Contribution to the smut fungi of Africa. 2. A second locality of *Anthracocystis compacta*

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Abstract. *Anthracocystis compacta*, known only from the type collection from Senegal, is reported from a second locality, from Mali.

Key words: Africa, *Anthracocystis compacta*, *Cymbopogon giganteus*, Mali, Senegal, smut fungi, taxonomy, *Ustilaginales*

Introduction

In the second article from our series devoted to accumulation of new data on the smut fungi of Africa (see Denchev & Denchev 2016), a second locality of *Anthracocystis compacta* is reported.

Material and methods

Dried specimens from the herbaria of the National Museum of Natural History, Paris (P) and Botanic Garden and Botanical Museum Berlin-Dahlem (B) were examined with a light microscope (LM) and scanning electron microscope (SEM). For LM observations and measurements, spores were mounted in lactoglycerol solution (w : la : gl = 1 : 1 : 2) on glass slides, gently heated to boiling point to rehydrate the spores, and then cooled. The measurements of spores are given in the form: min–max (extreme values) (mean $\pm$ 1 standard deviation). The total number of spores (n) from all collections (x) measured are given in the form '(n/x)'. For SEM, spores were attached to specimen holders by double-sided adhesive tape and coated with gold in an ion sputter. The surface structure

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of spores was observed and photographed at 10 kV accelerating voltage using a Hitachi SU3500 scanning electron microscope. The description given below is based entirely on the specimens examined.

Taxonomy

Anthracocystis compacta (Vánky) McTaggart & R.G. Shivas, in McTaggart et al., *Persoonia* 29: 120, 2012.

≡ *Sporisorium compactum* Vánky, *Mycotaxon* 85: 23, 2003.

Sori in some raceme pairs of the inflorescence, appearing as small witches' brooms; destroying some spikelets (Fig. 2) or groups of spikelets, transforming them into groups of fusiform (tapering at both ends), cylindric or horn-shaped bodies (Figs 1, 3); usually affecting all spikelets within an infected raceme pair, occasionally with few intact spikelets (Fig. 2); 3–7 × 0.4–0.7 mm when single spikelets are destroyed, 7–17(–20) × 0.4–1.3 mm when groups of spikelets are destroyed; partly concealed by the glumes or spatheoles; initially covered by a brownish or greyish brown peridium that soon ruptures irregularly from its distal part or longitudinally on the sides, exposing 1(–2), filiform columellae, surrounded by a granular, blackish brown mass of spore balls. **Spore balls** subglobose, broadly ellipsoidal, irregular, ellipsoidal or ovoid, sometimes elongate, (47–)55–120(–138) × (43–)50–85(–100) µm, dark reddish brown, often opaque, composed of tens to more than a hundred, rather firmly united spores that separates under strong pressure (Figs 4, 5). **Sterile cells** absent. **Spores** dimorphic (Figs 6, 7). Outer spores subglobose, broadly ellipsoidal, subpolyhedral, ellipsoidal, globose or ovoid, often flattened on the contact sides, (9.5–)10.5–14.5(–16) × (8.5–)9.5–12(–13) (12.4 ± 1.0 × 10.8 ± 0.9) µm ($n/2 = 200$), medium reddish brown; wall uneven, 0.7–1.5(–2.0) µm thick, thicker on the free surface, smooth on the contact sides, verrucose on the free surface, spore profile affected. In SEM moderately verruculose-echinulate to verrucose on the free surface, ornaments up to 0.6 µm high, often fused in irregular groups; the surface between the main ornaments usually punctate (Figs 8–11). Inner spores slightly irregular, broadly ellipsoidal, subglobose, ellipsoidal or ovoid, often flattened on the contact sides, (8.5–)9.5–12.5(–13.5) × (8–)8.5–11(–12) (10.7 ± 0.9 × 9.6 ± 0.7) µm ($n/2 = 200$), subhyaline to light yellow-brown; wall evenly or almost evenly thickened, 0.6–0.9 µm thick, smooth (Fig. 6).

Specimens examined — On *Cymbopogon giganteus* Chiov.: SENEGAL, TAMBACOUNDA REGION, Bakel, 3 Jan 1964, leg. J.G. Adam, no. 19647 (B 10 0506797, P02015189; isotypes); MALI, Kourémalé, 18 May 1975, leg. J.-P. Aberlin, no. 1134 (P02236427).

Distribution — On *Poaceae*: *Cymbopogon giganteus*; West Africa (Mali, Senegal) (Fig. 12).

Anthracocystis compacta was known only from its type collection from Senegal (Vánky 2003, 2011; Vánky et al. 2011). It is reported here for the first time from Mali.

Figs 1–3. *Anthracocystis compacta* on *Cymbopogon giganteus* – habit (1, 2 – P02015189, 3 – P02236427). Scale bars = 5 mm

Figs 4, 5. Spore balls of *Anthracocystis compacta* on *Cymbopogon giganteus* (4 – P02015189, 5 – P02236427) in LM. Figs 6, 7. Squashed spore balls of *A. compacta* on *Cymbopogon giganteus* (P02015189) in LM. In Fig. 6, black arrows indicate outer spores, white arrows show inner spores. Scale bars: 4 = 25 μ m, 5–7 = 10 μ m

Figs 8–11. Spore balls of *Anthracocystis compacta* on *Cymbopogon giganteus* (8, 9 – P02015189, 10, 11 – P02236427) in SEM. Scale bars: 8 = 20 μm , 9 = 5 μm , 10 = 10 μm , 11 = 5 μm

Fig. 12. Geographic distribution of *Anthracocystis compacta* (generated with SimpleMapppr, Shorthouse 2010)

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