Emended description and geographical distribution of *Sporisorium elegantis* (Ustilaginaceae), a species shared between West Africa and India

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Abstract

*Sporisorium elegantis*, a smut fungus on *Thelepogon elegans*, is reported for the first time from Benin (West Africa). Based on this collection, an emended description and illustration of this rare species are provided. The geographical distribution of *Sporisorium elegantis* is documented for Benin, Nigeria and India. The disjunctive occurrence of this species between (western) Africa and India is interesting, though not exceptional in smut fungi. The mechanisms responsible for such a distribution pattern are not known.

Key words: geographical disjunction, *Sporisorium*, smut fungi, Sudanian savanna, Ustilaginomycotina

Introduction

The smut fungi of Africa include 427 reported species (Vánky *et al.* 2011), some of which are common, but many of which are inadequately known or reported only from their type localities. Furthermore, many species are described and illustrated incompletely or inaccurately (M. Piątek, pers. obs.). It is the long-standing goal of the first author to re-describe and illustrate rare African smuts when new records are detected from analyses of historical materials deposited in herbaria or when freshly collected in field surveys. In addition to emended descriptions and new country reports of known species (Piątek 2006a, Piątek & Vánky 2005, 2007, Vánky & Piątek 2006, Piątek et al. 2008), previous studies reported several new species from Africa (Piątek 2006b, Piątek & Vánky 2007, Piątek et al. 2008, 2012).

The recent field surveys in western Africa, between 2007 and 2013, resulted in a large collection of smut specimens, including species rare and new to science, and accompanied by some ecological information (habitat, host range within population) assembled in the natural environment. Such information is rarely available in scientific publications and field observations may deliver valuable data concerning ecological interactions between smut fungi and host plants in their natural habitats. The smut on *Thelepogon elegans* Roemer & Schultes (1817: 46) collected during one of these surveys in Benin appeared to represent a rarely reported species, *Sporisorium elegantis* Vánky (1997: 132). We have emended the description and illustrated this species based on the recent collection. New biogeographical and ecological information for this species is provided.

Materials and methods

The characteristics of sori, spore balls, spores, peridial and sterile cells were studied using dried herbarium material. The herbarium specimens are deposited in K, KRAM F and the private collection of M. Piątek. The specimens were examined by light microscopy (LM) and scanning electron microscopy (SEM). The species description and measurements are based on a specimen from Benin. For light microscopy (LM), small pieces of sori were mounted in
The second species attacking *Thelepogon elegans*, that is *Anthracocystis thelepognonis*, differs by having sori developed in considerably swollen ovaries, which are localized to single ovaries of inflorescences. The spores are united in rather permanent spore balls and there are no sterile cells (Vánky 1997). *Anthracocystis thelepognonis* is presently known only from the type locality in India and an additional locality in East Timor (McTaggart et al. 2012, Vánky 2012). *Sporisorium elegantis* was reported from three localities in India and Nigeria, and now the fourth record in Benin is added to its global range (Fig. 4). The type locality in the protologue is indicated very precisely ("India, Maharashtra State, 36 km N.W. urbe Pune, pr. National Defence Academy"). Two paratype locations, on specimens deposited in IMI and H.U.V., are given as India and Nigeria respectively (Vánky 1997). The examination of duplicates of these two collections deposited in K (not mentioned in protologue but comprising the same gathering, see specimens examined) enabled us to give accurate localizations for these two collections. The detailed localization of records is valuable for preparing the distribution maps of smut fungi. The disjunctive occurrence of *Sporisorium elegantis* between (western) Africa and India is interesting, although not exceptional in smut fungi. The mechanisms responsible for such a distribution pattern are not known. *Sporisorium elegantis* is probably a rare species; in three surveys to Benin, Ghana and Togo during 2011–2013, it was observed only in one place, despite the rather common occurrence of its host plant, *Thelepogon elegans*. Likewise, this smut fungus has not been collected in extensive smut surveys in different eastern African countries, for example Ethiopia (Vánky 2005), Uganda (Vánky et al. 2011), and Malawi, Zambia and Zimbabwe (Vánky & Vánky 2002). This could give some hint that the species is indeed rare.

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**References**


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http://dx.doi.org/10.5735/085.046.0508


http://dx.doi.org/10.1007/s11557-007-0536-y


http://dx.doi.org/10.3852/07-189r


http://dx.doi.org/10.5962/bhl.title.825


