A NEW AMANITA FROM CHILE

JOOST SCHALKWIJK & GERRIT M. JANSEN

During our stay in the *Nothofagus* region near Osorno from April to July 1979, we collected an interesting species of *Amanita*. Unlike *A. diemii* Sing., which appeared to be rather common in this area, the new species was collected only once.

Our *Amanita* is undoubtedly identical with *A. gayana* (Mont.) Mont., as described by Singer (*1969*: 151). However, checking the protologue of *Agaricus gayanus* Mont. (*1853*: 332), we soon discovered that we were dealing with two different species. Therefore we have to describe our (and Singer's) species as a new one, naming it *A. aurantiovelata*.

The following description is based on our single collection consisting of a young and a mature carpophore. The colours of the fresh carpophores have been annotated with the help of the colour code of the Methuen Handbook of Colour of Kornerup & Wanscher (*1969*), abbreviated 'Meth.'

Spores, taken from the sporeprint, were observed in an aqueous solution of ammonia (25%); all other parts studied under the microscope were stained with ammoniacal Congo red and observed in KOH (2%).

The spore sizes relate to the largest length and width, exclusive of the apiculus. The elements of the hymenophoral trama and the volva were measured in squash preparations. The pileipellis was studied in radial sections. The drawings were made with a drawing prism.

Amanita aurantiovelata Schalkwijk & Jansen, *spec. nov.*—Fig. 1

MISAPPLIED NAME. — *Amanita gayana* (Mont.) Mont. sensu Singer *in* Beih. Nova Hedwigia **29:** 151-152. *1969*.

Pileus c. 45 mm latus, semiglobosus dein convexus, margine sulcatus, aurantiacus (Meth. 6A8) dein pallidior (Meth. 5A6-4A6), margine pallide luteus (Meth. 4A4), fragmentis volvae aurantiacis verruciformibus ornatus. Lamellae liberae, albae; lamellulae truncatae. Stipes c. 75 × 12 mm, sursum attenuatus, subbulbosus, pallide luteus (Meth. 2A4), interdum subaurantiacus ad basem, exanulatus, pulverulentus. Caro alba, inodora. Sporae accumulatae albae, 8-11.5 × 6.5-8 µm, ellipsoideae, non-amyloideae. Fragmenta volvae cellulis cylindricis et ellipsoideis, 18-25(-37) µm latis. Fibulae frequentes. Habitat: in terra sub *Nothofago obliqua*. Typus: G. M. Jansen & J. Schalkwijk XVI-251, 3-VI-1979, Cuinco, Chile, 40°38.5'S 73°26.5'W (L).

ETYMOLOGY: aurantius, orange; velatus, having a veil.

Fruit-body (Fig. 1a) medium-sized, solitary, terrestrial. Pileus up to 45 mm wide, from semiglobose when young to convex when older, without umbo, first slightly but later stronger sulcate-striate at margin, deep orange when young, later fading to orange or orange-yellow

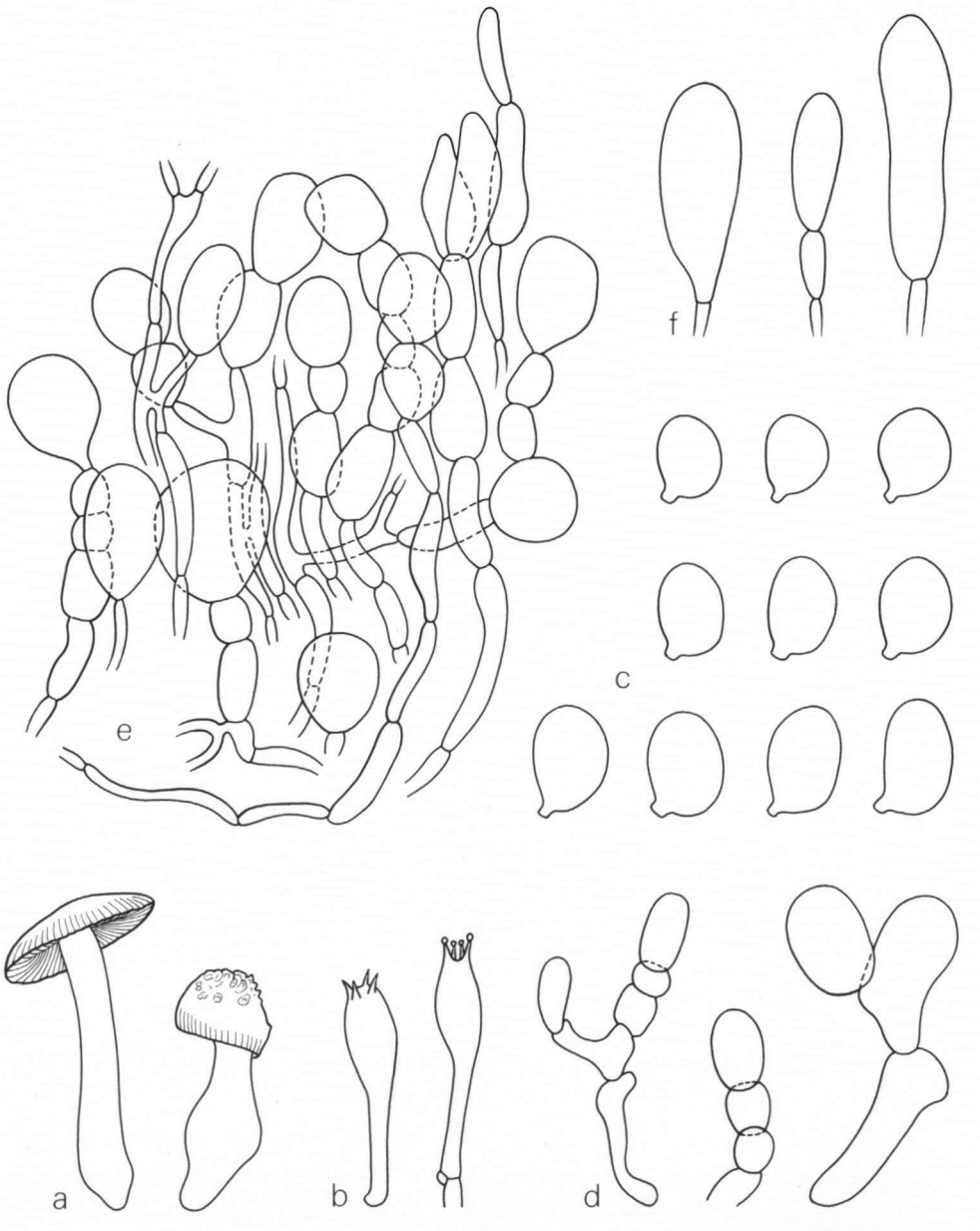

Fig. 1. *Amanita aurantiovelata* — a. Fruit-bodies × 1/2. — b. Basidia × 500. — c. Spores × 1250. — d Elements of marginal tissue × 500. — e. Slightly dissociated elements of tissue of volval wart on pileus × 250 — f. Elements of volval tissue on base of stipe × 250.

(Meth. 5A6, 4A6) and pale yellow at margin, at first felted and mat, later smooth and shiny, in the beginning with up to 2 mm high, fragile, deep orange (Meth. 6A8), slenderly conical volval warts with pallescent tips, but later glabrous; pileipellis strongly peeling (up to 2/3 R); flesh underneath pileipellis pale yellow. Lamellae free, moderately crowded, white with edge fimbriate particularly near stipe; lamellulae scarce. Stipe up to 75 mm long, 10-12 mm wide at apex and up to 22 mm wide at base, from clavate when young to almost cylindrical with pointed subbulbous base with age, solid, exannulate, pale yellow (Meth. 2A4), somewhat pulverulent, with friable, deep orange, floccose volval remnants at base. Context white. Smell indistinct. Taste mild. Spore-print pure white when fresh.

Spores (Fig. 1c) 8-11.5 × 6.5-8 μm, broadly ellipsoid to ellipsoid, rarely elongate, Q = 1.2-1.5(-1.6[5]), thin-walled, colourless, smooth, non-amyloid, with broad sometimes truncate apiculus. Basidia 35-65 × 7-14 μm, 4-spored, with clamp. Marginal tissue of lamellae consisting of chains of inflated cells, 9-45 × 10-25 μm (Fig. 1d). Trama of lamellae approximately bilateral; subhymenium inflated. Pileipellis an ixocutis of desintegrating hyphae; pigment not visible. Volval remnants on pileus (Fig. 1e) consisting of subglobose, ellipsoid and piriform, yellowish, thin-walled inflated cells, 20-65 × 18-37 μm, in long rows (4-6 cells no exception) on 5-12 μm wide branching hyphae; all elements in warts at centre of pileus in approximately erect position. Volval remnants on base of stipe (Fig. 1f), consisting of up to 175 × 80 μm large cells, terminal or in short rows on very abundant 2.5-5.5 μm wide, somewhat encrusted hyphae. Context of stipe made up of abundant, up to 200 × 35 μm large acrophysalides on 2.5-6 μm wide sparsely branching hyphae. Clamps present.

HABITAT & DISTRIBUTION.—Terrestrial under *Nothofagus obliqua* in southern Chile (from where also reported by Singer, 1969: 151).

COLLECTION EXAMINED.—Chile, Cuinco 30 km W. of Osorno, 40°38.5'S/73°26.5'W (type; L).

Because of its non-amyloid spores and the bulbous base of its stem *A. aurantiovelata* has to be placed in section Amanita as defined by Corner & Bas (*1962*: 243) and Bas (*1969*: 341), where it finds its place in a group of species with orange-yellow to red pigments, a friable volva and an exannulate stem, such as *A. parcivolvata* (Peck), E. J. Gilb. and *A. wellsii* (Murr.) Sacc., both from North America, and *A. mira* Corner & Bas from south-eastern Asia. *Amanita aurantiovelata* differs from these three species by the deeply orange volval remnants on pileus and base of stem, moreover from *A. parcivolvata* (see Jenkins, *1977*: 95), which seems to be its closest relative, by smaller and broader ellipsoid spores (8-11.5 × 6.5-8 μm and Q 1.2-1.5 versus 11-12.5 × 6.5-8 μm and Q 1.3[5]-2). In *A. mira* the spores are considerably smaller and (sub)globose, viz. 6.5-8 × 6-7.5 μm and Q 1.0-1.1.

The only other species in section *Amanita* with a deeply bright coloured friable volva is *A. rubrovolvata* Imai from East Asia, but that species has an annulus, rounded powdery volval warts on the pileus and (sub)globose spores.

The description published by Singer (*1969*: 152) under the name *Amanita gayana* (Mont.) Mont. refers undoubtedly to the species described above. The true *A. gayana* (Montagne, *1853*: 332, *1854*: pl. 7, fig. 9), however, is a species with a white saccate volva, a white membranous annulus, yellowish lamellae and a glabrous red pileus. It clearly belongs to the cluster of closely related taxa around *A. caesarea* and *A. hemibapha*.

ACKNOWLEDGEMENTS.—The authors thank Dr. C. Bas for his comments on the manuscript of this paper and Ruth van Crevel for preparing the drawings for printing.

REFERENCES

BAS, C. (1969). Morphology and subdivision of *Amanita* and a monograph of its section *Lepidella*. *In* Persoonia **5**: 285-579.

CORNER, E. J. H. & BAS, C. (1962). The genus *Amanita* in Singapore and Malaya. *In* Persoonia **2**: 241-304.

JENKINS, D. T. (1977). A taxonomic and nomenclatural study of the genus *Amanita* section *Amanita* for North America. *In* Bibl. mycol. **57**.

KORNERUP, A. & WANSCHER, D. (1969). Methuen handbook of colour. London.

MONTAGNE, J. P. F. C. (1853) *in* Gay, C. Hist. fis. polit. Chile (Bot.), Flora chilena **7**; ditto (1854), Atlas, cript. pls. 1-16.

SINGER, R. (1969). Mycoflora australis. *In* Beih. Nova Hedwigia **29**.