

SHORT NOTES  
TRUMPI PRANEŠIMAI*TOLYPOSPORIUM JUNCII*: A NEW SMUT FUNGUS FOR BELARUS*TOLYPOSPORIUM JUNCII* – NAUJAS BALTARUSIJOJE KŪLINIS GRYBASKyrylo G. SAVCHENKO<sup>1,2</sup>, Vasyl P. HELUTA<sup>2</sup>

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## Abstract

Savchenko K. G., Heluta V. P., 2011: *Tolyposporium junci*: a new smut fungus for Belarus [*Tolyposporium junci* – naujas Baltarusijoje kūlinis grybas]. – Bot. Lith., 17(1): 55–57.

*Tolyposporium junci* (J. Schröt.) Woronin is reported for the first time for Belarus. The fungus was found on a specimen of *Juncus bufonius* L. stored in the herbarium of vascular plants of the M. G. Kholodny Institute of Botany (KW). This fungus specimen is described and illustrated here.

**Keywords:** *Tolyposporium*, smut fungi, *Juncus*, Belarus.

The genus *Tolyposporium* Woronin ex J. Schröt. (*Ustilaginomycetes*, *Ustilaginales*, *Anthracoideaceae*) was described for smut fungus *Sorosporium junci* J. Schröt. in 1881 by the Russian mycologist Woronin (published by Schröter in 1887). Characteristics distinguishing this new genus were based on the differences in spore germination between *S. junci* and *S. saponariae* F. Rudolphi, the type species for the genus *Sorosporium* F. Rudolphi.

Many species of smut fungi with spores in spore balls were included in the genus *Tolyposporium* during the last century. However, because the genus was heterogeneous, over 40 of its species were distributed among the genera *Thecaphora* Fingerh. (including *Sorosporium* and *Glomosporium* Kochman), *Schizonella* J. Schröt., *Entyloma* de Bary, *Ustilago* (Pers.) Roussel, *Cintractia* Cornu, *Moesziomyces*

*Vánky*, and *Restiosporium* Vánky (VÁNKY, 2002). Consequently, only three *Tolyposporium* species were reported for European mycoflora at the end of the 20th century (VÁNKY, 1994). Additional important changes in the taxonomy of smut fungi were recorded in recent years. As a result, all *Tolyposporium* species parasitizing plants of the family *Cyperaceae* Juss. were excluded from the genus. Thus, two European species of *Tolyposporium*, namely, *T. aterrinum* (Tul. et C. Tul.) Dietel and *T. kochianum* Gäum., were transferred to the genus *Moreaua* Liou et H. C. Cheng (VÁNKY, 2000). Therefore, the genus *Tolyposporium* is monotypic with a single species – *T. junci* (J. Schröt.) Woronin.

*Tolyposporium junci* parasitizes different species of *Juncus* L., developing sori in flowers at the base of stems and in basal leaves. It is found on *J. balticus* Willd., *J. bufonius* L., *J. capitatus* Wieg., and *J. lesueurii* Bol.

(FRENCH, 1989; VÁNKY, 1994; ZUNDEL, 1953), but most often the fungus affects *J. bufonius* plants. The fungus is not rare in temperate regions of Europe and North America. However, to the south of 50 ° it is almost exclusively found in mountainous regions, viz., Alps, Pyrenees, Carpathians, etc. Thus, *Tolyposporium junci* is a typical boreal-temporal species with probably a European center of origin. There is no information of this species from the territory of Belarus though it has been found in neighboring countries, e.g., Latvia (IGNATAVIČIŪTĖ, 1975), Lithuania (IGNATAVIČIŪTĖ, 1975, 2001), Ukraine (ZEROVA et al., 1971), and adjacent regions of Russia (KARATYGIN & AZBUKINA, 1989). In addition, MAJEWSKI (1971) reported the fungus from

Poland, from the territory of Bialowiecki National Park located at the Poland-Belarus border.

There are many specimens of different *Juncus* species collected in Belarus and stored in the herbarium of M. G. Kholodny Institute of Botany of the National Academy of Sciences of Ukraine (KW). Therefore, we decided to examine these plants to search for evidence of infection by smut fungi. During examination of the herbarium specimens, we found one affected by *Tolyposporium junci*. It was collected in the Minsk region by the Ukrainian lichenologist A. Oksner in the 1920s. The characteristics of the fungus and the illustrations are given below.

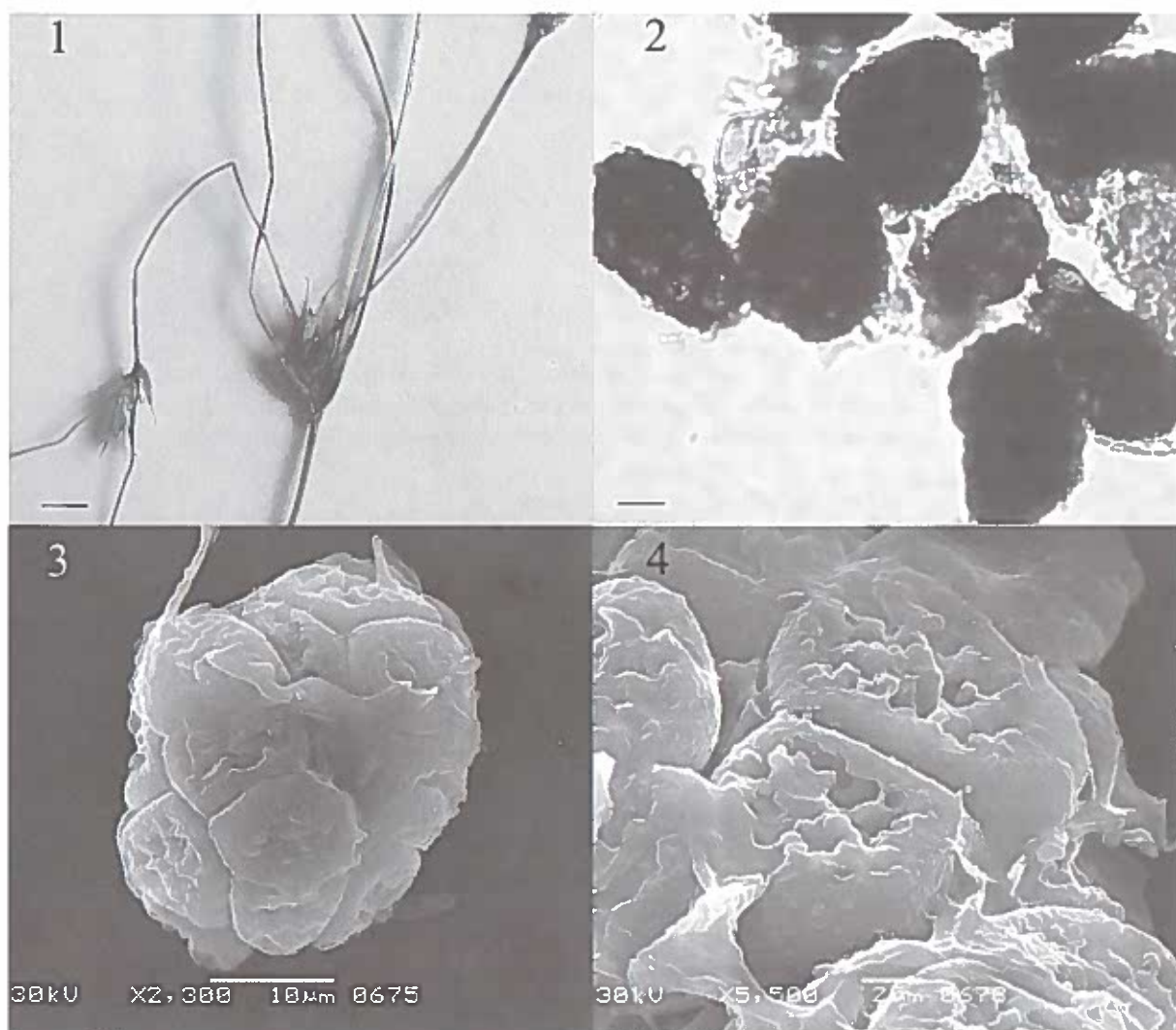


Fig. 1–4. *Tolyposporium junci* on *Juncus bufonius*: 1 – affected plant, 2 – spore balls (light microscopy), 3 – spore ball (SEM), 4 – spores in spore ball (SEM). Bars: 1 = 5 mm, 2, 3 = 10 μm, 4 = 2 μm

*Tolyposporium junci* (J. Schröt.) Woronin, Abh. senckenb. naturforsch. Ges. 12: 577 (1882) (Fig. 1–4)

Sori naked, as a black, agglutinated spore mass, up to 4 mm in diameter, localized in the inflorescences, where only separate flowers and/or whole parts of the inflorescence can be involved; the base of the inflorescences, stems, and basal leaves may also be affected. Spore mass consisting of numerous persistent spore balls, variable in shape and size, globose, subglobose to elongated, irregular, 16–50 µm in diameter, dark blackish-brown. Spore balls are composed of 3 to 50 or even more separate spores. Spores globose, subglobose, irregular to elongated, (6)8–13 × 8–15 µm, dark yellowish-brown. Spore surface is smooth on the contact side and with numerous irregular warts on the free, external side. The spore wall is unevenly thickened, up to 0.7–2.8 µm.

Distribution in Belarus. On *Juncus bufonius* L.: Minsk region, Minsk City (the territory of the former Tivoli's estate), July 1928, leg. A. Oksner.

Global distribution. Europe: Belgium, Bulgaria, Belarus, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Iceland, Lithuania, Norway, Poland, Romania, Russia, Slovakia, Spain, Sweden, Switzerland, and Ukraine; North America: USA.

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