

AGARICS FROM XEROPHYTIC GRASSLANDS IN CENTRAL SPAIN

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Agrocybe pusilla, *A. vervacti*, *Crinipellis tomentosa*, *Marasmius anomalus* and *Psilocybe calongei* sp. nov. are reported from xerophytic grasslands in central Spain.

High rainfall during the autumn of 1986 provided a favourable season for small praticolous agarics in the xerophytic grasslands of central Spain. A study of the basophilic pastures at Alcalá de Henares University and some acidophilic pastures similar to those in Húmera and the surroundings of San Lorenzo de El Escorial have been undertaken. The three localities belong to the Province of Madrid.

AGROCYBE PUSILLA (Fr.) Watl., *Biblioth. Mycol.* 82:54 (1981). (Figs 1-4)
A. pusiola (Fr.) Heim, *Treb. Mus. Ci. Nat. Barcelona* 15:112 (1934).

The macro- and microscopic features essentially fit those indicated by Watling (1982); however, the dimensions of our fruit bodies are somewhat larger, the pileus reaching 2 cm diam and the stipe 3 cm in length. This species is characterized by the small ($7-8 \times 5-6 \mu\text{m}$), ellipsoid spores, without a germ-pore and by large lageniform cystidia, reaching $45-70 \times 10-15 \mu\text{m}$.

It has only been recorded (as *A. pusiola*) by Heim *et al.* (1934) from Catalonia in sandy soil.

Specimens examined: among Poaceae and *Retama sphaerocarpa*, Húmera, 26 Oct 1986, G. Moreno, 9903.

AGROCYBE VERVACTI (Fr.) Singer, *Beih. Bot. Centr.* 56 Abt. B:167 (1936). (Figs 5-6)

The macro- and microscopic features fit those of Watling (1982). Our collections are microscopically characterized by the ellipsoid to ovoid spores, measuring $7.5-9 \times 5-6 \mu\text{m}$, with a poorly developed germ-pore; facial cystidia absent but marginal cystidia present, varying from fusiform to lageniform, sometimes with a capitate apex, $30-45 \times 7-10 \mu\text{m}$.

It has only been recorded in Northern Spain: from Galicia (Castro Cerceda, 1985), Catalonia (Codina & Font Quer, 1931; Maire *et al.*, 1933;

Maublanc, 1936) and from Murcia, Spanish Levante (Honrubia & Llimona, 1979, 1983).

Specimens examined: among Poaceae with *Retama sphaerocarpa*, Húmera (Madrid), 19 Oct 1986, G. Moreno, 9904; *ibid.*, 26 Oct. 1986, G. Moreno, 9902.

CRINIPELLIS TOMENTOSA (Quélet) Singer, *Lilloa* 8:513 (1942). (Figs 7-11)

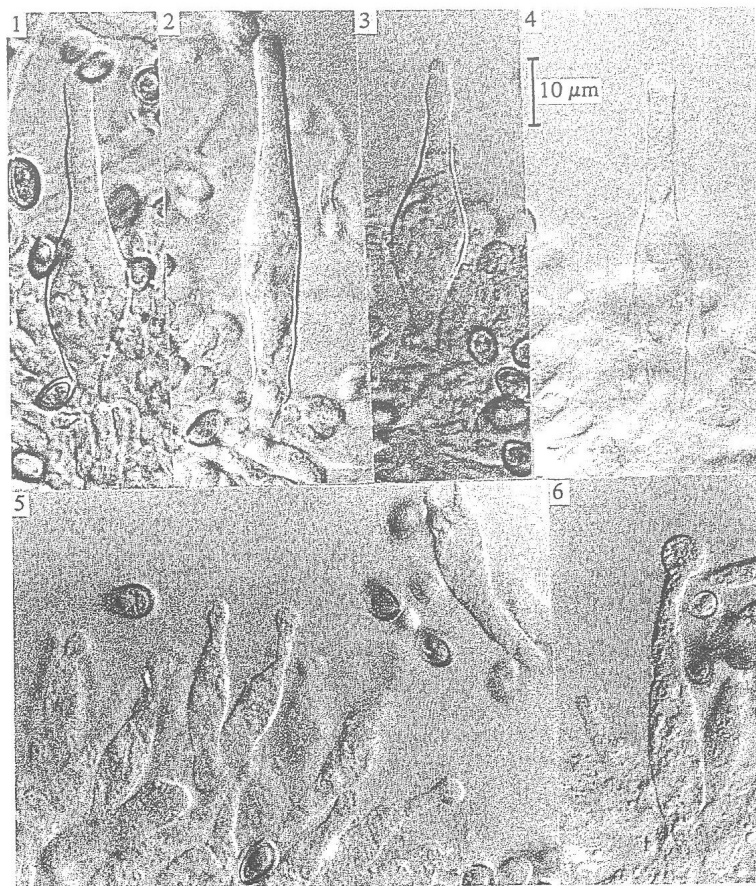
Crinipellis mauretanica Maire, *Bull. Soc. Mycol. Fr.* 49:42 (1928).

The material agrees well with both the original description of *Crinipellis mauretanica* and, above all, with the description of Josserrand (1965). Recently, Candusso (1986) revised the European species of this genus; he also considered *C. mauretanica* as synonymous with *C. tomentosa*. *Crinipellis subtomentosa* (Peck) Singer from North America is closely related and was considered by Redhead & Liu (1982) as possibly the same taxon.

It is characterized by its large size for a species of *Crinipellis* Pat., with a pileus reaching 2 cm diam; the pileipellis is formed by long, thick-walled, dextrinoid hairs with intracellular brown pigment, measuring $100-160 \times 5.5-6.5 \mu\text{m}$. The spores are smooth, hyaline, non-amyloid, amygdaliform to slightly lacrymoid, measuring $7.5-10 \times 4.5-6 \mu\text{m}$. Marginal cystidia present, variable, sometimes with apical appendages.

It was recorded in Spain in Catalonia by Heim *et al.* (1934), in a *Quercus suber* forest, containing *Cistus monspeliensis* and *C. salvifolius* and also by Malençon & Bertault (1976) under *Populus alba*, where the spores were illustrated as lacrymoid, not amygdaloid.

Specimens examined: among Poaceae with *Populus nigra*, *Salix atrocinerea* and *Conium maculatum*, near a river bank, near San Lorenzo de El Escorial (Madrid), 21 May 1984, G. Moreno & F. Esteve-Raventós, 9534, 9535 and 9536; among Poaceae with *Retama sphaerocarpa*, Húmera (Madrid), 26 Oct 1986, G. Moreno, 9989.



Figs 1-4. *Agropybe pusilla*, 9903, cystidia. Figs 5-6. *Agropybe vervacti*, 9902, marginal cystidia.

MARASMIUS ANOMALUS Lasch in Rabenh., *Klotzchii* Herb. Vivum no. 1806 pl. 17, fig. 97 (1854).

(Figs 12-22)

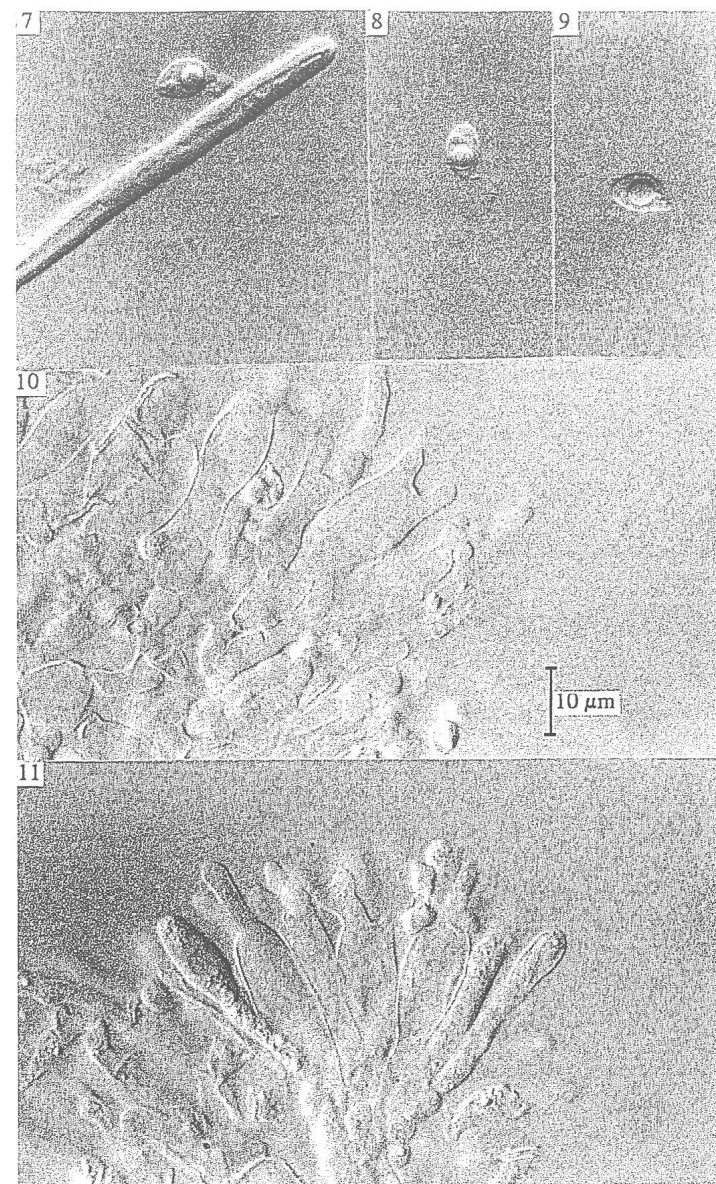
Marasmius litoralis Quélet var. *microsporus* (Maire) Joss., Rev. Mycol. 4:75 (1939).

Our material agrees with Malençon & Bertault (1975) and Cléménçon (1982). This species is characterized by its small habit, a filiform, dark brown stripe with some yellowish to greenish tints at the apex still visible in dried specimens and by the cream-white mycelial threads at the stipe base. The epicutis comprises *Siccus*-type brown-cells with brown intracellular pigment; marginal

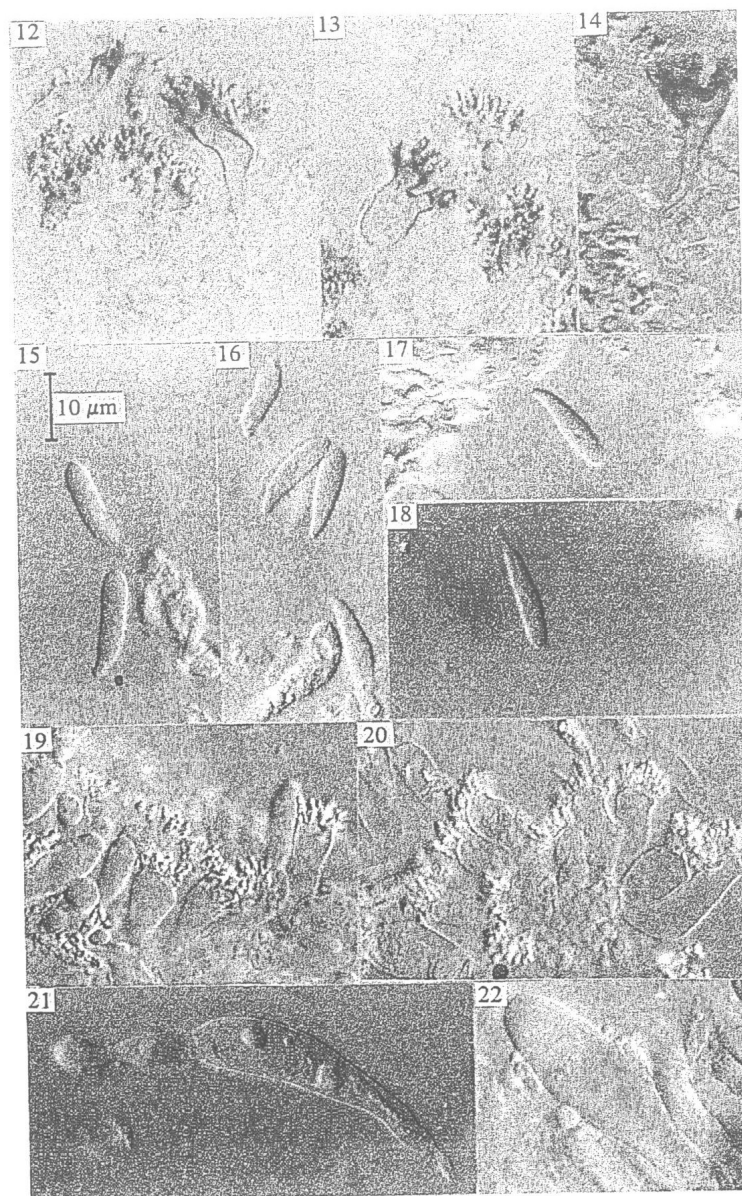
cystidia present, similar to the elements of the epicutis; facial cystidia smooth, hyaline, from cylindrical to fusiform, sometimes moniliform; spores smooth, non-amyloid, cylindrical to fusiform, measuring $15-17 \times 3.8-4.2 \mu\text{m}$.

Marasmius ventallonii Singer might be related but the incomplete description (Singer, 1947) and the conifer forest habitat are distinct. The pilei of *M. anomalus* may be either uniformly brownish or whitish-ivory; intermediate forms with reddish at the centre and whitish at the margin are not uncommon (see Malençon & Bertault, 1975).

Specimen examined: among Poaceae, Húmera (Madrid), 9 Oct 1986, G. Moreno, 9988.



Figs 7-11. *Crinipellis tomentosa*, 9534, Fig. 7. Terminal hair of the epicutis. Figs 8-9. Spores. Figs 10-11. Marginal cystidia.



Figs 12–22. *Marasmius anomalus*, 9988. Figs 12–14. Epicutis. Figs 15–18. Spores. Figs 19–20. Marginal cystidia. Figs 21–22. Facial cystidia.

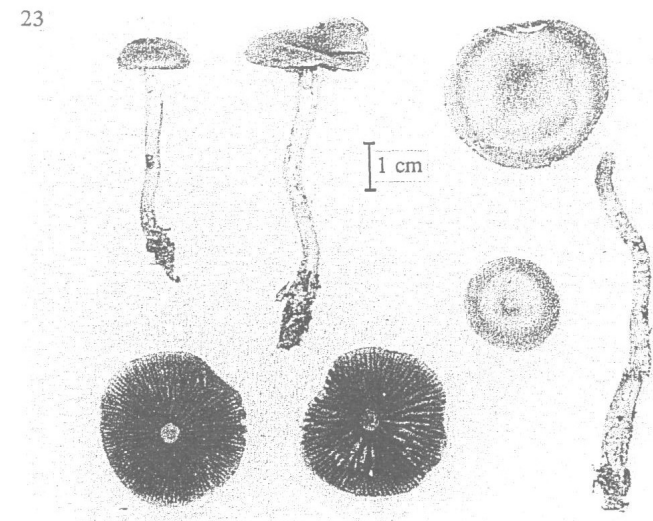


Fig. 23. *Psilocybe calongei*, 9906 (Holotype), fruit bodies.

***Psilocybe calongei* sp. nov.** (Figs 23–30)

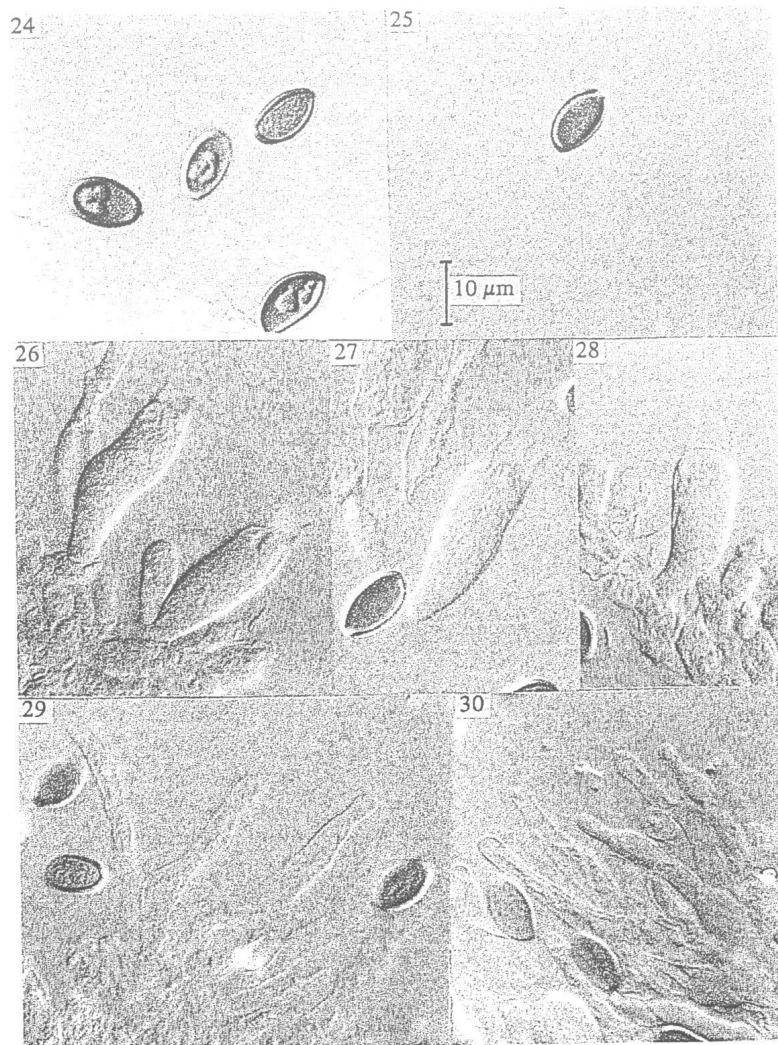
Etym. Dedicated to Dr F. D. Calonge in gratitude for his work and great contribution to the study of Spanish Mycology

Pileus (0.5–) 0.7–3.5 cm latus e convexo plano-convexus, peculiari papilla mediali conica ac bene distincta-praeditus, ochraceo-paleatus, sive aequali, sive distinctiore in medio, seu paulo viscidus, seu humidus, aut minime hygrophanus aut paulo tantum, haud striatus; incurvata vel planodecurvata margine, interdum obscuriore colore ochraceo. Lamellae late adnatae vel subdecurrentes, primo cinereo-violaceo, postea castaneo-violaceo cum ad maturitatem pervenit. Stipes (2–) 2.5–6.5 (–7) cm longus, 0.2–0.4 cm latus, cylindraceus sive sinuosus, colore ochraceo-paleato, pallidior quam qui est pilei, albido iuxta apicem. Velum manent filamentosum, fugacia et rara. Caro, cum fricatur, non fit caerulea, sed manet superficiei concolor et cum ea est albida; cuius odor et sapor communes sunt. Sporae 10.5–13 μ m longae, 6–7 (–7.5) μ m latae, ellipsoideae, germinativo poro mediali praeditae. Basidia 25–35 $\times$ 8–10 μ m, clavata, tetrasporifera. Pleurocystidia absunt. Cheilocystidia 40–50 $\times$ 6–10 $\times$ 2–4 μ m, lageniformia. Epicutis partim gelatinosa, hyphis filamentosis constituta cum fibulis, 3–5 μ m latus. Hypocutis cellulis constituta late cylindricis sive subsphaericis.

Pileus (0.5–) 0.7–3.5 cm diam, convex to plano-convex, with a distinct, central and conical papilla, uniformly yellowish-ochre to straw-ochre, sometimes darker at the centre, slightly viscid when

moist, not or slightly hygrophanous; margin non striate, incurved to decurved. *Lamellae* broadly adnate to short decurrent, greyish-violaceous when young to more or less chocolate-brown violaceous at maturity except for the whitish edges. *Stipe* (2–) 2.5–6.5 (–7) $\times$ 0.2–0.4 cm, cylindrical, straight to flexuous, tough, surface straw-ochre, whitish-ochre at the apex, paler than the pileus, fibrillose with some cortiniform velar remnants at the upper half, hardly discernible in adult specimens, never leaving any trace of ring. *Context* whitish to concolorous with the surface, non-cyanescent. *Odour* and *taste* absent or weak. *Spores* 10.5–13 $\times$ 6–7 (–7.5) μ m, ellipsoid, yellowish-brown, with a more or less thick wall (–1 μ m) and a broad central germ-pore (about 1.5 μ m diam). *Basidia* 25–35 $\times$ 8–10 μ m, 4-spored, clavate. *Pleurocystidia* absent. *Cheilocystidia* 40–50 $\times$ 6–10 $\times$ 2–4 μ m, lageniform, with a long, cylindrical neck which may be constricted or subcapitate. *Epicutis* formed by a hyaline, more or less gelatinized layer of parallel, narrow, clamped hyphae, 3–5 μ m diam, with encrusting pigment. *Hypodermium* with subsphaerical to broadly cylindrical, clamped hyphae, –15 (–20) μ m diam with encrusting pigment.

Specimens examined: among Poaceae with *Dactylis glomerata* ssp. *hispanica*, in basic soil, Alcalá de Henares University (Madrid), 16 Nov. 1983, G. Moreno & J. L. González Rojo, 9905; among Poaceae, in acid soil,



Figs 24-30. *Psilocybe calongei*, 9906 (Holotype). Figs 24-25. Spores. Figs 26-28. Basidia. Figs 29-30. Marginal cystidia.

Húmera (Madrid), 12 Oct. 1986, G. Moreno, 9906 (Holotype); among Poaceae, in acid soil, Húmera (Madrid), 19 Oct. 1986, G. Moreno, 9907; Isotype in M. Bon Herbarium (Saint Valery-sur-Somme, France) and Real Jardín Botánico de Madrid.

This species is characterized by a well-marked and acute papilla at the pileus, short decurrent violaceous lamellae, non-cyanescent context and habitat in xerophytic grasslands.

It might be included in section *Pratensae* Guzmán, close to *P. pratensis* P. D. Orton and *P.*

novae-zelandiae Guzmán & Horak. *Psilocybe pratensis* has a thick viscid pellicle, easily detached from the cap and smaller spores, $9.3-11 (-12.6) \times 6.6-7.7 (-9) \times 5.5-7.7 \mu\text{m}$, and *P. novae-zelandiae* has fusoid-ampullaceous and mucronate cheilocystidia and spores $10-11 (-12) \times 6-7 (-7.5) \times 3.5-5.5 \mu\text{m}$. Species of section *Semilanceatae* Guzmán show a cyanescent context.

We wish to express our gratitude to Dr R. Watling (Edinburgh) for his revision of the species of *Agrocybe* that appear in this paper; to Dr M. Bon (Saint Valery-sur-Somme) for his confirmation of the identity of *Psilocybe calongei* as a new species; to Dr Mariner-Bigorra (Madrid) for providing the Latin diagnosis and to Rego & Cía (Nikon, Madrid) for their photographic suggestions.

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