Journal für Kulturpflanzen, 68 (5). S. 130–133, 2016, ISSN 1867-0911, DOI: 10.5073/JfK.2016.05.03 Verlag Eugen Ulmer KG, Stuttgart

Gerhard Bedlan

Didymella sidae-hermaphroditae sp. nov., a new pathogen on *Sida hermaphrodita* (L.) Rusby

Didymella sidae-hermaphroditae sp. nov., ein neues Pathogen an *Sida hermaphrodita* (L.) Rusby

Abstract

Didymella sidae-hermaphroditae sp. nov., a new species collected on *Sida hermaphrodita* (L.) Rusby, differs from other species of *Didymella* on this host and other *Malvaceae* in many cases in the diameter of the pycnidia and in length and width of the conidia.

Key words: *Didymella sidae-hermaphroditae* sp. nov., *Sida hermaphrodita*, Virginia mallow, symptoms, systematics, new species

Zusammenfassung

Didymella sidae-hermaphroditae sp. nov., eine neue Art an *Sida hermaphrodita* (L.) Rusby, unterscheidet sich von anderen Arten der Gattung *Didymella* auf diesem Wirt und anderen *Malvaceae* häufig im Durchmesser der Pyknidien und in Länge und Breite der Konidien.

Stichwörter: *Didymella sidae-hermaphroditae* sp. nov., *Sida hermaphrodita*, Virginiamalve, Symptome, Systematik, neue Art

Introduction

On the species *Sida* only *Ascochyta sidae* Sawada, a non valide name, is known. In the family of the *Malvaceae* many species of the asexual state of *Didymella* are known (s. Table 1), but none of them on *Sida hermaphrodita*. In June 2015 a new species of *Didymella* was collected on living leaves of *Sida hermaphrodita* in Lower Austria.

Methods

For the determination of the fungus the usual mycological routine methods of light microscopy were adopted. Pycinidia and conidia of the fungus were stained with Wittmann's Blue (Wittmann, 1970). Both have been measured using the programme labSens by Olympus.

Results

The conidia of the new species differ in length and width from the other species on *Sida* and other *Malvaceae* (s. Table 1).

Institute
Austrian Agency for Health and Food Safety, Institute for Sustainable Plant Production, Vienna, Austria

Correspondence
Univ.-Doz. Dr. Gerhard Bedlan, Austrian Agency for Health and Food Safety, Institute for Sustainable Plant Production, Spargelfeldstraße 191, 1220 Vienna, Austria, E-Mail: gerhard.bedlan@ages.at

Accepted
28 January 2016

Table 1. *Ascochyta* species on *Malvaceae* (in chronological order) according to the original descriptions

Species	Host plant and remarks	Diameter of the pycnidia in µm	Length of conidia in µm	Width of conidia in µm	Characteristics of the conidia
Ascochyta malvicola Sacc. (SACCARDO, 1878)	*Malva sylvestris*	Dot-like, lens-shaped, perforated	20	4	Hyaline, short cylindrical, on both ends rounded, mildly constricted at the septum, 1-septate, minute 4-guttulate.
Ascochyta althaeina Sacc. & Bizz. (SACCARDO and BIZZOZERO, 1884)	*Althaea officinalis*	Dot-like, black	12.5–14	3	Hyaline, 1-septate, nearly fusiform.
Ascochyta althaeina Sacc. et Bizz. var. *brunneo-cincta* Passerini (BRUNAUD, 1886)	*Althaea officinalis*		10	3.5 3.5	Elliptical to oblong, 1-septate.
Ascochyta alceina Lambotte & Fautrey (FAUTREY, 1899)	*Alcea rosea*		7–10	3 (-4)	Nearly cylindrical or oblong, on both ends rounded, first one-celled then 1-septate, not constricted at the septum.
Ascochyta montenegrina Bubák (BUBÁK, 1903)	*Malva silvestris*	Lens-shaped 50–160	6–13 Very frequently 9–11	3–4.5	Hyaline, short cylindrical, 1-septate at the midth and mildly constricted at the septum, on both ends rounded.
Ascochyta malvae H. Zimm. (ZIMMERMANN, 1909)	*Malva neglecta*	Epiphyll, sparse, nearly covered, 150–200	At first 6–9, afterwards 8–9	At first 3–4, afterwards 3.5	At first cylindrical or ovoid, afterwards cylindrical and in the midth constricted, 1-septate.
Ascochyta abutilonis Hollós (HOLLÓS, 1909)	*Abutilon avicenne*	Epiphyll, 140–190	8–9	3–4	Hyaline, elliptical-fusiform, at first one-celled, afterwards 1-septate, not constricted at the septum.
Ascochyta malvae Died. 1912 (DIEDICKE, 1915)	Homonym *Malva alcea*	Epiphyll, covered	7–10	3–4	Nearly cylindrical or oblong-ellpsoid, on both ends rounded, 1-septate, non constricted at the septum.
Ascochyta gossypii Woron. (1915) (WORONICHIN, 1914)	= non *Phoma gossypii* Sacc. (SACCARDO, 1880) = ***Phoma gossypiicola*** Gruyter (GRUYTER, 2002) on *Gossypium* spp.		12(–14)	8	Hyaline, straight or slightly curved, cylindrical to ovoid, 1-septate, not constricted at the septum, rounded at both ends.
Ascochyta gossypii Syd. (SYDOW et al., 1916)	= Homonym zu *Ascochyta gossypii* Woron. *Gossypium* spp. (cult.) in Kaschmir	80–100	8–10	1.5–4	Hyaline, oblong or shortly cylindrical, on both ends rounded, at the midth or nearly at the midth with a septum, not or scarcely constricted.
Ascochyta abelmoschi Harter (HARTER, 1918)	*Abelmoschus esculentus*	65–225	4–14	2.1–4.5	Hyaline, cylindrical to ovoid, straight or curved, first one-celled, afterwards 1-septate and constricted at the septum, on both ends rounded, guttulate.
Ascochyta abutilonis Khokhr. (TRANZSCHEL et al., 1933)	Homonym zu *Ascochyta abutilonis* Hollós	–	–	–	–
Ascochyta hibisci-cannabini Khokhr. (TRANZSCHEL et al., 1933)	*Hibiscus cannabinum* (in Rossia)	Epiphyll, 180	5–10	2.5–4.5	Hyaline, cylindrical, on both ends rounded, first one-celled, afterwards 1-septate.
Ascochyta abutilonicola Massenot (MASSENOT, 1951)	*Abutilon striatus*	100–140	16–29	5–7	Hyaline, 1-septate, rarely non or 2-septate, elliptical-oblong, at the ends roundish or obtuse, constricted, with granules, not or with 2 or pluri-guttulate.

Table 1. ***Continued***

Species	Host plant and remarks	Diameter of the pycnidia in µm	Length of conidia in µm	Width of conidia in µm	Characteristics of the conidia
Ascochyta sidae Sawada (Sawada, 1959)	*Sida acuta* non valide	90–195	5–9	3–4	Hyaline, elliptical or ovoid, 1-septate.
Ascochyta urenae Sawada (Sawada, 1959)	*Urena lobata* var. *tomentosa* non valide	125–150	4–8	3–4	Hyaline, elliptical to oblong, rounded at both ends, 1-septate, rarely aseptate, constricted at septum, smooth.
Ascochyta althaeina Sacc. et Bizz. var. *kitaibeliana* Mititiuc & Manoliu (Manoliu and Mititiuc, 1976)	*Kitaibela vitifolia* = ***Ascochyta althaeina*** Sacc.		7–12	2–2.5	Cylindrical, not elliptical.

The diameter of the pycnidia of the new species varies from 66.4–144.87 µm with an average of 94.87 µm. The ostioles measure 11.13–24.97 µm (average 16.78 µm). The conidia are 5.73–11.31 µm long (average 8.11 µm) and 1.77–3.15 µm wide (average 2.62 µm) and show one septum in the midth of the conidia.

Comments to the nomenclature of the above mentioned species

Mel'nik (2000) combined *A. althaeina* Sacc. & Bizz., *A. althaeina* Sacc. & Bizz. var. *major* Brunaud, *A. alceina* Lambotte & Fautrey, *A. montenegrina* Bubák, *A. malvae* H. Zimm., *A. abutilonis* Hollós, *A. malvae* Died., *A. gossypii* Woron., *A. gossypii* Syd., *A. malvarum* Mig., *A. hibisci-cannabini* Khokhr., *A. sidae* Sawada, *A. urenae* Sawada to one species, namely *Ascochyta malvicola* Sacc. But in the two repositories Index Fungorum and Mycobank all of the above mentioned species are valid and legitimate.

The name of the variety *brunneocincta* in *Ascochyta altheina* Sacc. et Bizz. var. *brunneocincta* is according to the protologue hyphenated to *brunneo-cincta* and the author of the variety is not Brunaud but Passerini.

In the repositories Index Fungorum and Mycobank *Ascochyta gossypii* Woron. and *Ascochyta gossypii* Syd. & Syd. are homonyms. But only *Ascochyta gossypii* Syd. & Syd. is a homonym to *Ascochyta gossypii* Woron. and besides in the protologue only Syd. is the author.

Ascochyta gossypii Syd. differs from *Ascochyta gossypii* Woron. for which is now the current name *Phoma gossypiicola* Gruyter published (Gruyter, 2002) and therefore it should be given a new name to *A. gossypii* Syd.:

Ascochyta gossypiicola Bedlan **nom. nov.**
Index Fungorum IF552103
≡ *Ascochyta gossypii* Syd.

Didymella sidae-hermaphroditae Bedlan **sp. nov.**
Index Fungorum IF552102

On the upper sides of the leaves brown roundish shaped spots with dark brown margins (Fig. 1). Conidiomata (pycnidia) on the upper side of the leaf spots (Fig. 2). Pycnidia semi-immersed, brown to dark brown, globose, 66.4–144.87 µm diameter (average 94.87 µm). The ostioles measure 11.13–24.97 µm (average 16.78 µm) (Fig. 3).

The conidia are hyaline, oblong-cylindrical, rounded at the ends, 5.73–11.31 µm long with an average of 8.11 µm and 1.77–3.15 µm wide with an average of 2.62 µm and 1 septum in the midth, not constricted at the septum. Young conidia aseptate (Fig. 4). At few conidia one cell is a little bit longer and some are slightly flexuose.

Fig. 1. Symptoms on upper side of leaf.

Fig. 2. Pycnidia on a leaf spot.

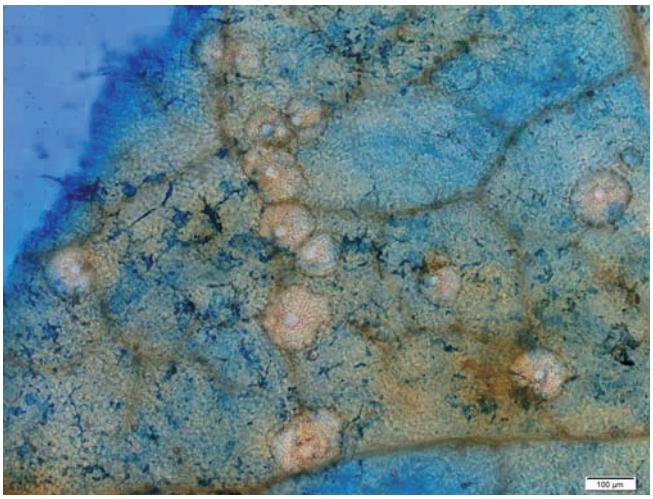

Fig. 3. Pycnidia (stained with Wittmann's Blue).

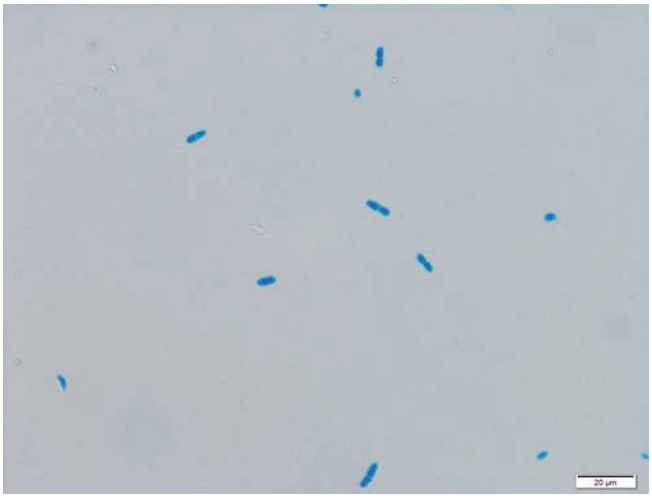

Fig. 4. Conidia (stained with Wittmann's Blue).

On living leaves of *Sida hermaphrodita* (L.) Rusby.

Type: Austria, Zinsenhof (Lower Austria, district of Melk). On living leaves of *Sida hermaphrodita* (L.) Rusby, 22 June 2015, leg. et det. G. Bedlan (holotype, hb W).

The type specimen has been deposited at the department of Botany, Natural History Museum, Vienna (hb W).

Etymology: The new species found on *Sida hermaphrodita* is named after the host where it has been found.[1]

[1] The plants of *Sida hermaphrodita* originated from a field belonging to the project "Sida: Intelligent Densified Energy Carriers for Austria (SIDecA)", financed by the Austrian Climate and Energy Fund (KLI.EN) and carried out in the context of the program "e!MISSION.at"

Acknowledgement

Thanks are due to Alain Lepretre, Julius Kühn-Institut (JKI), Federal Research Centre for Cultivated Plants in Berlin, for providing original literature.

References

Brunaud, P., 1886: Sphaeropsidées nouvelles, rares ou critiques aux environs de Saintes. Revue Mycologique Toulouse **8**, p. 141.
Bubák, F., 1903: Ein Beitrag zur Pilzflora von Montenegro. Sitzungsberichte der Königlichen Böhmischen Gesellschaft der Wissenschaften, p. 18.
Diedicke, H., 1915: Pilze: Sphaeropsideae, Melanconieae. Kryptogamen-Flora der Mark Brandenburg **9** (5), p. 391.
Fautrey, F., 1899: Espèces nouvelles de la Côte-d'Or. Bulletin de la Société Mycologique de France **15**, p. 153.
Gruyter, J. de, 2002: Contributions towards a monograph of *Phoma* (Coelomycetes) – IX, Section Macrospora. Persoonia Vol. **18**, Part 1, p. 96.
Harter, L.L., 1918: Hitherto unreported disease of okra. Journal of Agricultural Research **14**, p. 207.
Hollós, L., 1909: Új gombák Kecskemét vidékérol. VI. Annales Historico-Natureles Musei Nationalis Hungarici **7**, p. 53.
Manoliu, A.I., M. Mititiuc, 1976: Recherches sur les micromycètes de la Roumanie. Feddes Repertorium **87** (1-2), p. 143.
Massenot, M., 1951: Quelques Micromycètes maculicoles parasites d'arbustes ornementaux. Revue de Pathologie végétale et d'Entomologie agricole de France T. XXX, No. **4**, p. 206.
Mel'nik, V.A., 2000: Key to the fungi of the genus *Ascochyta* Lib. (Coelomycetes). Mitt. Biol. Bundesanst. Land-Forstwirtsch., Berlin-Dahlem Heft **379**, 192 S.
Saccardo, P.A., 1878: Fungi Veneti novi vel critici vel mycologiae Venetae addendi. Series VII., p. 161.
Saccardo, P.A., 1880: Fungorum Extra-Europaeorum pugillus. Michelia **2** (6), p. 144.
Saccardo, P.A., G. Bizzozero, 1884: Fungi gall. 6, no. 2240.
Sawada, K., 1959: Descriptive Catalogue of Taiwan (Formosan) Fungi, Part XI, p. 152.
Sydow, H., P. Sydow, E.J. Butler, 1916: Fungi Indiae orientalis pars V. Annales Mycologici **14** (3-4), p. 194.
Tranzschel, W., L.S. Gutner, M.K. Khokhriakov, 1933: Spisok gribov wstretschaju shchihsia na nowyh culturnyh priadilnyh rastenijah. Trudy Instituta Novogo Lubyanogo Syr'ya. Moscow Vol. **1**, 127-140.
Wittmann, W., 1970: Ein neues Rezept zur Herstellung mykologischer Präparate. PflSchber. Bd. **41**, Heft 5/6/7, 91-94.
Woronichin, N.N., 1914: Srisok gribov sobrannykh Sochinskom okrug Ly'tom 1913 goda. Vestnik Tiflissk. Bot. Sada. **35**, p. 25.
Zimmermann, H., 1909: Verzeichnis der Pilze aus der Umgebung von Eisgrub. Verhandlungen des Naturforschenden Vereines in Brünn **47**, p. 94.