in KOH.

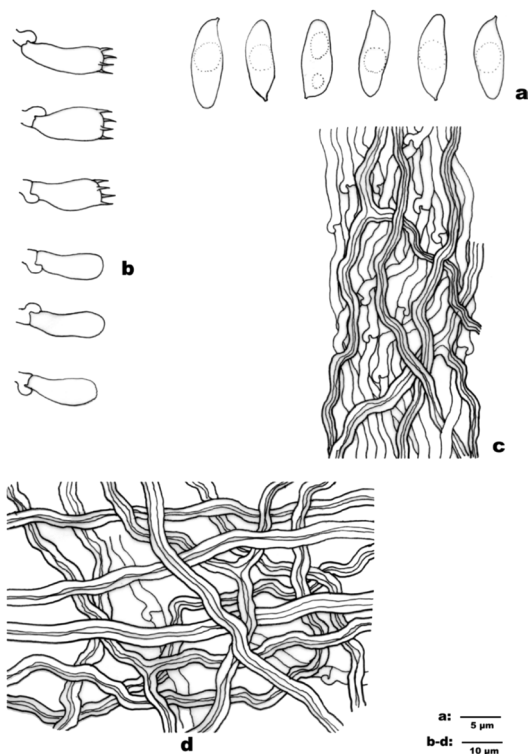
**CONTEXT.** Generative hyphae scanty, hyaline, thin-walled, occasionally branched, 3–4  $\mu\text{m}$  in diam; skeletal-binding hyphae dominant, hyaline, thick-walled to almost solid, frequently branched, flexuous, tightly interwoven, strongly agglutinated, skeletal parts 3–6  $\mu\text{m}$  in diam. Upper surface cuticle golden brown, up to 140  $\mu\text{m}$  thick; hyphae in cuticle thick-walled, brownish, IKI–, CB+, swollen in tip; tips capitate-like, agglutinated.

**TUBES.** Generative hyphae common at dissepiment edge, otherwise scanty, hyaline, thin-walled, occasionally branched, 2.5–4  $\mu\text{m}$  in diam; skeletal-binding hyphae dominant, thick-walled with a wide to narrow lumen or subsolid, frequently branched, tightly interwoven, skeletal parts 2.5–4.5  $\mu\text{m}$  in diam. Cystidia absent; fusoid cystidioles rarely present; hyphal pegs occasionally present. Basidia clavate, with four sterigmata and a basal clamp connection, 15–20  $\times$  7–8  $\mu\text{m}$ ; basidioles in shape similar to basidia, but slightly smaller.

**SPORES.** Basidiospores mostly fusiform, sometimes cylindric to navicular, hyaline, thin-walled, smooth, bearing one or two guttules, IKI–, CB–, (7–)7.5–10.5(–11.5)  $\times$  (3–)3.2–3.8(–4)  $\mu\text{m}$ ,  $L = 9.01 \mu\text{m}$ ,  $W = 3.58 \mu\text{m}$ ,  $Q = 2.38\text{--}2.55$  ( $n = 100/3$ ).

*Polyporus rhododendri* resembles *P. leptocephalus* (= *P. varius*) in field, and both occur in boreal forests. However, the latter has distinctly radial stripes at upper surface, and its pores are smaller (5–9 per mm). The key difference is the shape of basidiospores: fusiform (tapering at apex) in *P. rhododendri*, while cylindric (not tapering at apex) in *P. leptocephalus*. In addition, although both species grow in boreal forests, *P. leptocephalus* grows mostly on fallen trunk of *Populus* (Niemelä & Kotiranta 1991), while *P. rhododendri* was found on a fallen branch of *Rhododendron* so far.

*Polyporus minor* was described from China (Bi *et al.* 1982), and it has almost pileate basidiocarps with a short stipe-like base, so *Polyporus rhododendri* is somewhat similar to *P. minor*. The type (HMIGD 2404) of the latter species was examined, and its basidiocarps are very

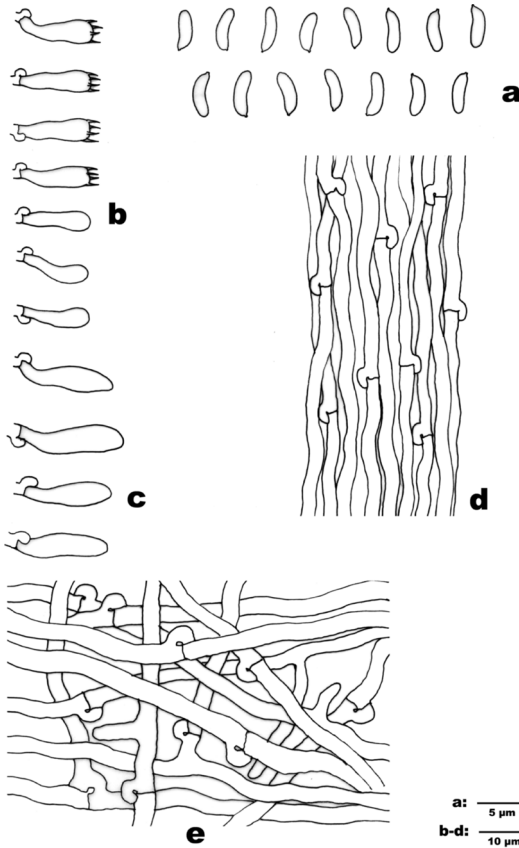


**Fig. 2.** Microscopic structures of *Polyporus rhododendri* (from the holotype). — **a:** Basidiospores. — **b:** Basidia and basidioles. — **c:** Hyphae from trama. — **d:** Hyphae from context.

small (less than 2 cm), and very hard when dry; microscopically it has abundant subulate cystidioles, and its basidiospores are distinctly cylindric, furthermore, it grows in subtropical forests (Bi *et al.* 1982).

*Polyporus rhododendri* has dark brown to light chestnut brown upper surface when dry, and it may be confused with *P. badius*, *P. melanopus* and *P. tubaeformis*, but the last mentioned three species have a distinctly black stipe. In addition, *P. badius* has simple septate generative hyphae; *P. melanopus* and *P. tubaeformis* have smaller pores (5–7 per mm); *P. melanopus* grows mostly on ground, and *P. tubaeformis* on gymnosperm wood (Nuñez & Ryvarden 1996).

**ADDITIONAL SPECIMENS EXAMINED** (paratypes). — **China.** Shaanxi Prov., Mei County, Taibaishan Nature Reserve, alt. 2800 m, on dead tree of *Rhododendron*, 7.VIII.2004 Dai 5739 & 5741 (IFP).



**Fig. 3.** Microscopic structures of *Postia qinensis* (from the holotype). — **a:** Basidiospores. — **b:** Basidia and basidioles. — **c:** Gloeocystidia. — **d:** Hyphae from trama. — **e:** Hyphae from context.

***Postia qinensis*** Y.C. Dai & Y.L. Wei, *sp. nova* (Fig. 3)

*Carpophorum annuum*, *resupinatum vel effuso-reflexum*; *facies pororum albida vel lutea*; *pori rotundi*, 3–5 per mm. *Systema hypharum monomiticum*, *hyphae generatoriae fibulatae*, *hyphae contexti* 2.5–4 μm in diam. *Gloeocystidia clavata*. *Sporae cylindricae vel allantoideae*, *IKI*–, *CB*–, 4.2–4.9 × 1.2–1.4 μm.

**TYPE:** China. Shaanxi Prov., Huayin County, Huashan Park, alt. 1800 m, on rotten wood of *Pinus tabulaeformis*, 6.VIII.2006 Dai 7723 (holotype IFP, isotypes HMAS, H).

**ETYMOLOGY.** *Qinensis* (Lat.): referring to the Mountain name *Qin* in Shaanxi Province.

*Basidiocarps* annual, resupinate to effused-reflexed, when fresh soft and watery, without

odour or taste, become soft corky when dry. Pileus projecting up to 1 cm, 4 cm wide and 0.6 cm thick. Pileal surface white when fresh, becoming cream to greyish cream up on drying, azonate, velutinate; margin acute, wavy. Resupinate part up to 5 cm or more in the longest dimension, up 2 cm wide. Pore surface white when fresh, becoming yellowish upon drying; pores round, 3–5 per mm; dissepiments thin, slightly lacerate. Context white and soft when fresh, become cream and chalky upon drying, up to 0.2 mm thick. Tube layer cream and corky, up to 4 mm long.

**HYPHAL STRUCTURE.** Hyphal system monomitic; all septa with clamp connections; hyphae *IKI*–, *CB*–, unchanged in *KOH*.

**CONTEXT.** Contextual hyphae hyaline, thick-walled with a wide to narrow lumen, frequently branched, interwoven, 2.5–4 μm in diam.

**TUBES.** Tramal hyphae hyaline, thin-walled with a wide lumen, occasionally branched, sub-parallel along the tubes, 2.5–3.8 μm in diam. Gloeocystidia abundant, clavate, thin-walled, strong reaction in Melzer's reagent, 16–24 × 5–6.8 μm. Cystidioles absent. Basidia clavate, thin-walled, with a basal clamp connection and four sterigmata, 11–14 × 4–5 μm; basidioles in shape similar to basidia, but slightly shorter.

**SPORES.** Basidiospores cylindrical to allantoid, hyaline, thin-walled, smooth, bearing one or two small guttules, *IKI*–, *CB*–, (4–)4.2–4.9(–5) × (1.1–)1.2–1.4(–1.6) μm, *L* = 4.51 μm, *W* = 1.34 μm, *Q* = 3.37 (*n* = 30/1).

*Postia qinensis* is characterized by white and soft basidiocarps, abundant gloeocystidia, cylindrical basidiospores, and it grows on rotten wood of *Pinus* at rather dry environment.

Among species in *Postia*, *P. leucomallella* and *P. gloeocystidiata* have gloeocystidia (Renvall 1992, Wei & Dai 2006). The former differs from the new species by brownish basidiocarps when dry or when bruised, and its basidiospores are larger (4.6–6.3 × 1.3–1.8 μm, Niemelä 2005). The basidiocarps of *P. gloeocystidiata* is distinctly pileate, and its upper surface is hispid, and pores are cream when dry. Microscopically it has abundant hyphal pegs, and its basidiospores are thinner (3.7–4.5 × 1–1.1 μm, Wei & Dai 2006).

Externally *Postia qinensis* resembles *Oligoporus sericeomollis*, and the latter species occurs

mostly on coniferous wood at rather dry environment, too (Gilbertson & Ryvarden 1987, Núñez & Ryvarden 2001, Ryvarden & Gilbertson 1994), but it has encrusted cystidia, ellipsoid, fairly thick-walled and cyanophilous basidiospores ( $3.7\text{--}4.6 \times 1.9\text{--}2.3 \mu\text{m}$ , Niemelä 2005).

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