A new species of Agaricus from Argentina

Article *in* Mycotaxon -Ithaca Ny- · January 1998

CITATIONS
2

READS
42

1 author:

Edgardo Albertó
National University of General San Martín- CONICET
104 PUBLICATIONS **821** CITATIONS

SEE PROFILE

MYCOTAXON

Volume LXVI, pp. 205-213 January-March 1998

AGARICUS SANTACATALINENSIS A NEW SPECIES FROM ARGENTINA.

Edgardo Albertó

Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Departamento de Ciencias Biológicas, Ciudad Universitaria, Pab. II, (1428) Buenos Aires, Argentina.

Abstract: *A. santacatalinensis*, found in exotic broad-leaf woods in the environs of Buenos Aires, is described and illustrated. It belongs to subgenus *Lanagaricus* and is characterized by the chamois-like to velvety aspect of the pileus, the ochraceous yellowish color of the stipe with orange hues and detersile fibrils, and the centrifugally maturing process of the lamellae. A key to Argentinian species of the subgenus is proposed.

INTRODUCTION

During a survey of the species of *Agaricus* of Argentina, we recently collected some specimens which do not match any other known species and which we are herein proposing as a new species in the subgenus *Lanagaricus* Heinem. namely *A. santacatalinensis*.

The subgenus *Lanagaricus* as defined by Heinemann (1956) contains those species with a more abundan, thick, cottony general veil; detersile (sloughing off) fibrosquamules formed by usually cylindric elements, covering the pileus and the lower part of the stipe; partial veil membranous, often fragile; fruitbody usually stout; lamellae wide; colour variable, either bright or dark; flesh white, variable changing when exposed to air; odor never phenolic.

Freeman (1979) emended the concept of subgenus *Lanagaricus* originally proposed by Heinemann (1956). She considered that the degree of development of the general veil was very difficult to precisely ascertain and laid emphasis on the veil tissue type which she defined as cellular or hyphal type (Fremann, 1979: Fig. 1). She defined subgenus *Lanagaricus* as having a "cellular universal veil tissue; fruitbodies usually thin-fleshed, stature usually placomycetoid (pileus diameter divided by stipe lenght ratio less than one); stipe often bulbose; generally ocurring in woods". Freeman also omitted certain chemical tests (Shaeffer's reaction) since she considered these were of no value in that study specially when dry specimens were studied. As a result of this action, Freeman (*loc. cit.*) recorded 31 species for this subgenus (from a total of 42 studied) in her comprehensive study of the genus *Agaricus* in Southeastern United States, and considered such species as *A.placomyces* and *A.praeclaresquamosus* as belonging in that subgenus; these are now currently considered as belonging to Sec. *Xanthodermatei* of subgenus *Agaricus* (Heinemann 1986, Capelli, 1984). We believe that Heinemann's concept of subgenus *Lanagaricus* is more restricted. Not only the degree of development of the general veil, but also the presence of detersile fibrils of the pileus and lower part of the of stipe, should be taken into account. Heinemann in a later work placed on more weight these characters in a key to subgenus: "Voile général laineux, développé sur le chapeau et sur le stipe, sous lánneau, à éléments détersiles abondants; chapeau laineux ou squameux-laineux" (Heinemann, 1986).

Studies based on dry material provide only a partial information from which, in most cases, the features of fresh specimens cannot be inferred, and are thus of little use. If the keys constructed by former authors were based on these features, they may be almost useless for the identification of herbarium specimens. For example, detersile elements of both pileus and stipe, basic in the determination of species of subgenus *Lanagaricus*, are are easily lost in dried specimens. Unfortunately, it is not always possible to have at hand fresh material, which is indespensable for the study of species of

Agaricus. Identifications based exclusively on the features of dried material must be taken with caution.

MATERIAL AND METHODS

Shaeffer's macroscopic reaction was tested on fresh material. Microscopic examination of fruitbodies was undertaken mounting free-hand sections in 5% KOH and aqueous phloxine. Color names are in accordance with Maerz & Paul (1930). Names of authors taxa are according to Kirk & Ansell (1992). Herbarium abbreviations follow Holmgren *et al.* (1990). The slenderness index (IG) was calculated as described by Heinemann (1983). Specimens are deposited in BAFC Mycological Herbarium of the above department.

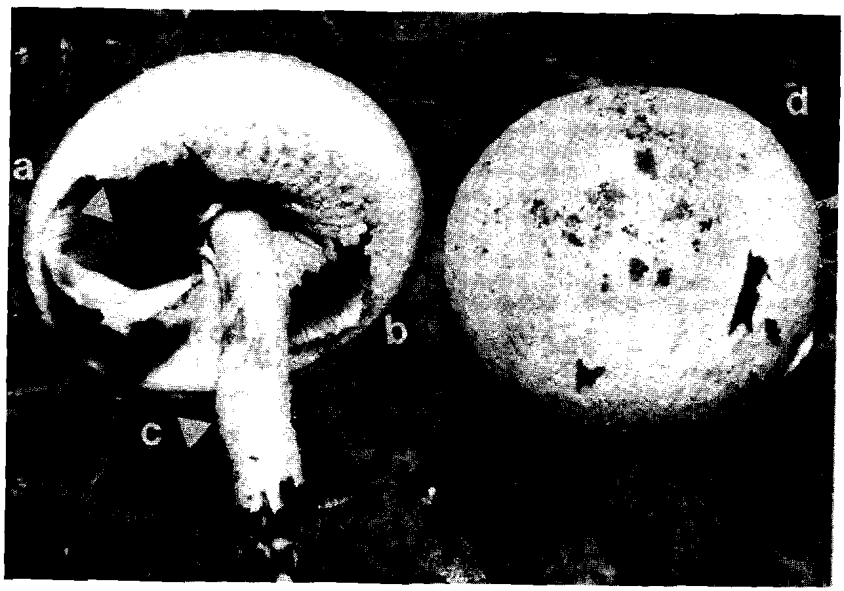

Fig. 1: *A. santacatalinensis*, General aspect (2X); a) Immature lamellae. Note the centrifugally maturing process evidenced by the whitish zone of the lamellae towards the margin. b) Squamulose partial veil; c) Stem with fibrils and detersile squamules; d) pileus view.

***Agaricus santacatalinensis* Albertó n. sp.**

Pileo convexo, vel campanulato, flavo cremeo, ochraceo, squamulis densis concoloribus exornato, concentrici dispositis, parvulis densissimeque versus centrum. Lamellis, centrifugis maturantibus, primo flavo ochraceis, dein atrobrunneis. Stipe ochraceus, in partibus aurantiacus, subannulus cum squamulis secedentibus, rhizomorphae basalis concoloribus. Annulus pendulus, superus.

Sporis (4.5-)-5-5.50 x 3.5-4 µm, *ellipsoideis, brunneis, poro germinativo absens.Basidiis* 21-23 x 6-7 µm *tetrasporis. Cheilocystidiis* 14-35 x 14-20 µm, *pyriformis vel subglobosis.*

React. Schaeffer: vis, exigua, in exsiccata absens. Ad humus in sylvis sub Ligustri, gregariis. Odore et sapore amygdalino.

Holotypus: Argentina, Bonariae, Llavallol, Santa Catalina, leg. E. Albertó. 4-VI-1994, in Herb. BAFC 33.414 conservatus est; Isotypus idem BAFC 33.413.

Pileus 70-120 mm, convex to campanulate, creamish yellow to ochraceous (9 E2 a 9 E4), with small and dense concolorous concentrically arranged squamules which are smaller and denser in the centre and become longer and more spaced towards the margin; they define a somewhat coarse chamois-like surface (Fig. 1). Lamellae appressed, maturing centrifugally, at first ochre yellow (11 A2), finally dark brown (8 C3). **Stem** 85-120 x 15-20 mm, whitish from the union to the pileus up to the insertion of the ring, then ochraceous (10 C5) with orange hues (10 C7), fibrillose, with a farinose aspect, fistulose, with notorious fibrils or squamules begining from under the ring downward to the botton of the stem, easily separable upon touch, with short yellowish rhizomorphs. **Annulus** membranous 1-2 mm thick, large, hanging skirt-wise,

superior, close to area of insertion of stem, farinose, with abundant squamules in its outer side, concolorous with stem. Context relatively thin, 3-5 mm thick, "flesh" scant, yellowish cream. Shaeffer's reaction slight in some specimens, negative in exsiccata. Aspect slender, IG: 4,63-6.21.

Spores (4.5-)5-5.50 x 3.5-4 µm, Q: 1.43 (n= 20), shortly ellipsoid, brown, without germ pore. Basidia 21-23 x 6-7 µm, 4-spored, clavate. Cheilocystidia 14-35 x 14-22 µm, pyriform to subglobose, abundant, in bouquets, making the border sterile. Pileus covering made up of appressed hyaline to brown, narrow, inflated hyphae 7-10 µm diam. (Fig.2).

Habitat: in exotic woods, among humus, gregarious under *Ligustrum* and *Ulmus*. Edibility unknown, smell very faint of almonds. Taste almond like.

Exsiccatum: Pileus light (11 E7). Lamellae brown without efflorescences. Stipe yellowish (9 H7), bulbous at the base with yelowish rhizomorphs. The annulus is very fragile and it is lost in many specimens. The detersile elements are mainly absent in dry material; these can be observed in collection BAFC 34.778

Material studied: BUENOS AIRES, Llavallol, Santa Catalina Mycological Reserve, leg. E. Albertó, 04-VI-94, Holotypus: BAFC 33.414; Isotypus: BAFC 33.413; Ibid. leg. ipse; BAFC 33.412; ibid., leg. ipse 26-X-95 BAFC 34.477; ibid., leg. BAFC 34.778.

REMARKS

A. santacatalinensis is characterized by the chamois-like to velvety aspect of the pileus in mature specimens, the ochraceous yellowish colour of the stipe, which has orange hues and the peculiar nature of the lamellae. These have, before maturation, a yellowish ochre color which upon ripening turns dark brown from the centre towards the margin (Fig. 1). This feature is probably due to habitat conditions but

was, however, observed in specimens of three of the five collections studied.

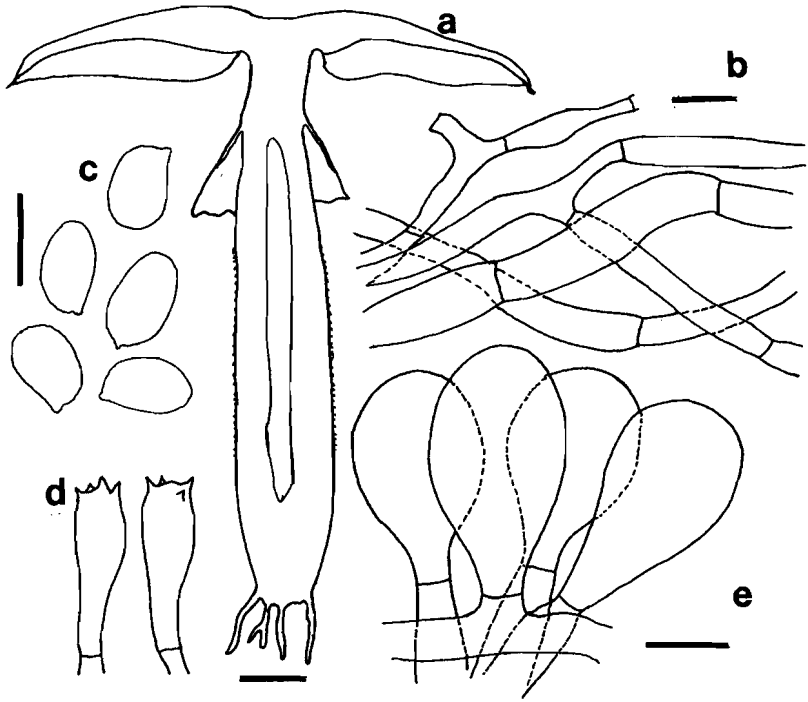

Fig. 2: ***A. santacatalinensis***; a) Long. section through fruitbody (Scale bar 1 cm), b) Pilear covering hyphae (Scale bar 10 µm), c) Spores (Scale bar 5 µm), d) Basidia and e) Cheilocystidia (Scale bar 10 µm).

Specimens of collections BAFC 33.414 and 33.413 also showed 2-spored basidia; these spores can be easily recognized because of the larger size: 7-9 x 4-6 µm. This characteristic was not included in the diagnosis since we believe it may be an anomalous feature and was absent in the rest of studied specimens.

A. santacatalinensis is close to *A.rufoaurantiacus* Heinem. found in Trinidad (Heinemann, 1961) and Martinique (Pegler, 1983). Heinemann, in his original description, states

that the lamellae remain yellowish for a long time, and finally turn dark brown, but does not mention a differential ripening. In any case, *A.rufoaurantiacus* has smaller spores (4-5 x 2.9-3.6 µm).

A. santacatalinensis is also close to *A.ficophilus*. Microscopically they are very similar, but differ because the latter has smaller clavate cheilocystidia (20-30 x 10-12 µm) and slightly longer spores, 5-6(-6.5) x 3.2-4.3 µm. Macroscopically the diferences are more notorious, as can be seen in a coloured iconography that Heineman published (Heinemann, 1961: p. 249). *A.ficophilus* has a pileus with a yellow brown, large central umbo with dark squamules, and towards the margin, a scaly surface with darker concentrically arranged squamules.

At present four species of subgenus *Lanagaricus* have been recorded for Argentina: *A.lignophilus* Raithelh. (Raithelhuber, 1974), *A.ficophilus* Heinem., *A.oligocystis* Heinem. and *A.spegazzinianus* Heinem. (Heinemann, 1990). We propose the following key for all the known Argentine species of the subgenus:

Key to Argentinian species of *Agaricus* Subgenus *Lanagaricus*

1 . Pileus violet to dark purplish; stem covered with violet squamules under the ring. Cheilocystidia absent ..... ***A.lignophilus***.

1'. Pileus, orange ochraceous, yellow brown to brown. Cheilocystidia absent or present 2

2 . Cheilocystidia absent ..... ***A.oligocystis***.

2'. Cheilocystidia present 3

3 . Spores subglobose (Q< 1.20) ..... ***A.spegazzinianus***.

3'. Spores ellipsoid (Q: 1.30-1.50) 4

4 . Pileus with a large central yellow brown umbo, with dark squamules and then scaly with darker concentrically arranged squamules; cheilocystidia clavate 20-30 x 10-12 µm ..... ***A.ficophilus***.

4'. Pileus with yellow to ochraceous, small and dense concentrically arranged squamules; cheilocystidia pyriform to subglobose 14-35 x 14-22 µm ..... ***A.santacatalinensis***.

ACKNOWLEDGMENTS

I am very grateful to the late Dr. Paul Heinemann (Gembloux, Belgium) who read the original typescript and made important suggestions. I also thank Dr. J. E. Wright (Buenos Aires) for his comments and for the Latin transcription. Dr. Roy Halling (NYBG), provided a presubmission review for which I am most grateful.

This work was funded by the Nat'l Research Council of Argentina (CONICET); paper n° 95 of the PRHIDEB.

LITERATURE.

Capelli, A. 1984. *Agaricus*. Saronno, Italia, 560pp.

Freeman, A. E. H. 1979. *Agaricus* in the Southeastern United States. Mycotaxon 8: 50- 118.

Heinemann, P. 1956. Champignons recoltés au Congo Belge par Madame Goossens Fontana II. *Agaricus* Fries s.s. Bull. Jard. Bot. Brux. 26: 1-136.

Heinemann, P. 1961. Agarici Austroamericani I *Agaricus* of Trinidad. Kew. Bull. 15: 231-248.

Heinemann, P. 1962. Agarici Austroamericani II. *Agaricus* de Bolivie. Bull. Jard. Bot. Etat. Brux. 32: 1-21.

Heinemann, P. 1983. Clé de determination de *Micropsalliota* (Agaricaceae) et description de deux espèces nouvelles. Bull. Jard. Bot. Nat. Belg. 53: 85-95.

Heinemann, P. 1986. *Agarici* Austroamericani VI. Aperçu sur les *Agaricus* de Patagonie et de la Terre de Feu. Bull. Jard. Bot. Nat. Belg. 56: 417-446.

Heinemann, P. 1990. *Agarici* Austroamericani VII. Agaricaceae des zones tempérées de l'Argentine et du Chili. Bull. Jard. Bot. Nat. Belg. 60: 331-370.

Holmgren, P. K., N. H. Holmgren & L. C. Barnett, 1990. Index Herbariorum, New York Botanical Garden, USA, pp 693.

Kirk, P. M. & A. E. Ansell 1992. Authors of fungal names. Index of Fungi, Suppl. 95 pp.

Maerz, A. & M. Paul 1930. Dictionary of color. Mc. Graw Hill Book Company, Inc. New York. 207p.

Pegler, D. N. 1983. Agaric flora of the Lesser Antilles, Kew Bull., Add. Ser. 9, 667 pp.

Raithelhuber, J. 1974. Lateinische Diagnosen bisher unveroffentlichter Pilzarten Fortsetzung. Metrodiana. 5 (3/4) 72.

Rick, J. 1939. Agarici Riograndenses IV. Lilloa 4: 75-104.