

Puccinia heliconiae on *Heliconia* sp. in Papua New Guinea

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Abstract. *Puccinia heliconiae* is reported for the first time from Papua New Guinea. A description of the rust fungus and host symptoms are provided.

Heliconia (Heliconiaceae) contains ~180 species of medium to large erect banana-like plants from Central and South America and some islands in the South Pacific (Marcsik 2003). Many of these species are cultivated throughout the tropics and subtropics as ornamentals.

A combined Plant Health Survey was carried out in East Sepik and Sandaun Provinces, Papua New Guinea (PNG) during October and November 2006 by scientists from the Australian Quarantine and Inspection Service (AQIS) and PNG National Agriculture Quarantine and Inspection Authority (NAQIA). During this survey, leaf rust was found on plants of *Heliconia*. Only the uredinal state was present and the rust was identified as the anamorph of *Puccinia heliconiae* (Dietel) Arthur, *Uredo heliconiae* Dietel, according to the descriptions provided by Saccardo (1899), Sydow and Sydow (1924), Viégas (1945), Batista *et al.* (1966) and Hennen *et al.* (2005). For light microscopy the specimen was mounted in 85% lactic acid, gently heated and examined with a compound microscope. Biometric data were obtained only from the examination of

turgid structures. The description of the PNG specimen is given below.

Puccinia heliconiae Arthur [as '(Dietel) comb. nov.'], Bull. Torrey Bot. Club 45(4): 144 (1918) on *Heliconia* sp. (Figs 1–3)

Anamorph: *Uredo heliconiae* Dietel, Hedwigia 36: 35 (1897).

Spermogonia and aecia absent. Uredinia hypophyllous, corresponding to brown spots on the upper leaf surface, numerous, closely grouped, coalescent, cinnamon-brown, early exposed, pulverulent; urediniospores 20–31 × 18–30 µm, brown, rounded to pyriform, noticeably echinulate, pores obscure, wall 1–2.5 µm thick. Telia absent.

Specimen examined: Papua New Guinea, DPI Complex, Aitape, Sanduan Province, 3°8'46"S, 142°20'9"E, on *Heliconia* sp., Nov 2006, J.D. Ray (BRIP 49824).



Fig. 1. Symptoms of rust caused by *Puccinia heliconiae* on *Heliconia* sp.



Fig. 2. Uredinia seen under stereomicroscope (BRIP 49824) (Bar = 0.2 mm).

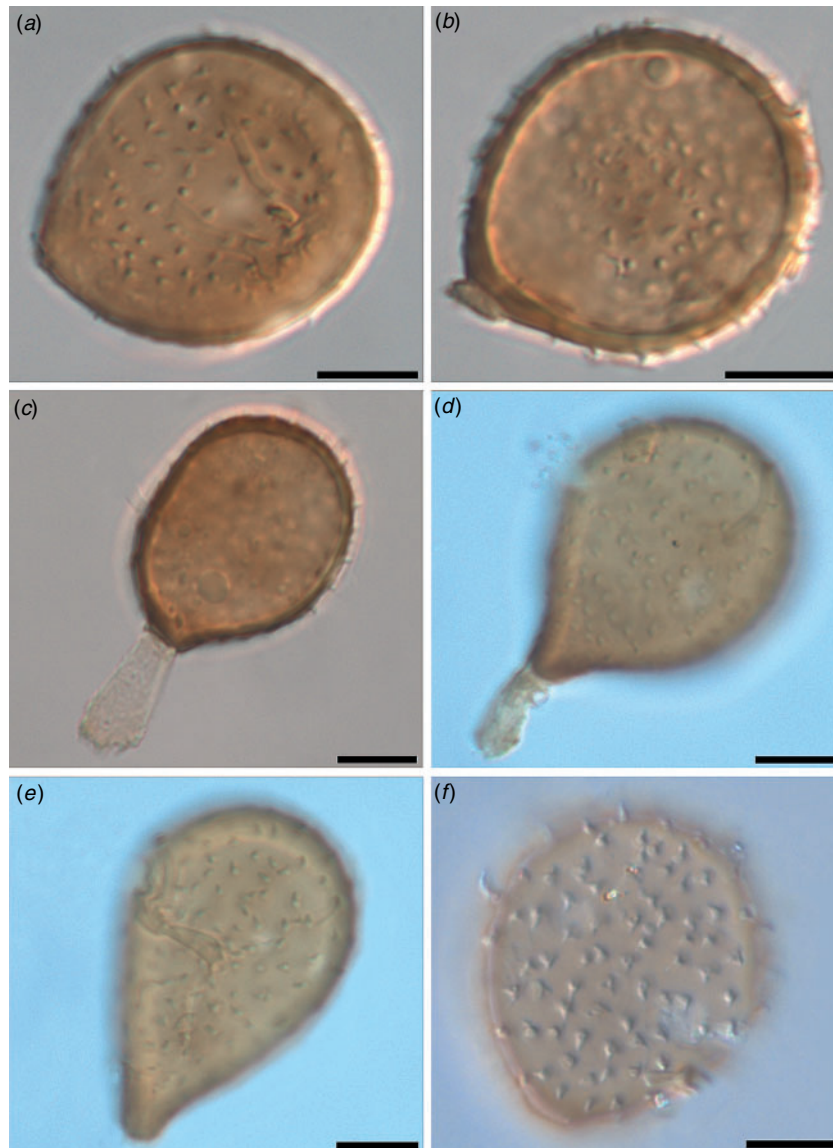


Fig. 3. (a–f) Urediniospores of *Puccinia heliconiae* on *Heliconia* sp. (BRIP 49824) (Bars = 10 μ m).

Prior to this report, the geographical distribution of *Puccinia heliconiae* was thought to be restricted to the Americas, where it has been reported in Brazil (Viégas 1945; Lins and Coelho 2004; Hennen *et al.* 2005), Colombia (Pardo-Cardona 2006), Puerto Rico, Panama and in the Martinique isle (Arthur 1918). According to Hennen *et al.* (2005) this rust has also been reported from Ecuador, Venezuela, Trinidad & Tobago and Mexico. This discovery represents the first report of *P. heliconiae* in PNG as it was not recorded by Shaw (1984) and Hyde and Philemon (1994). Moreover, this is the first report of *P. heliconiae* outside the Americas.

Albuquerque (1971) described *Uredo rectangulata* F.C. Albuq. [as '*retangulata*'] on *Heliconia psittacorum* [reported as '*pesittacorum*'] in Brazil. *Uredo rectangulata* differs from *P. heliconiae* as the former has amphigenous

uredinia with thick-walled, smooth paraphyses, measuring up to 55 μ m. Buriticá (1999) transferred *U. rectangulata* to *Physopella rectangulata* (F.C. Albuq.) Buriticá & Hennen and considered it the anamorph of *Cerotelium rectangulata* Buriticá & Hennen, which was described on *Ischnosiphon abciquus* (Ruage) Koernike (*Marantaceae*).

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