

The Occurrence of Some *Phyllosticta* on Ornamental Plants. I.

Výskyt některých druhů rodu *Phyllosticta* na ozdobných rostlinách. I.

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Abstract — This paper reports the results of a critical study of 21 species of *Phyllosticta* which parasitize on leaves of ornamental plants in Czechoslovakia, of which only five species were previously recorded in this country. Many new hosts are cited and one species new to science is described. The writer gives details of the morphological characters and makes critical comments on those species already known for Czechoslovakia. The results are that 11 species are reported for the first time in Central Europe.

During the study of different members of the family *Sphaeropsidaceae* (*Deuteromycetes*), many species have been collected which attack ornamental plants, particularly those species of the genera *Ascochyta*, *Septoria* and *Phyllosticta* which occur on leaves. They produce various kinds of spots which discolour the leaf blades and, if numerous or of large size, diminish the surface of assimilation. This contribution deals with those members of the form genus *Phyllosticta* PERS. which occur on the leaves of ornamental plants (shrubs and herbs) and were not previously known in Czechoslovakia or were only very rarely reported from Moravia.

Material and Methods

These species were for the most part found in Western Bohemia, chiefly in my own garden or in the gardens of my friends during 1961—1964, but also from Moravia, where Director H. ZAVŘEL of Kroměříž kindly made his collections available to me. The leaves attacked by the parasites were pressed whilst fresh and, at the same time, pycnidia and conidia were mounted in lactophenol and examined microscopically. Host-specificity has been assumed when describing new species of the genus *Phyllosticta*. After the study of the spores and the pycnidia, I proceeded to determine the species, followed by consideration of the phytopathological significance and a search for the known distribution.

Taxonomic Account

Phyllosticta antirrhini SYDOW Hedwigia 38 : 134, 1899.

Spots visible on both sides of the leaf, pallid green, mostly along the margin or on the upper part, 3—10 mm in diam., pycnidia epiphyllous, immersed, scattered or in groups, blackish-brown, 100—150 μ in diam. Conidia oblong, elongated, eguttulate, 0,8—1 \times 2,5—3 μ ; 1—2 \times 4—6 μ , hyaline or pale olive green (GUBA and ANDERSON 1919 report 1,5—2,1 \times 3,1—4,2 μ ; in the first case perhaps conidia immature).

On leaves, mainly basal, of the cultivated snapdragon, *Antirrhinum maius* L. in author's garden at Rokycany, seedlings and young plants in V. 1963 and VI. 1964; known also from Denmark, England, Germany, Ceylon, Bermuda and North America. This is the first report of *Antirrhinum* stem rot in Czechoslovakia. BUDDIN and WAKEFIELD (1924) stated that it also develops on the capsules and the adult leaves of snapdragon.

Whilst planting pale cultivars of unnamed varieties of snapdragon during 1963, I found the fungus on several leaves as spots in pale areas. These spots usually have a dark purplish-brown border which was, however, absent in the seedlings. According to the American literature, such spots are produced by *Phyllosticta antirrhini* SYD. (GUBA and ANDERSON 1919, SMILEY 1920 and previously, STEWART 1900), which was originally described from the Berlin area in Germany (SYDOW 1899) and distributed as *Mycosphaera Marchica*, ser. II., 1899. *P. antirrhini* has also been reported from several counties in England (BUDDIN and WAKEFIELD 1924), i.e. Middlesex, Norfolk, Surrey, Warwickshire, etc. Our material agrees with the description of North American material by GUBA and ANDERSON (1919) except for the shorter spores.

Although I have been cultivating this attractive annual for several years, I have not previously observed this fungus. However, in 1963 I bought some seed and the fungus appeared on the developing seedlings. As it is reported on seeds and capsules, it is probable that the parasite was present on the seeds (cf. also in Denmark, NEERGAARD, OHLSEN ENKE 1939, and NOBLE, de TEMPE, NEERGAARD, An annotated list of seed-borne diseases, 1958, p. 121). When the parasite occurs on the stem, it usually overwinters on the leaves until the following year when other plants may possibly also be infected. It is interesting to note that the red-blossomed varieties are free from the parasite, which was reported by HÁJKOVÁ-FIŠEROVÁ (1957) whilst studying the snapdragon rust. This fungus is very destructive, especially to young plants, and causes damping-off, stem rot and leaf spots.

***Phyllosticta aquilegicola* BRUNAUD, Misc. mycol. 2 : 33, 1889.**

Spots sometimes visible but usually indistinct, irregular, generally diverging from the margin, darkish brown, blueish tinged, greyish on the lower side or indistinct, with the greater part of the leaflet bearing sparse pycnidia, globose or lenticular in shape, mostly covered by the epidermis, brown or dark brown, 120—150 μ in diam., period by a round pore; texture loosely parenchymatous with small cells, brownish. Conidia elongated-ellipsoid, sometimes slightly elongated, biguttulate, rarely 4-guttulate, often with a faint septum, 2,5 to 3,5 \times 5,2—8,6 (13,8) μ ; 3,5 \times 5,2—6,9 μ pale green or hyaline.

On withered leaves of *Aquilegia vulgaris* L. cultivar. div. in author's garden, Rokycany' 20. VIII. 1963; old cemetery, 17. VII. 1964; Tab. XXIII. (fig. 1). Also known from France and Germany. The two-celled conidia can result in this fungus being confused with *Ascochyta*, which also occurs on this host.

***Phyllosticta asteris* BRESADOLA in SYDOW, Hedwigia 36 : (157), 1897.**

Spots visible on both sides, 8—10 mm in diam., angular or lobular, often confluent, ochraceous-brownish or brownish. Pycnidia on the upper side, globose or slightly elongated, covered for the greater part by the epidermis, finally with a minute ostiole; texture pale brownish to almost black, ca. 90 to 120 μ in diam. Conidia long-ovoid with 1—2 guttules, 2,4—3 \times 6,2—7 μ , hyaline.

On leaves of china-asters (*Callistephus chinensis* NEES), garden at Písek, 28. VIII. 1962. (Tab. XXIII, fig. 2.) leg. V. Jechová; garden at Rokycany, 28. IX. 1963. The collection agrees with the description of ALLESCHER (1901, p. 104) and DIEDICKE (1915). It is also known from England and Germany. The brown spots of this fungus deface the leaves of china-asters and, when numerous and covering the greater part of the leaves, it is very destructive.

***Phyllosticta begoniae* BRUNAUD, Sphaerops. Char. 1889 : 10.**

Spots almost subcircular, less often irregular, usually large and up to 1 cm in diam., olive grey, paler in the centre, with a dark grey border. Pycnidia scattered, small, ca. 80 μ in diam., pierced at the summit, punctiform. Conidia ovoid-elongated, obtuse at both ends, biguttulate or, less frequently, with one guttule, (1,7) 3,5—5,2 \times 8,6—10,5 μ , pale green.

On leaves of *Begonia tuberosa* LAM., allotments at Rokycany, 17. VII. 1964. This species seems to be widely distributed but is mentioned in the literature only from near Pessines in France (P. BRUNAUD), cf. also P. VOGLINO 1908. When the spots become enlarged, the leaves wilt and die.

***Phyllosticta buddleicola* sp. n.**

Spots nearly circular and fairly irregular, 2—5 mm in diam., visible only on the upper side, brown-grey, with a broad brown-rufous or purplish border. Pycnidia few or sparse, at first covered by the epidermis, later readily visible, somewhat erumpent, black or black-brown. Conidia long-oblong or linear-ellipsoid, obtuse at both ends, sometimes slightly rounded, mostly eguttulate, rarely with 2 oil drops, $3 \times 6,9$ — $8,5 \mu$, hyaline.

On living leaves of *Buddleia variabilis* HEMSLE. (*B. davidii* FRANCH.), in the garden „Podzámecká“, Kroměříž, rare, 25. XI. 1963 (Tab. XXIII., fig. 3.), leg. H. Závěel (type), in herb. dr. K. Cejpek, Praha.

From *Pb. buddleiae* SYDOW (Ann. mycol. 14 : 183, 1916) differs by size of the spots and conidia ($1-1,5 \times 5-6,5 \mu$).

Maculae fere rotundatae, vel leniter irregulares, 2—5 mm in diam. solum in inferiore premarginatae, brunneo-canuae, cum lato brunneo-rubro limbo. Pycnidia sparsa, initio epidermi tecta, postea manifestissima, moderate emergentia, atra vel atrofusca, 80—120 μ in diam., conidia longe fusiformia, vel oblongo-ellipsoidea, rot undata in utraque parte, nonnunquam leniter curvata, maiore parte eguttulata raro biguttulata, $3 \times 6,9$ — $8,5 \mu$, hyalina. Hab. in foliis vivis *Buddleiae variabilis* HEMSLE. (*B. davidii* FRANCH), Kroměříž, in horto „Podzámecká“ dicto, disperse 25. XI. 1963, leg. H. Závěel (typus in herb. dr. K. Cejpek, Praha).

***Phyllosticta dahliaecola* BRUNAUD,**
Champignons Saint. 1887 : 429.

Spots suborbicular sub-irregular, along the leaf margin, brown, becoming pale and 10 mm or more in diam. Pycnidia covered by the epidermis, black, deeply immersed in the spots, lens-shaped, sparse, 50—150 μ in diam. Conidia ovoid to ovoid-elongated, rounded at both ends, moderately rounded, with a central linear septum, biguttulate, $2,2-4,5 \times 6 \mu$; $2,2-4,5 \times 5,6-8$ (10,3) μ , hyaline.

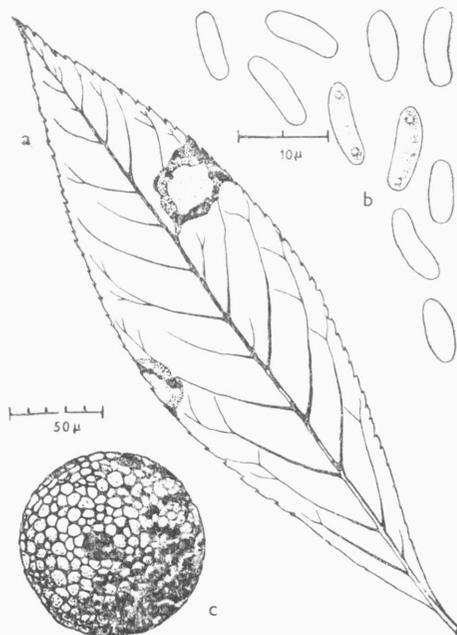
On living leaves (less often on the petioles) of *Dahlia variabilis* DESF., *D. coccinea* CAV. and *D. merkii* LEHM, throughout the summer. All cultivated varieties of the host are susceptible. The parasite occurs every year at Rokycany on *Dahlia variabilis* DESF. and *D. merkii* LEHM, 13. IX. 1961; 5. IX. 1964 etc.

This species is known from Czechoslovakia (CEJPEK 1961), France and Germany, also from India (RAO 1963).

In our gardens, this fungus produces dark to black-brown spots which later become paler, mostly on *Dahlia variabilis* DESF. and small specimens of *Dahlia merkii* LEHM (I grow both species every year). In the centre of the leaves there are spots bearing numerous pycnidia which are covered by the epidermis. This is *Phyllosticta dahliaecola* BRUN., which is doubtless an early stage of *Ascochyta dahliae* (BRUN.) PETRAK (PETRAK 1927). It develops over living and fallen leaves of dahlias but does not otherwise appear to affect this autumn plant adversely.

***Phyllosticta forsythiae* SACCARDO,** Fungi italicici 87, Michelia 1 : 93, 1878.

Spots nearly circular, mostly on the upper side of the leaves, ochraceous with a paler broad border and the centre frequently missing. Pycnidia gregarious



Phyllosticta buddleicola sp. n. — a) leaf of *Buddleia variabilis* with spots 1/1, b) conidia, c) pycnidium. Drawn by Ing. K. DOLEJŠ.

in the centre, numerous, concentrically arranged, pierced by a pore, at first covered by the epidermis, then exposed, dark yellowish or blackish, 150 to 170 μ in diam. Conidia ovoid or elongated-ellipsoid, 2—3 \times 6,5—8,6 (9) μ ; 2—4 \times 5,2—8,6 (9) μ , 2—3,5 \times 5,2—7 μ , biguttulate, mainly without oil drops, pale green or hyaline.

On living leaves of *Forsythia suspensa* VAHL., in garden „Podzámecká“, Kroměříž, 23. VIII. 1963, leg. H. Závěel; on *Forsythia viridissima* LINDL., in park at Rokycany, VIII. 1961 (Tab. XXIII., fig. 4.); botanical garden of the Caroline University, Praha, 24. IX. 1964.

The fungus is also known from Denmark, England, Germany, Holland and Italy. The American species, *Phyllosticta discincola* ELLIS and EVERHART, differs by having spores of different proportions.

***Phyllosticta funkiae* FERRARIS**, Malpighia 20 : 146, 1906.

Spots visible on both sides of the living or fallen leaves, pale, irregular or almost circular, with a brown border. Pycnidia on the upper side, sparse, pale or pink, pierced by a central pore, ca. 110—150 μ in diam., membranaceous. Conidia oblong-fusoid, ellipsoid or nearly ovoid, both sides parallel, 2—4.2 \times 5,2—6,5 (8,6) μ ; 3,9—4.2 \times 5,2—6,9 (8,6) μ , pale green, eguttulate, developing on short sporophores. FERRARIS reports conidia measuring 3—3,5 μ \times 9 to 11 μ , which are rather larger than in our specimens.

Botanical garden of the Caroline University, Praha, 24. IX. 1964, on leaves of *Funkia ovata* SPR.; Rokycany, old cemetery 17. VII. 1964. The fungus is also known from England and Italy. The only collection in Moravia is by PICBAUER (Verh. nat. Ver. Brünn 73 : 194, 1942) on *Funkia* sp.

***Phyllosticta gerbericola* CHAVES BATISTA**, Bol. Soc. Agric. Pernambuco 19 : 212, 1952.

Spots visible on both sides of leaf, up to 1 cm in diam., or along the margin, concentric, pale fuscous when dry. Pycnidia few, at first covered by the epidermis, then eruptant and subepidermal, 80—100 μ in diam., blackish-brown. Conidia elongated-ellipsoid to ovoid-ellipsoid, rounded at both ends, biguttulate, rarely eguttulate, 2—3 (5,3) \times (5,5) 7—8,4 (10) μ , pale green.

On living leaves of *Gerbera jamesonii* BOLUS, botanical garden of the Caroline University, Praha, 21. IX. 1964. It is also known from Brazil (CH. BATISTA) and India (RAO 1963).

Septoria gerberae SYDOW (Ann. mycol. 10 : 43, 1912), which produces smaller spots 2—6 mm in diam. and has spores with septa, 2,5—3,5 \times 13—26 μ , also on this host. Described originally from South Africa, it was first reported from Czechoslovakia by CEJČ and JECHOVÁ (1965).

A further parasite is described from this host: *Ascochyta gerberae* BEAUMONT et GREGORY (1937), which has ovoid-ellipsoid conidia with one^{*}septum, 2,3 \times 80—10 μ , and produces spots with a purple border. This species was originally described from Italy by L. MAFFEI (Riv. Patol. veg. 6 : 257—259, 1913), who failed to publish a Latin diagnosis. The epithet was formally validated by BEAUMONT and GREGORY (Gardener's Chron., ser. 3, 102 : 28, 1937) when describing material from England.

***Phyllosticta helleborella* SACCARDO**, Fungi veneti, ser. 5, No. 301, Michelia 1 : 143, 1878.

Spots visible on both sides of the leaf, whitish, lustrous, varying in size, usually large and occupying the greater part of the leaf, often angular, pale brownish on the periphery with a sharply separated dark brown border. Pycnidia lens-shaped, broadly opened, 80—110 μ in diam. Conidia oblong-ovoid, pointed at both ends, biguttulate, (1,7) 3—5,2 (6,5) \times (3,5) 6,9—8,6 (13,8) μ , (1,5) 3—5,2 (6,5) \times (3,5) 6,9—10,5 (17,2) μ , hyaline, with oil drops very large but also containing several small droplets.

On leaves of *Helleborus niger* L., author's garden in Rokycany, 27. VI. 1964; and leaves of *Helleborus purpurascens* W. et K., botanical garden of the Caroline University, Praha, 21. IX. 1964 (Tab. XXIV., fig. 5.).

Ph. atro-zonata VOSS (2—3 × 3—5,5 μ), *Ph. effusa* (ROB.) ALLESCHER (2,5 × 5—7 μ), *Ph. glabra* BRUNAUD (2,5 × 5—6 μ) and *Ph. helleboriana* BRUNAUD (2,5 × 3 μ), which differ as regards the shape and size of the spores.

***Phyllosticta heucherae* BRUNAUD, var. *sanguineae* (GROVE) n. comb.**

(Basionym: *Ph. heucherae* BRUN., Act. Soc. Linn Bordeaux 1890 : 57, f. *sanguineae* GROVE, J. Bot. 60 : 16, 1922).

Spots brown or brownish-grey, irregular to circular, without a definite border, usually elongated and brown along the leaf margin. Pycnidia black, globose, lens-shaped, sparsely covering the spots. Conidia ovoid or cylindrical-ellipsoid, slightly curved, elongated at the upper end, mostly biguttulate, 3,5—5 × (5,5) 6,9—10,3 (13,8) μ, but often eguttulate or with the drops small and indistinct.

On leaves of *Heuchera sanguinea* ENGELM., author's garden in Rokycany, 19. VIII. 1964. It differs from the typical variety by the size of the spores, which are longer and narrower and of a curved (non-oval) shape. The typical variety, which has spores 5—7 × 3 μ, was described from *Heuchera glabra* in France. The variety *sanguineae* is also known from England. In *Sphaeropsisidates* there are no forms, but varieties with greater morphological and physiological differentiation.

***Phyllosticta hydrangeae* ELLIS et EVERHART, J. Mycology, 5 : 115, 1889.**

Spots small but up to 1 cm in diam., at first purplish, then purplish-brownish, closely dark bordered, visible on both sides of the leaf. Pycnidia confined to the upper side, lens-shaped, 100—140 μ in diam., brown. Conidia elongated, rounded at both ends, regular or slightly curved, biguttulate, 2,6 × 8,6—10,3 μ (ALLESCHER 1901 gives 2,5—3,5 × 10—12 μ), hyaline or pale green.

On living leaves of *Hydrangea paniculata* S. et Z., allotments at Rokycany, 18. IX. 1964, common. Also reported from Germany and North America.

***Phyllosticta iridum* (SACC.) ALLESCHER, Fungi imperfecti 6 : 159, 1901.**

(Basionym: *Phoma iridum* SACCARDO, *Michelia* 2 : 126, 1881).

Spots scattered, visible on both sides of the leaves, ovoid-elongated in the centre, whitish when dry. Pycnidia sometimes in groups, black, clearly visible, at first covered by an epidermis, then erumpent, globose or lens-shaped, 80—100 μ in diam., pore without a prominent point. Conidia elongated-cylindrical, biguttulate, 1) 2—4 (5,2) × 5,5—10,3 (—12) μ, pale green; 2) 3,5—5,2 × 6,9—12 (13,8—17) μ; 3) 3,5—3,78 × 10,3 μ.

Species common on the leaves of cultivated varieties of *Iris germanica* L. 23. VIII. 1964, author's garden 29. VIII. 1964 (Tab. XXIV., fig. 6.) and 18. IX. 1964, allotments, Rokycany.

This species was described from the leaves of *Iris pseudacorus* in France and also known from Germany. It differs from other species described on *Iris* (*Phyllosticta iridis* ELLIS et EVERHART on *I. versicolor* L.) by the spore size (Proc. Acad. Nat. Sci. Philadelphia 1893 : 456). Cf. *Septoria iridis* C. MASSALONGO (CEJP and JECHOVÁ 1965).

***Phyllosticta magnoliae* SACC, var. *cookei* SACCARDO, Syll. Fung. 3:25, 1884.**

Spots of varying sizes, mostly on the upper side of the leaf, chiefly circular, pale, without a border when dry; sometimes also visible on the under side. Pycnidia punctiform, lentiform, rarely formed, brownish, 150—180 μ in diam. Conidia elongated, narrowing downwards, rounded at both ends, 3—4,5 × 5,2—10,3 μ, hyaline, biguttulate or uniguttulate but sometimes indistinct.

SACCARDO (1884) gives the conidia as $3-4,5 \times 8-12 \mu$, BRIOSI and CAVARA (sec. GROVE 1935) as $2-4 \times 6-10 \mu$.

On living leaves of *Magnolia soulangeana* HORT., botanical garden of the Caroline University Praha, 24. IX. 1924. The variety is reported from England, France, Germany and the U.S.A. The differences in the spore sizes are due to their ages. Circular spots, sometimes with brownish borders, predominated in my collections.

***Phyllosticta pyrina* SACCARDO**, *Michelia* 1 : 134, 1878.

Spots nearly regular and circular or lobular, not too extensive, 0,5 cm in diam., fuscous or becoming whitish. Pycnidia on the upper side of the leaf, epiphyllous, punctiform, lens-shaped, $100-125 \mu$ in diam., with a central pore. Conidia elongated-ovoid or ellipsoid, biguttulate, with two small drops, $3-3,5 \times 5-6,5 \mu$, mostly hyaline but with a small number pale green.

On living leaves of *Malus sargentii* REHD. in garden „Podzámecká“ at Kroměříž, 3. VIII. 1963 leg. H. Zavřel.

This species is known from Czechoslovakia, England, France, Germany, Italy and Portugal, as well as the U.S.S.R. It was first collected in our country in Moravia by BAUDYŠ and PICBAUER on *Pirus kroměříž* (Sborn. Kl. přírod. Brno 5 : 65, 1923). It also occurs on the leaves of pear in the Crimea (GUCEVIČ 1962). This species is known from both pear and apple trees.

***Phyllosticta paeoniae* SACCARDO et SPAGAZZINI**, *Michelia* 1 : 160, 1878.

Spot scars visible or sharply demarcated, irregular, 0,5—1 cm in diam., fuscous-brown. Pycnidia sparse, punctiform, globose, projecting, $150-200 \mu$, pierced by the pore; texture thin, parenchymatous. Conidia elongated-ovoid, sometimes slightly curved, biguttulate, $2,5-3,5 (4) \times 5,2-10,3 (13,8) \mu$ (several collections), sometimes with guttules but other times without, hyaline or weakly olive green, the later predominating.

On leaves of garden peonies, *Paeonia sinensis* Hort., *P. Moutan* SIMS, in garden at Rokycany, VII. and VIII., 1963, VII. and VIII., 1964, in allotments at Rokycany; in the garden „Podzámecká“, Kroměříž, VI. 1963, leg. H. Zavřel (Tab. XXIV., fig. 7.).

This species was originally described from leaves of *Paeonia corallina* L. near Coneglina, Italy, and is also known from the Crimea (GUCEVIČ 1962) on leaves of *Paeonia* sp. cult. It differs from the similar *Phyllosticta moutan* PASSER. by the larger spores.

***Phyllosticta pentastemonis* COOKE**, *Grevillea* 14 : 90, 1885/86.

Spots irregular or subcircular, 1—3 cm, indistinctly bordered, then perforated. Pycnidia almost submerget, black, usually scattered but sometimes thickly developed, when subconcentric, punctiform, $120-150 \mu$ in diam. Conidia ovoid-elongated or moderately ellipsoid, $1,5-2,5 (3,4) \times 3,5-5,2 (8,6-12) \mu$, hyaline.

On living leaves of *Pentstemon* sp., garden at Rokycany, 29. VII. 1964. This species is also known from England, Germany and U.S.A. The spore size is variable and dependent on the age and ecological situation of the host.

***Phyllosticta pharbitis* SACCARDO**, *Michelia* 1 : 144, 1878.

Spots becoming pale when dry with a dark brown border, variously developed, dirty brown, visible only on the upper side of the leaf. Pycnidia few, sometimes also on the lower side of the spot, lens-shaped, ca. $100-120 \mu$ in diam., pierced at the summit by a pore, where dark brown. Conidia long-elongated, slightly curved, ellipsoid-ovoid, biguttulate, 1) $3,5-4 \times 6,5-6,8 \mu$; 2) $2,5-4 (5) \times (3,5) 5,7-6,8 (13,8) \mu$, light green; very often with a single oil drop in the centre.

On living leaves of *Ipomoea purpurea* LAM. (*Pharbitis hispida* CHOISY) 1) author's garden at Rokycany, VIII, 1964; 2) by a garden fence on the northern boundary of Kroměříž, 20. VIII.

1963, leg. H. Zavřel. It seems that this species is common but little mentioned in the literature, being reported only from France, Germany and Italy.

***Phyllosticta vulgaris* DESM. var. *philadelphii* SACCARDO**, Syll. Fung. 3 : 18, 1884.

Spots at first small but increasing in size until they finally occupy the greater part of the leaf, fusing together, perforated, visible on both sides, brown to ochraceous, whitish in the centre with a broad darker border sharply separated from the healthy tissue. Pycnidia on the upper side, epiphyllous, projecting, globose, dark brown, ca. 100 μ in diam. Conidia ovoid-ellipsoid, moderately elongated, rounded at both ends, biguttulate, 3—3.4 \times 6—6.9 μ , 3—3.4 \times 6—10.5 (14) μ , sometimes eguttulate, hyaline or weakly pale green.

On living leaves of *Philadelphus coronarius*, common in our gardens (collected several times in the author's garden) at Rokycany, e.g. 12. IX. 1963; private gardens at Kroměříž, 3. VIII. 1963, leg. H. Zavřel. This species is widely distributed throughout Central and Western Europe, being reported several times from England, France, Germany and Italy.

***Phyllosticta physaleos* SACCARDO**, *Michelia* 1 : 150, 1878.

Spots nearly circular or irregular, ochraceous, brownish, especially when dry, dark brown bordered, paler in centre where nearly whitish, generally distributed over the leaf. Pycnidia punctiform, few, scattered, 80—90—120 μ in diam., with a thin membranaceous texture, dark brown or fuscous. Conidia elongated and ovoid, bi- or uniguttulate with several much smaller droplets, 1) 1.7—5.2 (6.8) \times 6.9—10 (17.2) μ with a light green tinge, 2) 3—5.2 (6.5) \times 6.9—8.5 (13.8) μ , sometimes without oil drops when only light green in colour.

On living leaves of *Physalis franchetti* MAST., private garden of A. Mašek at Rokycany, 4. IX. 1964; on leaves of *Physalis alkekengi* L., botanical garden of the Caroline University, Praha, 21. IX. 1964. *P. franchetti* MAST. is a new host for this species, which was previously only known on *Ph. alkekengi* L. from the Berlin botanical garden, Germany (SYDOW, *Mycotheca* March. No. 2376), from the vicinity of Bratislava in Slovakia (Bäumler, sec. ALLESCHER 1901 : 135), as well as from the Crimea (GUCEVIČ, 1962 : 116), Ceylon (PETCH, *Ann. bot. Paradeniya* 7 : 310, 1922) and Italy.

***Phyllosticta syringae* WESTENDORP**, *Bull. Acad. roy. Belg.* 18 : 399, 1851.

Spots diversely formed, sometimes irregular, very broad, sometimes smaller, circular, often occupying the greater part of the leaf, ochraceous, greyish with a darker border, visible on both sides of the leaf. Pycnidia on the upper side, scattered, initially covered by the epidermis but becoming erumpent, lens-shaped, 120—150 μ in diam., texture thin, pale brown. Conidia elongated-ellipsoid with both sides rounded, sometimes moderately curved, biguttulate, 3—3.5 \times (5.2) 6.9—8.6 (10.3) μ , hyaline or very weakly green.

On living leaves of *Syringa vulgaris* L., private gardens at Rokycany, VIII. 1962, 22. VII. 1964, 23. VIII. 1964 (Tab. XXIV., fig. 8.), in hospital park, Kroměříž, 26. IX. 1963, leg. H. Zavřel. This species has been reported on several occasions from Moravia, where all specimens were collected by H. Zavřel (PICBAUER, *Pr. morav. přírod. Spol.* 8 : 41, 1935, *Verhandl. natur. Ver. Brünn* 69 : 41, 1938, *Preslia* 28 : 286, 1956). It seems to be distributed throughout Europe and North America. When the greater part of the leaf is affected, it can be very destructive with the leaf suddenly withering.

A c k n o w l e d g e m e n t s. The writer wishes to express his grateful thanks to Ing. K. DOLEJŠ for his assistance with spore measurements, as well as his keen interest, to Director H. ZAVŘEL, Kroměříž, who kindly gave me the specimens which he had collected in Moravia, to Mr. J. T. PALMER, Woodley, Chesh., for revising the English text and to V. JECHOVÁ, who kindly attended to the photography.

Tato práce přináší kritická studia 21 druhů rodu *Phyllosticta*, které parazitují na listech našich ozdobných rostlin; z nich pouze pět druhů bylo dříve známo z našeho území. Jsou uvedeni četní noví hostitelé těchto rostlin a jeden nový druh pro vědu. Jsou připojeny mnohé detaily o morfolo-
gických vlastnostech a kritické poznámky o druzích v Československu. Výsledkem je 11 druhů nových pro území střední Evropy.

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Explanations of the plates:

- Tab. XXIII: 1. *Phyllosticta aquilegicola* BRUNAUD, on *Aquilegia vulgaris*, Rokycany, old cemetery, 17. VII. 1964. 2. *Phyllosticta asteris* BRESADOLA, on *Callistephus chinensis*, Písek, 28. VIII. 1962. 3. *Phyllosticta buddleicola* CEJPK sp. n., on *Buddleia variabilis*, Kroměříž, 25. XI. 1963. 4. *Phyllosticta forsythiae* SACCARDO, on *Forsythia viridissima*, Rokycany, parc., VIII. 1961. Photo V. JECHOVÁ.
- Tab. XXIV: 5. *Phyllosticta helleborella* SACCARDO, on *Helleborus purpurascens*, Praha, botanical garden of the University, 21. X. 1964. 6. *Phyllosticta iridium* (SACC.) ALLESCHER, on *Iris germanica*, Rokycany, the garden, 29. VIII. 1964. 7. *Phyllosticta paeoniae* SACCARDO et SPEGAZZINI, on *Paeonia sinensis*, Kroměříž, 28. VI. 1963. 8. *Phyllosticta syringae* WESTENDORP, on *Syringa vulgaris*, Rokycany, 23. VIII. 1964. Photo V. JECHOVÁ.