

VALIDATION OF *AMANITA GRACILIOR*,
A MEDITERRANEAN SPECIES RESEMBLING *A. BOUDIERI*

C. BAS

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One of us (Bas, 1969: 436) described a mediterranean member of *Amanita* section *Lepidella* under the name *A. gracilior*, however, without validating this name because of scanty material and incomplete information on the fruit-bodies in fresh condition.

Meanwhile, both the present authors have collected and extensively annotated this species, so that time has come to give it legal status.

Amanita gracilior Bas & Honrubia, *spec. nov.*—Figs. 1–2

Amanita gracilior Bas, nom. prov., in *Persoonia* 5: 436, figs. 170–172. 1969.

Pileus 30–34 mm latus, convexus, dein planus, margine appendiculatus et non vel leviter sulcatus, albus vel bubalino-cremeus, verrucis (sub)conicis, sat minutis, concoloribus, deciduis ornatus. Lamellae confertae, liberae vel anguste adnatae, modice latae, albae vel pallide bubalino-cremeae. Stipes 70–80 × 5–17 mm, radicans, basi cylindraceus vel napiformis et usque ad 28 mm latus, solidus, albus vel pallide bulbalinus, annulo membranaceo, apicali praeditus, deorsum plerumque fragmentis volvae minutis, squamuliformibus recurvatis ornatus. Caro alba vel pallide bubalina, odore indistincto vel subnauseoso praedita. Sporae 10–12 × 5.5–6.5 μm, elongatae, in cumulo albae, amyloideae. Fragmenta volvae e cellulis turgidis catenulatis vel terminalibus, suberectis vel inconditis hyphisque composita. Fibulae frequentes. Typus: 'C. Bas 6462, 24 Oct. 1974, France, Avignon' (L).

Carpophores solitary or subgregarious, small to medium-sized, rather thickset to very slender. Pileus 30–45 mm wide, from convex with somewhat flattened centre to plano-convex or flat, with not or only slightly sulcate, first somewhat inflexed, later straight, slightly appendiculate margin, white, sordid white or buff tinged cream, with scattered but at centre crowded, small, detersile, conical to pustule-like, up to 2.5 mm wide and 1.5 mm high, volval warts often with a minutely radially fibrillose flat base or (particularly at centre of pileus) remaining connected, thus forming a felted-fibrillose, somewhat areolate volval patch carrying small adnate conical warts, sometimes becoming denudated with age; exposed parts of pileipellis viscid when moist. Lamellae crowded, free to narrowly adnate, moderately broad (up to 6.5 mm), thin, white to pale buffy cream (paler than Munsell 10 YR 8/3), straight or ventricose, with concolorous, subflocculose, thin edge; lamellulae rather abundant to scarce, irregularly truncate, subtruncate or attenuate. Stipe 70–80 (rooting part included) × 5–17 mm, with subcylindrical base or

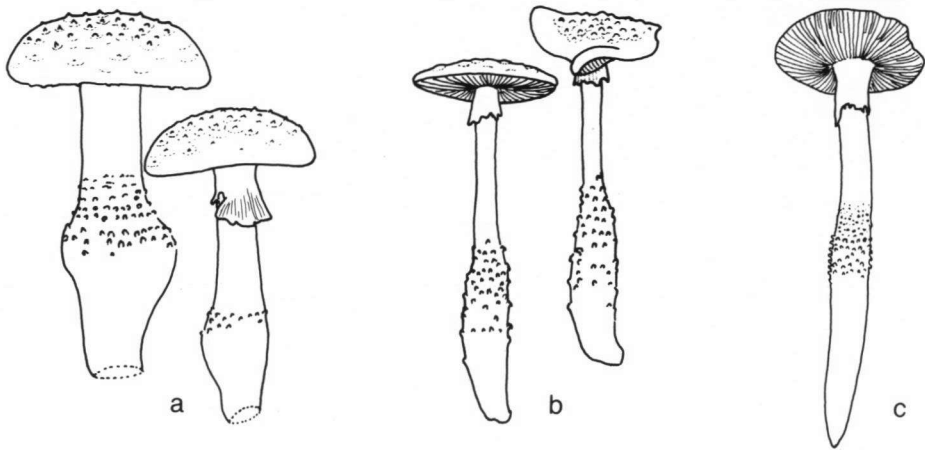


Fig. 1. *Amanita gracilior*, fruit-bodies ($\times 0.5$). — a. Type-collection. — b. *Honrubia* 2523. — c. *Marchand* 20 Oct. 1966.

fusiform to napiform basal bulb, up to 45×28 mm, tapering into a long rooting point, solid, white to sordid white or with pale buff tinge, subfelted-subfibrillose, lower down flocculose to squamulose, with (sub)apical, pending, fragile, membranous, concolorous, rather narrow (sub)striate annulus, at base (on upper half of bulbous part) with many volval remnants in the shape of small to very small recurving scales or warts. Context white to pale buff. Smell and taste indistinct to somewhat unpleasant. Spore print (available only in the case of *Honrubia* 2523) white.

Spores [50/3] (9–)10–12(–14) \times (5.0–)5.5–6.5(–8) μm $Q = (1.4\text{--})1.7\text{--}2.0$, average Q 1.7–1.8⁵, elongate, rarely elongate-ellipsoid or subcylindrical, sometimes broadening towards apex, smooth, rather thin-walled, colourless to very slightly yellowish in NH_4OH , with subgranular to guttulate contents and small abrupt apiculus, strongly amyloid. Basidia 35–60 \times 11–14 μm , mainly 4-spored but also frequently 3- or 2-spored, with clamp. Marginal tissue a strip of somewhat irregularly disposed ellipsoid, clavate, piriform, and subcylindrical cells, (8–)20–55 \times (7–)10–20 μm ; smaller ones sometimes catenulate. Trama of lamellae bilateral; subhymenium irregularly ramose to coralloid, with clamps. Pileipellis a cutis composed of 1.5–5 μm wide, interwoven, colourless hyphae, at first gelatinizing at surface only where exposed, later also under volval remnants. Remnants of volva on pileus consisting of abundant, mainly ellipsoid, piriform and clavate cells, 20–90 \times 15–45 μm , in short to rather long rows, more rarely terminal, on rather abundant, 3–11 μm wide branching hyphae; elements irregularly disposed in apex of warts but towards base more and more in a parallel-erect position, colourless to pale yellowish in alkaline solutions but sometimes in apex with golden yellow contents; oleiferous elements scarce; clamps rather frequent. Trama of stipe with abundant, up to 350 \times 35 μm large acrophysalides on 2–12 μm wide branching hyphae. Clamps present at basidia, subhymenial elements, and hyphae of volval remnants on pileus.

HABITAT & DISTRIBUTION.—Terrestrial in mediterranean woods in late autumn. *Honrubia* 2523 was growing in forest of *Quercus rotundi folia*, *Q. coccifera*, and *Pinus halepensis*. Occurring in Spain, the south of France, and probably also in Italy and Yugoslavia (see discussion).

COLLECTIONS EXAMINED.—FRANCE, surroundings of Avignon (brought in at exposition of European Mycological Congress VI as *A. boudieri*), 24 Oct. 1974, *C. Bas* 6462 (type, L). — SPAIN: Gerona, Costa Brava, Estartit, 20 Oct. 1966, *A. Marchand* (L); Albacete, Almansa, El Angel, 2 Nov. 1979, *M. Honrubia* 2523 (herb. Honrubia; fragments at L).

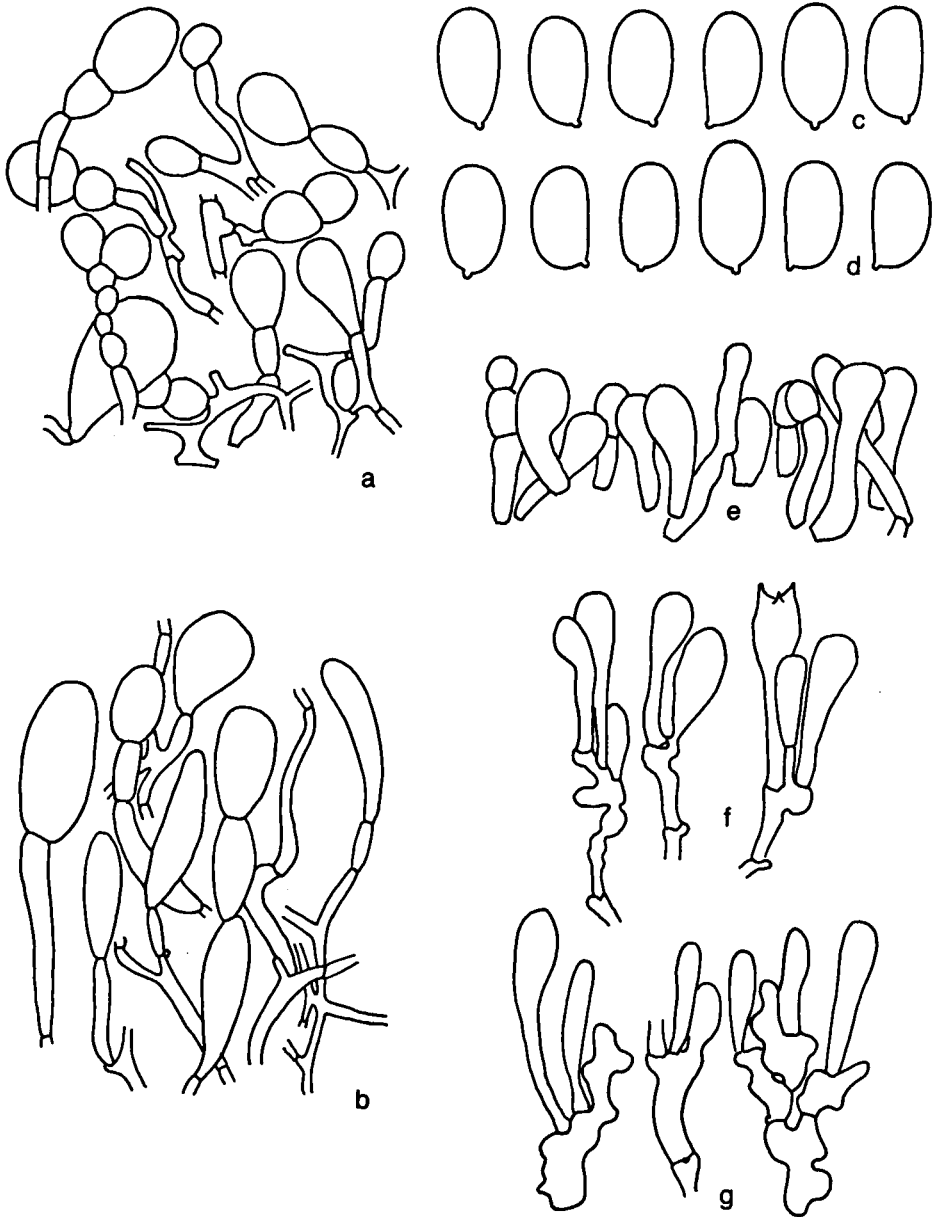


Fig. 2. *Amanita gracilior*. — a-b. Slightly dissociated elements of volval wart on pileus ($\times 250$); a. from apex of wart; b. from base of wart. — c-d. Spores ($\times 1250$). — e. Marginal tissue ($\times 500$). — f-g. Subhymenial 'trees' ($\times 500$) (a-c, e, f from type; d, g from *Honrubia 2523*).

In several aspects *A. gracilior* is intermediate between *A. boudieri* Barla¹ and *A. solitaria* (Bull. ex Fr.) Mérat (= *A. echinocephala* (Vitt.) Quél.). It is more than probable that in the past it has been collected by several mycologists (e.g. Bresadola²), but has alternately been named *A. boudieri* or *A. echinocephala* according to habit and degree of distinctness of the conical volval warts.

Amanita gracilior has with *A. boudieri* in common the whitish fruit-body, the rather small conical volval warts which particularly at the centre of the pileus show a tendency to merge into a volval patch carrying small adnate cones, relatively slender spores and a mediterranean distribution. It differs however from *A. boudieri* by:

- (i) the presence of clamps,
- (ii) the rather strong tendency to form small recurving scales on the lower half of the stipe,
- (iii) its fruiting in late autumn,
- (iv) the more membranaceous annulus, and
- (v) the slightly shorter and consequently relatively broader spores (10–12 μm versus 10.5–14 μm ; average Q 1.7–1.8⁵ versus 1.8–2.1).

Amanita gracilior reminds of *A. solitaria* because of the presence of clamps and the rather strong tendency to form recurving scales on the stipe, but differs from that species by:

- (i) its elongate spores (aver. Q 1.7–1.8⁵ versus 1.3–1.4⁵),
- (ii) the absence of a greenish-greyish tinge from the pileus and a greenish tinge from the lamellae, and
- (iii) the less concrete conical volval warts on the pileus and the tendency of these warts to merge into a volval patch (particularly at the centre of the pileus).

Bas (1969: 395) attributed to *A. solitaria* (= *A. echinocephala*) a range of averages of the length-width ratio (Q) of the spores from 1.3–1.75. In rich recent collections of this species, however, the average Q ranges from 1.3–1.4⁵. The measurements of the spores of all the collections cited by Bas (l.c.) fit this range with the exception of two collections from the mediterranean area (one from Yugoslavia and one from Perpignon, France), both without descriptive field-notes. In his discussion on *A. solitaria* Bas (l.c.: 398) suggested that among the collections cited by him under *A. solitaria* another species with more elongate spores and a slightly differently structured volva, was hiding. It has become clear now that this 'hidden' taxon and the then provisionally described *A. gracilior* are one and the same species.

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¹ Bas (1969: 442) reintroduced the name *A. baccata* (Fr.) Gill., typified by Micheli's plate 80 fig. 4 (1729: 186), for the species usually called *A. boudieri* Barla. The present study makes clear, however, that Micheli's illustration can represent *A. gracilior* just as well as *A. boudieri*, which renders *A. baccata* a dubious name. Therefore the present authors have taken up again the use of the name *A. boudieri*.

² Bresadola's plate 99 (1927) almost certainly represents *A. gracilior*, but no material of this species is available in the Bresadola herbarium at Stockholm.