A NEW SPECIES OF *PHOMOPSIS* SACC. (MITOSPORIC FUNGI) IN ROMANIA

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Genus *Phomopsis* has a special theoretical and practical importance successfully pointed out in several problems concerning the taxonomy, the nomenclature and the pathogenesis of the species of this type. So far, in Romania have been described 87 taxons on 130 species of host plants which are spontaneous or cultivated and which have got a great importance in the economy and flora. In this paper there are illustrated only three species of *Phomopsis* which are new for Romania and here they are: *Phomopsis brachyceras* Grove, *Phomopsis diospyri* (Sacc.) Trav. & Spessa and *Phomopsis vaccinii* Shear.

Key words: *Phomopsis*, new species.

Phomopsis Sacc. represents a very large genus of the group of imperfecti fungi, having over 180 species accepted in the micobiota of the globe.

The genus has been created for the first time by Saccardo in 1881.

The typical species of genus *Phomopsis* depicts an immersed, branched, septate, hyaline to pale-brown mycelium. Their conidiomata are pycnidial, stromatic, which are immersed in the substratum. They can also be separated or aggregated and confluent, globose, ampulliform or applanate, unilocular or multilocular. As a rule, they emerge through a circular often papillate ostiole. The wall of the conidiomata is pseudoparenchyma, brown and coloured with *textura angularis*.

Conidiophores are hyaline, branched and occasionally they are short and 1–2 – septate. Frequently they are multiseptate and filiform.

The conidiogenesis is enteroblastic monophialidic.

The conidia are of two types for the majority of species: alpha- and beta-conidia. So far, only for five species of *Phomopsis* there has been discovered the third type of conidia, which is gamma.

Alpha-conidia are hyaline, ellipsoid or fusiform, straight, aseptate, ordinary biguttulate, but, sometimes, they are also more guttulate.

Beta- conidia are hyaline, filiform, aseptate, straight or curved, aguttulate. Beta-conidia are unknown in most species and their production is erratic in many.

Despite its distribution and its economic importance, the genus has not had the advantage of monographed treatments so far. Because of the absence of the teleomorph (only at twenty percent of the species there has been connection with the teleomorph of *Diaporthe*) the problems which refer to the taxonomy and the nomenclature of this genus stay unclear.

MATERIALS AND METHODS

The mycologic material has been collected from the flower park from Mărăcineni – Argeş and from the Botanical Gardens in Cluj.

The isolation of fungi in case of contamination has been done by direct observation at the stereomicroscope or by the method of wet camera. The microscopic produces have been made in blue – cotton in lactophenol.

There have been synthesized the following data for each taxon:

– the name of the species according to the actual nomenclature existing in speciality literature;

– the basyonims for each species transferred into this genus;

– the description which is, mostly, the result of personal investigations;

– the habitat;

– the distribution on the globe.

RESULTS AND DISCUSSION

Phomopsis brachyceras Grove, Britisch stem- and leaf- fungi, **1:**1–488 (456), 1935.

Conidiomata are pycnidial, stromatic, 200–500 µm wide, immersed, subperidermic, separate, rare confluent, globose, unilocular; conidiomatal wall is brown with *textura angularis*; ostiole is single, circular. Conidiophores are multiseptated, 10–15 µm long × 1.5 µm wide, branched, filiform, hyaline, formed from the inner cells of the locular walls. Conidiogenous cells are enteroblastic monophialidic. Conidia are of two types: alpha-conidia hyaline, fusiform, 6–7 (–9) µm long × 1.5–2 µm wide ($M_L = 6.95$; $\delta_L = 0.840$; $m_L = 0.028$; $M_l = 1.90$; $\delta_l = 0.20$; $m_l = 0.006$), aseptate, with acute ends and two guttulation drops; beta-conidia hyaline, filiform, straight or curved, eguttulate, aseptate, (15–) 26 (–30) µm long × (0.5–)1(–1.5) µm wide ($M_L = 23.26$; $\delta_L = 3.335$; $m_L = 0.111$; $M_l = 0.93$; $\delta_l = 0.249$; $m_l = 0.008$).

Habitat: necrotroph on stems of *Ligustrum vulgare*.

Distribution: Great Britain.

Personal contributions: identified on stems of *Ligustrum ovalifolium Hassk.*, Romania, Argeş: the park from I.C.D.P. Piteşti – Mărăcineni, 19.10.2002.

Other species recorded in the world of the genus *Ligustrum*: *Phomopsis ligustri – vulgaris* Petrak. (conidiomata 400 – 600 × 200 – 300 µm, conidiophores 14 – 18 × 1.5 µm, α- conidia 6– 12 × 2.5 – 4 µm).

Phomopsis diospyri (Sacc.) Trav. & Spessa, La flora micologica del Portogallo, Bol. Soc. Brot., **25:** 26–187(123), 1910.

Basyonim *Phoma diospyri* Sacc., Michelia **1:**258, 1878.

Conidiomata are pycnidial, stromatic, 300–400 µm wide, immersed, subcuticular, separate, aggregated or confluent, globose to subglobose, unilocular;

conidiomatal wall is brown with *textura angularis*; ostiole is single, circular. Conidiophores are short, 15,5–21 μm long × 2 μm wide, with one or two septa, branched, filiform, hyaline, formed from the inner cells of the locular walls. Conidiogenous cells are enteroblastic monophialidic. Conidia are of two types: alpha-conidia hyaline, fusiform – elliptic, 5–7 μm long × 1.5–2 μm wide, aseptate, with acute ends and two big guttulation drops; beta-conidia hyaline, filiform, straight or curved, eguttulate, aseptate, (15–)19–23 μm long × 1 μm wide.

Habitat: necrotroph on branches of *Diospyros lotus* and *D. virginiana*

Distribution: Italy, Germany.

Personal contributions: identified on fruits of *Diospyros virginiana* L., Romania, Cluj-Napoca: Botanical Gardens, 16.07.2001.

Phomopsis vaccinii Shear, in Shear, Stevens et Bain., Fungous diseases of the cultivated cranberry, U.S. Dept. Agr. Tech. Bull., no. **258:** 7. 1931.

Conidiomata are pycnidial (Fig. 1), stromatic, 200–400 μm wide, immersed, subperidermic, confluent, globose, unilocular; conidiomatal wall is dark-brown with *textura angularis*; ostiole is single, circular. Conidiophores are short, 10.5–17.5 μm long × 1.5–2 μm wide, with one or two septa, branched, filiform, hyaline, formed from the inner cells of the locular walls. Conidiogenous cells are enteroblastic monophialidic (Fig. 2). Alpha-conidia are hyaline, fusiform-elliptic, (5–) 6.3–7(–8.5) μm long × 1.5–2 μm wide (M_L = 6.81; δ_L = 0.994; m_L = 0.019; M_l = 1.94; δ_l = 0.162; m_l = 0.003), aseptate and two guttulation drops (Fig. 2); beta-conidia have not been observed.

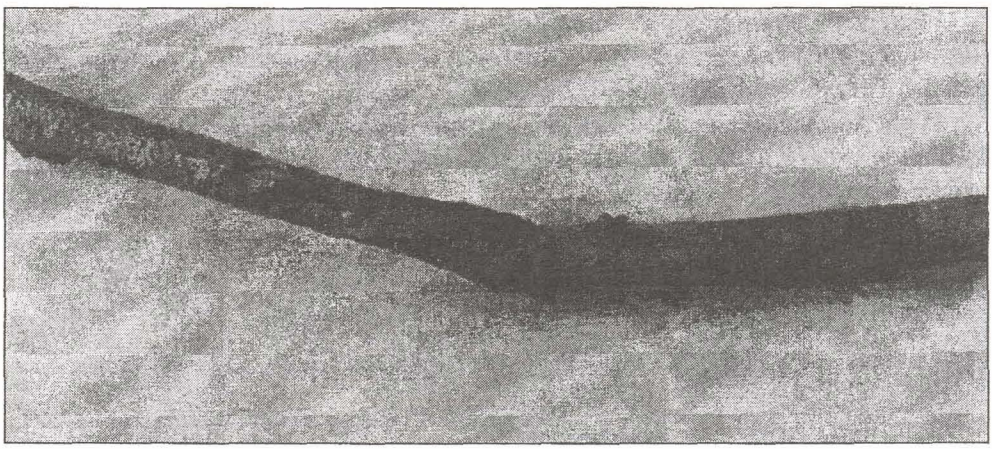

Fig. 1 – Branches with conidiomata of *Phomopsis vaccinii* Shear.

Habitat: biotroph on stems and fruits of *Vaccinium macrocarpon, V. oxycoccos var. intermedia, Vaccinium sp.*

Distribution: the USA.

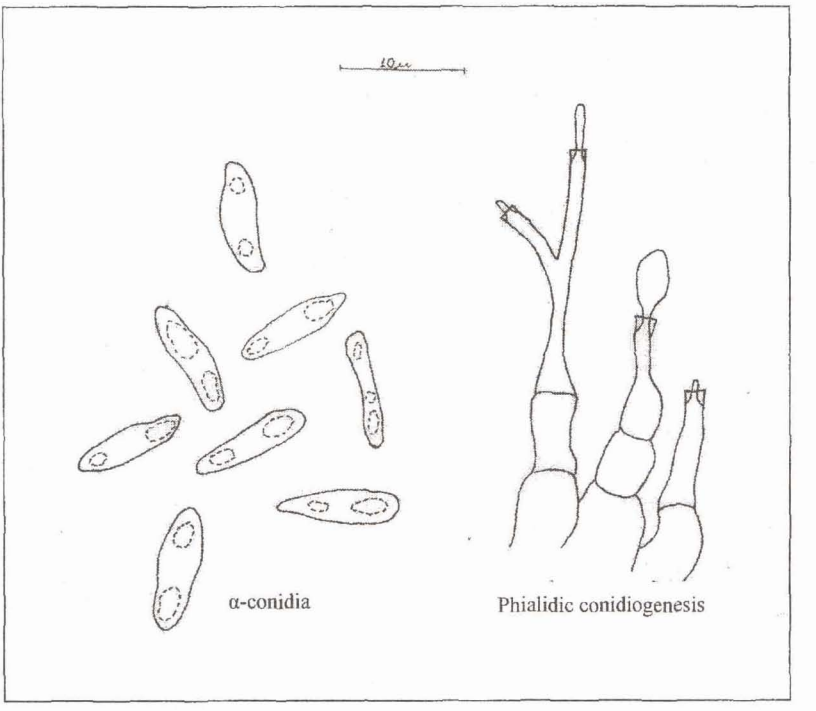

Fig. 2 – Conidiophores and α-conidia.

Personal contributions: identified on stems of *Vaccinium sp. (cult.) 'Bluecrop' [('Jersey' x 'Pionier') x ('Stanley' x 'June')]*, Romania, Argeş: the park from I.C.D.P. Piteşti – Mărăcineni, 20.09.1989.

Other species recorded in the world: *Phomopsis myrtilli* Petrak. on *Vaccinium myrtillus* (conidiomata 250–350, conidiophores 3–5 (–8–) × 1; alpha-conidia 8–13 × 2.5–3.25 μm).

REFERENCES

1. Alexopoulos C.J., Mims C.W., Blackwell M., 1996, *Introductory mycology*, Fourth Edition, John Wiley & Sons, Inc., New York.
2. Ainsworth G.C., 1995, *Dictionary of the Fungi*, Ed. 8th. Commonwealth Mycological Institute, Kew.
3. Allescher A., 1900, *In Rabenhorst s Kryptogamen – Flora von Deutschland, Oesterreich und der Schweiz – Fungi Imperfecti,* vol. VI, IX, Leipzig.
4. Bontea V., 1986, *Ciuperci saprofite şi parazite din România*, Ed. Acad. R.S.R..
5. Ellis M.B. and Ellis J.P., 1985, *Microfungi on Land Plants*, Macmillan Publishing Company, New York.
6. Hahn G.G., 1943, *Taxonomy, Distribution and Pathology of Phomopsis und der Schweiz – Fungi Imperfecti,* vol.VI, VII, VIII, IX.

7. Hulea Ana, 1969, *Ghid pentru laboratoarele de micologie şi bacteriologie*, Ed. Agrosilvică, Bucureşti.
8. Kirk P.M., Cannon P.F., David J.C. and Stalpers J.A., 2001, *Dictionary of the fungi*, Ed 9th, CAB International.
9. Sandu-Ville C., 1971, *Ciuperci Pyrenomycetes-Spheriales din România*, Ed. Acad. R.S.R..
10. Sutton B.C., 1980, *The Coelomycetes*, Commonwealth Mycological Institute, Kew, England.
11. Uecker F. A., 1988, *A world list of Phomopsis with notes on nomenclature, morphology and biology*, Mycologia Memoir No. 13., J. Cramer. Berlin-Stuttgart.

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