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# MYCOTAXON

<http://dx.doi.org/10.5248/118.57>

Volume 118, pp. 57–71

October–December 2011

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## ***Lentinus giganteus* revisited: new collections from Sri Lanka and Thailand**

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**ABSTRACT**— A new collection of *Lentinus giganteus* from Sri Lanka, where it was originally described, is used to epitypify the species after comparison with the type protologue and drawings held in Peradeniya, Sri Lanka; a full description and illustrations are provided. Additional collections were made at three sites in northern Thailand. Phylogenetic ITS-1-5.8S-ITS2 rDNA sequence analyses using maximum likelihood, maximum parsimony and Bayesian inference all support the transfer of *L. giganteus* to *Pleurotus*. Although the collections from Thailand differ slightly morphologically and phylogenetically from *P. giganteus* sensu stricto, these differences do not yet merit specific status. Instead, *P. giganteus* is maintained as one widely variable species represented by relatively large fruiting bodies. Saprobic on buried well-rotted wood in forests, *P. giganteus* is widely consumed in Sri Lanka and might be profitably cultivated in Thailand.

**KEY WORDS**— edible fungi, morphology, new records, new combination, taxonomy

## Introduction

Research on macrofungi of the Mushroom Research Centre and surrounding areas in northern Thailand has documented a remarkable biodiversity and produced many new species and new records (Le et al. 2007a,b; Sanmee et al. 2008; Kerekes & Desjardin 2009; Wannathes et al. 2009a,b; Zhao et al. 2010). Recently we have focused on potentially cultivatable and edible genera (Karunarathna et al. 2011). This paper presents the first report of *Lentinus giganteus* from Thailand.

*Lentinus* Fr. is a cosmopolitan genus with an estimated 40 species (Kirk et al. 2008) distributed across a wide temperature range, being abundant in the tropics and often found in temperate regions (Pegler 1983). *Lentinus* species, normally wood decaying basidiomycetes, are characterized by decurrent lamellae, dimitic tissues, and hyaline ellipsoid to cylindrical basidiospores. Species in subgenus *Lentinus* have hyphal pegs (Corner 1981, Pegler 1983). Generally the xeromorphic long-lived basidiomes are tough and firm when dry, but in Thailand they fruit only at the beginning of the rainy season (Sysouphanthong et al. 2010, Karunarathna et al. 2011). Traditionally, *Lentinus* was placed in the agaric family *Tricholomataceae* based on the lamellate hymenophore and white spore print (e.g., Miller 1973).

Previous researchers (e.g., Redhead & Ginns 1985; Hibbett & Vilgalys 1991, 1993; Hibbett & Thorn 1994; Hibbett et al. 1993) noted the existence of a *Lentinus*–*Pleurotus*–*Panus* complex and showed that *Lentinus* sensu Pegler is polyphyletic, with the monophyletic *Lentinus* subg. *Lentinus* sensu Pegler belonging to the *Polyporales* (Hibbett 1991, Kruger & Gargas 2004). *Panus* Fr., *Pleurotus* (Fr.) P. Kumm., and *Neolentinus* Redhead & Ginns are also monophyletic, with *Pleurotus* belonging to the *Agaricales* (Fleming 1994, Hibbett et al. 1994). Corner (1981), Kühner (1980), Pegler (1975, 1983) and Singer (1986) all classified these genera differently.

*Lentinus giganteus*, originally described from Sri Lanka (Berkeley 1847), bears many structures that are atypical of *Lentinus*, and its taxonomic position has long been unresolved (Pegler 1983). Corner (1981: 54) suggested it as type (and only species) of his new subgenus, *Panus* subg. *Gigantopanus* Corner. Pegler (1983: 168) transferred this subgenus (as a section) to *Lentinus*: *L.* sect. *Gigantopanus* (Corner) Pegler. Even though the largest spores become oblong-ellipsoid, mature spores are not cylindrical but somewhat broadly ellipsoid. The oil guttule present inside the spore is characteristic of *Lentinus*. The generative hyphae are narrower than the skeletal hyphae. The lamellar edge is distinct with a broad, sterile layer of lecythiform cheilocystidia similar to those observed in some *Pleurotus* species. The lamellae are wide and well separated, and the development process is metavelangiocarpic. In many ways this species might be more properly positioned in *Pleurotus*, rather than in *Lentinus*. However,

the skeletal hyphae of the dimitic hyphal system dominate to produce a tough basidiome and the radiate construction of the hymenophoral trama differentiates with the descending trama observed in *Pleurotus*.

*Lentinus giganteus*, referred to as “uru paha” in Sri Lanka, is one of the largest edible mushrooms and—as noted in Buddhist literature—has been treated as a special food since ancient times (Udugama & Wickramaratna 1991; Berkeley 1847).

Objectives of the present study were to redescribe *L. giganteus* from fresh collections from the type locality, epitypify *L. giganteus* with a fresh Sri Lankan collection, decide on the taxonomic position of *L. giganteus* to determine whether it is related to *Lentinus* or *Pleurotus* using ITS-1-5.8 S-ITS2 rDNA sequence data, and introduce the species to Thailand as a new edible mushroom.

## Materials & methods

*Lentinus giganteus* samples were collected in northern Thailand and Sri Lanka between June 2008 and October 2010 and processed as in Karunarathna et al. (2011).

### Ethnomycological survey

Thirty locals including mushroom sellers in markets were surveyed through a general questionnaire in Chiang Mai and Chiang Rai provinces, Thailand.

### Morphological examination

Macro-morphological characters were described from fresh material and documented by photographs. Colour designations (e.g., 4B5) follow Kornerup & Wanscher (1978), while the colour names (e.g., grayish yellow) follow Ridgway (1912). Specimens were dried, placed in separate plastic bags, and deposited in the Herbarium of Mae Fah Luang University (MFLU). For microscopical examination, sections were cut with a razor blade from dried specimens, mounted on slides in 5% KOH and Congo red, observed, measured, and illustrated using a Zeiss Axioskop 40 compound microscope. Basidiospore measurement abbreviations: n = number of spores measured;  $L_m$  = mean spore length;  $W_m$  = mean spore width; Q = length/width ratio (L/W) of a spore in side view;  $Q_m$  = average Q of all spores measured.

### Molecular & phylogenetic methods

**DNA EXTRACTION**—Genomic DNA was extracted from dried mushroom samples with cetyl trimethylammonium bromide (CTAB) according to Doyle & Doyle (1990) with some modifications. DNA concentrations were estimated visually in agarose gel by comparing band intensity with a 1000 bp DNA ladder (Transgen Biotech).

**PCR AMPLIFICATION & SEQUENCING**—PCR reactions were performed in a 50  $\mu$ l volume (0.625 mM primers (White et al. 1990: ITS4: 5' TCCTCCGTTATTGATATGC3'; ITS5: 5' GGAAGTAAAAGTCGTAACAAGG3'); 10–20 ng DNA template, 10 $\times$  buffer, 0.2 mM dNTPs, 1.5 units Taq and sterile water. Thermal cycles: 3 m at 94 °C, 30–35 cycles at 93 °C for 30 s, 1 m at 55 °C, 1 m at 72 °C, final extension 10 m at 72 °C. PCR products were verified by 1% agarose electrophoresis gels stained with ethidium bromide in 1 $\times$ Tris-boric acid EDTA buffer. ITS 4/ITS 5 were used to sequence both DNA strands (White et al. 1990) at the National Botanic Gardens of Belgium.

TABLE 1. *Pleurotus giganteus* and other taxa sequenced for phylogenetic analyses.

TAXA	COUNTRY OF ORIGIN	GENBANK accession numbers (ITS)
<i>Lentinus squarrosulus</i>	Japan	AB478883 (Sotome et al. 2009)
<i>Panus</i> sp.	China	HM245784 (unpublished)
<i>P. australis</i>	New Zealand	AY315764 (Zervakis et al. 2004)
<i>P. cornucopiae</i>	Austria	AY450341 (unpublished)
<i>P. cystidiosus</i>	India	AY315810 (Zervakis et al. 2004)
<i>P. euosmus</i>	China	EU424298 (unpublished)
<i>P. giganteus</i> (MFLU 08 1370)	Thailand	(new sequence, from dried sample)
<i>P. giganteus</i> (MFLU 08 1371)	Thailand	(new sequence, from dried sample)
<i>P. giganteus</i> (MFLU10 0141)	Thailand	(new sequence, from dried sample)
<i>P. giganteus</i> (MFLU 11 0018, epitype)	Sri Lanka	(new sequence, from dried sample)
<i>Pleurotus giganteus</i> [as <i>Lentinus giganteus</i> ]	Thailand	DQ334857 (unpublished)
<i>P. giganteus</i> [as <i>Panus giganteus</i> ]	China	HM245788 (unpublished)
<i>P. giganteus</i> [as <i>Panus giganteus</i> ]	China	HM245786 (unpublished)
<i>P. giganteus</i> [as <i>Panus giganteus</i> ]	China	HM245780 (unpublished)
<i>P. fuscusquamulosus</i>	India	AY315789 (Zervakis et al. 2004)
<i>P. smithii</i>	Mexico	AY315779 (Zervakis et al. 2004)

SEQUENCE ALIGNMENT & PHYLOGENETIC ANALYSIS—Taxa sequenced and GenBank accession numbers are listed in TABLE 1. Sequences for each strain were aligned using Clustal X (Thompson et al. 1997). Alignments were manually adjusted to allow maximum sequence similarity. Gaps were treated as missing data. Phylogenetic analysis were performed using PAUP\* 4.0b10 (Swofford 1998). Ambiguously aligned regions were excluded from all analyses. Trees were inferred using the heuristic search option with TBR branch swapping and 1000 random sequence additions. Maxtrees were unlimited, branches of zero length were collapsed and all multiple parsimonious trees were saved. Clade stability of the trees resulting from the parsimony analyses were assessed by bootstrap analysis with 1000 replicates, each with 10 replicates of random stepwise addition of taxa (Felsenstein 1985). Trees were figured in TreeView.

## Results

The ITS sequence dataset comprised 16 sequences (TABLE 1) representing three *Panus giganteus* collections and one *Lentinus giganteus* collection from GenBank, three *L. giganteus* collections from northern Thailand, and one collection from Sri Lanka. Outgroup taxa were *Lentinus squarrosulus* and *Panus* sp. Of 732 total characters, 363 are constant, 112 are parsimony-uninformative, and 257 are parsimony-informative. The MP tree was produced after 238,115

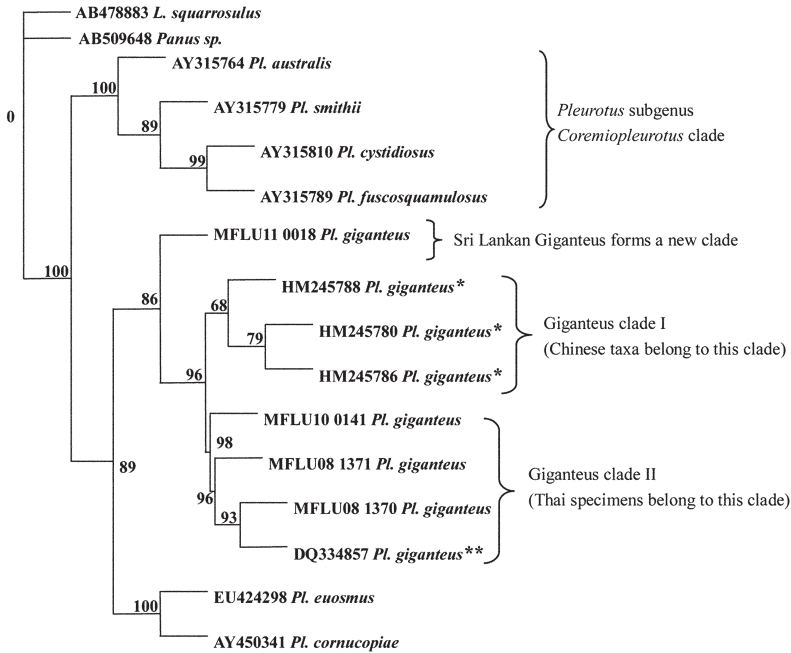


PLATE 1. Maximum parsimony phylogram showing phylogenetic relationships among *Pleurotus giganteus* from Thailand (MFLU08 1370, MFLU08 1371, MFLU10 0141) and epitype from Sri Lanka (MFLU11 0018) with some selected *Lentinus*, *Panus* and *Pleurotus* species based on ITS-1-5.8-S-ITS2 rDNA sequences. Data were analysed with random addition sequence, unweighted parsimony and gaps were treated as missing data. Values above the branches are parsimony bootstrap ( $\geq 50\%$ ). The tree is rooted with *Lentinus squarrosulus* (AB478883) and *Panus sp.* (AB509648). *Pl* = *Pleurotus*; \*\* = as *Lentinus giganteus* in GenBank, \* = as *Panus giganteus* in GenBank.

rearrangements; the best MP tree found (scored at 645) was chosen to represent the phylogenetic position of *L. giganteus* (PLATE 1).

The three *L. giganteus* samples from Thailand (MFLU08 1370, MFLU08 1371, MFLU10 0141) and Chinese collections from GenBank form one clade (PLATE 1) that is sister (86% bootstrap support) to the only *L. giganteus* collection from Sri Lanka. Both Sri Lankan and Thai collections are closely related to *Pleurotus cornucopiae* and *P. euosmus* (89% bootstrap support). The *L. giganteus* clade, *P. cornucopiae*, and *P. euosmus* cluster with *Pleurotus* subg. *Coremiopleurotus* (100% bootstrap support). *Coremiopleurotus* comprises *P. australis*, *P. smithii*, *P. cystidiosus*, and *P. fuscusquamulosus*.

These results support the view that *L. giganteus* is related to *Pleurotus* and not *Panus* or *Lentinus*. Since the morphological data also supports the molecular

conclusions, we transfer *L. giganteus* to *Pleurotus* and epitypify the species based on the collection from the holotype locality to enable future molecular studies.

### Taxonomy

*Pleurotus giganteus* (Berk.) Karunarathna & K.D. Hyde, **comb. nov.** PLATES 2–4

MYCOBANK MB 561087

- = *Lentinus giganteus* Berk., Lond. Journ. Bot. 6: 493[bis], pl.17/18 f.2 (1847)
- = *Pocillaria gigantea* (Berk.) Kuntze, Revis. Gen. Pl. 2: 866 (1891)
- = *Velolentinus giganteus* (Berk.) Overeem, Bull. Jard. Bot. Buitenz, 3 sér., 9: 12 (1927)
- = *Panus giganteus* (Berk.) Corner, Beih. Nova Hedwigia 69: 69 (1981)

TYPE: Sri Lanka, Central Prov., Hautane Range, on ground, July 1844, by Gardner, No 58 (holotype K; PLATE 2A-C); Central Prov., Kandy Distr., Deliwala village, 7°14'43.55"N 80°33'51.40"E, elevation 1050 m, rainforest dominated by *Swietenia* spp. and *Artocarpus heterophyllus*, 5 June 2009 (MFLU11 0018, **epitype designated here** [PLATE 4A]).

PILEUS 60–310 mm in diameter, strongly convex to appanate becoming slightly depressed in the centre, dark brown (7F5), towards the margin light brown camel (6D4), grayish orange (5B4) at the marginal area, at centre fibrillose-scaly, surface initially uniformly dark, fuscous brown, fuliginous or black, then fading with age to pale ochraceous or yellowish brown (E8), with a darker centre although sometimes remaining dark, dry, disrupted into small, indefinite, radial, innate squamules, overlain by scanty, pale grey or blackish, verrucose-floccose, concentrically arranged remnants of the veil; margin strongly involute then straight, thin, slightly sulcate-striate. LAMELLAE moderately crowded with lamellulae of five lengths, decurrent, slightly interveined and anastomosing over the stipe apex, 2–3 mm broad, white to cream (3A2); edge entire, pale ochraceous or yellowish brown (E8). STIPE up to 50–200 mm long, 7–10 mm broad at the apex, 10–15 mm at the base, fusiform, with radicating base, solid, with surface concolorous with the pileus, paler at the apex, finely tomentose with indefinite zones of paler velar remnants in the early stages; veil thin, floccose, pale to dark brown (6F6), soon reduced to floccose remnants but never forming an annulus on the stipe. CONTEXT 5–10 mm thick at the disk, submembranous at the pileal margin, white in pileus and stipe, fleshy-spongy, consisting of a dimittic hyphal system with skeletal hyphae.

GENERATIVE HYPHAE (PLATE 3e) 4–6 µm in diameter, inflating with a thick or slightly thickened wall, more or less radially parallel but frequently branching and with large clamp connections. SKELETAL HYPHAE (PLATE 3d) 6–8 µm in diameter, hyaline of intercalary or terminal origin, becoming very thick-walled with a narrow lumen, tending to taper apically, occasionally with a limited lateral branch. BASIDIOSPORES (PLATE 3a) 7–9 × 6–7 µm [ $n = 40$ ,  $L_m = 8.30$  µm,  $W_m = 6.36$  µm,  $Q = 1.18$ – $1.46$ ,  $Q_m = 1.33$ ] broadly ellipsoid to ellipsoid, white in mass, smooth, with one large oil drop or multiguttulate, inamyloid,

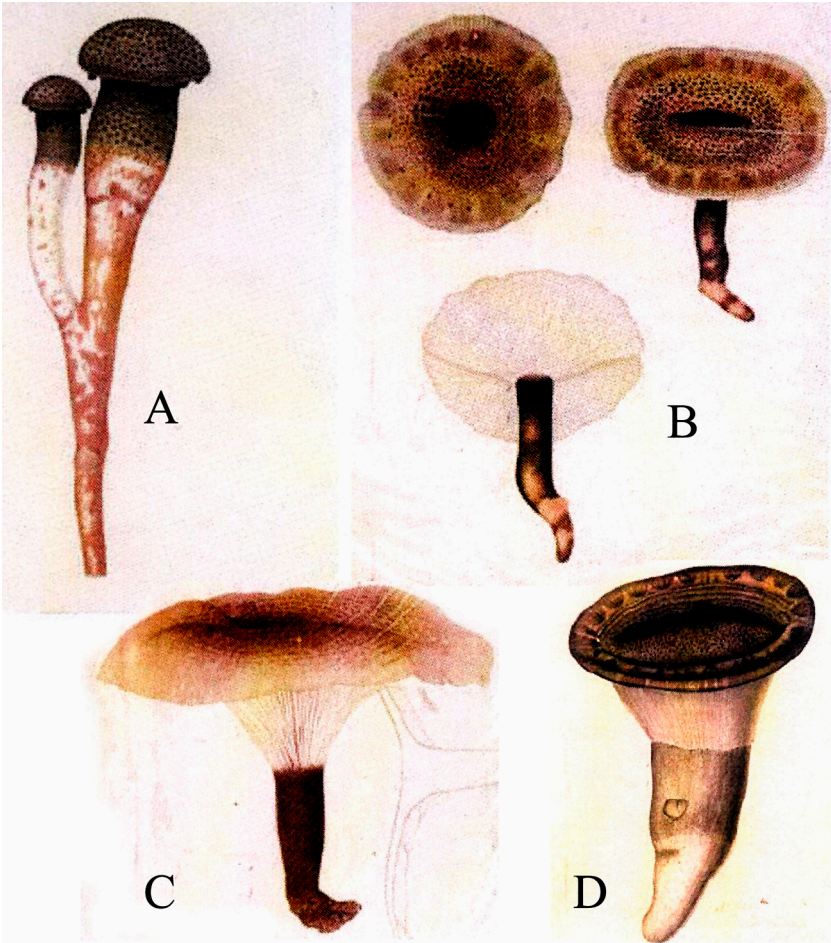


PLATE 2. *Lentinus giganteus*: watercolour illustrations by Mr. William De Silva conserved at Fungal Herbarium, Horticultural Crop Research and Development Institute (HORDI), Sri Lanka [scanned by and reproduced with permission of Mrs. Srimathie Udugama, Director, Fungal Herbarium, Horticultural Crop Research and Development Institute (HORDI), Sri Lanka]. A–C: Sri Lanka, Hautane Range, on ground, July 1844, Gardner n.58 (holotype; Berkeley 1847); A: habit of young basidiocarps; B: cap surface, upper view; C: side view of mature basidiocarp. D: Sri Lanka, Peradeniya, July 1868, Thwaites n.688 (Berkeley & Broome 1873, as *L. stenophyllus*); habit of basidiocarp.

thin-walled. The large spores are not cylindrical but rather broadly ellipsoid, although the largest spores become oblong ellipsoid. BASIDIA (PLATE 3c) 25–40 × 8–10 μm, elongate, clavate, bearing 4 sterigmata. LAMELLA EDGE sterile with a broad layer of CHEILOCYSTIDIA (PLATE 3b) 15–30 × 6–10 μm, more or less

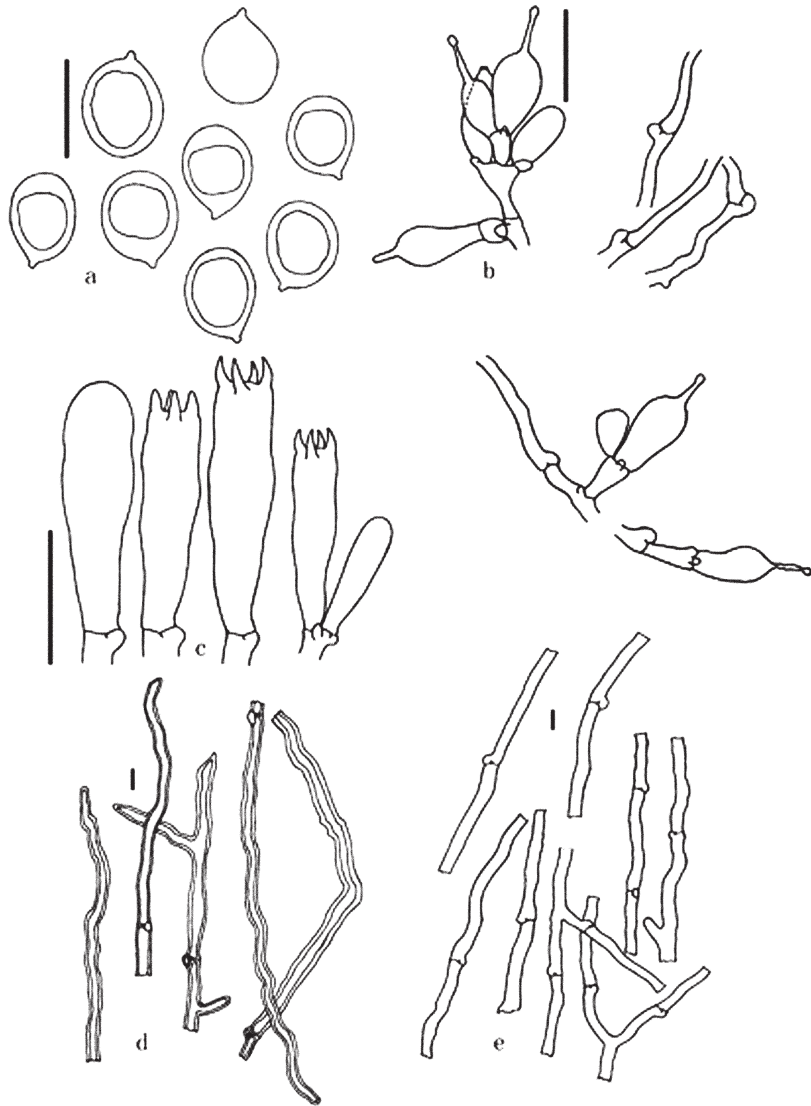
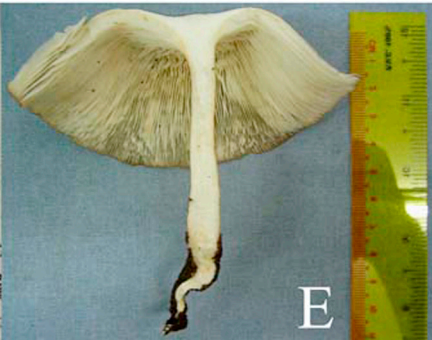
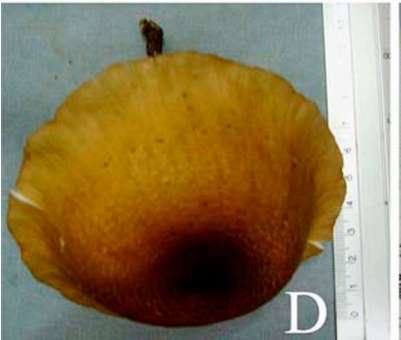


PLATE 3. *Pleurotus giganteus* (MFLU08 1370). a: Spores; b: Cheilocystidia; c: Basidia; d: Skeletal hyphae; e: Generative hyphae; Scale bars: a-c = 20  $\mu$ m; d, e = 10  $\mu$ m.

PLATE 4 (to right). A. Basidiocarp of *Pleurotus giganteus* from Sri Lanka (MFLU11 0018, epitype); B-E: Basidiocarps of *P. giganteus* from northern Thailand (B: MFLU10 0141; C: MFLU08 1371; D, E: MFLU08 1370). Scale bars: A = 20 cm; B, C = 10 cm.





lecythiform with a ventricose base and a small capitellum (3–4  $\mu\text{m}$ ) subtended by a narrow neck, hyaline, thin-walled.

**ECOLOGY AND DISTRIBUTION**— solitary on buried rotten wood in rain forest. Widely distributed in Australia, China, Malay Peninsula, Sabah, Sri Lanka, Vietnam (Pegler 1983), Thailand (this study).

**ADDITIONAL MATERIAL EXAMINED:** THAILAND, CHIANG MAI PROV., MAE TAENG DISTR., Ban Pha Deng, Mushroom Research Centre, 19°17.123'N 98°44.009'E, elevation 900 m, rainforest dominated by *Castanopsis armata*, *Erythrina* sp, and *Dipterocarpus* sp., 8 July 2008, Ruilin Zhao (MFLU08 1370); 21 June 2008, Samantha C. Karunarathna (MFLU10 0138); 27 June 2008, Samantha C. Karunarathna (MFLU08 1371); 6 July 2008, Samantha C. Karunarathna (MFLU08 1382); 22 July 2008, Samantha C. Karunarathna (MFLU10 0137); 10 July 2010, Olivier Raspe (MFLU10 0153); Doi Suthep-Pui National Park, Sangasabhasri Lane to Huai Kok Ma village, 18°48.62'N 98°54.60'E, elevation 1145 m, rainforest dominated by *Castanopsis* spp., *Lithocarpus polistachyus* and other trees, 9 June 2008, Samantha C. Karunarathna (MFLU10 0136); CHIANG RAI PROV., Highway No.110 to Mae Sai, Doi Tung, 20°17'37"N 99°48'56"E, elevation 950 m. 15 July 2009, Samantha C. Karunarathna (MFLU10 0140); 15 July 2009, Samantha C. Karunarathna (MFLU10 0141); 8 August 2009, Samantha C. Karunarathna (MFLU10 0142); 8 August 2009, Samantha C. Karunarathna (MFLU10 0143); 16 July 2010, Samantha C. Karunarathna (MFLU10 0154).

**DISCUSSION**— Molecular evidence indicates that *Lentinus giganteus* is better placed in *Pleurotus*. This is supported by morphology as (1) the lamella-edge is well defined with a broad, sterile layer of differentiated cheilocystidia, similar to those found in some *Pleurotus* species; (2) basidiomes are soft in texture with short life span, similar to *Pleurotus* species; (3) the lamellae are broad and well spaced; and (4) development is metavelangiocarpic. Although Corner (1981) established *L.* subg. *Gigantopanus* for *L. giganteus*, our limited data do not support this division.

We collected 11 *Pleurotus giganteus* specimens from three sites in northern Thailand and one specimen from the original site in Sri Lanka cited in the protologue. The new Sri Lankan collection, identical to that of Corner's (1981) description and our observation of the holotype, is designated as epitype of *P. giganteus*. Molecular data groups our collections from Thailand with high bootstrap support in a single clade that clusters with sequences of *P. giganteus* from China, suggesting strain similarity. The Sri Lankan *P. giganteus* collection forms a sister group with Thai and Chinese collections with 86% bootstrap support. This suggests that the Chinese and Thai collections might have diverged from the Sri Lankan species due to geographical isolation. There are also micro-morphological differences (TABLE 2), although more collections are needed to confirm whether these are different taxa. Thus we maintain *P. giganteus* as a single widely variable species. Both Thai and Sri Lankan collections are more closely related to *Pleurotus* than to *Panus* and *Lentinus*. *Pleurotus australis*, *P. smithii*, *P. cystidiosus*, and *P. fuscusquamulosus* (all *Pleurotus* subg.

TABLE 2. *Pleurotus giganteus* morphological comparisons

ISOLATE/COLLECTION	CAP (diam.) STIPE (length) (both in mm)	SPORES (mm)	BASIDIA (mm)	CHEILOCYSTIDIA (µm)
MFLU08 1370	Cap: 100–110 Stipe: 65–70	7–9 × 6–7	25–40 × 8–10	15–30 × 6–10
MFLU10 0138	Cap: 90–110 Stipe: 80–110	6.5–8.5 × 6–7	26–38 × 7.5–9.5	14–30 × 6.5–11
MFLU08 1371	Cap: 165–170 Stipe: 65–70	6.5–8.5 × 6–7	25–39 × 7.5–9.5	13.5–31 × 6–11
MFLU08 1382	Cap: 45–50 Stipe: 65–70	6.5–8.5 × 6.5–7	25.5–41 × 8–10.5	15–31 × 6–10.5
MFLU10 0137	Cap: 105–110 Stipe: 50–60	6.5–8.5 × 6–7	24–41 × 8–10	15–31 × 6.5–10.5
MFLU10 0153	Cap: 140–150 Stipe: 190–200	6.5–8.5 × 6.5–7	25–41 × 8.5–10.5	14–30.5 × 6–10
MFLU10 0140	Cap: 50–70 Stipe: 130–150	6.5–8 × 6.5–7	25–41 × 8.5–10.5	15–31 × 6.5–11
MFLU10 0143	Cap: 200–220 Stipe: 70–80	6–8 × 6–7	25–41.5 × 8–10	15–30.5 × 6–10
MFLU10 0141	Cap: 70–100 Stipe: 150–180	6.5–8 × 6.5–7.5	25–39.5 × 8.5–10	14–30.5 × 6.5–10.5
MFLU10 0142	Cap: 100–180 Stipe: 120–130	6.5–8.5 × 6.5–7	24–40 × 8.5–10	14–31 × 6.5–10.5
MFLU10 0154	Cap: 150 Stipe: 75	6.5–8.5 × 6.5–7	23.5–41 × 8–10	15.5–31 × 6.5–10
MFLU10 0136	Cap: 130 Stipe: 110	6.5–8.5 × 6.5–7	24–41 × 8–9.5	15–31 × 6.5–10.5
MFLU11 0018 (epitype)	Cap: 60–310 Stipe: 50–190	6–8 (-9) × 4.3–5.2	29–52 × 8–9.5	23–35(-38) × 6–10
K (holotype)	Cap: 50–300 Stipe: 50–180	6–8 × 4.5–5.2	30–50 × 8–9	25–35 × 6–10

*Coremiopleurotus*) group with all sequenced *P. giganteus* collections with 100% bootstrap support.

*Pleurotus giganteus* is closely related to *P.* subg. *Coremiopleurotus*, a group of edible species with high commercial value (Zervakis et al. 2004). The relationship suggests that *P. giganteus* is likely to be a good edible species, confirmed by its present consumption in Sri Lanka (Pegler 1983; Udugama & Wickramaratna 1991). *Pleurotus giganteus* is also considered edible in China (Dai et al. 2010).

The most commonly and easily cultivated mushrooms in Thailand and other southeast Asian countries are oyster mushrooms (*Pleurotus ostreatus* (Jacq.) P. Kumm.), ear mushrooms (*Auricularia polytricha* (Mont.) Sacc.), and straw mushrooms (*Volvariella volvacea* (Bull.) Singer). Other mushroom species in

*Lentinula*, *Lentinus*, *Ganoderma*, and *Macrocybe* (Hanko 2001, Karunarathna et al. 2011, Boa 2007) and *Agrocybe* can also be cultivated successfully but require more attention and knowledge (Boa 2007).

Wild mushrooms are one of the higher valued non-timber forest products in northern Thailand (Sysouphanthong et al. 2010, Karunarathna et al. 2011). They provide locals with seasonal food, medicine, and an alternative income while maintaining forest health (Sysouphanthong et al. 2010). The richness of wild mushrooms is also one bioindicator of ecosystem health (Dai & Yang 2009; Du et al. 2011a,b; Sysouphanthong et al. 2010; Egli 2010). Cultivated, non-mycorrhizal mushrooms (e.g., *Lentinula edodes* (Berk.) Pegler, *Pleurotus sajor-caju* (Fr.) Singer, *Flammulina velutipes* (Curtis) Singer, and species of *Agaricus*, *Auricularia*, *Pleurotus*, *Agrocybe*, and *Volvariella*) are available year around in northern Thai markets. However, edible wild mushrooms can be found only in the wet season from June to September (Sysouphanthong et al. 2010, Karunarathna et al. 2011). As *Pleurotus* species form a heterogeneous commercially valuable group of edibles, it is therefore desirable to try to introduce members of this genus as commercial species. Although there are many studies on cultivated and wild edible mushrooms and their nutritional value in the northern hemisphere (Aletor 1995; Latiff et al. 1996; Manzi et al. 1999, 2001; Dermirbas 2000), there is little information available concerning the taxonomy, biodiversity, and economic potential of *Pleurotus* species in the tropics. Scientific information on wild mushrooms is essential for the introduction of new species for the table (Karunarathna et al. 2011, Sysouphanthong et al. 2010).

Based on the survey of 30 locals through a questionnaire in Chiang Mai and Chiang Rai provinces, we were unable to obtain a clear idea as to whether or not they regard *P. giganteus* as an edible mushroom. *Pleurotus giganteus* is not sold in Thai markets during wet season, and most inhabitants of Chiang Mai and Chiang Rai provinces do not consume this wild edible mushroom. Even though *P. giganteus* has a very good taste (Udugama & Wickramaratna 1991), it is not yet cultivated in Thailand as a commercial mushroom.

#### Acknowledgements

We are grateful to Jian Kui Liu, Naritsada Thongklang and Phongeun Sysouphanthong for their help in collecting and suggestions, Pheng Phengsintham and Nilam Wulandari are gratefully acknowledged for their valuable discussions. We wish to acknowledge the help with field work provided by Kobeke Van de Putte, Nalin Wijewardane, Putrak Chomnuti, Rungtiva Pookamsak, Saowanee Wikee, Stefan D. Baros, Joshua Mark Birkebak, Anjel Creig, Don Nelson, Jie Chen, Michael Pilkington. Kanjana Niraphai (MFLU) is thanked for her assistance in the herbarium. A special thank goes to Prof. Nimal Adikaram for providing his laboratory facilities and his valuable suggestions. The comments by the two reviewers, Dr. Eric McKenzie and Dr. Yu Chen Dai, are gratefully acknowledged. This study was financially supported by the project "Value added products

from basidiomycetes: Putting Thailand's biodiversity to use" (BRN049/2553). The Global Research Network for Fungal Biology and King Saud University are also thanked for supporting this research. Study in China was supported by a grant from the Ministry of Science and Technology of the People's Republic of China (2008FY110300).

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