

***Abortiporus biennis*: the third record of this fungus and a new genus name for the Pakistan funga**

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Abstract: *Abortiporus biennis* is reported and described for the first time from Swat valley, Pakistan. For Pakistan this is the third record of this species, which has been recorded prior as *Polyporus biennis*. Thus the genus *Abortiporus* is a new name for the funga of Pakistan. This inedible and saprobic species is characterized by the presence of chlamydospores together with normal basidiospores and scattered gloeocystidia.

Zusammenfassung: *Abortiporus biennis* wird erstmals aus dem Swat-Tal, Pakistan berichtet. Für Pakistan ist das der dritte Fund dieser Art, die schon früher unter dem Synonym *Polyporus biennis* registriert wurde. Damit wird zur Funga Pakistans ein neuer Gattungsname, nämlich *Abortiporus*, hinzugefügt. Diese ungenießbare und saprobe Art ist charakterisiert durch Chlamydosporen zusammen mit normalen Basidiosporen und eingestreuten Gloeocystiden.

The *Polyporales* are a large group of macrofungi, however still quite poorly studied in Asia (DONK 1965). Polypores are of special interest to humans because they are wood rotters, assisting in the decomposition of dead wood and, in many cases, causing rot as pathogens on living wood (KUO 2004a). The order contains at least 23 families, the present reported species belongs to the family *Meruliaceae* comprising 47 genera and approx. 420 species. The genus *Abortiporus* is a small genus containing only three species, namely *A. biennis* (BULL.) SINGER, *A. chocoensis* LÆSSØE & RYVARDEN and *A. roseus* (D. A. REID) MASUKA & RYVARDEN (KIRK & al. 2008). *Abortiporus biennis* is an important species because it is able to tolerate and solubilize toxic metal oxides like Cu₂O, Al₂O₃, and ZnO₄ (GRAZ & al. 2009). Compared to other wood rotting macrofungi, *Abortiporus biennis* it is a very effective biodegrader and reduces phenolic wastes by 92 % and dyes by 64 % in olive mill wastewater (KOUTROTSIOS & ZERVAKIS 2014).

Materials and methods

The specimens were collected during a field visit to the village Ingarodherai, Swat, Khyber Pakhtunkhwa, Pakistan, in July, 2014. Colour photographs were taken together with information about the collecting site, host, and microhabitat, and all macroscopic characters were noted on the spot. Microscopic examination was done by using a BOECO BM-120 microscope fitted with a digital camera. Slides were prepared in distilled water and 5 % potassium hydroxide (KOH), while Congo red was used for staining.

The specimens were sun dried and then deposited in the University of Swat Herbarium (Swat).

Results

After macro- and microscopic examination the specimen could be identified as *Abortiporus biennis* (BULL.) SINGER using BERNICCHIA (2005), ELLIS & ELLIS, (1990) and GILBERTSON & RYVARDEN (1986).

Description of the Pakistan specimen

Macromorphological characters:

B a s i d i o m a : semicircular to irregular in shape, flat to concave and up to 7 cm wide.

P i l e u s s u r f a c e : reddish brown with concentric zones; colour becoming deeper towards margin to almost black; bruising reddish.

P o r e s u r f a c e : maze like; pinkish; bruising reddish; pores 1–2 per mm; tubes 3–7 mm long.

S t i p e : short and poorly developed; 1–2 cm long; 1 cm wide: blackish.

C o n t e x t : pinkish white; turning pinkish on bruising.

Micromorphological characters:

B a s i d i o s p o r e s : smooth, ellipsoid to oval, $3\text{--}6 \times 3\text{--}4.5 \mu\text{m}$.

C h l a m y d o s p o r e s : oval to spherical, $5\text{--}7.5 \mu\text{m}$.

C y s t i d i a : gloecystidia scattered, varying in shape and size; $35\text{--}70 \mu\text{m}$, deeply staining; thick-walled.

P i l e i p e l l i s : hyphae narrow, about $5\text{--}6 \mu\text{m}$ wide.

C l a m p c o n n e c t i o n s : present.

Ecology: The specimens were collected growing from buried, decaying roots of hardwood trees.

Discussion

Abortiporus biennis is an uncommon polypore usually growing on decaying logs, buried roots or chips of hardwood (BERNICCHIA 2005). It is characterized by the presence of two types of spores viz. sexual basidiospores and asexual chlamydospores and in this context was named *Heterosporus biennis* (SINGER 1944). The presence of gloecystidia confirms the species identification (KUO 2004b). Review of literature reveals this to be the third record of *Abortiporus biennis* from Pakistan which has been previ-

ously reported by AHMAD 1956 and 1972 (AHMAD & al. 1997) under the name of *Polyporus biennis* (BULL.) FR. By adopting the new name, the genus *Abortiporus* is introduced for the first time in the funga of Pakistan.



Fig. 1. The Pakistan specimen of *Abortiporus biennis*. a, b Habit, c chlamydospores, d hyphae with gloeocystidia

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References

- AHMAD, S., IQBAL, S. H., KAHLID, A. N., 1997: Fungi of Pakistan. – Sultan Ahmed Mycological Society of Pakistan, Department of Botany, University of the Punjab, Quaid-e-Azam campus, Lahore 54590, Pakistan.
- BERNICCHIA, A., 2005: *Polyporaceae* s.l. – Fungi Europaei 10. – Alassio: Edizioni Candusso.
- DONK, M. A., 1965: The mycological publications of K. B. BOEDIJN. – Persoonia 3(3): 325–330.
- ELLIS, M. B., ELLIS, J. P., 1990: Fungi without gills (Hymenomycetes and Gasteromycetes). – London: Chapman and Hall.
- GILBERTSON, R. L., RYVARDEN, L., 1986: North American Polypores 1. – Oslo: Fungiflora.

- GRAZ, M., JAROSZ-WILKOLAZKA, A., PAWLIKOWSKA-PAWLEGA, B., 2009: *Abortiporus biennis* tolerance to insoluble metal oxides: oxalate secretion, oxalate oxidase activity, and mycelial morphology. – *Biometal* **22**(3): 401–410.
- KRIK, P. M., CANNON, P. F., DAVID, J. C., STALPERS, J. A., (Eds.), 2001: *Ainsworth & Bisby's Dictionary of the Fungi*. 9th edn. – Wallingford: CABI Publishing.
- KOUTROTSIOS, G., ZERVAKIS, G. L., 2014: Comparative examination of the olive mill wastewater biodegradation process by various wood-rot macrofungi. – *BioMed. Res. Int.* Vol. 2014, Article ID 482937, 14 pages. doi:10.1155/2014/482937.
- KUO, M., 2004a: *Polyporales*: The polypores. – [<http://www.mushroomexpert.com/polyporales.html>]
- KUO, M., 2004b: *Abortiporus biennis*. – [http://www.mushroomexpert.com/abortiporus_biennis.html]
- SINGER, R., 1944: Notes on taxonomy and nomenclature of the polypores. – *Mycologia* **36**: 65–69.

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