

## THREE FAMILIES OF DIPTERA NEW TO PORTUGAL: MYCETOBIIIDAE, PTYCHOPTERIDAE AND ATELESTIDAE

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**Abstract:** The dipteran families Atelestidae, Mycetobiidae and Ptychopteridae are here reported for the first time from Portugal, raising the number of Diptera families known from the country to 101.

**Key words:** Diptera, Atelestidae, Mycetobiidae, Ptychopteridae, new records, distribution, Portugal.

**Tres familias de Diptera nuevas para Portugal: Mycetobiidae, Ptychopteridae y Atelestidae**

**Resumen:** Las familias de dípteros Atelestidae, Mycetobiidae y Ptychopteridae se citan aquí por primera vez de Portugal, elevando a 101 el número de familias conocidas de este país.

**Palabras clave:** Diptera, Atelestidae, Mycetobiidae, Ptychopteridae, citas nuevas, distribución, Portugal.

### Introduction

Following several works published in the last few years that added several new families to the Portuguese list of Diptera (Carles-Tolrá & Rosado, 2009; Evenhuis *et al.*, 2009; Carles-Tolrá, 2009; Andrade & Almeida, 2010; Carles-Tolrá & Andrade, 2011; Andrade, 2011; Andrade & Gonçalves, 2014; Andrade *et al.*, 2015), we report here the presence of three more families that were until now not known from the country: Atelestidae, Mycetobiidae and Ptychopteridae. This increases the total number of families known to be present in Portugal (including the archipelagos of Azores and Madeira) to 101.

Atelestidae is a group of empidoïd dipterans that were once placed in the Platypezidae, and later moved to the Empididae. It is now considered by most experts to be a distinct family within the Empidoidea (Chvála, 1983). This small group of nondescript minute to small dark flies (1.5–3.5 mm) is represented in Europe by just five species in three genera (Carles-Tolrá, 2008; Chvála, 2013). The wings are hyaline or tinged and exhibit a well-developed axillary lobe and alula and are completely covered by microtrichia. Anal cell is large, vein R4+5 unforked and a stigmal spot is present between the apex of veins SC and R1, and extending into cell r1 (Oosterbroek, 2006). Little is known about the biology of atelestids. The adults are presumed to be flower visitors and one Neotropical species was found to have pollen grains in the abdomen of dissected specimens (Sinclair & Cumming, 2006). The immatures are unknown (Oosterbroek, 2006).

The systematic position of the Mycetobiidae is not entirely clear and some authors classify it as a subfamily of the Anisopodidae (Michelsen, 1999). In Europe, only four species in two genera are known. The adults are small to medium sized (4–7 mm) gnats, dark coloured and with elongated body. The small head possesses almost holoptic eyes and relatively short antennae. Wing clear and without markings. Legs long with elongated coxae and apical bristles or spurs on the tibiae. The larvae are saprophagous and can be found in moist habitats where decaying and fermenting organic matter is present. The adults live in forests near the larval habitats (Oosterbroek, 2006).

The family Ptychopteridae, with around 15 species in one genus in Europe, is characterised by a relatively long, lustrous black body, often with a yellow pattern on thorax and/or abdomen. The antennae are filiform, and the wings, legs and abdomen are also elongated. Wing with dark markings and with longitudinal folds (venae spuriae) distinct between Rs and M, and between CuA2 and A1. Haltere with basal appendage (prehaltere). The larvae are aquatic to semi-aquatic, living in the upper layers of mud, and can be found in marshy habitats where they feed on small organic particles. The adults are usually found near the larval habitats (marshes, ponds, lakes, among others) (Rozkošný, 1997; Oosterbroek, 2006).

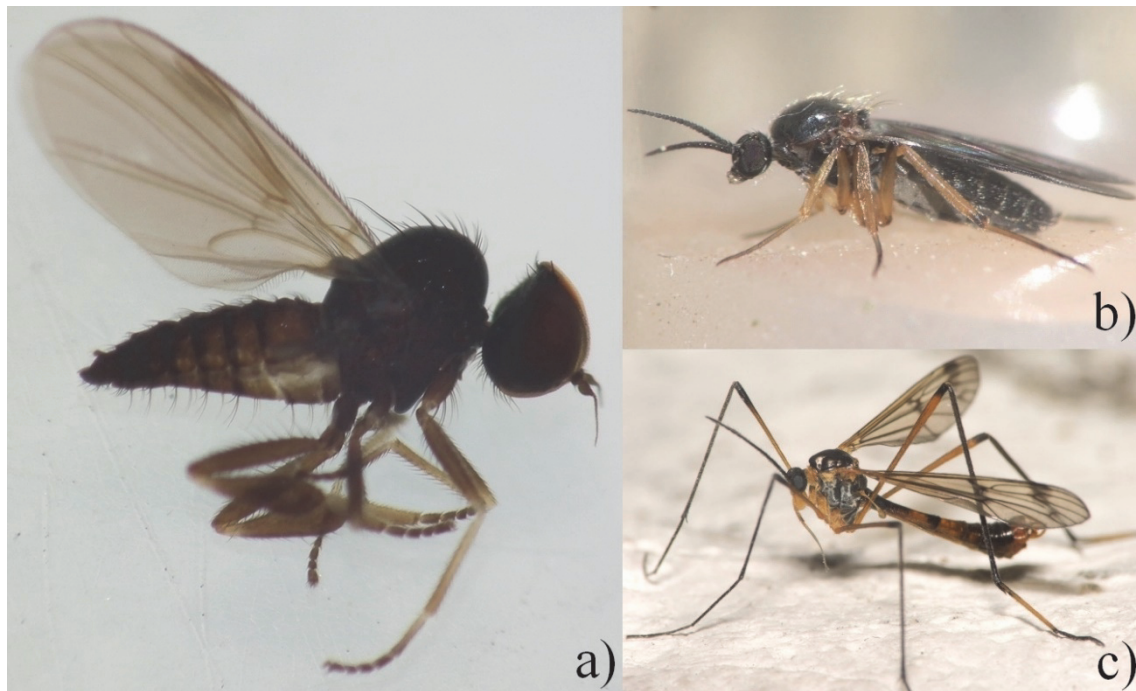
### Material and methods

The study material was collected by R. Andrade through sweep netting on vegetation in a non-systematic manner and identified by P. Chandler. The abdomen of the female of *Mycetobia pallipes* Meigen, 1818 was mounted in DMHF and the internal parts of the ovipositor were dissected. One of the males of *Atelestus dissonans* Collin, 1961 was also prepared in DMHF. The remaining specimens are preserved in 70% ethanol and deposited in the first author collection.

### Results

• *Atelestus dissonans* Collin, 1961 (Fig. 1a)  
Portugal: Braga, Celorico de Basto, Veade, Gagos e Molares, 41°25'07.5"N, 7°58'54.0"W, elev. 175 m. This site is a forest-agriculture mosaic, composed of many agricultural fields and meadows surrounded by small patches of forest. In the forested area several deciduous species grow: *Platanus* sp., *Quercus robur*, *Castanea sativa*, *Salix* spp. and *Populus* sp.  
25.vi.2013, 2♂, leg. R. Andrade.

• *Mycetobia pallipes* Meigen, 1818 (Fig. 1b)  
Portugal: Porto, Vila do Conde, Mindelo (Paisagem Protegida Regional do Litoral de Vila do Conde e Reserva Ornitológica de Mindelo), 41°19'24.9"N, 8°43'56.3"W, elev. 5-20 m. The



**Fig. 1.** a) One of the males of *Atelestus dissonans* collected in Veade, Gagos e Molares; b) the female of *Mycetobia pallipes* collected in Mindelo; c) one of the males of *Ptychoptera albimana* swept from the foliage in Espinhosela.

locality is a mosaic of habitats from dunes to forest, riparian corridor and agricultural fields. The specimen was collected in a forested area where the following plant species can be found: *Quercus robur*, *Eucalyptus* sp., *Laurus nobilis*, *Rubus* sp., *Hedera* sp. and several umbelliferous plants. 25.v.2013, 1♀, leg. R. Andrade.

● *Ptychoptera albimana* (Fabricius, 1787) (Fig. 1c)

Portugal: Bragança, Bragança, Espinhosela (Parque Natural de Montesinho), 41°53'08.2"N, 6°49'37.4"W, elev. 800 m. The area is a permanent pasture (Lameiro) crossed by a small stream on whose margins it is possible to find *Populus* sp., *Salix* sp. and *Rubus* sp. among other plants. Further up the hill the dominant tree species is *Quercus pyrenaica*. 8.viii.2014, 1♂; 9.ix.2014, 2♂, leg. R. Andrade.

Portugal: Bragança, Vimioso, Algosos, Campo de Viboras e Uva (Vale de Algosos), 41°29'50.7"N, 6°32'23.9"W, elev. 590 m. Vale de Algosos is a small village situated in the Northeast corner of Portugal which is sparsely inhabited. The area features small plots of agricultural land where a combination of exotic and native plants can be found. Among those we can find the following species: *Ficus carica*, *Castanea sativa*, *Malus* sp., *Rubus* sp., *Hedera* sp., *Parietaria judaica* and *Mentha suaveolens*. The specimen was collected while feeding on flowers of *Hedera* sp. 7.x.2015, 1♀, leg. R. Andrade.

## Discussion

*Atelestus dissonans* is a rarely collected but widespread species that is recorded in several European countries: Belgium, Britain I., Czech Republic, Germany, Hungary and Switzerland (Papp, 2009; Chvála, 2013). The discovery of this species in Portugal significantly increases the known area of its distribution. The two males were collected while sweeping through the herbaceous vegetation in the margin of a patch of a deciduous forest, and this is the way *Atelestus* species are

most often found (Chvála, 1983). As mentioned above for the family Atelestidae, the biology of *A. dissonans* is very poorly known but, as suggested by the very big eyes of the males, the species engage in swarming behaviour (Chvála, 1983).

*Mycetobia pallipes* has a large distribution in Europe and is known from the following countries: Austria, Belgium, Britain I., Czech Republic, Denmark, Finland, Germany, Hungary, Ireland, Italy, Poland, Russia, Slovakia, Spain, Sweden, Switzerland and The Netherlands (Ševčík, 1999; Chandler, 2013). Given it is a widespread species and it was already known from Spain, its presence in Portugal was to be expected.

*Mycetobia* adults are not commonly found, but the larvae of *M. pallipes* are common under the bark of rotten stumps and can also be found on fallen deciduous and coniferous trees and in fermenting sap (Krivoshchina, 1997). The female specimen was swept from low vegetation in a shady spot under *Quercus robur* and *Laurus nobilis* trees, corresponding to a typical habitat for the species, but just a few dozen metres from coastal dunes and surrounded by farm fields.

*Ptychoptera albimana* is a common and widespread species that was already known from several European countries: Austria, Belgium, Bosnia and Herzegovina, British islands, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Kaliningrad Region (Russia), Lithuania, Norway, Poland, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands, Ukraine and Yugoslavia. It is also present in the Nearctic (Zwick, 2013). Given the known distribution of this species, its presence in Portugal is not a surprise.

The female *Ptychoptera albimana* was collected while feeding on flowers of *Hedera* sp. Another European species in the genus, *Ptychoptera contaminata* (Linnaeus 1758), has also been recorded visiting flowers in search of nectar, such as *Anthriscus sylvestris* (Knuth, 1909; Cuthbertson, 1929). One photograph showing a female of *Ptychoptera contaminata*

ta feeding on flowers of *Heracleum* was also brought to our attention (Steven Falk, personal communication). Recently, individuals of *P. contaminata* feeding on honeydew deposited in the surface of leaves was also reported. Most records were of males and only one female was observed doing the same. Given that this female was parasitized by several Acari and seemed debilitated the record was not considered by the authors to be a proof that adult females normally feed (Shcherbakov & Lukashevich, 2005).

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