

## Opiliones: Kimulidae: *Kimula* + *Metakimula*

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Kimulidae is a small Neotropical family of medium-sized spiny Laniatores (3-6 mm), long known as Minuidae. They occur in South America (mostly in Venezuela, but with undescribed taxa in Colombia and Brazil, and reaching the West Indies. The genera *Kimula* and *Metakimula* are endemic to the Greater Antilles where *Metakimula* are restricted to Cuba and *Kimula* have been recorded from Hispaniola, Puerto Rico and US Virgin Island (Fig. 1). Surprisingly, kimulids have not been recorded from the Lesser Antilles exhibiting a distributional gap with the core of the family located in northern South America. The diversity of both genera is underestimated, the best surveyed Island—Cuba— has at least twice the current described species (pers. obs.) and their diversity in Hispaniola is practically unknown.

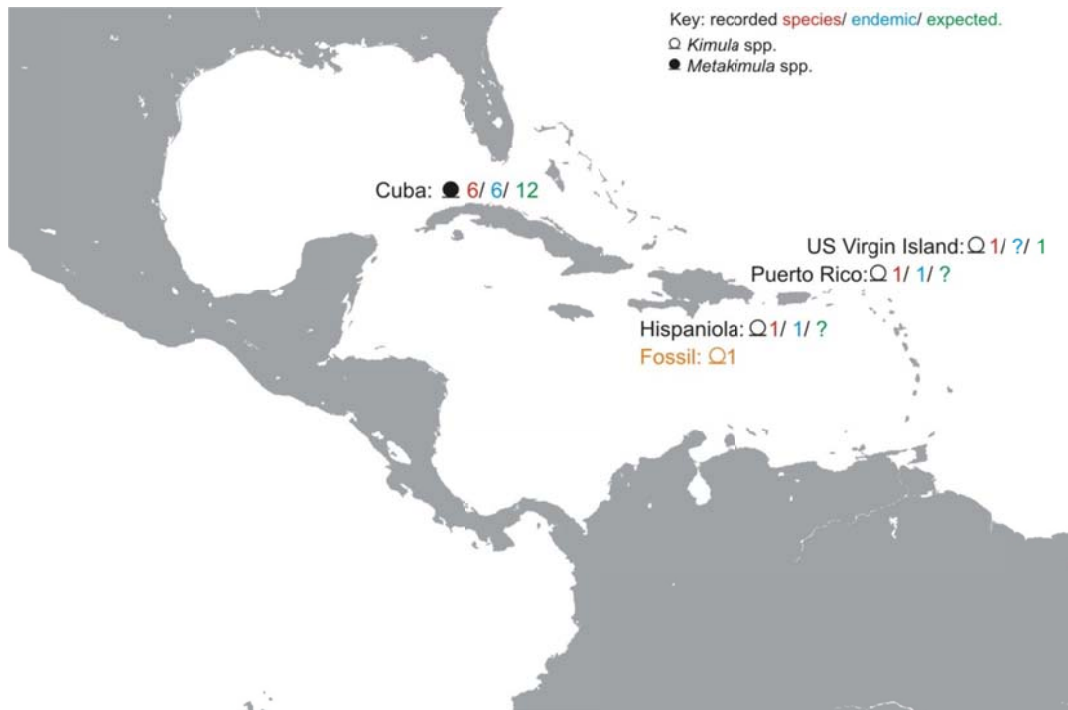


Figure 1. Distribution of the West Indies endemics *Kimula* and *Metakimula*, extracted from Kury (2003).

**Monophyly.** The original definition by Sørensen was vague and included many unrelated species, and many authors did not recognize the family. The Kimulidae are well supported by characters of male genitalia, but its monophyly (or the monophyly of any of its genera) has not been tested phylogenetically. Only the sister relationship between Kimulidae and Escadabiidae has been recovered in a recent molecular phylogeny (Giribet *et al.* 2010). *Kimula* and *Metakimula* exhibit a very similar habitus, but the genitalia are diagnostic. Typical Kimulidae exhibit the *lamina ventralis* surrounding the glands (*capsula externa*+*capsula interna*) (Fig. 2). Kimulidae have a sulcus dividing the *pars distalis* from the *pars basalis*, absent in *Metakimula* and other Kimulidae genera (Pérez-González & Kury 2007). The only extant species from Hispaniola has peculiar male genitalia, similar to *Minulella* and probably belongs to an undescribed genus (Fig 2 h–i). The putative genitalic synapomorphies need to be tested phylogenetically.

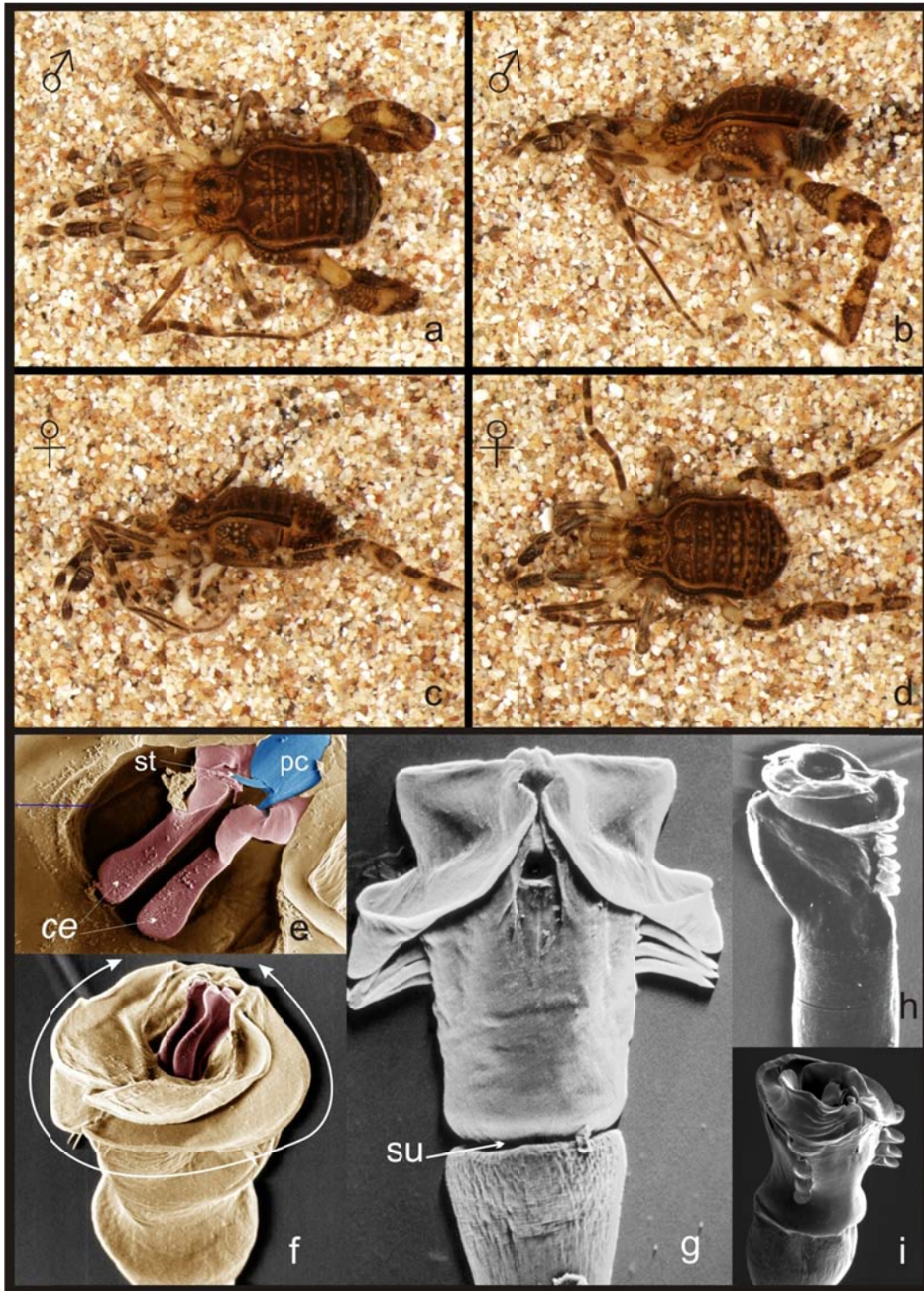


Fig. 2. a–d: *Metakimula* undescribed species from eastern Cuba, a) male dorsal, b) male lateral, c) female dorsal, d) female lateral, note the sexual dimorphic male enlarged leg IV. e–f: *Metakimula* sp. from Cuba, e) glans details (artificially colored), f) apical *pars distalis* (artificially colored) with the *lamina ventralis* surrounding the glands (signed by the double pointing arrow). g) dorsal *pars distalis* of the *Kimula elongata* (from Puerto Rico) penis, note the sulcus demarking the *pars distalis*. h) lateral *pars distalis* of the *Kimula cokendolpheri* (from Dominican Republic) penis. i) latero-dorsal *pars distalis* of *Minuella* sp. (from Venezuela) penis. Abbreviations: ce: *capsula externa*, pc: *parastylar collar*, st: *stylus*, su: *sulcus*.

**Amber species.** One female specimen of *Kimula* sp. is known from Dominican amber (Cokendolpher & Poinar 1992)

**Dispersal.** The species of both genera are litter-dwelling and exhibit a high endemism indicating a very poor dispersal ability.

**Search strategy.** The species are soil and litter dwelling with a cryptic coloration and thanatosis compartment that make them difficult to find. **VISUAL SEARCH, BERLESE/ WINKLER EXTRACTORS.**

**Similar genera.** It is easy to confuse with any other kimulid due to the homogeneous external morphology of the family. For genera identification it is necessary to examine the male genitalia. To date, *Kimula* and *Metakimula* are the only two kimulids in the Antilles, but others might occur. Best to collect all litter-dwelling opilionids.

**Needed collecting.** All areas are in need of collecting, top-priority is Hispaniola. South America collecting will be particularly important to test genera limits, especially Colombia. No species of *Kimula* or *Metakimula* have been sequenced, fresh material for DNA extraction is imperative.

## References

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