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ZDENĚK URBAN

Mikromycety nové pro Československo
Micromycetes new for Czechoslovakia

Department of Botany, Charles' University, Prague.
Dedicated to Professor Dr. K. Cejp, to his sixtieth birthday.
(Došlo — Received 15. XI. 1959.)

V následujícím příspěvku jsou uvedeny nálezy rzí a pyrenomycetů, které byly poprvé sbírány na území ČSR (resp. Slovenska). Rzi *Puccinia montana, P. phlomidis* a *P. scillae* byly nalezeny již dříve na společné exkursi s prof. dr. J. Klikou. Druhy *P. epilobii* ssp. *palustris* a *Cryptodiaporthe oxystoma* jsou výsledkem autorových exkursí v rámci studia houbové mikroflory ČSR. *Valseutypella tristicha, Cryptosphaerella annexa* a *Cytospora pendulinae* n. sp. byly nalezeny během terénní praxe posluchačů mykologie v dolině Siedmich prameňov (Belanské Tatry). V této dolině pracuje systematicky již několik let skupina doc. dr. E. Hadače (Plzeň) a mykologicky ji dosud studovali: M. Tomková (Brno), dr. J. Kubička (Třeboň) a dr. M. Svrček (Praha).

In the following paper finds of rusts and pyrenomycetes are described which were sampled on the area of ČSR (resp. Slovakia), for the first time. The rust *Puccinia montana, P. phlomidis,* and *P. scillae* had already been found before on an excursion with the late Professor Dr. J. Klika. The species *P. epilobii* ssp. *palustris* and *Cryptodiaporthe oxystoma* are a result of author's excursions for the purpose of the study of the Czechoslovak mycological microflora. *Valseutypella tristicha, Cryptosphaerella annexa* and *Cytospora pendulinae* n. sp. were discovered during an outdoor practice of mycology students in the valley Siedm prameňov. In this valley the group of Dr. E. Hadač (Pilsen) has been working systematically for several years, and has been mycologically studied by: M. Tomková (Brno), Dr. J. Kubička (Třeboň), and Dr. M. Svrček (Prague).

1. **Puccinia epilobii** D C. ssp. **palustris** U r b a n, Preslia 25: 37, 1953.

Our material corresponds, on the whole, to the description, the distance of individual warts 0,9—1,4 (1,8) μ; teliospore measurements: 31.6—41 X 21,3—25,3 μ. Rarely also mesospores: 27—31 X 21,3—23,7 μ.

On *Epilobium palustre* L. in the "Soos" reservation near Františkovy Lázně, on 6. 8. 1957, by Z. U r b a n.

This rust was discussed in detail in former papers (U r b a n 1953, 1958a). Its distribution seems to be more dependent on the distribution of specific hosts known to-day: *E. palustre* and *E. davuricum* F i s c h. The known area is limited to the subarctic regions of Europe (Iceland, Norway, Sweden, Finland, Karelofinnish SSR), Western Germany and Western Bohemia.

Our material consists of a great number of stems strongly and conspicuously deformed. Leaves, especially those near the top of the stem, are stunted, shortened and twisted. The stem as well as the leaves in the upper part are very thickly covered with white hairs as if they were covered with flour. This appearance of plants attacked is not, however, a rule, for some deformed stems were found without any striking multiplication of hairs. Attacked stems can be either sterile or fertile with almost normally looking capsules. Telia were observed even on sepals and capsule lids in large numbers. Open capsules contain seeds which are, while still inside the capsule, spread with attached teliospores. It seems very probable that during the time of seed germination the teliospores germinate also, and the sporidia infect young plants. *Puccinia epilobii* does not occur frequently in Czechoslovakia although many of its hosts (*E. roseum* S c h r e b., *E. montanum* L., *E. alsinifolium* V i l l., *E. anagallidifolium* L a m., *E. collinum* G m e l.) are no rarity, in our country. Therefore, an unpublished discovery by A. K m e t (herb. PRC) from Devičie (Krupina district), Bachnov potok, of 21st August, 1884 can be stated as the second find in Slovakia. The sample corresponds to the species description, the intervals between the less distinct warts range from (1) 1,4 to 2,3 μ. The host is substantially deformed and it is impossible to determine it accurately. However, it can be stated for certain that it is not *Epilobium palustre;* this was affirmed by Dr. J. H o u f e k (The Geobotanic Laboratory, ČSAV—Czechoslovak Academy of Science).

2. **Puccinia montana** F u c k e l, Symb. mycol. Nachtr. 2: 14, 1873.

Syn.:[1]) *Puccinia beltrani* F r a g o s o, Trab. mus. nac. cienc. ser. bot. 1914 (3): 11, 1914.

Puccinia beltrani f. dipora M a i r e & W e r n e r, Mém. soc. sc. nat. Maroc 45: 61, 1937.

There are numerous hypophyllous spermogonia. Primary uredia cover thickly all attacked parts of the plant, these are large, longish, also coalescent, pulverulent, chestnut-coloured. Urediospores are spherical or widely ellipsoid. Walls are cca 2,7 μ thick, thickened on the base as much as to 4—5 μ, covered with fine warts at intervals of about 2—3,6 μ. Two equatorial germ-pores. 27,6—34 X 24,5—30 μ. Teliospores appear gradualy in the same sori, dark brown, ellipsoid, rounded at both ends, slightly narrowed at the septum. The wall is yellowish-brown, 2,7—4 μ thick. A hyaline epispore, covered with very low, semispherical, wide warts (dia of a wart 1,5—1,8 μ), the distances of their centres being 2—2,7 μ. The germ-pore of the upper cell is apical or slightly shifted, the

[1]) Suggested and vindicated by G u y o t and M a l e n ç o n, (1957).

lower cell germ-pore is shifted by 2/3 towards the pedicel. Measurements: 30—43 (50,5) × 23,7—31,6 μ. The pedicel is colourless, short.

Centaurea montana L.: Banská Štiavnica, the mountain Paradeis, (II) + III, 17. 6. 1886, A. Kmeť, (*Puccinia montana* Fuck.).
Centaurea triumfettii All.: Malé Karpaty: Smolenice, Ostrý Kameň —Burian, 450—500 m o.s.l, II + III, 19. 5. 1937, J. Suza.—Tisovec: mountain Šajba, near a hunters' cottage, II + III, 22. 7. 1953, Z. Urban.

The spermogonia and the primary uredia forming mycelium penetrates the whole plant (or some of the stems) and deforms it. The attacked portions of the plants are very elongated and, especially the leaf blades are conspicuously narrow. Such plants are usualy sterile. The sampling from Tisovec contains, however, also a stem with normal leaves on two of which there are very small spots consisting chiefly of teliospores, and simultaneously, solitary summer spores (secondary uredia, resp. telia). The specimen from Malé Karpaty is a comparatively early type, all stems are deformed, uredia are predominating, only on the bottoms of leaf blades and petioles teliospores in fairly large numbers are also present. The Kmeť's sampling contains only winter spores whereas urediospores are but solitary. This sampling is distinguished also by the presence of numerous mesospores and spores with vertical septa (the *Diorchidium* type). The teliospores of the *Diorchidium* type occur also in the materials from Tisovec. The Kmeť's specimens are also remarkable because the teliospore wall is often thickened above the germ-pores as much as to 5 μ while the intensity of its colouring does not differ from that of the wall.

Puccinia montana has been known, up to now, from the Central, Eastern and Southern Europe (Pyrenees, see M. D. E. Losa, 1944, according to Dupias, 1951), North Africa, Asia Minor and Caucasus.

3. **Puccinia phlomidis** Thümen, Bull. soc. imp. nat. Moscou 53: 216, 1878.

Syn.: *Aecidium phlomidis* Szadler, Magyarázat a magyar plánták szárított gyüjteményéhez (8) 8, No. 25, 1824.
Aecidium phlomidis Thümen, Bull. soc. imp. nat. Moscou 52: 136, 1877.
Aecidium salviae Hazslinszky, Math. term. tud. közl. 14: 133, 1877.

Epiphyllous spermogonia cover fairly thickly and regularly the whole leaf blade, they are orange-yellow. Spermatia spherical or ellipsoid, 3,6—5,5 × 2,7—3,6 μ, colourless. Hypophyllous aecia covering thickly larger or smaller irregularly terminated portions, semispherically verrucose, ochre-yellow. The pseudoperidia cells are cca 35 × 20,5 μ large, prismal-shaped on vertical section of the aecium, with a smooth outer wall cca 2 μ thick whereas the inner wall is rod-structured, and thicker: 3,6—4,6 μ. Aeciospores are almost spherical, colourless, very fine, thickly verucose, the intervals between the warts are, as a rule, cca 0,9 μ or less, only rarely as much as 1,4 μ. The wall is approximately 2 μ thick. Measurements: 19—24,5 × 17,4—21,3 μ.

On *Phlomis tuberosa* L., Southern Slovakia: the plane of Plešivec, O + I, 3. 5. 1947, S. Hejný and Z. Urban.

Puccinia phlomidis belongs probably to the rarer species in our country as it has not been sampled before and its nearest locality is, evidently, near Budapest (Moesz 1941). In Slovakia only aecia have been found, up to now. There could be a doubt about their belonging to the given species, at first, for *Phlomis tuberosa* could be (according to literature) a host of the haploid phase of the rust *Puccinia stipina* Tranzschel (Altai, Minusinsk, Irkutsk, Kiakhta, Transbaikal, see Tranzschel 1939,

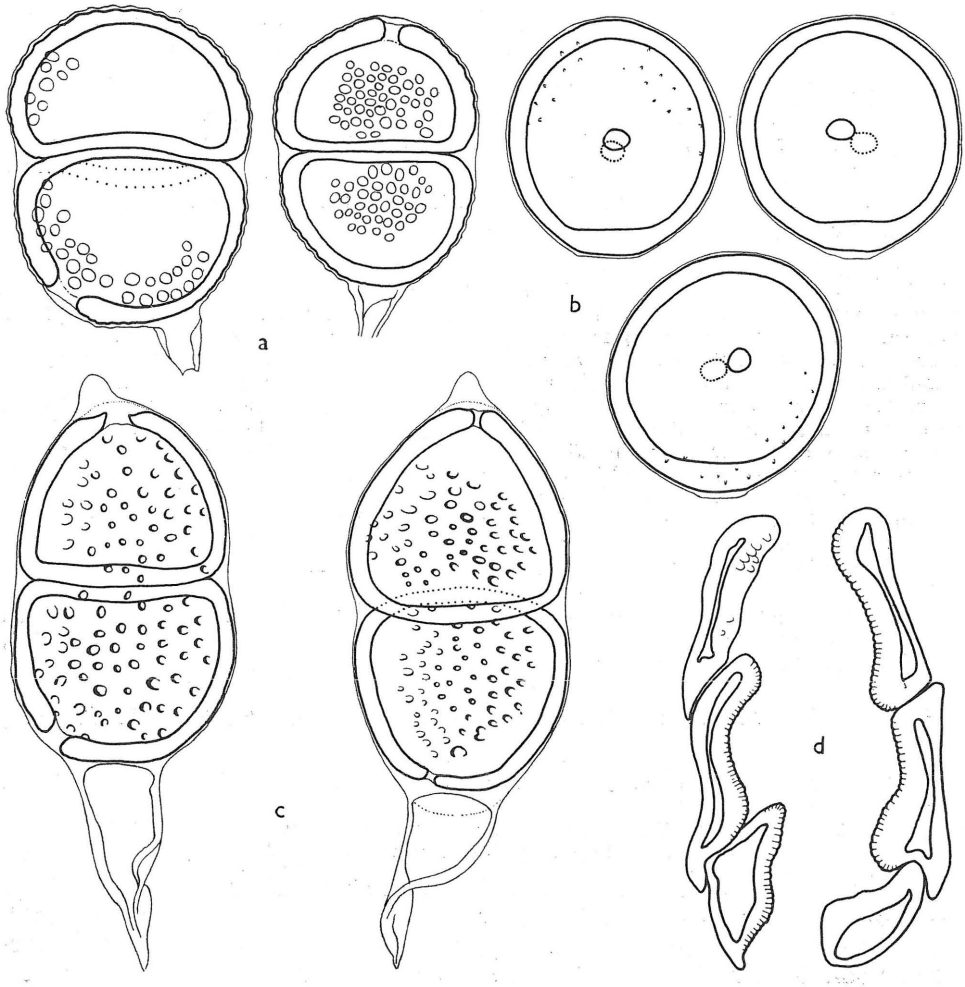

Fig. 1: a—b: *Puccinia montana,* teliospores and urediospores from "Šajba" near Tisovec; — c: *Puccinia scillae,* teliospores; — d: *Puccinia phlomidis,* pseudoperidial cells from the margin of the cup base, a vertical section; the outer cell walls are thinner than the inner ones. Orig.

Rumania, see S ă v u l e s c u 1953). I did not find any description of *Puccinia stipina* aecia on *Phlomis* in accessible literature. However, K l e b a h n's (1914) very detailed description of a material from genus *Salvia* gives a possibility to determine the distinguishing characteristics of Aecidium on sages: aecia in irregular groups, causing swellings and twistings on vessels and petioles. Pseudoperidial cells with walls on the outer side thickened up to 9 μ, rod-structured. Inside walls thin, cca 2 μ thick, with large warts. G. S. N e v o d o v s k i and P. G o l o v i n described pucciniopsis *Puccinia oreophilae* N e v o d. & G o l o v. on the Asiatic species *Phlomis oreophila* K a r. & K i r. (in N e v o d o v s k i, Botan. mater. otd. spor. rast. 6: 181, 1950). N e v o d o v s k i himself refers to a difference of aecia towards *P. phlomidis:* the outer wall of pseudoperidial cells is 5—9 μ thick (very rarely 3 μ), the rod structure very little distinct. The inner wall is thin, 2—3 μ. *Puccinia oreophilae* is known from Kazakh SSR near Alma Ata and in Kirghiz SSR in Pamir.

In accessible descriptions (Sydow 1904, Fragoso 1924, Rayss 1951, Gäumann 1959), it is stated that spermogonia of *Puccinia phlomidis are* hypophyllous and that the pseudoperidia have ruffled margins. The original sampling by Thümen, Mycotheca universalis 827 forces us to a correction of this diagnosis. The spermogonia are, similarly as in our samplings, epiphyllous. There is, also a solitary occurrence on the lower side among aecia. In our material this occurrence is even rarer. Aecia are in both cases obligatorily hypophyllous, in the material from Siberia only solitarily epiphyllous. Psudoperidium remains semi-spherical for a long time with a tiny crumbled opening on the apex (which corresponds to the original description: "Aec. acervulis ... orificiis minutis." Thümen Myc. univ. 827).

The haploid mycelium hibernates, penetrates into all shoots, and in full development, it forms aecia covering the whole lower side of the leaf-blade surfaces. On the other hand, telia are minute, inconspicuous, originating from a localized mycelium. It was already Komarov (1895) who carried out the unification of both phases. Moesz (1941) sampled rust several times near Budapest. He believes that rust forms there aecia only (also spermogonia?) in April and May, and later, in August, for the second time.

Puccinia phlomidis has been known from Algiers, Tunisia, (Guyot 1952), Spain, Sicily, Israel, Syria, Turkey (see Guyot 1952), Czechoslovakia, Hungary, Rumania, Yougoslavia (Ranojević 1938), Ukrain, Moscow region, Crimea, Bashkir ASSR, Tartaric ASSR, Gruzia, Kazakhstan, Uzbekistan, Turkmenistan, Tadjikistan, Kirghiz SSR, Altai, and Transbaikal (see Namysłowski 1911, Tranzschel 1939, Kalymbetov 1956).

4. **Puccinia scillae** Linhart, Fungi hung. exs. cent. 5, No. 417, 1887.
Syn.: *Puccinia liliacearum* Duby ssp. *rossiana* Sacc., Michelia 1: 541, 1879. *Puccinia rossiana* (Sacc.) Lagerh., Bol. soc. brot. 8: 137, 1890.

The telia chestnut brown, pulverulent, widely elliptical, 0,5 mm—1 mm long, crowded into thick, lentil-shaped groups which are 1—2,5 (3) cm long, stretched in the direction of the leafblade length, in any place on the leaf but most frequently near the leaf-blade tip. The epidermis cracks slitwise or by round openings. Teliospores are ellipsoid, rounded at both ends, almost no narrowing at the septum, both cells of approximately the same size. The epispore is colourless, on the apex stretched into a colourless papilla of 3—5 μ height. The endospore is yellowish brown, of an even thickness. The total wall thickness is 2,7—3,6 μ. The wall is provided with numerous cca 1 μ wide, sharply limited openings which look under smaller magnification like warts. The measurements of teliospores (including the papilla) are as follows: (45,8) 47,3—61,5 × 27,6 — 33 μ. The upper germ-pore is apical, the lower one is close to the pedicel. The pedicel is fairly widened in the place where it is fastened to the spore, 9—13 μ wide, colourless, persistent.

On *Scilla bifolia* L., in the Slovak Karst on south-eastern slopes of Plešivec plane in a Querceto-Carpinetum community on 3. 5. 1947, by Z. Urban.

Puccinia scillae is evidently a rare rust, the nearest known locality is near Bratislava, in the Hungarian Magyarovár where it was found and described as a new species by G. Linhart. In the literature this rust in known under the name of *Puccinia rossiana.* According to the Code of nomenclature (art. 60) the correct name is that by Linhart.

Puccinia scillae is a microcyclic rust with its most probable distribution centre in the Ukrain steppes, and in the Transvolga regions (Namysłowski 1911, Tranzschel 1939), wherefrom it follows its host (also the *Scilla sibirica* Andr.) into Hungary, Czechoslovakia, Bavaria, Baden, Rhineland (Poeverlein 1925, 1926; Poeverlein and Schoenau 1929), Switzerland and Italy.

5. **Cryptodiaporthe oxystoma** (Rehm) Urban, Preslia 29: 395, 1957.

Syn.: *Valsa oxystoma* Rehm, Ber. naturf. Ver. Augsburg 26: 70, 1881.

The Slovak material corresponds to the description (Urban 1958b). The only difference is in that the necks are not prolonged above the surface of the ectostroma. Asci: (23) 31—42 × 6,5—7,3 μ, ascospores: 8—11 × (1,4) 1,8 μ.

On *Alnus incana* (L.) Moench. in Lower Tatra in Šumiac (under the Králova Hoľa) near a stream under the Grúň, on 29. 7. 1958, by Z. Urban.

A more detailed study of the fungus discovered now even in Czechoslovakia had been published previously (Urban 1958b). It deserves our attention for the same reason that in many cases, as was found, it is one of the causes of sudden perishing of alder overgrowths. In Šumiac it was found but on one shrub growing in a very wet locality. Fruit-bodies were formed there, on the bases of semi-dry branches of alder shrubs; the portions of branches above the attacked spots perish, or are already dead. Branches need not be attacked all around, often only a half of the twig contains stromata and the attacked area is separated from the intact portion also by a sharp line of a low peridermal callus. In spite of a dilligent search no other form of reproduction was disclosed which could belong to the life-cycle of *Cryptodiaporthe oxystoma.*

In order to complete the description let us conclude: the ectostroma has a form of a truncated cone consisting entirely of hyphae of an olive brown-green colour of a thickness of 4,6—7,3 μ. The hyphae run parallely closely together, with septa (the lengths of individual cells 12—13 μ) facing lengthwise perpendicularly to the substrate surface. The perithecium wall is approximately 25—37 μ thick, formed by prosenchymatic cells of cca 18—25 μ long (in a vertical section). Especially in the close neighbourhood of the perithecium the cortex parenchyma is richly penetrated with a bluish grey mycelium that causes a darkening of the cortex parenchyma. Further, however, the mycelium disperses, penetrates into the cortex right to the wood and in the whole of this space it forms minute, dispersed mycelar islets, visible only on sections. The mycelium penetrates even through the sclerenchymal ring. Asci contain 8 spores, these are only faintly distinguishable, therefore, they can be counted only with difficulty. On the other hand, loosened ascospores are strongly light-refractive. The specimen in the lactic acid was stained with a cresyl-blue water solution. The spore contents stained faint blue whereas the wall and the septum remained colourless and very distinctive.

Up to now, *Cryptodiaporthe oxystoma* has been found in the Swiss and Austrian Alps, the Lower Tatra and, with a great probability, in the Transylvanian Alps in Făgăras (July, 1956) where I had an opportunity to sample old material on *Alnus viridis* (Chaix) Lam. DC. Besides these mountaineous and alpine localities some seaside ones are known from Belgium, Pomerania, and North America.

6. **Cryptosphaerella annexa** (Nit.) Höhn., Sitzb. Akad. Wiss. Wien, Mat. Nat. Kl., 1. Abt., 115: 666, 1906.

Syn.: *Calosphaeria annexa* Nit., Pyr. germ., p. 102, 1867.
Coronophora annexa (Nit.) Fuck., Symb. mycol., p. 229, 1869.
Coronophora moravica Petr., Ann. mycol. 12: 476, 1914.

Perithecia in groups of 4—8, but also thickly spread covering whole larger portions of twigs all around, or only a part of the twig surface, in the cortex parenchyma, surrounded in its nearest neighbourhood with thick tufts of dark brown mycelium hyphae. The periderm is mildly ulcer-like lifted and, in the place where it touches the apex of the perithecium, crumbled. Perithecia are of as much as 1 mm dia, round, later squashed

on the tops, without any kind of openings. The asci on long pedicels, club-shaped, polysporous, 41—61,5 × 8—12,7 μ. The ascospores are allantoid or irregular-shaped, hyaline, of a pale olive green when inside the ascus, (5,5) 7,3—8 (10) × 1,5 μ. Paraphyses are not formed.

On a semi-dry *Salix caprea* L. shrub in the mountains called Belanské Tatry near Siedm prameňov, 26. 7. 1959, Z. U r b a n.

The material was compared with the sampling by K r i e g e r (Fungi saxonici exs. 968), investigated by H ö h n e l. No substantial differences were found; only the spore-bearing portions of the asci are different: 34—44 × 12,8—17,4 μ, and the sporipherous part is diamond shaped. Considering the shapes of the asci change during the development, and in the course of time altogether, it is impossible to assign any importance to this difference. In Krieger's material the pedicels of the asci reach lengths of 79 to 104 μ.

Cryptosphaerella annexa represents a new contribution to the mycoflora of Slovakia. It had been sampled before by P e t r a k in Moravia near Hranice and determined as *Coronophora moravica* P e t r. The identity of both these fungi was pointed out first by H ö h n e l (1918), and the correctness of this statement was declared lately by P e t r a k (1953). H ö h n e l (1906) puts further names among the synonyms: *Calo-*

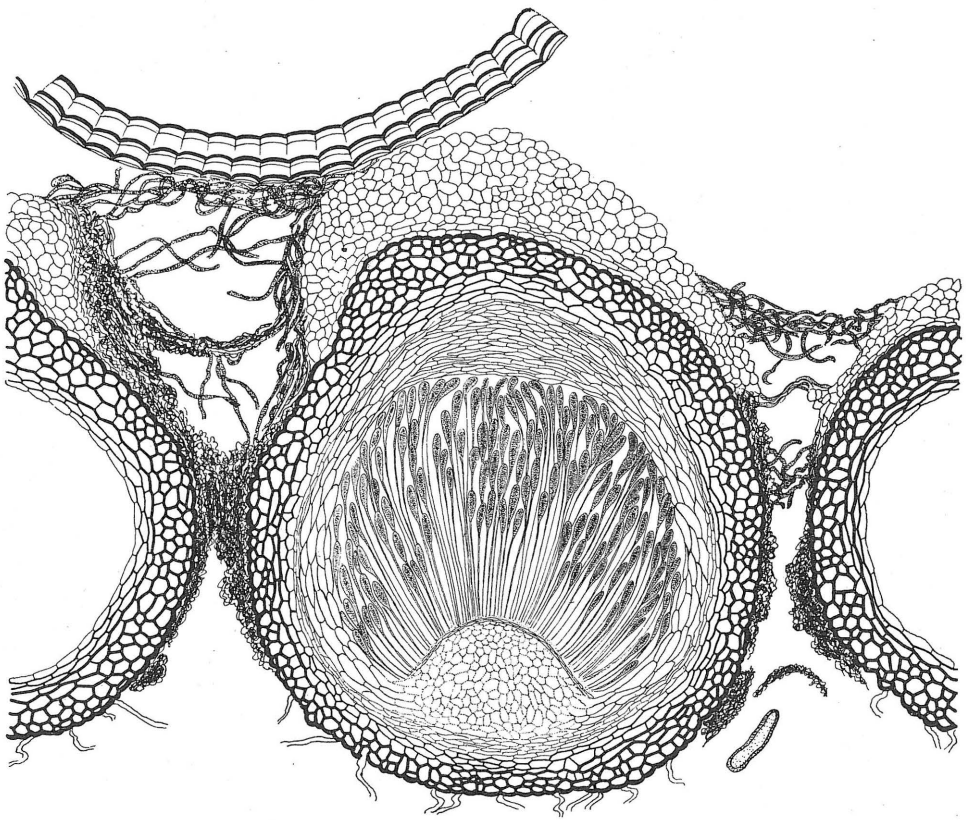

Fig. 2: *Cryptosphaerella annexa,* a vertical section through a group of perithecia. A layer of fine tissue separating the wall of the perithecium from the cavity where asci are enclosed is well visible. Orig.

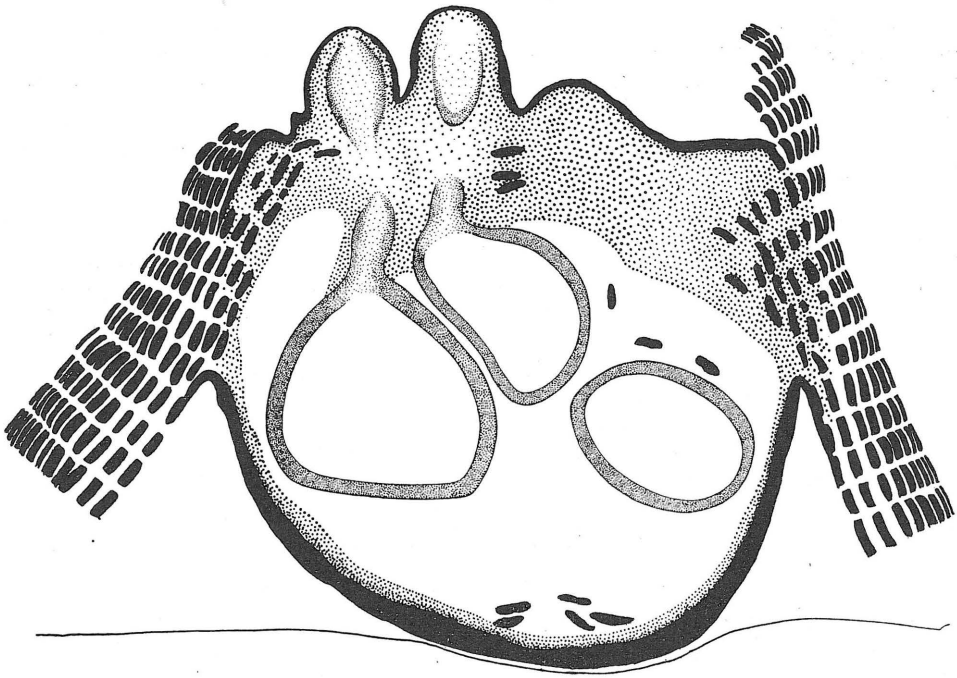

Fig. 3: *Valseutypella tristicha* on *Rosa canina:* a vertical section through the stroma. On the apex and at the base of the stroma there are some debris of the periderm and cortex parenchyma. The olive-coloured tissue of the stroma is dotted. Orig.

sphaeria biformis Tul. (united already by Nitschke 1867) and *Cryptosphaerella nitschkei* (Auersw.) Sacc. The justification of these views is to be proved more thoroughly.

Cryptosphaerella annexa is a very interesting fungus concerning its morphology and also, provides a problem of putting the *Coronophoraceae* family Höhn. (1909) into the natural system to which the genus *Cryptosphaerella* Sacc. (Höhnel 1906) belongs. Substantial characteristics of this family are as follows: The ostiolum is missing, paraphyses are not formed, perithecium is filled besides the asci also with a hyaline plectenchymatous tissue, possessing an ability to imbibe (it is thick-walled under the apex and helps, probably, to open the perithecium). Asci are emptied all at a time from the perithecium. Höhnel (1906, 1907, 1909, 1918), Theissen (1917), and Petrak (1921) dealt with its inner structure in detail. On a routine examination of the Slovak material (on a vertical section) it was evident the perithecium wall was formed by cells the walls of which were of a dark olive brown, especially at the border, and became paler towards the centre of the perithecium. At first, the inside of perithecium is layed out with approximately two layers on the flanks and in the apex, and with as much as five layers on the base, of very narrow, fine, hyaline cells. The other space is filled again with hyaline, on the flanks almost prosenchymatic plectenchyma which encloses the asci that grow raywise from a basal hyaline plectenchymatic subhemispheric cushion. This enclusore is, especially on the apex, composed of cells that substantially increase their volumes during their development. In those places, on the apex, we can, sometimes, shortly observe a conical cushion formed with olive-brown cells. Evidently, it is an extension of the perithecium wall. The emptying of the perithecium is said to occur so that on rupture of the wall the especially in the apical part imbibed hyaline tissue enclosing the asci, separates from the perithecium wall and ejects all asci at once. It is necessary to verify the origin of asci as described by

Petrak (1921). According to our observations it seems that the basal subhemispheric cushion which appears first gives rise to the asci, and these, as they grow, push the central plectenchymal tissue into the flanks as well as upwards.

Cryptosphaerella annexa is, evidently, as the outer habitus concerns, a fairly variable species, and it is possible that its samplings are given under incorrect names. According to the accessible literature it seems not to be a very frequent fungus.

7. **Valseutypella tristicha** (De Not.) Höhn., Ann. mycol. 16: 224, 1919.

Syn.: *Diatrype tristicha* De Not., Comment. della soc. crittogam. italiana, vol. 2, fasc. 3, p. 481, 1867.

The stromata in a form of flattish truncated cone, or higher semispherical warts protrude through the peridermal surface; these warts are irregularly dispersed or, in places, very closely crowded together, of uneven sizes (dia 0,5—3 mm), covered with the periderm on the flanks, which ruptures by 2—4 cornered crevices or only slitwise; this happens especially on twigs where the rhytidoma is already formed. In these cases the warts are less conspicuous, and the substrate surface is rather verrucosely crumbled. On twigs covered only with a periderm, the periderm is darker in the spot where the wart is. Through the slit either a flat, chestnut coloured stroma apex can be seen with irregularly crowded black necks so that this disc looks black to the mere eye. At other times, the stroma apex cannot be seen because the necks are very closely crowded together. Under the periderm, in the bark parenchyma, the almost spherical, or spherically ellipsoid stroma itself is placed, separated from the parenchyma by a definitive black wall. The stroma inside is ochre-whitish to, especially near the margin, olive greyish-green, and it contains a larger number of perithecia lying usually in one layer. There is no ectostroma, and a dark disc penetrating through the periderm is actually a chestnut and black-brown coloured stroma wall. With the increasing age the inside of the stroma (except for the black walls) becomes powdery. The necks of the perithecia are long, ended semispherically either in the plane of the stroma apex, and protruding by as much as 0,5 mm above the stroma surface. The asci stand at various levels, fill the whole perithecium, are club shaped, without any visible pedicels, 4 or 8 sporous, with two very small light-refracting spots in the apex, 36,8—43,3 × 8—10,5 μ. The ascospores are hyaline, allantoid, 13,7—18,8 (21) × (3,2) 3,6—5 μ. Among the asci, here and there, hyaline hyphae can be seen, containing numerous oil-drops, approx. 2 μ thick, overreaching the apices of basal asci by as much as 64 μ (paraphyses?).

Sampled in the mountains Belanské Tatry in the Siedm prameňov valley on *Rosa canina* L., near Hlboký potok at about 1075 m o.s.l., on 31. 7. 1959, and on *Rosa pendulina* L., on a path to Čarda, at about 1150 m o.s.l. on 22. 7. 1959, and at about 1275 m o.s.l. on 26. 7. 1959, Z. Urban.

This genus and species, new for Czechoslovakia, and a very interesting one, was treated previously by Höhnel (1919, 1920). Especially his latter work contains a detailed description. Our material confirms some Höhnel's precisions which are founded on investigations of American materials from Rehm's collections (Ascomy-

ceten 2174). Stromata are fully immersed into the cortex parenchyma but they do not touch the wood (as stated by Berlese 1902). Stromata have a form of spherical or ellipsoid black sclerotia with a wall of cca 12—18 μ thick and consisting entirely of hyphal tissues (plectenchyma), with cell walls of a dark olive green to black-green colour, and with hyphae of approximately 3,6—6,4 μ thick. The stroma wall touches in its upper part the periderm in an acute angle, penetrates it, and continues further to the stroma apex. As a rule, however, it becomes gradually thinner and thinner until it almost disappears, so that its junction with the black wall of the stroma apex is weak and often indistinct. Only the apex is, again, delimitated by a black wall. The transition of the wall from the cortex parenchyma into the periderm is not continuous but is characterized by a double sharp bend in acute angles. Thus it looks as if (looking at the vertical section) the stroma line were divided into a dorsal and ventral (lower) portion, similarly as e. g., in the genus *Diaporthe.*

The inside of the stroma consists entirely of the fungus, however, there are some exceptions. In the first place, right on the base, in the middle of the stroma, we can always find great numbers of dispersed bark parenchyma cells totally surrounded by the fungal tissues. Similarly, under the stroma apex, especially in the flanks, there are many peridermal cells which appear often in a close proximity of perithecia. The inside of the stroma consists of fungal plectenchyma where the hyaline hyphae of approximately 2,3—2,7 μ thick are interlaced in most divers directions. Under the apex and near the margins the stroma si couloured rather olive green. The perithecia are placed in one layer (observed already by Höhnel on the American material) and provided with long necks, approximately 120 μ thick with walls consisting, in contrast with the surrounding stroma, of dark, olive brown hyphae, cca 3,6 μ thick and interlaced in one direction into a thick plectenchyma.

The inside of the perithecia is filled with asci. On very thin sections the above mentioned hyphae (of a 2 μ thickness) could be observed. It is difficult to decide whether these are paraphyses or asci pedicels because Höhnel (1920) describes paraphyses as comparatively numerous, long, very fine, 4—9 μ thick fibers. I never observed any similar hyphae in our material. The asci possess no visible pedicels. Two minute light-refracting spots in the ascus apex are not well distinct and visible, and it is possible they are more easily observable in riper asci where a darkening of the wall but not of the apex, can be simultaneously observed (see Fig. 4a). The ascospore wall can usually be well distinguished from the slightly grainy inside.

It was only Höhnel (1919, 1920) who dealt with the placing of the species *Valseutypella tristicha* into the system. He presumes its original placing *(Diatrype)* is incorect. It is justified in the first place, through the fact that true paraphyses are here absent, and the whole inside of the perithecium reminds of the *Diaporthaceae* family. On the other hand, it is less signifficant (but Höhnel puts it into the first place) that the *Diatrype tristicha* stroma contains no parts of the cortex parenchyma (whereas the genera *Eutypella* and *Diatrype* do so). This reality is not a very substantial one from the point of view of placing a fungus into one or another family. Further, Höhnel states correctly that in *Diatrype tristicha* no "eigentliche Mündungsscheibe" is formed (he means an ectostromatic disc), and again, he overrates the arrangement of perithecia as a substantial characteristic (only in one layer). On the ground of these characteristics he puts his fungus into a new genus *Valseutypella (Valseae).* We entirely agree with excluding of the genus *Diatrype.* Also the including into the *Diaporthaceae* family is justified. Creating of the new genus is, however, not safely grounded. Not looking at (quite correctly) a slightly different limitation of the stroma, the genus *Valseutypella* differs from the nearest genus *Leucostoma* in the following, more substantial characteristic: no distinction of the stroma has been observed, up to now, into two portions, i. e., the outer one (ectostroma) and the inner one (entostroma). Further comparative investigations must decide into what extent this difference is important, so that the genus *Valseutypella* could be preserved. Its existence seems rather artificial (compare the differences in quantitative developments of the entostromata inside the genus *Leucostoma* in the species *L. cincta, L. curreyi, L. massariana* on one hand, and *L. persoonii, L. nivea* and others on the other hand; Urban 1958c).

Valseutypella tristicha is a fungus remarkable even by its rare occurrence. For the first time, it was found and described *(Rosa silvatica)* in Northern Italy in the Val Sesia valley (westwards from the lake Lago Maggiore). The second find was described by

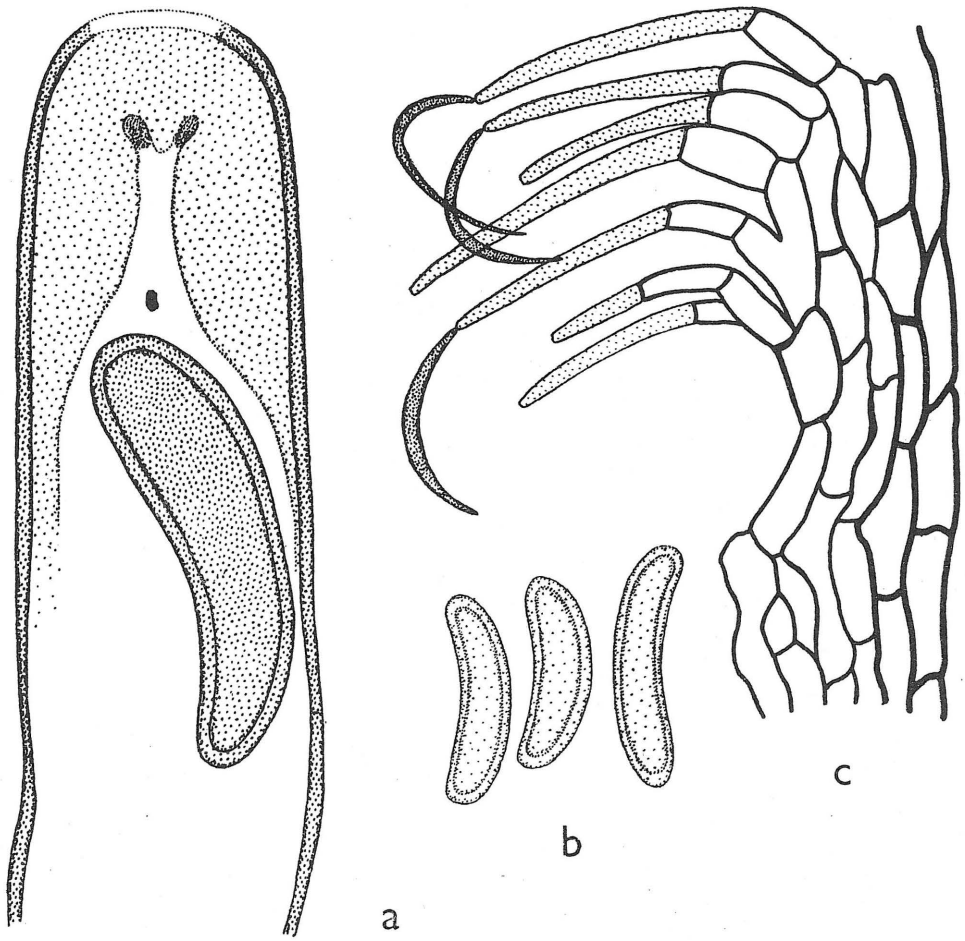

Fig. 4: *Valseutypella tristicha:* a — on *Rosa pendulina,* the apex of the ascus; b — on *Rosa canina,* ascospores; c — *Cytospora pendulinae* n. sp., part of the inside of the pycnidium wall with conidiophores and pycniospores. Orig.

Berlese and Bresadola (1889) in the neighbourhood of Trento, on *Rosa canina.* The third find comes from North America, near a little town Kulm, in the state S. Dakota (Rehm, Ascomyceten 2174, auf Rosa-Zweigen, 5. 1914, leg. J. F. Brenckle, see Höhnel 1919). All these finds originate roughly from the 46° of N. Lat. The Czechoslovak finding place is, up to now, the most northern one lying approximately on 49° 10′ of N. Lat.

From the phytopathologic point of view it seems that this fungus is not quite harmless. Ripe and very old stromata were found on dry twigs but the fungus was often found on branches and twigs semi-dead as young and unripe stromata. In spite of careful investigation it was impossible to find an imperfect form which would surely belong to this remarkable pyrenomycete (see also p. 15). After several attempts we succeeded in isolating this fungus (from *Rosa canina*) onto the KHG-Agar (see Kern 1957). To this day we received in our test tubes a very fine, thick, wooly, snow-white mycelium without sporulation.

8. **Cytospora pendulinae** n. sp.[1])

Stromata irregularly dispersed, here and there more crowded. A modest ectostroma of a lentil-shaped form in the space between the periderm and the cortex parenchyma so that it is, as a rule, invisible from above. Stromata only very slightly, cushion-like, lift the periderm which is perforated at the apex. The ectostroma is ash-grey inside. One black ostiole. Smaller pycnidia measure 230—370 × 100—200 μ, larger ones 540—780 × 320—430 μ, totally flatly ellipsoid but on the margins richly and diversely articulated. The space inside is irregularly divided into lobes and loculi. Smaller pycnidia, however, are also without septs. Conidiophores are simple, hyaline, approximately 18 μ long, 1,4—1,8 μ wide, slightly narrowed and blunt at the ends. The pycniospores are hyaline, sickle shaped, very curved, as a rule, pointed at the ends, pushed out in yellow (CUC No. 271, chrome yellow) spirals, (7,3) 8—11 (13) × 0,9 μ.

On a dry twig (approx. 4 mm dia), *Rosa pendulina* L. in Belanské Tatry, Siedm prameňov valley, on the path to Čarda, cca 1275 m o. s. l., on 26. 7. 1959, Z. Urban. The type is deposited in the Department of Botany, Charles' University, Prague.

On the species of the genus *Rosa* several species of the genus *Cytospora* were described previously, which seem to be different or altogether doubtful. So *Cytospora hendersonii* B. & Br. (1860) described in England should possess conidia of 2,5—3 μ thick that are pushed out as a dirty white mass. According to Grove (1923) it is a doubtful species. *Cytospora rosarum* Grev. (1858) should have smaller conidia (4—6,5 μ) pushed out in dirty white ribbons. Besides that, if it should belong to *Valsa ceratosperma* [Tode] Maire, it must necessarily belong to the genus *Torsellia* Fr. *Cytospora incarnata* Fr. (1823) possesses large conidia (6—10—12 μ) but the colour of the ribbons is reddish, flesh-red to rosy-red. *Cytospora rhodocarpa* Sacc. (1897) was described from Northern Italy on fruits. In the description (taken over from Sacc. Syll. fung. 14: 915, 1899) the measurements of pycniospores are not given. The species is said to be related with *C. leucosperma* Fr. (which, however, pushes out the conidia in white ribbons). *Cytospora rhodocarpa* has, in the meantime, an unclear justification. *C. farinosa* Feltgen (1903), according to the description representing a part of the life-cycle of the species *Valsa ceratosperma,* belongs to the genus *Torsellia. Cytospora pulcherrima* Dearness & Hansbrough [Canad. j. res. 10 (1): 125, 1934] was described from Canada on various woods, among others also *Rosa nutkana.* This *Cytospora* has very minute pycniospores (3,5—4 × 0,75 μ) which are formed on branched conidiophores. According to authors, it belongs probably into the cycle of *Valsella pulcherrima.* The name is a provisional one (according to Rev. appl. mycol. 13: 411, 1934). *Cytospora rhodophila* Sacc. (1884) approaches to the new species by the size of the pycniospores

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[1]) Stromatibus irregulariter sparsis, intracorticularibus, peridermis pustuliformiter elevantibus, conico-depressis, peridermide tectis; pycnidiis irregulariter ellipsoideis, in margine multiforme multilobatis, 230—370 × 100—200 μ vel 540—780 × 320—430 μ, olivaceis intus quasi unilocularibus vel irregulariter multilocellatis vel lobatis; loculis sinuosis interdum confluentibus, saepe incomplete divisis; ectostromatis paucis, griseo-brunneolis cum ostiolo unico nigro. Conidiophoris subulatis simplicibus, hyalinis, cca 18 × 1,5—2 μ. Conidiis hyalinis, falcatis, utrinque leniter obtuse acutatis, (7,3) 8—11 (13) × 0,9 μ, in cirros flavidis exsudantibus (CUC No 271).

Hab. in ramis emortuis (Ø cca 4 mm) *Rosae pendulinae* L. in montibus Belanské Tatry in valle Siedm prameňov dicta, cca 1275 m. s. m, 26. 7. 1959. Z. Urban legit. Specimen typicum in Herb. Inst. Bot. Univ. Carol. Pragae.

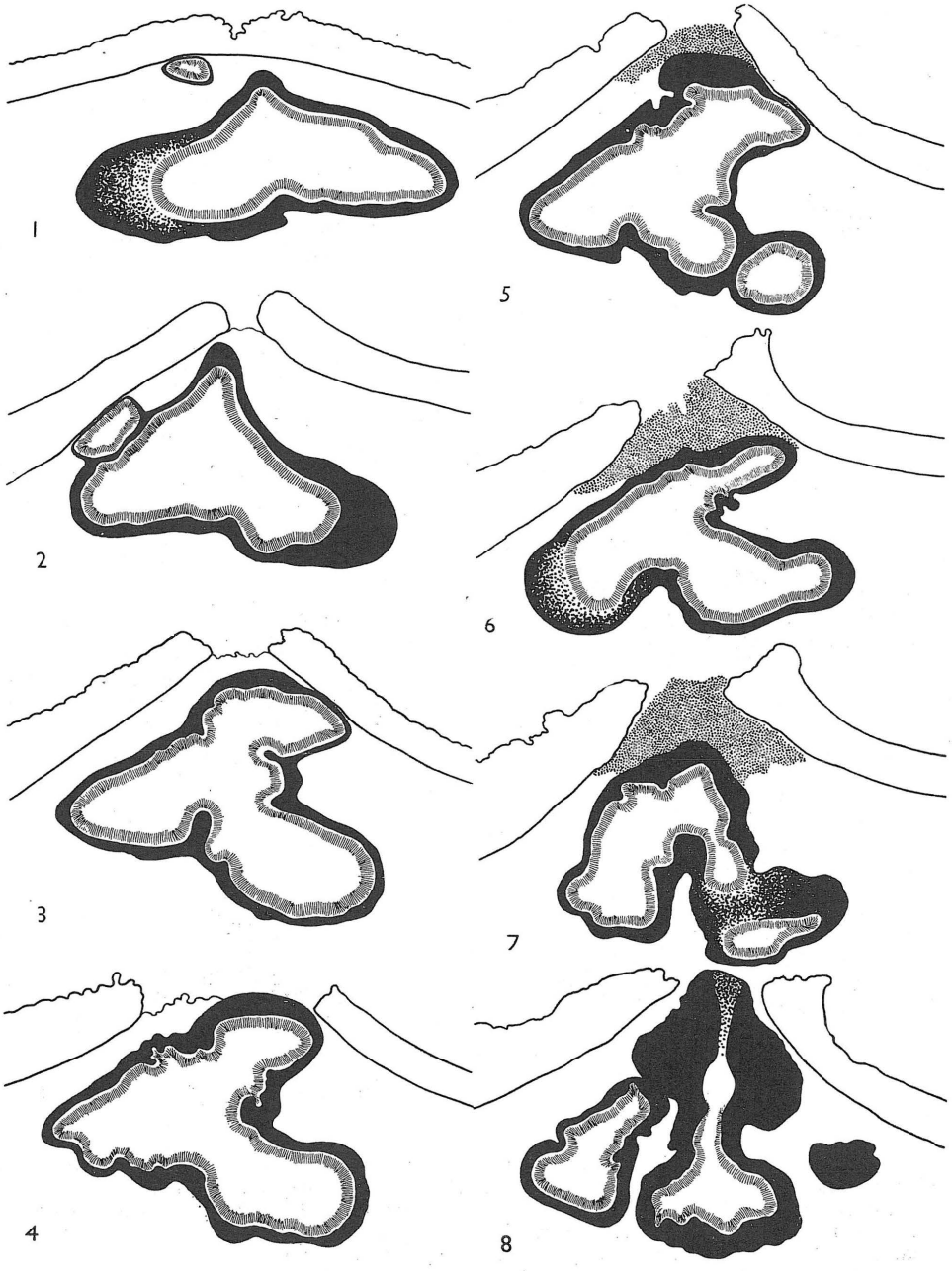

Fig. 5: *Cytospora pendulinae* n. sp. A series of vertical sections through the pycnidium of a longish shape. Sections are perpendicular to the longer diameter of the pycnidium. Orig.

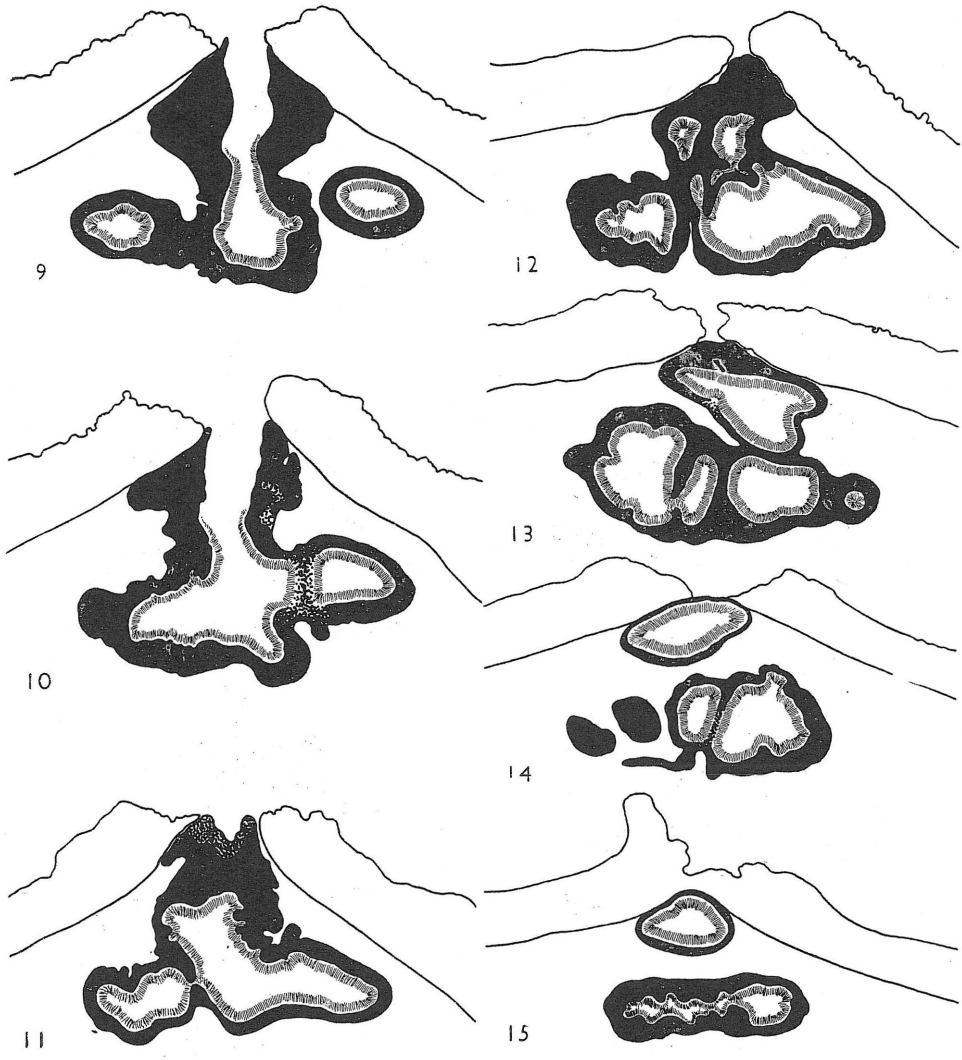

Fig. 6: *Cytospora pendulinae* n. sp., The continuation of the series from Fig. 5. Orig.

[(5,5) 7—8 (9) X 1,5 (1,8) μ]. Even if just in this species a considerable variability was observed in the length of conidia (U r b a n 1958c), it is fairly improbable that the shape should succumb to the same variability. In the case of the species *C. rhodophila* the shape remains preserved (allantoid, rather unequal-sided). On the other hand, our species is typical by its pycniospores the shape of which was not observed before in the genus *Cytospora* in our country. The pycniospores are very thin, (rather less than 1 μ) and, at the same time, unusually long. Towards the ends, they are slightly narrowed, strongly crescent-shaped, as a rule, this curvature appearing on the curved area. Very rarely, we can see a straight or mildly S-shaped pycniospore which is then hair-shaped. In masses (in the slide) their yellowish colour is evident.

The form of pycnidia is variable. The surface is not smooth but deeply gyrified so that the debris of cortex parenchyma penetrate often zigzag deeply into the body of the pycnidium. A horizontal section through a pycnidium is round or elliptical. The pycnidium walls consist of a thick olive green-brown plectenchyma of 2,7—3,6 μ thick hyphae which are connected with the hyaline mycelium in the surrounding cortex parenchyma. One ostiole is formed with similar hyphae but these are as much as 6,4 μ thick, thickly interlaced and, especially in the vicinity of the ostiole polarized perpendicularly to its length. Ectostroma is developped but, it seems, in only a slight amount. Its mycelium cannot be distinguished as it forms, at an early stage, small crystals (calcium oxalate), and disappears. The hyphae are cca 5,5 μ thick, of a light olive green, with weakly distinguishable walls.

The described species of the genus *Cytospora* grows in a close neighbourhood of the ascomycete *Valseutypella tristicha* (De Not.) Höhn. From that, however, it cannot be gathered these two species belong together. Besides that, there is a *Cytospora* sp., on the same twig, similar to the new species but with smaller allantoid pycniospores [7—9 (10) × 1,4—1,8 μ] which strongly remind of the species *Cytospora rhodophila.* Ribbons are not preserved. This *Cytospora* differs from *C. rhodophila* through the inner arrangement of the pycnidium.

The relationship of the new species to the genus *Cytospora* seems to be justified. The shape of the pycniospores reminds strongly of the genus *Cytosporina* Sacc. emend. Ciferri & Montemartini (1958) the length of its conidia (one of substantial genus characteristics) ranges, however, between 20 to 40 μ, and the width between 1—2 μ.

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