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New and Interesting Records of South African Fungi, Part V*

by

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Fifteen species are described below. Dried down cultures or specimens on natural substrata of all these species have been deposited in the mycological collection of the National Herbarium (PRE), at 590 Vermeulen Street, Pretoria.

1. **Tritirachium roseum** *Beyma*, in Antonie van Leeuwenhoek 8: 118–120 (1942); MacLeod, D.M., Can. Journ. Bot. 32: 818–890 (1954).

Figs. 1, 2.

Colony on 3 per cent malt agar slow-growing, raised, cottony, " Rhodonite pink " in colour, reverse " Clay colour "; mycelium subhyaline, reddish orange in mass under the microscope, septate, 1·5–2·2μ in diameter, sparingly branched, usually near septa; conidiophores either arising singly from the mycelium or compound, erect or recumbent, branched, either single or in whorls of 2–4; fertile branches short, forming a 60°–90° angle with the hypha or conidiophore, sterile portion with septum at base, cylindrical to subulate, hyaline, 8·4–19·5 × 1·4–2·1μ, across widest part, tapering to rachis-like zigzag, hyaline fertile region, 5·6–14·0 × 0·9–1·2μ; conidia hyaline, subglobose to ovoid, 1·9–2·8 × 1·4–2·1μ.

Specimen examined: PRE 43023, dried culture on 3 per cent malt agar, isolated from maize silage, Mafeking. Feb. 1965.

This specimen is very similar to *T. album* described by Limber (Mycologia 32: 23–30. 1940), except for the colour. It agrees very well with the brief description of *T. roseum* given by MacLeod (loc. cit.).

This fungus was isolated from decomposing maize silage together with other saprophytic fungi, and is the first record of the occurrence of this genus and species in South Africa.—K.T. v. W.

2. **Ascobolus immersus** *Persoon*, in Obs. Myc. 1: 35 (1796); Seaver, F. J. The North American Cup Fungi (Operculates) 83 (1942).

Fig. 3.

Apothecia gregarious, partially immersed, subturbinate, up to 1·5 mm in diameter, yellow becoming brown on drying, hymenium convex; asci few, very large, clavate, projecting above the hymenium at maturity, eight-spored, operculate, interspersed with paraphyses, 550–720 × 85–100μ when extended; spores irregularly biseriate,

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ellipsoid, hyaline darkening to deep violet, unicellular, surrounded by a gelatinous sheath, surface sculptured by anastomosing bands, 55–64 × 25–34μ; paraphyses slender, hyaline, sparsely septate, of varying length, 4·5–5·5μ in diameter.

Specimen examined: PRE 42927, dried apothecia from horse dung.

The author has found this species several times on horse dung from several localities, e.g. Pietermaritzburg, Natal and Pretoria, Transvaal, as well as on Hippopotamus (*Hippopotamus amphibius* L.) dung from the Kruger National Park, Transvaal. The occurrence of this species in South Africa has not been reported before.—K.T. v. W.

3. **Podospora anserina** (*Rabh.*) *Niessl*, in Hedwigia 22: 156 (1883).

Sordaria anserina (Ces.) Winter in Abh. Nat. Ges. Halle 13: 99 (1873); Cain, R. F. Univ. Toronto Studies No. 38: 46 (1934).

Figs. 4, 5.

Perithecia superficial or semi-immersed, dark brown appearing black under reflected light, pyriform, lacking appendages, 360–540 × 240–330μ; neck conical, setose, setae long, thin, straight, brown, aggregated, 80–110 × 3–4μ; asci hyaline, cylindrical-clavate, on long slender stipes, thin-walled, four-spored, 210–240 × 25–32μ (pars sporif. 144–154 × 25–32μ); spores obliquely uni-seriate at maturity, tadpole-shaped when young, appendiculate, hyaline, becoming uniseptate; upper cell swollen, darkening to black at maturity, ellipsoid, 32–35 × 16–23μ; basal cell hyaline, cylindrical, straight or curved, 25–29 × 8μ; gelatinous appendages long and coiled, attached eccentrically at spore apex; paraphyses slender, septate, hyaline, 200–250 × 3–5μ.

Specimen examined: PRE 42925, dried perithecia from horse dung.

This species was found several times on dung of various herbivorous animals, e.g. horse, sheep, hippopotamus, from various localities, e.g. Pietermaritzburg, Natal, Pretoria, Transvaal and the Kruger National Park, Transvaal. Its occurrence in South Africa has not been recorded before.—K.T. v. W.

4. **Sporormia minima** *Auersw.*, in Hedwigia 7: 66 (1868).

Figs. 6, 7, 8, 9.

Ascocarps on horse dung numerous, single, very small, totally immersed with only the short papillate ostiole exposed, brown to black, smooth, 100–112μ in diameter; asci eight-spored, cylindrical-saccate, widest below the middle, briefly stipitate, bitunicate, 67–83 × 16–18μ; pseudoparaphyses few, deliquescing at maturity, spores obliquely arranged in the ascus, cylindrical, three-septate, deeply constricted at the septa, hyaline at first but darkening rapidly to olivaceous, 32–35 × 4·5–6·5μ, surrounded by a gelatinous sheath about 4μ thick. After liberation the spores separate along the middle septa.

Specimen examined: PRE 42926, dried ascocarps from horse dung, Onderstepoort Vet. Res. Inst., July 1964.

This is the first collection of this species in South Africa.—K.T. v. W.

5. **Tripterospora longicaudata** *Cain*, in Can. Journ. Bot. 34: 699–710 (1956).

Figs. 10, 11, 12.

Ascocarps on dung scattered, brown appearing black by reflected light, globose, superficial, inostiolate, without appendages, 160–190μ in diameter; surface mycelium sparse; peridium brown, pseudoparenchymatous, about 8μ thick, composed of

irregularly shaped interlocking cells; asci eight-spored, clavate, with thin basal stipe, thin-walled, deliquescing at maturity, 65–80 × 14–18μ, spore mass held together by transparent membrane not composed of cells; ascospores irregularly biseriate, tadpole-shaped when young, becoming uniseptate at base of swollen portion, upper cell at first hyaline, darkening through brown to black at maturity, containing a single oil globule, ellipsoid, 12–14 × 8–9μ; basal cell remaining hyaline, cylindrical, straight or slightly curved, 11–13 × 3μ, disintegrating at maturity resulting in unicellular ellipsoid spores with truncate bases.

Specimen examined: PRE 42928, dried ascocarps from horse dung, Onderstepoort Vet. Res. Inst., July, 1964.

This is the first record of the occurrence of this species in South Africa.—K.T. v. W.

6. **Tripterospora erostrata** (*Griff.*) *Cain*, in Can. Journ. Bot. 34: 699–710 (1956).
Pleurage erostrata Griff. in Mem. Torrey Bot. Club 11: 71 (1901).

Figs. 13, 14.

Ascocarps on dung scattered, dark brown appearing black by reflected light, globose, superficial, inostiolate, 200–240μ in diameter, covered with very long, flexuous, septate, brown hairs up to 2 mm in length and 3–5μ in diameter at the base; surface mycelium sparse; peridium brown, about 10μ thick, composed of somewhat angular pseudoparenchymatous cells; asci eight-spored, clavate, with thin basal stipe, thin-walled, deliquescing at maturity, 48–65 × 13–18μ, spore mass held together by transparent membrane not composed of cells; ascospores usually biseriate, tadpole-shaped when young, becoming uniseptate at base of swollen portion, upper cell at first hyaline, darkening through brown to black at maturity, ellipsoid with apical germ pore, 9–12 × 6–7·5μ; basal cell remaining hyaline, cylindrical, straight, 7–8 × 3μ, disintegrating at maturity resulting in unicellular ellipsoid spores with truncate bases.

Specimen examined: PRE 42942, dried ascocarps from horse dung, Onderstepoort Vet. Res. Inst., August, 1964.

This is the first record of the occurrence of this species in South Africa.

The two species described here agree very closely with Cain's (loc. cit.) descriptions of the type specimens. These fungi were found on horse dung kept in a moist chamber and are, apparently, the first collections of these two species of this rare genus outside Canada.—K.T. v. W.

7. **Auxarthron umbrinum** (*Boudier*) *Orr & Plunkett*, in Can. Journ. Bot. 33: 1439–1456 (1963).

Figs. 15, 16.

Colonies on potato-carrot agar slow-growing, cottony, white at first, turning buff later and becoming orange-brown in the centre as ascocarps mature, reverse of colony orange-red with pigment insoluble in water and not diffusing into the medium. Hyphae buff, 0·5–2·0μ in diameter, septate, branched. Ascocarps superficial, spherical, reddish-orange to orange-brown, diameter 80·0–300·0μ; peridial hyphae yellow-orange to orange-brown, asperulate, sometimes more or less smooth, thick-walled, 1·5–2·5μ in diameter, septate and usually swollen at the septa forming knuckle-joints measuring 3·0–4·5μ in diameter, branching more or less dichotomously and anastomosed and interwoven to form a reticulate peridium; peripheral peridial elements forming inverted Y-shaped arches from which short and elongate appendages arise, free apices of arches often truncate suggesting that appendages were either not formed or broken off; short

appendages spine-like with apices acute or rounded, aseptate or with 1 or 2 septa, 6·0–60·0μ long; elongate appendages not abundant, smooth, yellow-orange to orange-brown paling towards a delicate apex, simple, straight, bent or hooked apically, non-septate or often with 1, 2 or rarely 3 knuckle-joints above the junction of appendage and peridium, more or less 3·0μ in diameter and up to 650μ long; asci hyaline, subglobose to ovoid, thin-walled, evanescent, 8-spored, 5·0–6·0 × 7·0–8·5μ; ascospores pale yellow-green, echinulate at all stages, globose to subglobose with diameter 2·5–3·5μ or ovoid and measuring 2·0–2·5 × 2·5–3·5μ. No asexual stage was observed.

Specimen examined: Potchefstroom Pure Culture Collection, No. 99; PRE 43068, dried culture on potato-dextrose agar.
Isolated from leaf-litter of *Acacia karroo*, Potchefstroom, Transvaal, Jan./Febr. 1964.

This isolate agrees very closely with *Auxarthron umbrinum* as described by Orr and Plunkett (1963). It differs from it mainly in the maximum diameter of the ascocarps, the maximum length of the long appendages and especially in the diameter of the knuckle-joints. The maximum measurements given for these structures are 600μ, 1080μ and 12·0μ respectively as compared with 300μ, 650μ and 4·5μ for the Potchefstroom isolate.

The poorer medium on which this isolate was grown could account for the difference in measurements but does not seem to explain the difference in ratio between the maximum diameter of appendage and knuckle-joint. Orr and Plunkett's ratio is 1 : 4 while mine is only 1 : 1·8. According to this the knuckle-joints of the Potchefstroom isolate must be far less prominent than those of some other specimens.

A culture of this specimen was submitted to Dr. C. F. Orr for observation and diagnosis and he kindly confirmed the indentification.

This is the first record of the occurrence of this genus in South Africa.—M.C.P

8. **Beltrania rhombica** *O. Penzig*, in Nuovo G. bot. ital., 14: 72 (1884). Michelia. 2: 474; F. ital., tab. 1204; Pirozynski, Mycol. Papers, Commonwealth Mycol. Inst. 90: 7 (1963).

Beltrania indica C. V. Subramanian, Proc. Indian Acad. Sci., B. 36: 45 (1952).

Beltrania multispora H. J. Swart, Leeuwenhoek ned. Tijdschr. 24: 221 (1958).

Fig. 17.

Colonies growing rapidly on potato-carrot agar, white, spreading, with little aerial mycelium, becoming grey-brown as fertile conidiophores appear, often zonate when young. Mycelium scanty, partly superficial and partly immersed in the medium; hyphae hyaline or light greenish-yellow to faintly straw-coloured, becoming brownish later, thin-walled, septate, branched, up to 6·0μ in diameter; setae rarely produced, growing vertically from prostrate hyphae or from the upper part of vertical hyphae bearing conidiophores lower down, simple, erect, straight, thick-walled, darker than conidiophores, septate, smooth, 140·0–170·0 × 3·0–3·5μ, tapering to an acute apex; conidiophores vertical, arising from prostrate hyphae, often from lobate cells, sometimes from the lower cells of hyphae that become setiform towards the apex, conidiophores flexuous, straw-coloured to yellow-brown, thin-walled, septate, mostly simple, occasionally branched, often proliferating and geniculate, apex hyaline to subhyaline, often inflated, denticulate, bearing varying numbers of conidia and/or one to several separating cells, 25·0–130·0 × 2·5–4·0μ; separating cells numerous, arising as blown-out ends of conidiophores, subhyaline to faintly coloured, thin-walled, ovoid to obovoid, 1-denticulate at the base, 1–2-denticulate above, secondary separating cells may develop, 7·0–15·0 × 4·0–7·0μ; conidia abundant, borne directly on conidiophores or on

separating cells, 1-celled, rhombic or equally to unequally biconic, smooth, olive-brown spore wall two-layered with the outer layer of uniform thickness and the inner layer thinner immediately above the widest part of the conidium where consequently a pale transverse band resembling a broad septum is formed, 22·5–28·0 × 7·5–10·0μ, basal end 1-denticulate or rounded, apex furnished with a rigid spike-like, hyaline appendage, 3·0–6·5u long.

Specimen examined: Potchefstroom Pure Culture Collection, No. 67; PRE 43066, dried culture on potato-dextrose agar.
Isolated from leaf-litter of *Acacia karroo*, Potchefstroom, Transvaal, Jan./Febr. 1964.

The identity of this specimen was confirmed by the Director of the Centraalbureau voor Schimmelcultures in the Netherlands.

This is the first record of the occurrence of this species in South Africa.—M.C.P

9. **Myrothecium verrucaria** (*Alb. & Schwein.*) *Ditmar ex Fries*, in Syst. Myc. 3: 216–218 (1829); Preston, Trans. Brit. Mycol. Soc. 26: 167 (1943).

Figs. 18, 19, 20, 25, 27.

Colonies develop rapidly on potato-carrot agar, appressed with slightly raised aerial mycelium, cottony to floccose, white. Hyphae smooth, occasionally verrucose, hyaline, septate, sparingly branched, diameter 1·5–4·0μ. Sporodochia minute and confluent into larger masses up to 2 mm in diameter, discoid or irregular in outline, sessile and raised above the surface of the medium, composed of loosely arranged hyphae arising from prostrate mycelium or from parenchymatous aggregations of hyphae, terminating in a dense disc-like layer surrounded by small numbers of long, sterile, simple or sparingly branched, verrucose or tuberculate hyphae which occasionally protrude from and extend above the surface of the disc; conidiophores composed of fertile hyphae and phialides, fertile hyphae erect, branched, hyaline or faintly greenish-yellow, 3–4-celled with cells up to 40μ long and about 2·5μ wide, branches up to 38μ long, 1–2-celled, arising singly or in pairs or whorls directly from the apical cell of the main axis or immediately below a septum of an intermediate cell, each branch bearing a terminal whorl of phialides, fertile hyphae and phialides closely intertwined and forming a compact palisade-like layer; phialides narrowly clavate or sub-cylindrical, straight or bent near the base, hyaline to faintly yellow-green, arranged in whorls at the apices of the fertile hyphae and their branches, occasionally arising singly or in small whorls below a distal septum of an intermediate cell, 10·0–18·0 × 1·0–2·0μ; conidia elliptical with the base truncate and the apex usually slightly pointed or rounded, showing a germ pore at each end, smooth, one-celled, subhyaline to pale olive-green, 7·0–8·0 × 8·0–3·0μ, usually bearing an extremely delicate membranous, funnel-shaped or bicornute appendage at the pointed end, 2·5–4·0μ long and 3·0–4·0μ wide distally; spore-mass globular or conical, diameter 10·0μ and more and up to 2·0 mm, viscid, green at first, becoming black later.

Specimen examined: Potchefstroom Pure Culture Collection, No. 65: PRE 43064, dried culture on potato-dextrose agar.
Isolated from leaf-litter of *Acacia karroo*, Potchefstroom, Transvaal, Jan./Feb. 1964.

This isolate agrees very closely with *Myrothecium verrucaria* as described by Preston (loc. cit.) but differs from it mainly in the width of the conidia which was, in this case, never found to be as much as 4·5μ. An interesting feature of the conidia which, as far as I know, has never been reported previously, is the extremely delicate, membranous appendage borne on the pointed end of most of the spores. It is generally funnel-shaped or triangular in outline, often apparently with a wide, more or less

V-shaped notch making it appear bicornute. It is 2·5–4·0μ long and 3·0–4·0μ wide at its broad, distal end. It was not possible to establish with absolute certainty whether the appendage is a flat, two-dimensional or a hollow, three-dimensional structure. It appears to be the latter because it is often seen with a recurved edge.

Spores with similar appendages characterize the genera *Starkeyomyces* and *Lomachashaka*. Species of both genera differ from the fungus described here in having hyaline or bright-coloured sporodochia and irregularly branched conidiophores in *Starkeyomyces* and simple conidiophores in *Lomachashaka*. The difference between the fungus described here and these two genera appears to be greater than between this fungus and *Myrothecium*. Because the appendages on the spores apparently do not persist in old cultures and because the type specimen of *Myrothecium verrucaria* was not available for examination and comparision, this fungus is assigned to *M. verrucaria* with which it agrees very closely in all other respects.

The described appendages are not visible with ordinary illumination but become quite distinct when phase contrast equipment is used (Figs. 18, 19).

A culture of this isolate was submitted to the Director of the Centraalbureau voor Schimmelcultures in the Netherlands who confirmed the identification.

This is the first record of the occurrence of this species in South Africa.—M.C.P.

10. **Robillarda sessilis** *Saccardo*, in Michelia 2: 8; Syll. Fung. 3: 408 (1884).

Figs. 21, 22, 24, 28.

Colonies on potato-carrot agar restricted, appressed, aerial mycelium sparse, cottony, white. Hyphae hyaline, septate, branched, up to 3·5μ in diameter. Pycnidia abundant, scattered, partly immersed in the medium, at first minute, globose, faintly yellow-brown and becoming darker, when mature black in incident and reddish-brown in transmitted light, globose to sub-globose or lacrymoid, ostiolate, often beaked, up to 450μ in diameter; wall composed of radially arranged rows of yellow brown, thick-walled cells, 5·0–8·0μ in diameter and lined internally with large, hyaline, thin-walled more or less isodiametric or flaskshaped sporogenous cells 5·0–8·0μ or 7·0–10·0 × 3·0–6·0μ respectively with highly vacuolated contents, often forming short 2–3-celled filaments projecting into the pycnidial cavity; spores cylindrical to cylindric-elliptical with ends more or less tapering or rounded, 10·0–16·0 × 2·5–3·5μ, faintly olivaceous, often slightly constricted at the single median septum, apical cell rounded or truncate, bearing a short, clavate, hyaline appendage branching into 2–4 simple or branched, filiform, straight or bent, hyaline, widely divergent setulae 10·0–25·0 × 0·5μ, basal cell rounded or more or less truncate where it was attached to the bearer cell.

Specimen examined: Potchefstroom Pure Culture Collection, No. 74; PRE 43065, dried culture on potato-dextrose agar.
Isolate from leaf-litter of *Acacia karroo*, Potchefstroom, Transvaal, Jan./Febr. 1964.

In his paper on *Robillarda phragmitis*, Cunnell (Trans. Brit. Mycol. Soc. 41: 405. 1958) refers to the diverse opinions which exist as to whether the appendages of the spores of the various *Robillarda* species are situated basally or apically and stresses the necessity for detailed studies on the development of the spores in order to reach agreement on this point. From his paper it appears that the appendages of *R. phragmitis* are borne basally.

The development of the spores of *R. sessilis* differs completely from that of *R. phragmitis* as recorded by Cunnell (loc. cit.).

The young spore appears as a rounded or oblong projection from a bearer-cell. It soon assumes a clavate or oval shape and becomes separated from the bearer-cell by a cross-wall (Fig. 28: 1, 2). The young spore now enlarges until it reaches a size of approximately $10{\cdot}0 \times 2{\cdot}0\mu$ (Fig. 28: 2). At this stage the spore grows out apically and forms an oval-shaped protuberance or extension which is attached to the main body by means of a slender neck (Fig. 28: 3). The appendages are then initiated when 2—4 papillate outgrowths appear apically and/or laterally on the apical protuberance (Fig. 24, 28: 4). These initials elongate and develop into the characteristic filiform setulae of the mature spore (Fig. 22, 28: 5). Because the developing spore is highly vacuolate at all stages it is extremely difficult to observe the exact stage at which the median and apical septum at the junction between the neck and the main body are formed. It probably happens before the spore becomes detached because septate spores are often found still attached to their bearer-cells.

The identity of this isolate was confirmed by the Director of the Centraalbureau voor Schimmelcultures in the Netherlands. This is the first record of the occurrence of this species in South Africa.—M.C.P.

11. **Hyalotia viridis** (*Torrend*) *Guba*, in Monograph of Monochaetia and Pestalotia 310 (1961).

Figs. 23, 26.

Colonies develop rapidly on potato-carrot agar, white, floccose to granulose. Hyphae hyaline, profusely branched, septate, $1{\cdot}0$–$6{\cdot}0\mu$ in diameter. Fruiting pustule suggestive of a pycnidium, abundant, scattered, lightly covered with a loose reticulum of dark hyphae often aggregating to form ribbon-like strands, shape variable, subglobose to oblong or subcylindrical with definite or indefinite or irregular outline, single or coalescing, up to 400μ in diameter, dark-brown to red-brown in transmitted and black in incident light, distinctly ostiolate when young or completely closed and opening irregularly, carbonaceous shell when crushed straw-coloured to light-brown; spores cylindrical to cylindric-fusiform, erect, sometimes slightly curved, hyaline to light greenish-yellow, all excepting apical cells with finely granular, iridescent contents, 3–4-septate, $22{\cdot}0$–$28{\cdot}0 \times 2{\cdot}5$–$3{\cdot}5\mu$, apical cell empty, narrow-conical, acute, rather long and crested with 2 or usually 3 simple, widely divergent, hyaline, setulae, $0{\cdot}5$–$1{\cdot}0\mu$ wide at the base, $15{\cdot}0$–$20{\cdot}5\mu$ long, basal cell obconical with a rounded or truncate base supported by a slender, filiform, straight or curved pedicel which is either basal or attached eccentrically or sub-laterally, $8{\cdot}0$–$12{\cdot}5\mu$ long.

Specimen examined: Potchefstroom Pure Culture Collection, No. 73; PRE 43067, dried culture on potato-dextrose agar.
Isolated from leaf-litter of *Acacia karroo*, Potchefstroom, Transvaal, Jan./Febr. 1964.

This specimen was kindly examined by Dr. Emil F. Guba and Dr. J. A. von Arx who supplied valuable comments and also verified the identification.

Guba (1961) described the fruiting body of *Hyalotia* as an acervulus but stated that he found the pustule of *H. lateripes* to be a globose pycnidium with ostiole. From his description of *H. viridis* it appears that the pustule of this species is considered to be an acervulus. According to my observations the structure is a pycnidium which is distinctly ostiolate, especially when still young, but sometimes it is completely closed and opening irregularly (Fig. 23).

In a private communication Dr. Guba also pointed out that he found the conidia of *H. viridis* to be 1–4-septate.

This is the first record of the occurrence of this genus in South Africa.—M.C.P.

12. **Helminthosporium pedicellatum** *Henry*, in Univ. Minn. Agr. Exp. Sta. Bull. 22: 42 (1924).

Bipolaris pedicellata (Henry) Shoemaker in Can. Journ. Bot. 37: 884 (1959).

Figs. 29, 30.

Colonies on potato dextrose agar " Olivaceous Black ", darkening as sporulation increases, fast-growing, covering the entire plate in five days at 25°C. Conidiophores sparingly branched, 5–6μ in diameter, brownish olive at the apices, lighter towards the base, relatively straight up to the position of the first spore then geniculate and bearing one to four conidia acropleurogenously, leaving prominent scars upon detachment; conidia broadly fusiform, straight, brownish-olive, widest near the middle and decidedly attenuated towards both ends, apical cell apiculate or broadly rounded in some spores, basal cell narrowed to a short, cylindrical pedicel, epispore strongly thickened with the hilum included within the wall of the basal cell, germinating from both ends but usually from the base, 3–7 septate (mostly 6-septate), 58–68 $\times$ 23–28μ.

Specimen examined: PRE 42940, dried culture on potato dextrose agar, isolated from corn (*Zea mays*) roots by Mr. J. J. du Toit, Plant Protection Research Institute, Pretoria, Dec. 1963.

H. pedicellatum was first isolated by Henry (loc. cit.) from diseased wheat roots in Minnesota, U.S.A. He found this species to be only weakly parasitic. Tveit (Rev. Appl. Mycol. 33: 345. 1954) isolated this fungus from oat seed from Brazil. Hassan (Plant Dis. Reptr. 40: 890–897. 1956) isolated *H. pedicellatum* from the basal parts of oat plants. In pathogenicity tests he found this fungus to be non-pathogenic to certain varieties of oats, barley and wheat. Shepherd, Hall & Pendry (Phytopathology 52: 752. 1962) reported *H. pedicellatum* as the causal organism of a severe root necrosis of corn in California. They also isolated this fungus from diseased sorghum roots.

H. pedicellatum has been found to be in constant association with root rot of corn in the Transvaal province (du Toit, private communication).

This is the first record of the occurrence of this fungus in South Africa.—W.F.O.M.

13. **Curvularia trifolii** (*Kaufm.*) *Boed.* f.sp. **gladioli** *Parmelee & Luttrell* apud *Parmelee*, in Mycologia 48: 558–567 (1956).

Fig. 31.

Culture on potato dextrose agar dark olive grey, woolly, zonate with margin pale or hyaline and darkening to olivaceous—black in the centre. Hyphae prostrate and submerged, branching, septate, sub-hyaline at first, darkening to pale-brown or fuscous 1·0–7·5μ in diameter, and forming intercalary or terminal sclerotia consisting of inflated, globose or subglobose cells, hyaline and thin-walled at first, later with thickened dark-brown walls, forming irregular masses of about 17·0–50 $\times$ 37·0–80·0μ mostly embedded in the agar; conidiophores erect, sub-hyaline to fuscous, arising from trailing hyphae and the sclerotia, septate, straight, unbranched and narrow, 2·0–2·5μ, in the lower portion up to the first conidium, or with one or two branches below the first conidium then geniculate and widening to 5·0–7·0μ and more frequently septate, bearing one to several conidia acropleurogenously, length very variable 30–250μ; conidia unequally ventricose—fusiform, rounded at the apex, tapering towards the prominent, protruding, basal hilum, strongly curved, often sharply bent almost at right angles, usually three-septate occasionally with one or two additional septa, the terminal cells hyaline or sub-hyaline, the middle cells larger fuscous or dark brown thicker-walled, the penultimate cell largest, swollen and usually unequally distended imparting the curvature to the conidia, 20·5–42·5 $\times$ 8·5–15·0μ.

Specimen examined: PRE 42934, dried culture on potato-dextrose agar, isolated from gladiolus corm, Springs District, Tvl., Feb. 1964.

This specimen agrees very well with the descriptions and data given by Parmelee (loc. cit.) who emphasized the protruding hilum which distinguishes this species from *C. lunata* (Wakker) Boed. Parmelee (Plant Dis. Reptr. 28: 515–517. 1954) also mentioned the " undifferentiated masses of mycelium made up of globose pigmented cells " which he found on the infected host tissues and in culture. On moist filter paper, these bodies, which he regarded as structures which ensure survival of the fungus, produced clumps of conidiophores.

The South African collection was found intermingled with a *Botrytis* sp. on a single corm. Although no lesions similar to those illustrated by Parmelee were present, there is no doubt that this isolate is identical to the fungus described by him.

This is the first record of the occurrence of this fungus in South Africa.—G. C. A. v.d. W.

14. **Chalara terrestris** *Agnihothrudu* & *Barna*, in Lloydia 25: 172–175 (1962).

Figs. 32, 33.

On potato dextrose agar growth is slow, restricted, colony up to 50 mm in diameter after 4 weeks at 26°C.

Colony somewhat sodden at first, wrinkled around the inoculum, isabelline, slowly developing fine, compact, downy white mycelium in patches which later turn grey as conidiophores develop; hyphae hyaline, very narrow, branching, septate 1·5–2·5μ in diameter; conidiophores borne singly or in groups of 2–3 on the narrow hyaline hyphae, dark yellowish brown, erect or reclining, long subulate or narrowly obclavate to almost cylindrical, widest in lower or middle part of the sporogenous cell tapering gradually upwards towards the tube or narrowing abruptly above the middle, thick-walled, with 1–20 septa in lower part, tube sub-hyaline to hyaline, slightly flared, thin-walled and with a prominent septum above the sporogenous cell, forming conidia endogenously (80)–90–120–(223) × 6·0–8·0μ, tube 2·4–3·6μ in diameter; conidia cylindrical, ends truncate or slightly rounded, hyaline, thin-walled, two-celled, 11–16 × 3·0–3·6μ.

Specimen examined: PRE 42936, isolated on potato dextrose agar from decaying roots of young *Eucalyptus saligna*, Tzaneen, Transvaal, April 1964.

The fungus described here, agrees very well with the description by Agnihothrudu and Barna (loc. cit.) of a fungus isolated from the roots of *Camellia sinensis* suffering from Hittiali disease in upper Assam. Although the South African fungus was isolated from a different host, there is little doubt that this fungus is identical with the species found on the roots of tea bushes in Assam. The conditions under which these isolations were made, however, suggested this species to be a soil saprophyte rather than a root parasite (v.d. Westhuizen, S. A. For. Journ. 54: 12–16. 1965).

One other species *Chalara kriegeriana* Bres. had been reported from soil in Switzerland (Gilman, J. C., A Manual of Soil Fungi, p. 331, Iowa, 1957) but this species differs from *C. terrestris* by having smaller conidia.

Saccardo (Syll. Fung. IV pp. 333–336) listed *C. fusidioides* Corda, *C. heterospora* Sacc. and *C. montellica* Sacc. on species of *Eucalyptus*. These three species had been found on dead or dying branches or wood of the host and differ from *C. terrestris* in the characters of the conidiophores and conidia.

This is the first record of the occurrence of this genus in South Africa.—G. C. A. v.d. W.

15. **Melanospora episphaeria** *Phillips & Plowright*, in Grevillea 10: 71 (1881).

Sphaeroderma episphaeria (Phill. & Plowr.) Sacc. in Syll. Fung. 2: 560 (1893); Petch, Trans. Brit. Myc. Soc. 21: 254 (1938); Martin, Mycologia 47: 606–608 (1955).

Figs. 34, 35.

On malt agar colony thin, fast growing, reaching a diameter of about 70 mm in one week; mycelium thin cottony, sub-hyaline to "pale ochraceous buff" raised at first, later collapsing and often with woolly overgrowth of mycelium in patches; hyphae narrow, branched, hyaline, thin-walled, septate 2·0–6·0μ; perithecia appearing at first as small mucilaginous droplets on the mycelium, darkening gradually to amber, at maturity, scattered, superficial, gelatinous and without subiculum, subglobose, glabrous, 120–500μ in diameter, the dark spores visible through the wall; ostiole slightly papillate, surmounted by a collar of straight, erect, hyaline setae 40–150μ long; wall thick, consisting of translucent, pale amber, parenchymatous cells; asci hyaline, clavate, thin-walled 8-spored, deliquescing early, 50–70 × 12–18μ, paraphyses lacking; ascospores dark brown, limoniform, somewhat flattened with epispore covered by reticulate ridges and with minute light-coloured germ pores at the apicula, 16–20 × 10–15μ.

Specimen examined: PRE 42937 on malt agar, isolated from decaying roots of *Eucalyptus saligna*, Tzaneen, Transvaal, March 1964.

The fungus described here, agrees very well with Martin's (loc. cit.) description of *Sphaeroderma episphaeria* (Phill. & Plowr.) Sacc. which he isolated from surface litter under beeches in Surrey, England. Although Martin's isolate had smaller spores than those mentioned by Petch (loc. cit.) in his description of the species, Martin regarded his isolate as representative of the fungus described by Phillips and Plowright (loc. cit.) and transferred to *Sphaeroderma* by Saccardo (loc. cit.). Martin further regarded early gelatinization of the asci, maturation of the ascospores in the gelatinous cavity of the ascocarp and their eventual discharge in a gelatinous tendril as alien to the process of spore formation in typical members of the Hypocreales. He suggested that *Sphaeroderma* should be grouped with other species having the same type of ascus dehiscence.

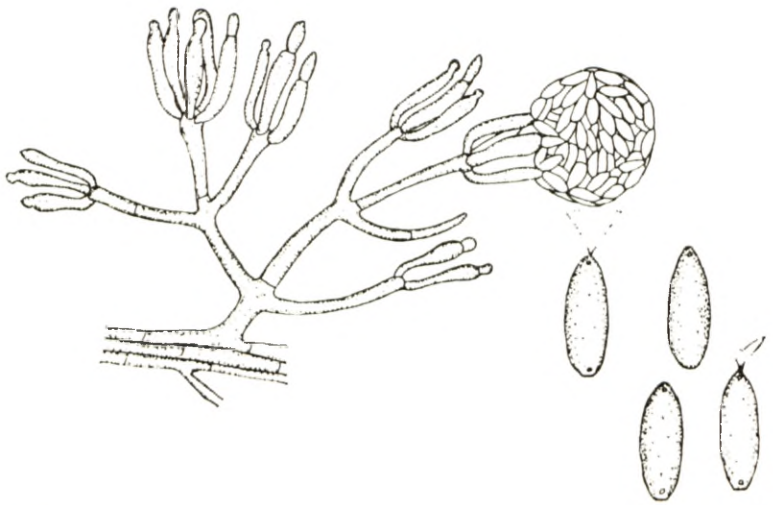
According to Petch (loc. cit.) species of *Sphaeroderma* Fuckel differ from those of *Melanospora* Corda by the absence of perithecial necks. Von Arx and Müller (Beit. Krypt. Fl. Schweiz II (I): 139. 1954) regard perithecial necks as variable and their absence or presence subject to influence by environmental conditions. Furthermore, perithecia of the two genera are very similar in their internal structure. The soft gelatinous perithecial wall and asci deliquescing early, leaving the ascospores to mature inside the perithecia, are important characters of *Melanospora* Corda. For these reasons, Von Arx and Müller (loc. cit.) regarded *Sphaeroderma* as synonymous with *Melanospora* Corda.

Since the fungus described above agrees with these characters, it is considered to be best placed in the genus *Melanospora* in which it was described originally.

This is the first record of the occurrence of this species in South Africa.—G. C. A. v.d. W.

EXPLANATION OF FIGURES

FIG. 1.—*Tritirachium roseum*, fertile branch, × 2200.
FIG. 2.—*T. roseum*, branching, × 2200.
FIG. 3.—*Ascobolus immersus*, mature ascus, × 130.
FIG. 4.—*Podospora anserina*, mature ascospore, × 520.
FIG. 5.—*P. anserina*, immature ascospore, × 520.
FIG. 6.—*Sporormia minima*, mature ascospores, × 520.
FIG. 7.—*S. minima*, extended ascus, × 520.
FIG. 8.—*S. minima*, unextended ascus, × 520.
FIG. 9.—*S. minima*, ascospores showing mucus sheath, × 520.
FIG. 10.—*Tripterospora longicaudata*, ascospores with appendage, × 520.
FIG. 11.—*T. longicaudata*, mature ascospores, × 520.
FIG. 12.—*T. longicaudata*, asci and ascospores, × 520.
FIG. 13.—*T. erostrata*, ascocarp, × 130.
FIG. 14.—*T. erostrata*, mature ascospores, × 520.
FIG. 15.—*Auxarthron umbrinum*, reticulate peridium showing inverted Y-shaped arches, short appendages and elongate appendage, × 250.
FIG. 16.—*A. umbrinum*, mature ascocarps, × 100.
FIG. 17.—*Beltrania rhombica*, conidiophores, separating cells and conidia, × 330.
FIG. 18 & 19.—*Myrothecium verrucaria*, conidia with membranous appendages, × 830.
FIG. 20.—*Myrothecium verrucaria*, conidiophores, × 715.
FIG. 21.—*Robillarda sessilis*, flask-shaped spre-bearing cells with young conidia, × 715.
FIG. 22.—*R. sessilis*, spre-bearing cells with young conidia developing appendages, × 715.
FIG. 23.—*Hyalotia viridis*, pycnidia, × 110.
FIG. 24.—*Robillarda sessilis* ypung conidia with developing appendages, × 715.
FIG. 25.—*Myrothecium verrucaria*, phialides, × 715.
FIG. 26.—*Hyalotia viridis*, mature conidia, × 715.
FIG. 27.—*Myrothecium verrucaria*, conidiophores, and conidia, × 2200.
FIG. 28.—*Robillarda sessilis*, five stages in conidial development, × 1500.
FIG. 29.—*Helminthosporium pedicellatum*, conidiophore and conidia, × 500.
FIG. 30.—*H. pedicellatum* conidia, × 500.
FIG. 31.—*Curvularia trifolii* f.sp. *gladioli*, conidia, × 500.
FIG. 32.—*Chalara terrestris*, conidiophore with emerging conidium, × 1000.
FIG. 33.—*C. terrestris*, two-celled conidia, × 1000.
FIG. 34.—*Melanospora episphaeria*, three ascospores showing form, surface reticulation and germ pore, × 1000.
FIG. 35.—*M. episphaeria* perithecium showing ostiole, hyaline setae and extruded ascospores, × 250.



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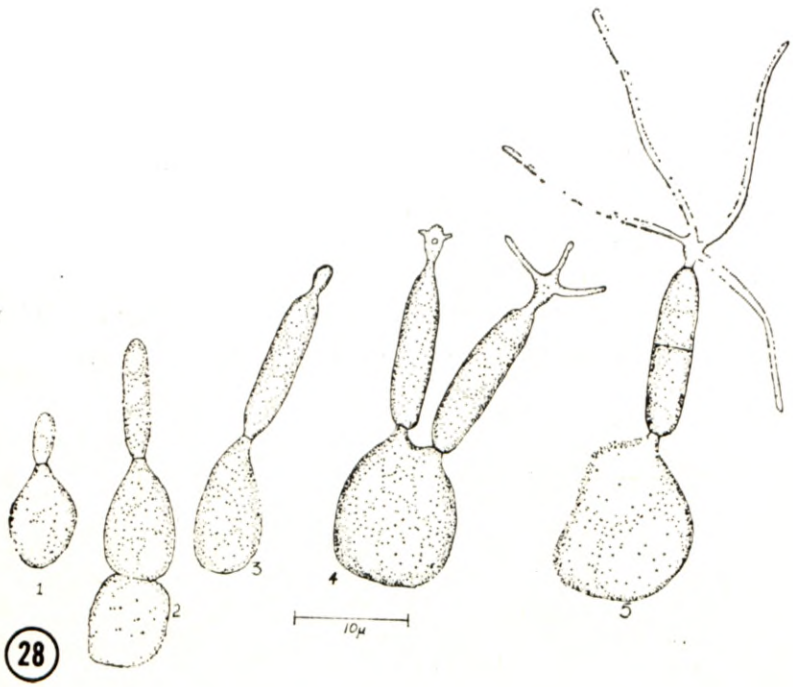

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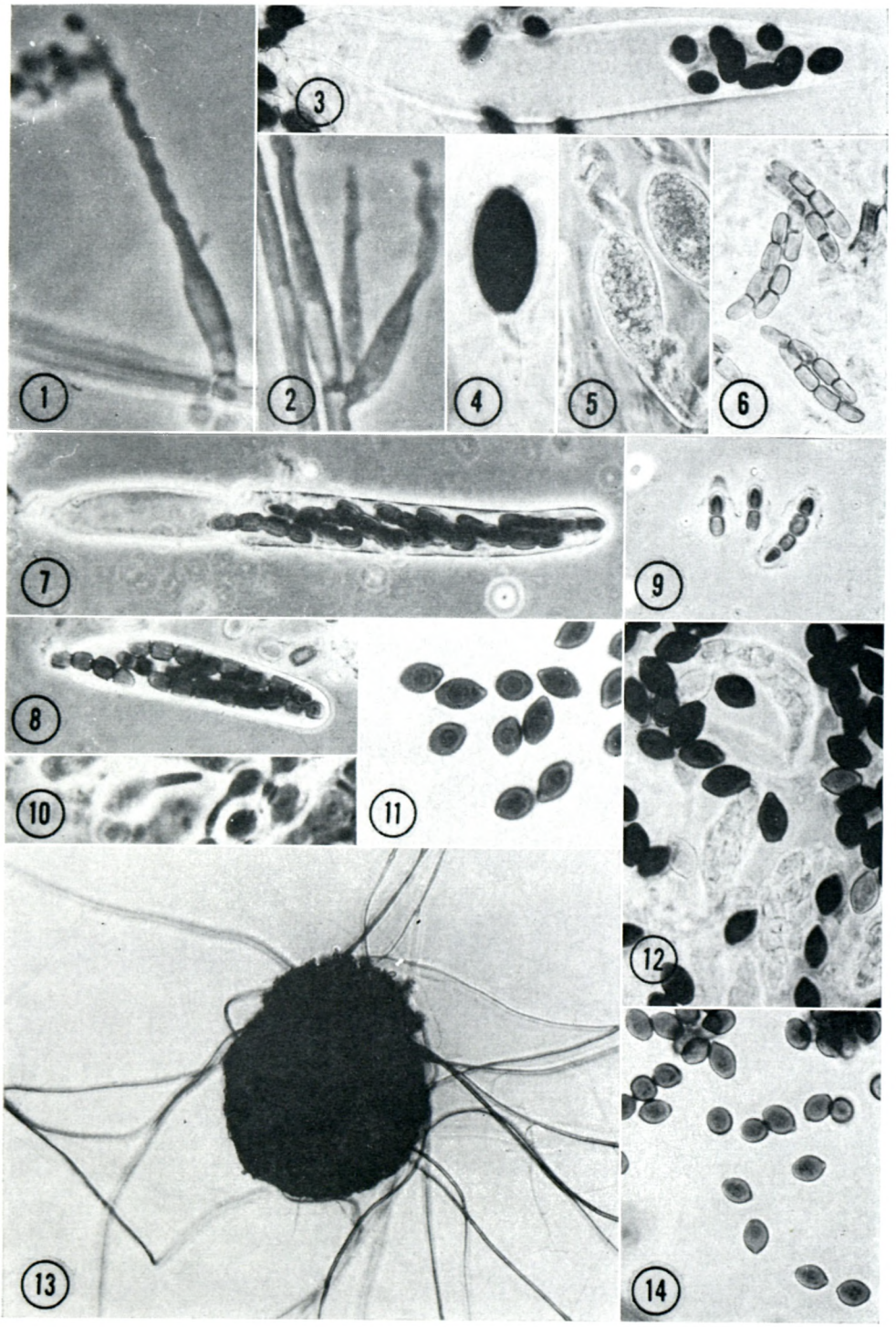

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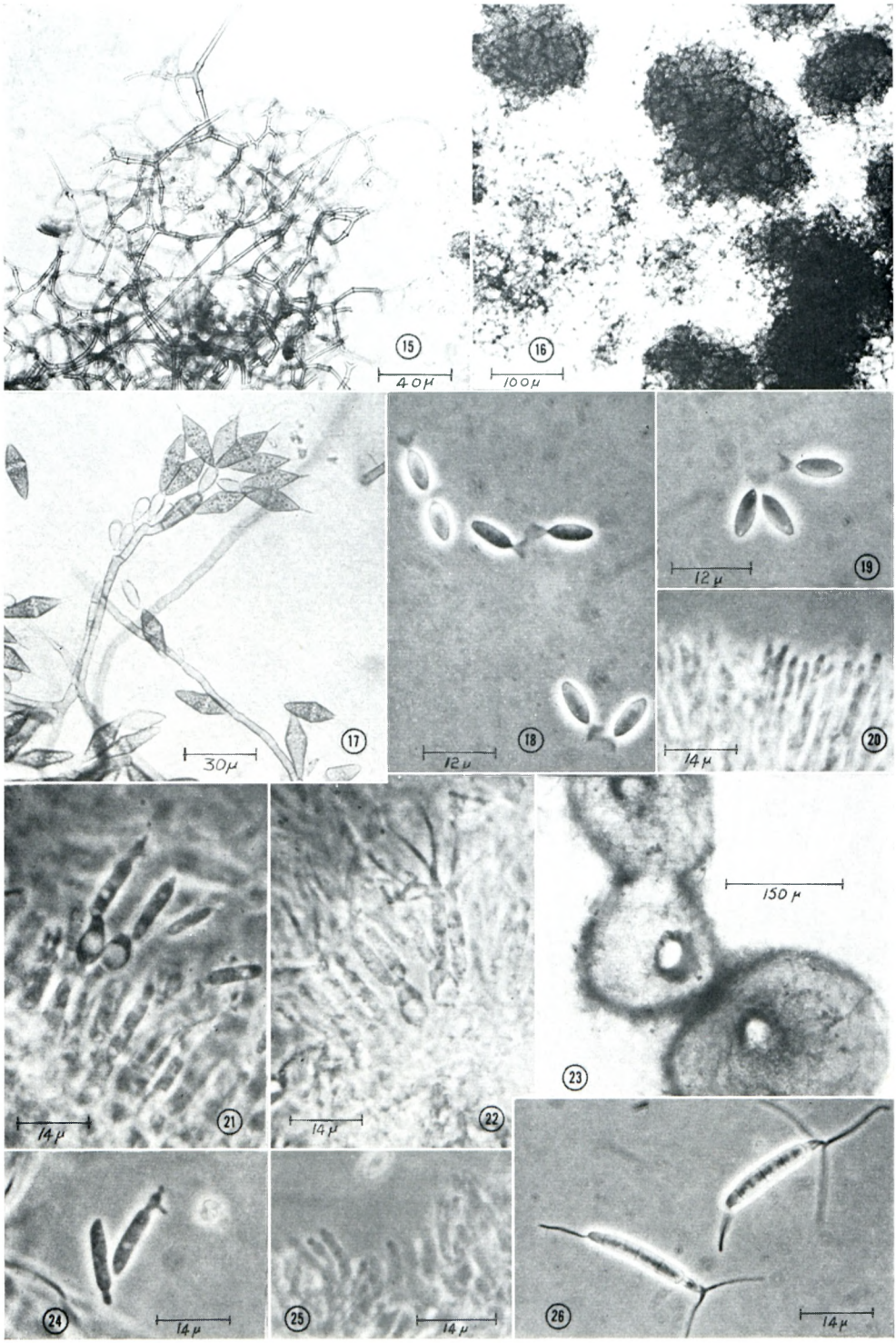
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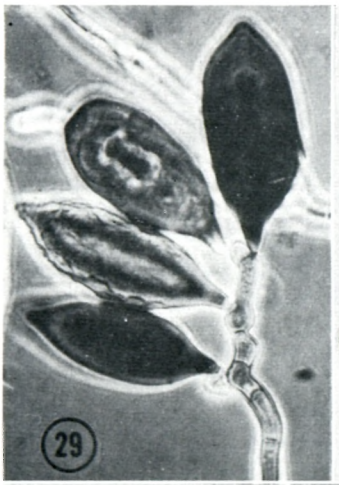
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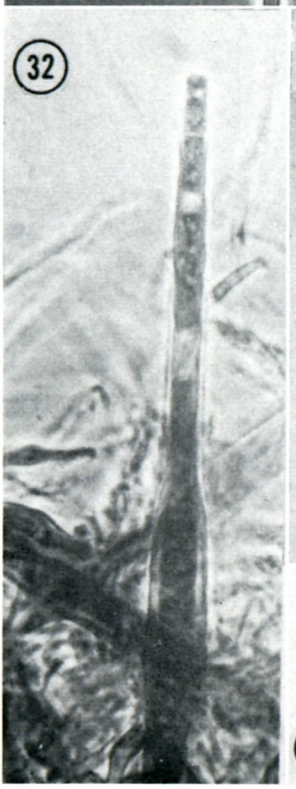
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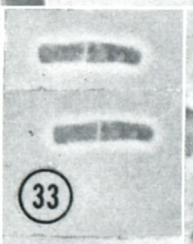
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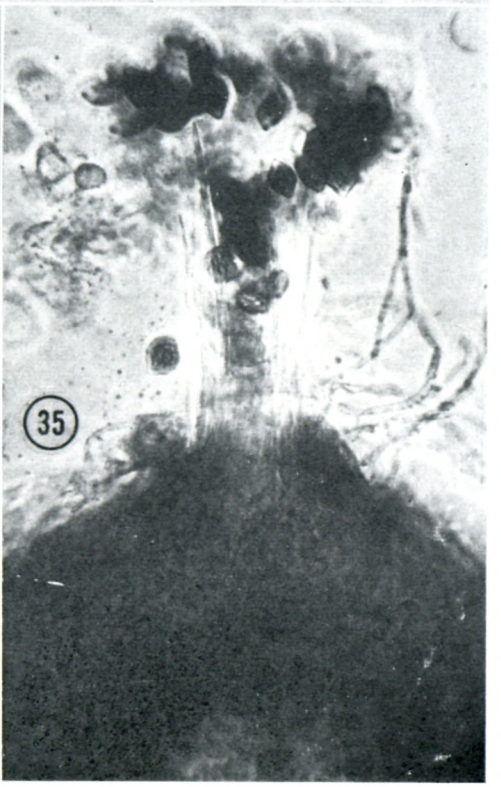
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