Матеріали IX Міжнародної наукової конференції «Актуальні проблеми дослідження довкілля» (25-27 травня 2021 р., СумДПУ імені А.С. Макаренка, м. Суми). Суми : ФОП Цьома С.П., 2021. – С. 134-136.

Critical revision of *Massaria* specimens (Ascomycota, Fungi) collected on the *Acer platanoides* L. in Eastern Ukraine

Yakunkin Y. D., Mieshkov Ya.V.
V. N. Karazin Kharkiv National University
yakunkin.yakov@ukr.net

Genus *Massaria* De Not. was described in 1844 by G. De Notaris with *Massaria inquinans* (Tode) De Not. as a type species. According to original description, it characterized by black, spherical, immersed perithecia (now they are classified as pseudothecia) with eight-sporous asci. Ascospores are clavate to oblong with 2 or more septa [2]. In the next two centuries, the genus was revised many times and the conception of the genus has changed too [4]. Nowadays *Massaria* belongs to the family Massariaceae Nitschke, order Pleosporales Luttrell ex M.E. Barr [3].

As of now, it is known that all representatives of *Massaria* are highly specific to their habitat and limited to one or two hosts. Sometimes, several different species can inhabit one plant that proves their common ecological origin. Due to their life strategy, they could be described as endophytes on tree branches [5].

In 2011 H. Voglmayr and W. Jaklitsch paid attention that a lot of species on *Acer platanoides* L. with different morphological and cultural characteristics are identified as *Massaria inquinans* (Tode) De Not. It became a starting point to their revision of genus *Massaria* with the involvement of molecular phylogeny methods. Earlier, only a few species of *Massaria sensu* strictu were known on *Acer platanoides* L.: *M. inquinans* and *M. vomitoria*. After revision five new species on *Acer spp*. were established: *Massaria campestris* Voglmayr & Jaklitsch, *M. platanoidea* Voglmayr & Jaklitsch, *M. macra* (Vestergr.) Voglmayr & Jaklitsch, *M. mediterranea* Voglmayr & Jaklitsch, *M. vindobonensis* Voglmayr & Jaklitsch [5].

In Ukraine, four species of *Massaria* were specified on *Acer spp*. prior to the revision mentioned above. Most often it was *Massaria inquinans* (Tode) De Not., sometimes also *Massaria vomitoria* Berk. & M.A. Curtis. Two species, formerly known as *Massaria* foedans (Fr.) Fr. and *M. pupula* (Fr.) Tul. & C. Tul. now called *Splanchnonema foedans* (Fr.) Kuntze and *S. pupula* (Fr.) Kuntze, respectively. As the existing data on the species composition and their quantitative distribution are almost certainly incorrect, the critical revision of all previously identified specimens of *Massaria spp*. is necessary [1].

The materials for writing our work were samples of *Massaria spp*., collected on the branches of *Acer plataniodes* L. in the East of Ukraine. All revised specimens are kept in the Mycological Herbarium of V. N. Karazin Kharkiv National University – CWU (Myc).

As a result of our study, specimens were identified as *Massaria vomitoria* Berk. & M. A. Curtis (CWU (Myc) AS 6273, 6551, 6611, 7403 – all from Kharkiv Forest-park territory, *Massaria macra* (Vestergr.) Voglmayr & Jaklitsch (CWU (Myc) AS 6774 – Kharkiv Forest-park), *Massaria platanoidea* Voglmayr & Jaklitsch (CWU (Myc) AS 6610, 6965, 6966, 6968, 7304 – Kharkiv Forest-park; CWU(Myc) AS 7192, 7284 – National Nature Park “Hetmanskyi”; CWU(Myc) AS 8100, 8115 – National Nature Park “Slobozhanskyi”).

Thus, we registered three species of *Massaria* on the *Acer platanoides* L. branches: *M. macra*, *M. platanoidea* and *M. vomitoria*; last two are occur most often. *Massaria inquinans* sensu strictu was not detected by us. It is similar to *Massaria platanoidea*, but has narrower ascospores (18–) 20–22 (–24) μm and develops only on *Acer pseudoplatanus* L. and *A. heldreichii* Orph. ex Boiss. [5].

M. platanoidea is characterized by ellipsoidal and pear-shaped pseudothecia with a diameter of 0,9 – 1,4 mm, which are always surrounded by a black zone. Asci are (320-) 355–405 (–420) × (47–) 50–58 (–61) μm. Ascospores (68–) 81–100 (–112) × (19–) 21–25 (–27) μm, l/w= (3,0–)3,6–4,3(–5,2), fusoid or ellipsoidal, dark to blackish brown in the ascus, 3-septate, surrounded by a gelatinous sheath, end cells subacute. Host plant: *Acer platanoides* [5].

M. vomitoria is characterized by almost spherical pseudothecia with a diameter of 0.6 – 1 mm, which are most often in groups surrounded by a stromatic zone. Asci (285–) 315–360 (–380) × (40–) 43–53 (–57) μm. Ascospores (54–) 65–76 (–89) × (16,5–) 18–21 (– 22,5) μm, l/w= (2,7–)3,3–4,1(–5,0), ellipsoidal or oblong, dark brown, 3-septate, surrounded by a gelatinous sheath, end cells narrowly rounded to subacute. Host plants: *Acer spp*., confirmed only for *A. platanoides* and *A. rubrum* [5].

M. macra is characterized by pseudothecia with a diameter of 0.8 – 1.5 mm, which are immersed in the bark and layer of wood, mostly solitary, sometimes clustered in groups, surrounded by a black stromatic zone, can paint the wood a bright yellow color. Asci (310–) 380–460 (–500) × (32–) 34–43 (–46) μm. Ascospores (46–) 54–65 (–73) × (17,5–) 19–22 (–24) μm, l/w= (2,3–)2,7–3,2(–3,8), ellipsoidal, hyaline in the intact ascus, containing one distinctly refractive guttule per cell, becoming dark brown after ejection, 3-septate, surrounded by a gelatinous sheath; end cells rounded. Host plants: *Acer campestre* and *A. platanoides* [5]. Given the results obtained, a critical revision of all old *Massaria* specimens from other regions of Ukraine is also extremely necessary.

The work was performed under the guidance of Olexander Yu. Akulov, Ph.D., associate professor, Department of Mycology and Plant Resistance, V. N. Karazin Kharkiv National University.

Literature cited

1. Андріанова Т.В., Гайова В.П., Гелюта В.П., Дудка І.О., Ісиков В.П., Кондратюк С.Я., Кривомаз Т.І., Кузуб В.В., Мінтер Д.В., Мінтер Т. Дж., Придюк М.П., Тихоненко Ю.Я. Гриби України. — 2006. URL: http://www.cybertruffle.org.uk/ukrafung/ukr. [дата звернення 05.05.2021]
2. De Notaris G. (1844) Cenni sulla tribù dei Pirenomiceti sferiacei edescrizione di alcuni generi spettanti alla medesima. G Bot Ital 1:322–335
3. MycoBank URL: https://www.mycobank.org [дата звернення 05. 05. 2021]
4. Shoemaker R. A., LeClair P. M. Type studies of *Massaria* from the Wehmeyer collection // Canadian Journal of Botany. – 1975. – Т. 53. – №. 15. – С. 1568-1598.
5. Voglmayr H., Jaklitsch W. M. Molecular data reveal high host specificity in the phylogenetically isolated genus *Massaria* (Ascomycota, Massariaceae) // Fungal Diversity. – 2011. – Т. 46. – №. 1. – С. 133-170.