

***Urocystis skirgiełloi*, a new graminicolous smut fungus infecting *Heteropogon contortus* in India**

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Urocystis skirgiełloi M. Piątek sp. nov. is described and illustrated on the basis of infected leaves of *Heteropogon contortus* (L.) Roem. & Schult. collected in India. This is the first *Urocystis* species on the grass genus *Heteropogon* as well as on any grass genera belonging to the subtribe *Anthistirinae* of the tribe *Andropogoneae* (*Poaceae*).

Key words: *Urocystis*, Urocystaceae, Urocystales, Ustilaginomycetes, India, Asia

INTRODUCTION

In respect to smut fungi, India is one of the best-explored countries in the Asiatic mainland thanks to such giants of Indian taxonomy as B. B. Mundkur, M. J. Thirumalachar, M. S. Pavgi, and many others, whose research has been supplemented by excellent works of K. Vánky, a Hungarian smut taxonomist. However, most reports, especially those published in regional Indian journals, are scattered in a number of papers that are often not easily accessible to smut taxonomists. A monograph study of smut fungi of India would be enthusiastically welcomed by the world's scientific community. Although well studied, India is still a paradise for mycologists, and new smut fungi are described from the area nearly every year. Another new species was found in unidentified materials obtained from the IMI herbarium, infecting leaves of *Heteropogon contortus* (L.) Roem. & Schult., in Kashmir. It belongs to the genus *Urocystis* Rabenh. ex Fuckel, and is described and illustrated below.

Measurements of spores were taken by standard light microscopy (LM) in lactophenol heated to the boiling point and then cooled. The sizes given below are the means of 30 measurements of spore balls, spores and sterile cells. The SEM studies proceeded as described by Piątek et al. (2005).

It is great pleasure to dedicate this fungus to Professor Alina Skirgiełło, at the occasion of her 95 birthday. It is tribute to her many-sided mycological activity and arranging the professional mycological studies in Poland.

TAXONOMY

Urocystis skirgielloi M. Piątek, sp. nov. (Figs 1–5)

Typus in matrice *Heteropogon contortus* (L.) Roem. & Schult., INDIA, Kashmir, Mamal, 18 Oct. 1964, V. R. Pandotra (holotypus: IMI 121487!).

Sori in foliis, primo epidermide obtectas, deinde rupturas. Glomeruli sporarum globosi, subglobosi, ellipsoidales vel elongati, (20-)25-35 × (17-)20-25(-30) μm, e sporis 1 – 4(-7) composite (1 – 7,8%, 2 – 32,2%, 3 – 35,6%, 4 – 20,0%, 5 – 2,2%, 6 – 0,5%, 7 – 1,7%), cellulis sterilibus complete circumdati, raro incomplete circumdati. Sporae globosae, subglobosae, ellipsoidales vel parum irregulares, olivaceobrunneae vel rubrobrunneae, (11-)12-14(-16) × 9-12(-13) μm, levi. Cellulae steriles globosae, subglobosae, ellipsoidales vel irregulares, plerumque cum lateribus contactis deplatis, flavae, (5-)6-11 × (4-)5-8(-9) μm, pariete aequali, 1 μm crasso, levi.

Sori in the leaves, forming long, confluent striae between the veins, at first greyish, covered by epidermis which ruptures longitudinally at maturity disclosing the blackish, powdery mass of spore balls, finally the leaf blade becomes twisted. – Spore balls globose, subglobose, ellipsoidal or elongated, (20-)25-35 × (17-)20-25(-30) μm,

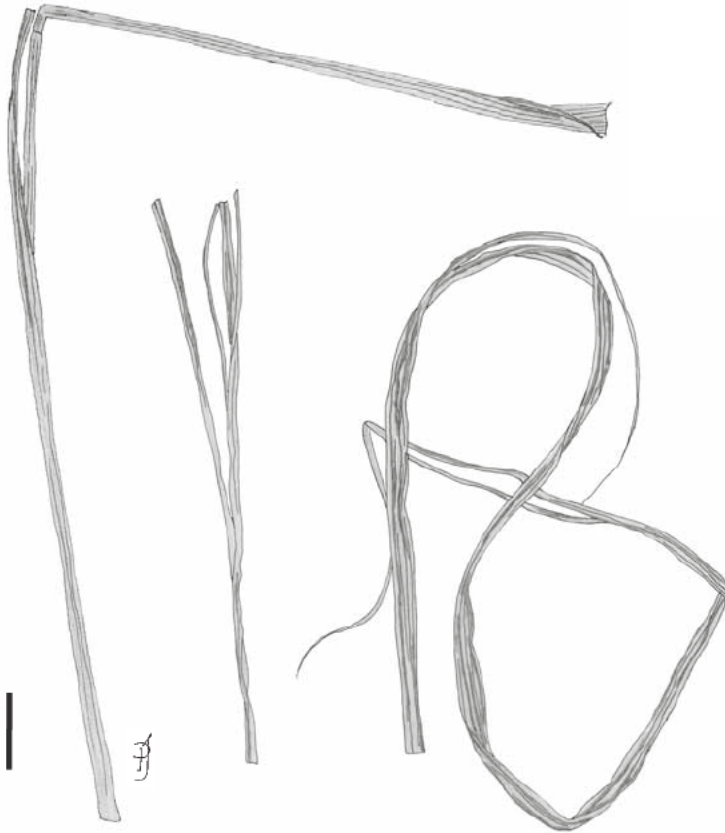


Fig. 1. Sori of *Urocystis skirgielloi* M. Piątek sp. nov. in the leaves of *Heteropogon contortus* (L.) Roem. & Schult. (holotypus: IMI 121487). Bar = 1 cm.

composed of 1-4(-7) central spores (1 – 7.8%, 2 – 32.2%, 3 – 35.6%, 4 – 20.0%, 5 – 2.2%, 6 – 0.5%, 7 – 1.7%), surrounded by usually continuous layer of sterile cells, rarely the layer is not complete. – Spores globose, subglobose, ellipsoidal or slightly irregular, olive-brown or reddish-brown, (11-)12-14(-16) × 9-12(-13) μm, smooth in LM and SEM. – Sterile cells globose, subglobose, ellipsoidal or irregular, usually with flattened contact sides, yellowish, (5-)6-11 × (4-)5-8(-9) μm, wall ca 1 μm thick, smooth in LM and SEM.

Host and distribution. On Poaceae: *Heteropogon contortus* (L.) Roem. & Schult.; India, Asia. Known only from the type locality.

Urocystis skirgielloi is the first species of *Urocystis* on the genus *Heteropogon* Pers. (*Poaceae*). This is a small grass genus, belonging to the subtribe *Anthistiriinae* of the tribe *Andropogoneae* (Clayton, Renvoize 1986), with six species occurring mostly in tropical and subtropical areas. *Heteropogon contortus*, which is the host plant of *U. skirgielloi*, is the most common member of the genus, widely distributed in tropical, subtropical and warm-temperate regions of Africa, Asia, Europe, North and South America, and Australia (Clayton et al. 2006). The host plant in the type collection is sterile and does not contain any inflorescence. The comparison of this material with the specimens of *Heteropogon contortus* preserved in the phanerogamic herbarium of the W. Szafer Institute of Botany in Kraków (KRAM) shows that they are morphologically similar.

Vánky (2000) revised smut fungi infecting *Heteropogon* and recognized eight species. However, all of them are completely different from *Urocystis skirgielloi* as they belong to the genus *Sporisorium* Ehrenb. ex Link, characterized by sori with peridium and columellae, spores usually arranged in spore-balls, and the presence or absence of sterile cells. All *Sporisorium* species known on *Heteropogon* produce sori in inflorescences of host plants. *Urocystis skirgielloi* has also no comparable species on other grasses closely related to *Heteropogon*. Of the 12 genera included in the subtribe *Anthistiriinae* by Clayton and Renvoize (1986), no *Urocystis* species had been described previously.

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Urocystis skirgielloi, nowy gatunek głowni porażający *Heteropogon contortus*
w Indiach

Streszczenie

W pracy opisano i zilustrowano nowy gatunek głowni, *Urocystis skirgielloi* M. Piątek sp. nov., porażający liście *Heteropogon contortus* (L.) Roem. & Schult. w Indiach. Jest to pierwszy gatunek z rodzaju *Urocystis* stwierdzony na trawach z rodzaju *Heteropogon* jak również na 11 pokrewnych rodzajach traw należących do podplemienia *Anthistirinae* i plemienia *Andropogoneae* (*Poaceae*).