Cryptogamie, Mycologie, 2003, 24 (2): 125-129

A new *Lactarius* species from Zimbabwe

Annemieke VERBEKEN [a*] *& Cathy SHARP* [b]

[a] *Ghent University, Dpt. Biology, K.L.Ledeganckstraat 35, B-9000 Gent, Belgium, tel.: +32.9.264.50.70*

[b] *P.O.Box 55, Kariba, Zimbabwe*

Abstract – *Lactarius sciaphilus* Verbeken & Sharp is described from miombo woodlands in Zimbabwe. The species is a close relative of *L. kabansus*, a well-known and popular edible woodland species. Differences with *L. kabansus* and *L. tenellus* are discussed.

Russulales / Lactarius / tropical Africa / miombo woodland

Résumé – *Lactarius sciaphilus* Verbeken & Sharp est décrit d'une forêt claire au Zimbabwe. L'espèce est proche de *L. kabansus*, une espèce bien-connue et un comestible populaire en zone forêt claire. Les différences avec *L. kabansus* et *L. tenellus* sont discutées.

INTRODUCTION

Lactarius kabansus Pegler & Piearce is among the common and popular edible Lactarius-species in the African miombo woodlands (Pegler & Piearce, 1980, Rammeloo & Walleyn, 1993) and has also been reported to be consumed in Zimbabwe where it is found for sale on local markets (Verbeken *et al.* 2000).

Since 1989, a similar, more robust *Lactarius* species with distant, much broader gills, has been observed in the Beacon Hill area of Mvuma, Central Zimbabwe. The local population does not differentiate between the two taxa and applies the same name to both (NZEVE YAAMBUYA, Karanga dialect of chiShona). However, this more robust "form" represents a distinct species as revealed by closer observation of the habitat and microscopical features.

MATERIAL AND METHODS

The study is based on mycological fieldwork in central Zimbabwe carried out by C. Sharp.

Macroscopic characters are all based on fresh material. Microscopic features were studied from dried material mainly in Congo-red in L4 (Clémençon 1972). Spore ornamentation is described and illustrated as observed in Melzer's reagent. For details on terminology we refer to Verbeken (1996, 1998). Line-

* Corresponding author : email: mieke.verbeken@rug.ac.be.

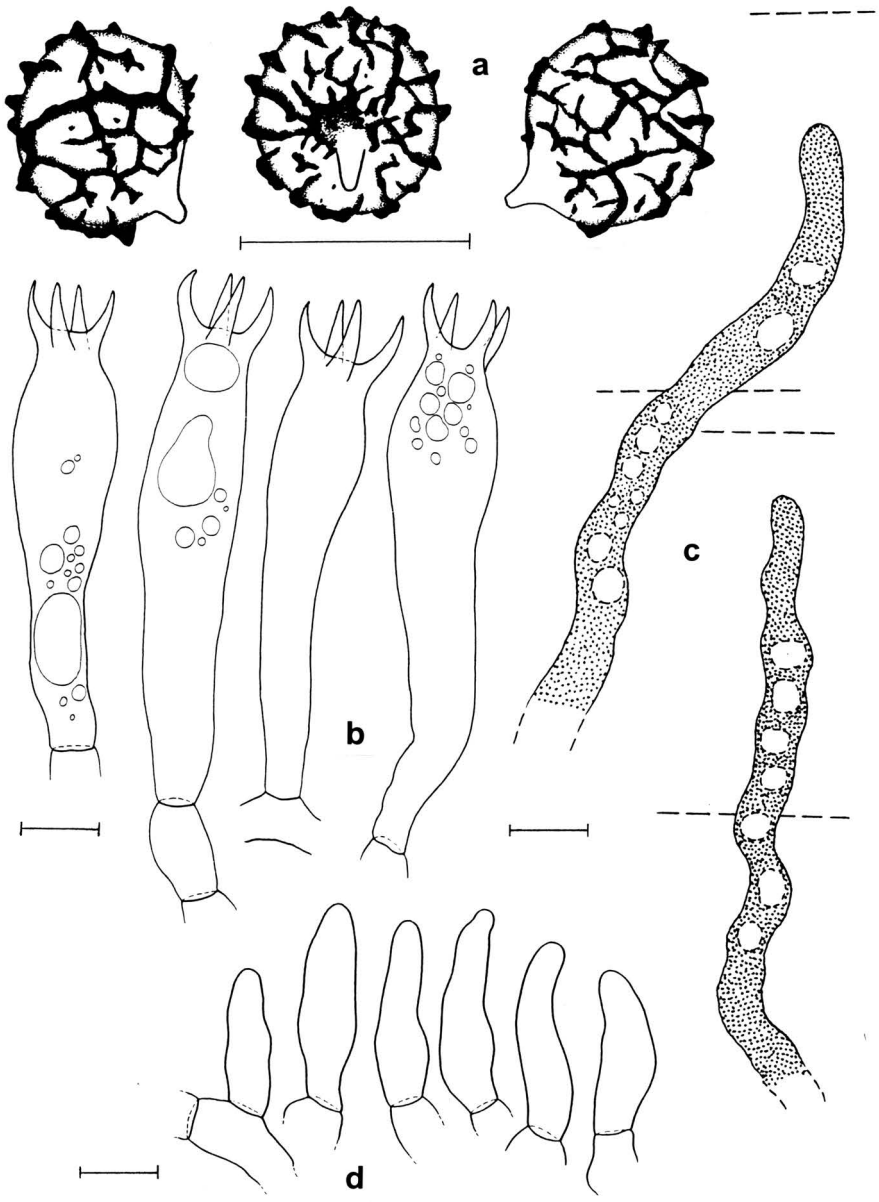

Fig. 1. *Lactarius sciaphilus* (Holotypus): a. Spores. b. Basidia. c. Pleuropseudocystidia. d. Marginal cells. Scale bar = 10 µm.

drawings were made by A. Verbeken with the aid of a drawing tube at original magnifications 6000 × for spores, 2000 × or 1000 × for individual elements and 1000 × for sections and surface views. Stippling indicates refractive contents in cystidia and lactifers, intracellular pigmentation in the elements of pilei- and stipitipellis.

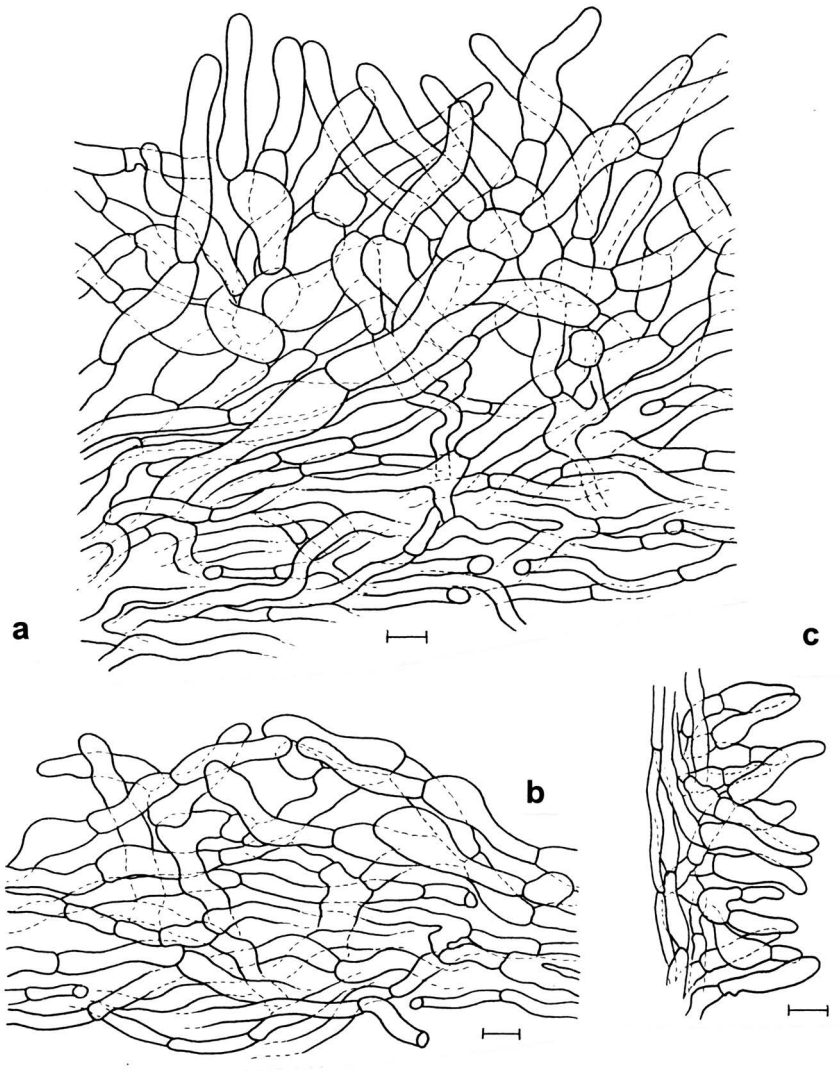

Fig. 2. *Lactarius sciaphilus* (Holotypus)): a. Section through the pileipellis halfway the radius. b. Section through the stipitipellis halfway the height. *Lactarius sciaphilus* (Sharp 95-331). c. Lamella edge. Scale bar = 10 µm.

Basidia length excludes sterigmata length. Spores were measured in side view in Melzer's reagent, excluding the ornamentation and measurements are given as (MINa) [AVa-2*SD] - *AVa* - *AVb* - [AVb + 2*SD] (MAXb) in which AVa = lowest mean value for the measured collections, AVb = greatest mean value and SD = standard deviation calculated for the measurements of one collection. Q stands for "quotient length/width" and is given as (MINQa) *Qa* - *Qb* (MAXQb) in which Qa, resp. Qb, stand for the lowest, respectively the highest, mean quotient for the measured specimens.

RESULTS

Lactarius sciaphilus Verbeken and Sharp **sp. nov.**

Pileus 70-120 mm diam., centrale depressus ad infundibuliformem, margine interdum sulcato, pileipellis laevis, impolita, avellanea, umbrina. Stipes 37-42 mm longus, 12-25 mm crassus, breve cylindratus, basin versus attenuatus; stipitipellis laevis, impolita, avellanea, umbrina. Lamellae adnatae ad subdecurrentes, moderate distantes, pallide aurantiacae, tum siennae. Contextus albidus, basin stipitis versus aurantiacus. Latex albus, abundans. Sporae albidae ad pallide salmoneas in cumulo, late ellipsoideae ad ellipsoideas, 7.9-8.7-9.3-10.3 × 6.7-7.5-7.6-8.4 µm, amyloideae, reticulatae, alatae, cristis usque ad 1 µm altim ornatae; macula suprahilaris distale amyloidea. Basidia 45-55(65) x 10-13 µm, anguste clavata, tetraspora. Pleuromacrocystidia absentia. Pleuropseudocystidia non abundantia, irregulare cylindrata. Cellulae marginales abundantes, 20-30 × 5-8 µm, subcylindratae ad fusiformes. Trama lamellae mixta. Pileipellis trichoderma; elementa suprapellis subcylindrata, subfusiformes, 30-65 × 8-10(12) µm.

Holotypus: Zimbabwe, Midlands Prov. Mvuma, Beacon Hill Section, Central Estates, QDS 1930A4, Beacon Hill Homestead, in litter on ironstone ridge under Brachystegia glaucescens, 30 XII 1996, Sharp 482/96 (GENT).

Pileus 70-120 mm diameter, centrally depressed to infundibuliform; margin entire, slightly in-rolled, sometimes sulcate and wavy; pellis smooth, matt, hazel, umber or with shades of sienna at centre. **Stipe** 37-42 x 12-25 mm, shortly cylindrical to tapering at base, smooth, matt, firm, hazel to umber with sepia base. **Lamellae** adnate to subdecurrent, prolonging in a definite line at the stipe-apex; lamellulae present and especially numerous at margin; sparse to moderately dense (5-8/cm mid-radius), thick, waxy or papery, very brittle, 8(19)mm broad, pale orange when young, saffron, orange, fulvous, becoming sienna in older specimens. **Context** white in pileus; solid, pithy, white in stipe, to orange at base; pileal context becoming red with guaiacol, no reaction with iron salts nor KOH; smell not distinctive. **Latex** white, abundant. **Sporeprint** white to pale salmon.

Spores broadly ellipsoid to ellipsoid, 7.9-*8.7-9.3*-10.3(10.6) × 6.7-*7.5-7.6*-8.4 µm (Q=1.06-*1.15-1.23*-1.33; n=60); ornamentation amyloid, composed of ridges up to 1µm high and a few isolated warts forming a dense reticulum; plage distally amyloid. **Basidia** 45-55(65) × 10-13 µm, narrowly clavate, 4-spored; sterigmata long (up to 8.5 µm), rather slender and curved. **True cystidia** absent. **Pleuropseudocystidia** rather scarce, cylindric, 4-8 µm broad. **Lamella edge** sterile; marginal cells 20-30 x 5-8 µm, subcylindric to fusoid, with an intracellular brown pigmentation. **Hymenophoral trama** irregular, mixed; some sphaerocytes present; lactifers present. **Pileipellis** a well developed trichoderm up to 70 µm thick; some of the underlying cells slightly swollen (up to 20 µm diam.); terminal cells subcylindric, subfusiform, never rounded nor clavate, 30-65 × 8-10(12) µm, with brown intracellular pigmentation.

Collections examined : Zimbabwe, Midlands Prov. Mvuma, Beacon Hill Section, Central Estates, QDS 1930A4, south of Beacon Hill Range, in deep litter, miombo woodland on granitic sand, 20 Jan. 1995, *Sharp* 331/95; *ibid.*, Beacon Hill Homestead, in litter on ironstone ridge under *Brachystegia glaucescens,* 30 Dec. 1996, *Sharp* 482/96 (Holotypus, GENT); *ibid.,* south of Beacon Hill Range, in thick litter under *Brachystegia spiciformis,* with *Monotes* in miombo woodland on granitic sand, 1 Jan. 1997, *Sharp* 505/97; *ibid.* in litter under *Julbernardia globiflora* in small patch of 8-year old regenerated miombo woodland, below gate of Beacon

Hill Homestead, 3 Jan. 1997, *Sharp* 521/97*; ibid.* in litter under *Brachystegia glaucescens* on ironstone ridge, Beacon Hill Homestead, leg. G. Sharp, 18 Jan. 1997, *Sharp* 571/97 (all at GENT).

DISCUSSION

The new species is closely related to *Lactarius kabansus* Pegler & Piearce, belonging to the subgenus Plinthogali (Burl.) Hesler & A.H. Sm. Macroscopically it differs in overall size and habitat preference. *Lactarius sciaphilus* reaches 85mm in height (50 mm in *L. kabansus*) with a pileus diameter up to 120 mm (to 70 mm in *L. kabansus*). Both species occur in miombo woodland but *L. sciaphilus* prefers deep shade and thicker leaf litter while *L. kabansus* is more common in the sparse litter of open patches, often with cryptogamic crusts in degraded woodland (Sharp, pers. observation).

Microscopically, *Lactarius sciaphilus* is characterised by the broader spores and larger basidia. The spores *in L. kabansus* are 7.5-*8.5-9.0*-10.0 × 5.2-*6.2-6.7*-7.2 µm and subsequently the Q-value is larger (Q = 1.21-*1.32-1.39*-1.53, n=100); basidia in *L. kabansus* measure 35-45 × 9-11(12) µm. Furthermore, the marginal cells and terminal elements in the pileipellis are fusiform rather than clavate and rounded. Sphaerocytes are present in the hymenophoral trama and lactifers are less abundant than in *L. kabansus*.

Lactarius tenellus Verbeken is another close relative of *L. kabansus* and differs by the slender habit, usually smaller size, a more greyish-brown cap with crenulate margin, white lamellae and lack of orange tinges in the stipe base (Verbeken, 2001).

Acknowledgements. The Foundation for the Promotion of Scientific Research in Africa sponsored the visit of C. Sharp to the National Botanic Garden of Belgium that made this work possible.

REFERENCES

PEGLER D.N. & PIEARCE G.D., 1980 – The edible mushrooms of Zambia. *Kew Bulletin* 35: 475–491.

RAMMELOO J. & WALLEYN R., 1993 – The edible fungi of Africa south of the Sahara: a literature survey. *Scripta Botanica Belgica* 5: 1–62.

VERBEKEN A., 1996 – Biodiversity of the genus Lactarius Pers. in tropical Africa. 1. Text, 342 pp. 2. 269 pl. + 29 maps. 3. 70 SEM pl. University of Gent (Belgium), doctoral thesis.

VERBEKEN A., 1998 – Studies in tropical African Lactarius species. 6. A synopsis of the genus Lactariopsis (Henn.) R. Heim emend. Mycotaxon 66: 363-386.

VERBEKEN A., 2001 – Studies in tropical African Lactarius species. 8. A Synopsis of the subgenus Plinthogali. *Persoonia* 17: 377–406 + pl. 1–8.

VERBEKEN A., WALLEYN R., SHARP C. & BUYCK B., 2000 – Studies in tropical African Lactarius species. 9. Records from Zimbabwe. *Systematics and Geography of Plants* 70: 181–215.