

## A new species of *Rhexoampullifera* (Pezizomycotina) from a rotten broadleaved trunk

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Koukol O. (2012): A new species of *Rhexoampullifera* (Pezizomycotina) from a rotten broadleaved trunk. – Czech Mycol. 64(1): 73–78.

A new species of *Rhexoampullifera* (Pezizomycotina inc. sed.) found on a rotten broadleaved trunk is described as *R. moravica* Koukol sp. nov. The fungus forms chains of 0–6-septate dark brown conidia seceding rhexolytically, which are characteristic of the genus *Rhexoampullifera*. It differs from the morphologically most similar *R. fagi* by narrower and longer conidia and absence of a single separating cell. The separation of conidia is unequal in *R. moravica*: one conidium remains with a rim only, whilst the adjacent one possesses a septum and a rim.

**Key words:** Ascomycota, hyphomycetes, polar cells, rhexolytic secession, *Ampulliferina*, Czech Republic.

Koukol O. (2012): Nový druh rodu *Rhexoampullifera* (Pezizomycotina) nalezený na rozloženém kmenu listnatého stromu. – Czech Mycol. 64(1): 73–78.

Nový druh rodu *Rhexoampullifera* (Pezizomycotina inc. sed.) byl nalezen na rozloženém kmenu listnatého stromu a je popsán jako *R. moravica* Koukol sp. nov. Tato houba tvoří řetízky jedno- až sedmibuněčných tmavě hnědých konidií oddělujících se rhexolyticky, což jsou charakteristické znaky rodu *Rhexoampullifera*. Nový druh se liší od podobného druhu *R. fagi* užšími konidii a nepřítomností samostatné oddělující buňky. Oddělení konidií u druhu *R. moravica* je nestejně; na jedné konidii zůstává pouze obroučka, zatímco sousední konidie nese přehrádku s obroučkou.

### INTRODUCTION

During a mycological foray in unmanaged alluvial forest of the Křivé Jezero National Nature Reserve (Czech Republic), an inconspicuous colony formed by a strongly melanised loose mycelium was found on a strongly rotten tree trunk. Under the microscope, chains of septate cylindrical conidia seceding rhexolytically were recognised in what seemed to have been hyphae. These characteristics are typical of the genus *Rhexoampullifera* P.M. Kirk. The genus *Rhexoampullifera* is characterised by micronematous conidiophores and determinate conidiogenous cells producing cylindrical septate conidia in simple or branched chains. Conidia mature basipetally and secede rhexolytically (Kirk 1982). The

genus currently accommodates two species – *R. fagi* (M.B. Ellis) P.M. Kirk & C.M. Kirk and *R. subglobosa* R.F. Castañeda (Castañeda et al. 2001). Both species are saprotrophs and were found on decaying leaves of *Fagus sylvatica* and an unknown member of *Myrtaceae*, respectively. The fungus observed on the tree trunk strongly resembled *R. fagi*, but the shape and size of the conidia and their secession were different, and the fungus is therefore described here as a new species.

#### MATERIALS AND METHODS

The fungus was sampled on a strongly rotten fallen trunk of a broadleaved tree on October 22, 2011. The locality is the unmanaged Křivé Jezero alluvial forest (National Nature Reserve, 48°51'10" N, 16°43'24" E, alt. 160 m), about 1.5 km south of the village of Nové Mlýny (S Moravia, Czech Republic). The site is a typical mixed riparian forest dominated by *Quercus robur* L. and *Fraxinus excelsior* L.

Attempts to isolate the fungus in pure culture within the following 2 days were not successful. Conidia picked by a sterile needle under a dissecting microscope and placed on various natural agar media failed to germinate and were overgrown by contaminating microfungi.

For light microscopy, fungal structures were mounted in lactic acid and Melzer's reagent and examined with phase or differential interference contrast (Olympus BX–51 with Olympus DP72 digital camera). Photographs were further edited using the Adobe Photoshop and Helicon Focus software. Microscopic measurements are reported as the mean  $\pm$  standard deviation (values of 20 measurements). The holotype specimen (dried culture) is deposited in the PRM herbarium (National Museum, Prague, Czech Republic).

#### RESULTS

##### ***Rhexoampullifera moravica* Koukol, sp. nov.**

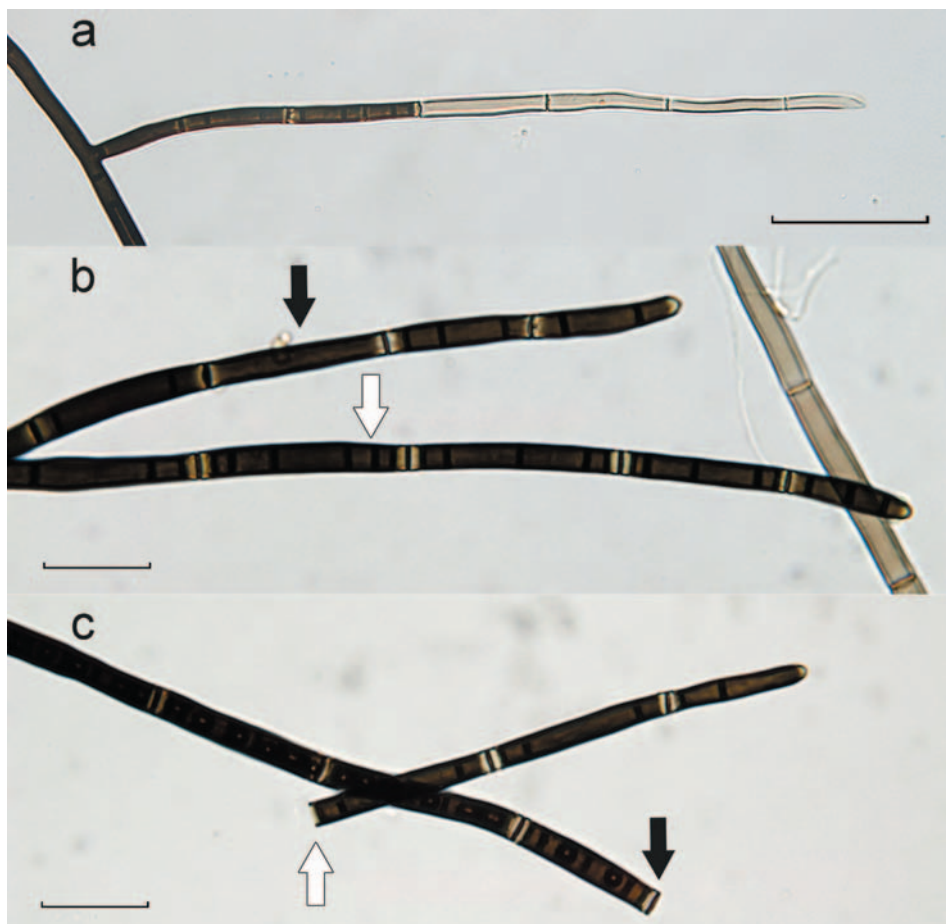
(Mycobank MB564388)

Figs. 1–2

Teleomorph: unknown.

**Diagnosis.** Similar to *Rhexoampullifera fagi*, but conidia narrowly cylindrical with paler poles, terminal conidia longer, with rounded, slightly pointing apex, 23–36(42)  $\times$  4–5  $\mu$ m, 1–5-septate; intercalary conidia 27–40(45)  $\times$  4.5–6.5  $\mu$ m, (0)2–6-septate.

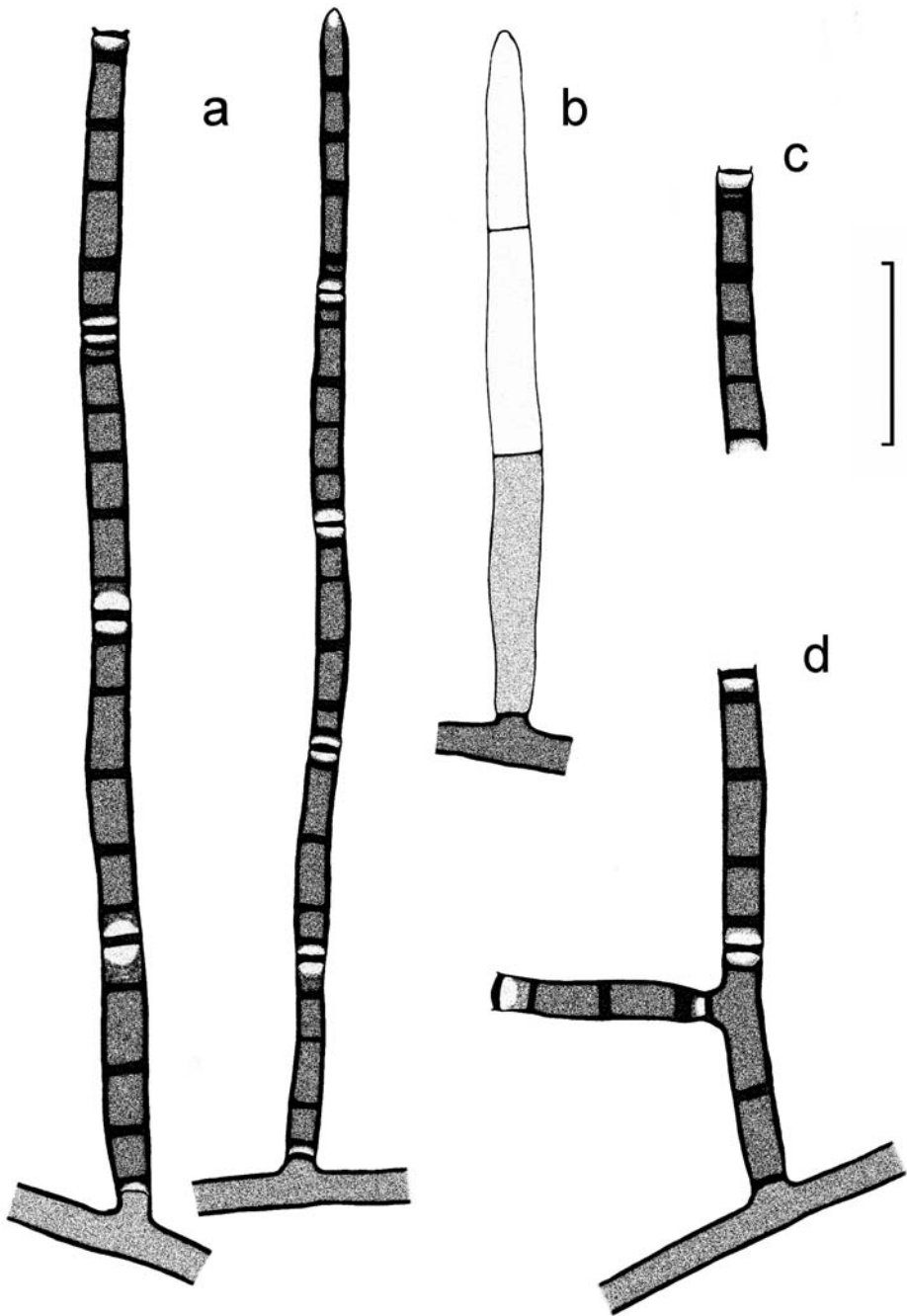
**Holotypus.** On strongly rotten fallen trunk of an unknown broadleaved tree. Czech Republic, S Moravia, Křivé jezero National Nature Reserve near Nové Mlýny, Oct 22, 2011, coll. O. Koukol, PRM 899946.



**Fig. 1.** *Rhexoampullifera moravica*, holotype (PRM 899946). **a** – conidiogenous cells and two maturing conidia (bar = 50 µm). **b** – conidial chains. Note the non-septate conidium with thinner cell walls on both poles (black arrow) and the 6-septate conidium with polar cells (white arrow, bar = 20 µm). **c** – crushed conidial chains. Note the rim on one conidium (white arrow) and polar cell with rim on the other conidium (black arrow, bar = 20 µm).

**Etymology.** *moravica* = referring to the region (Morava in Czech, Moravia in Latin and English), where the fungus was collected (east Czech Republic).

**Description.** Colonies black, formed by loose aerial mycelium composed of septate, dark brown to black, smooth, 4–6 µm wide hyphae. Hyphopodia absent. Conidiophores micronematous. Conidiogenous cells determinate, monoblastic or polyblastic, terminal and intercalary. Conidia seceding rhexolytically. Conidia ma-



**Fig. 2.** *Rhexoampullifera moravica*, holotype (PRM 899946). **a** – two conidial chains. **b** – conidogenous cells. **c** – single conidium. **d** – branched conidial chain (bar = 20  $\mu$ m).

turing basipetally, forming simple or branched chains delimited acropetally, dry, smooth, dark brown, paler and thin-walled towards the poles, narrowly cylindrical to slightly bent. Terminal conidia with rounded, slightly pointing apex, 23–36(42)  $\mu\text{m}$  long and 4–5  $\mu\text{m}$  wide, 1–5-septate. Intercalary conidia 27–40(45)  $\mu\text{m}$  long and 4.5–6.5  $\mu\text{m}$  wide, (0)2–6-septate.

#### DISCUSSION

*Rhexoampullifera moravica* resembles rather *R. fagi* than *R. subglobosa* especially in the shape and size of conidia. In *R. fagi* conidia are cylindrical to doliiform and reach sizes of 15–30  $\times$  6–10  $\mu\text{m}$  (intercalary conidia) and 24–36  $\times$  7–10  $\mu\text{m}$  (terminal conidia, Kirk 1982), respectively. Conidia of *R. moravica* are generally longer and narrower and cylindrical without central inflation, although they are sometimes slightly bent. Terminal conidia of *R. fagi* have a uniform cell wall, but those of *R. moravica* have a thinner cell wall at the apex, which makes the apex pale. Although both *R. fagi* and *R. moravica* secede their conidia rhexolytically, the exact mode is different in the two species. In *R. fagi* a small separating cell is broken down and each conidium possesses a portion of the wall of the separating cell as a distinct marginal rim on the pole (Kirk 1982). However, in *R. moravica* the separation is unequal. No separating cell is formed, but conidia have a thinner cell wall on either poles (non-septate conidia) or a small polar cell with a thin wall (2–6-septate conidia). During secession, the thin wall of only one conidium is broken and remains attached to it as a marginal rim, but the adjacent conidium also keeps the wall originally delimiting the two conidia (Fig. 1c). Septation of conidia is not strictly symmetrical, so that one conidium may have a polar cell on one side and a “normal” cell with an apically thinned wall on the other side. Conidia with one septum were not observed.

The mode of secession in *R. moravica*, where conidia are not separated by a single separating cell, but unequally on one side of a septum delimiting the two conidia seems to be intermediate between rhexolytic secession of *Rhexoampullifera* and schizolytic secession of the morphologically closely related genus *Ampulliferina* (Sutton 1969).

#### ACKNOWLEDGEMENTS

The project was supported by Ministry of Education, Youth and Sports of the Czech Republic (MSM0021620828).

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