Phthitia (*Kimosina*) *enigmatica* sp.n.: a new sphaerocerid species from Spain (Diptera, Sphaeroceridae)

Miguel Carles-Tolrá

Avda. Príncipe de Asturias 30, ático 1, E-08012 Barcelona. SPAIN.

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Abstract
A new sphaerocerid species, *Phthitia* (*Kimosina*) *enigmatica* sp.n., is described from Spain. A special combination of features makes this new species peculiar.
Key Words: Diptera, Sphaeroceridae, *Phthitia enigmatica*, new species, Spain.

Resumen
Phthitia (*Kimosina*) *enigmatica* sp.n.: una especie nueva de esferocérido de España (Diptera, Sphaeroceridae).
Se describe una especie nueva de esferocérido, *Phthitia* (*Kimosina*) *enigmatica* sp.n., de España. Una combinación especial de caracteres hace a esta especie nueva peculiar.
Palabras clave: Diptera, Sphaeroceridae, *Phthitia enigmatica*, especie nueva, España.

INTRODUCTION

Recently, Carles-Tolrá *et al.* (2010) published a list of dipterous species collected in Galicia (NW Spain). Among the material, a new species for science was found, although not described. The description was postponed for another paper. The sole collected specimen of the new species was identified as belonging to genus *Eulimosina* Roháček, 1983 of the family Sphaeroceridae. Now, when I was preparing the description of this new species I saw that the specimen didn't belong to genus *Eulimosina*, but to genus *Phthitia* Enderlein, 1938. The confusion of the genus was because the sole captured specimen had only 3 (0+1 and 0+2) dorsocentral setae, lacking therefore the characteristic row of at least 0+3 dorsocentral setae present in *Phthitia* (see Discussion).

Phthitia is easily recognizable by having at least 0+3 dorsocentral setae. It is a widespread genus with more than 40 known species (Roháček *et al*, 2001; Marshall *et al.*, 2011), 9 of which are known to occur in Europe. From Spain only 4 species have been recorded.

Phthitia (*Kimosina*) *enigmatica* sp.n.

A dark brown species.

Head brown. Frons dark brown. 3 pairs of interfrontal bristles. Face and gena clear, brownish. Occiput dark brown. Antenna dark brown, arista with medium long ciliation.

Thorax dark brown. Chaetotaxy: 1 hu, 0+2(?) dc, ac prsc, 1 prst, 1 np, 2 pa, 1 mp, 2 sc.

Wing normal, costa indistinctly extended beyond R4+5, R4+5 straight, alula relatively large. Haltere brownish.

Legs brown. Midfemur (Fig. 1) ventrally with 2 rows of short spines, basally denser. Midtibia (Figs 1-3) blended at 2/3, chaetotaxy poor, with 4 bristles (1 short anterodorsal basal, 1 median anterodorsal medial, 1 long and strong anterodorsal distal, and 1 long and strong posterodorsal distal), ventrally with 2 rows of short spines, apically denser, mid anteroventral seta absent, ventroapical seta present. Hindtibia without dorsopreapical seta. Spur of hind tibia long, 0.8 times as long as tibial diameter. Tarsi paler, brownish.

Abdomen: tergites well developed, well sclerotized, dark brown, desclerotization on tergites 1+2 absent. Sternite 5 (Figs 4-7) dark brown, strongly sclerotized, extremely large, protruding posteromedially. Remaining sternites smaller, weakly sclerotized.

Genitalia (Figs 4-7) dark brown, uniformly haired. Fore surstylus (Figs 8-11) rectangular, with a posterior outwards projection, concave externally, with a distinct anteroventral rectangular axe-like (edge) projection, with a row of long dorsal hairs, and with shorter outer anteroventral hairs. Hind surstyli absent. Mesolobus (Figs 12-18) distinctly developed: strongly sclerotized, not fused with epandrium, bifurcated, very long, L-shaped (in lateral view), spine-shaped, pointed; base of each bifurcation triangular (in posterior view), each one with 2-3 minute hairs; arch-shaped arms (Figs 12-18) well developed, long. Postgonite (Figs 19-21) with a large posterior projection (it seems to be the phallophore, but it is not), distinctly axe-shaped (in lateral view): "edge" with a short posteroventral projection, "handle" long, not angularly bent, slightly curved, pointed. Aedeagus (Figs 19-20) black, strongly sclerotized; distiphallus bifid. Cerci (Fig. 22) small, fused with epandrium, with a long basal hair.

Total body length: 1.7 mm; wing 1.6 mm.

Type material (1 ♂):

Holotype: Spain: Pontevedra, Cangas, Rodeira, 29TNG1979, 10 m, finca con frutales (= property with fruit trees), 26.4.2008, ABIGA 14327, J.L. Camaño leg.

Abdomen detached and cleared with KOH (10%). Genital parts dissected and stored into its own abdomen in a

mcarlestolra@terra.es. Author whom the correspondence must be addressed.

microvial with glycerine. Other corporal parts (head, thorax, wings and legs) and the microvial preserved in alcohol (70º) and deposited in the private collection of the author.

DISCUSSION

The assignation of the specimen to genus has been an adventure. According to external morphology (genitalia not studied) and using the key by Roháček (1983) it keyed out to couplet 29/23, that is genera *Spelobia*/*Opalimosina*. The specimen did not completely fit to any of them: *Spelobia* Spuler, 1924 with alula large, R4+5 more or less straight, and mid tibia with rich chaetotaxy, and *Opalimosina* Roháček, 1983 with alula small, R4+5 slightly but distinctly curved, and midtibia with poor chaetotaxy. I first concluded it belonged to *Spelobia* and subsequently to subgenus *Eulimosina* (currently genus). A superficial study of the genitalia showed it was distinctly different from the three known species of this genus (cf. Papp, 2008), that is, it belonged to a new species.

Nevertheless, some months later, when I was making its description, some very big differences (specially in the genitalia) were observed (f.e. head, chaetotaxy of midtibia, sternite 5, form of surstylus, etc.), so it was strange that it belonged to this genus. So, after having dissected and studied in detail its genitalia I arrived to the conclusion it didn't belong to genus *Eulimosina*.

A re-examination of the specimen revealed that it had 4 (0+2) dorsocentrals and not only 3 (0+1 on the left row and 0+2 on the right row), as was firstly observed: a "lacking" postsutural dorsocentral on the left side was found horizontal and hidden among the other setae! Therefore, it has 0+2 dorsocentrals. Looking at the figures of the genitalia of *Opalimosina* and *Phthitia* (= *Kimosina* Rohá ek, 1983) in Rohá ek (1985) the most similar ones are those of *Phthitia*. But seeing the presence of a mesolobus and arch-shaped arms (see Rohá ek, 1985 and Papp and Roháček, 1987), I arrive to the conclusion it belongs to genus *Phthitia*, although it doesn't present hind surstyli. In my opinion, the absence of at least a third pair of dorsocentrals (couplet 21(10) in the key to genera by Roháček, 1983) is due to a malformation of this concrete specimen.

Regarding to the chaetotaxy of the midtibia, it is rich in *Phthitia*, whereas it is poor in the specimen. There are only 4 dorsal setae, surprisingly disposed as in *Rudolfina* Roháček, 1987 (= *Rudolfia* Roháček, 1983) (cf. Roháček, 1985: Figs 1070, 1071), but this genus has only a single basal seta on the costal vein.

On the other hand, we must also highlight that sternite 5 of the specimen is very different (extremely large and distinctly protruding posteromedially) from those of the other species of *Phthitia*. The most similar one is that of *Phthitia* (*Ph.*) *alexandri* Richards, 1955 (cf. Marshall and Smith, 1992: Fig. 5), a Neotropical species known only from Chile (Roháček *et al.*, 2001).

Regarding to the surstyli (fore part), the most similar ones, that is with a distinct anteroventral rectangular axe-like (edge) projection, are those of *Ph.* (*Kimosina*) *glabrescens* (Villeneuve, 1917) (= *pappi* Roháček, 1983) (cf. Roháček, 1985: Fig. 882) and specially of *Ph.* (*K.*) *sicana* Munari, 1988 (cf. Munari, 1988: Fig. 10). The absence of hind surstyli is really strange, maybe they are extremely reduced, not visible (at least at a 400x magnification).

Surprisingly, I have to say that the postgonite is very similar to that of *Phthitia* (*Rufolimosina*) *ornata* Papp, 2008, that is, axe-shaped (cf. Papp, 2008: Fig. 169), an Oriental species known only from Thailand (Marshall *et al.*, 2011).

Accepting that it belongs to genus *Phthitia* (mesolobus and arch-shaped arms present, although hind surstyli absent) and following the key by Roháček (1983), new problems have appeared to assign the subgenus. The specimen doesn't completely fit with all the features of each couplet (R4+5 straight, epandrium uniformly haired, mesolobus distinctly developed, postgonite not angularly bent, sternites 1+2 simple, hindtibia without dorsopreapical seta). After having studied all the possibilities I consider that it belongs to subgenus *Kimosina*.

Conclusion: *Phthitia* (*Kimosina*) *enigmatica* sp.n. distinctly differs from all other species of this genus by the combination of the following features: a) poor chaetotaxy of midtibia, b) extremely large sternite 5, c) fore surstyli rectangular, with a distinct anteroventral rectangular axe-like (edge) projection, d) axe-shaped postgonites, and e) spine-like and curved mesolobus. After so many enigmatic, confusing combinations of features I can't discard that it may belong to another, maybe new, subgenus of *Phthitia*, or to other, even new, genus. But, at present, I have included it in genus *Phthitia* and subgenus *Kimosina*.

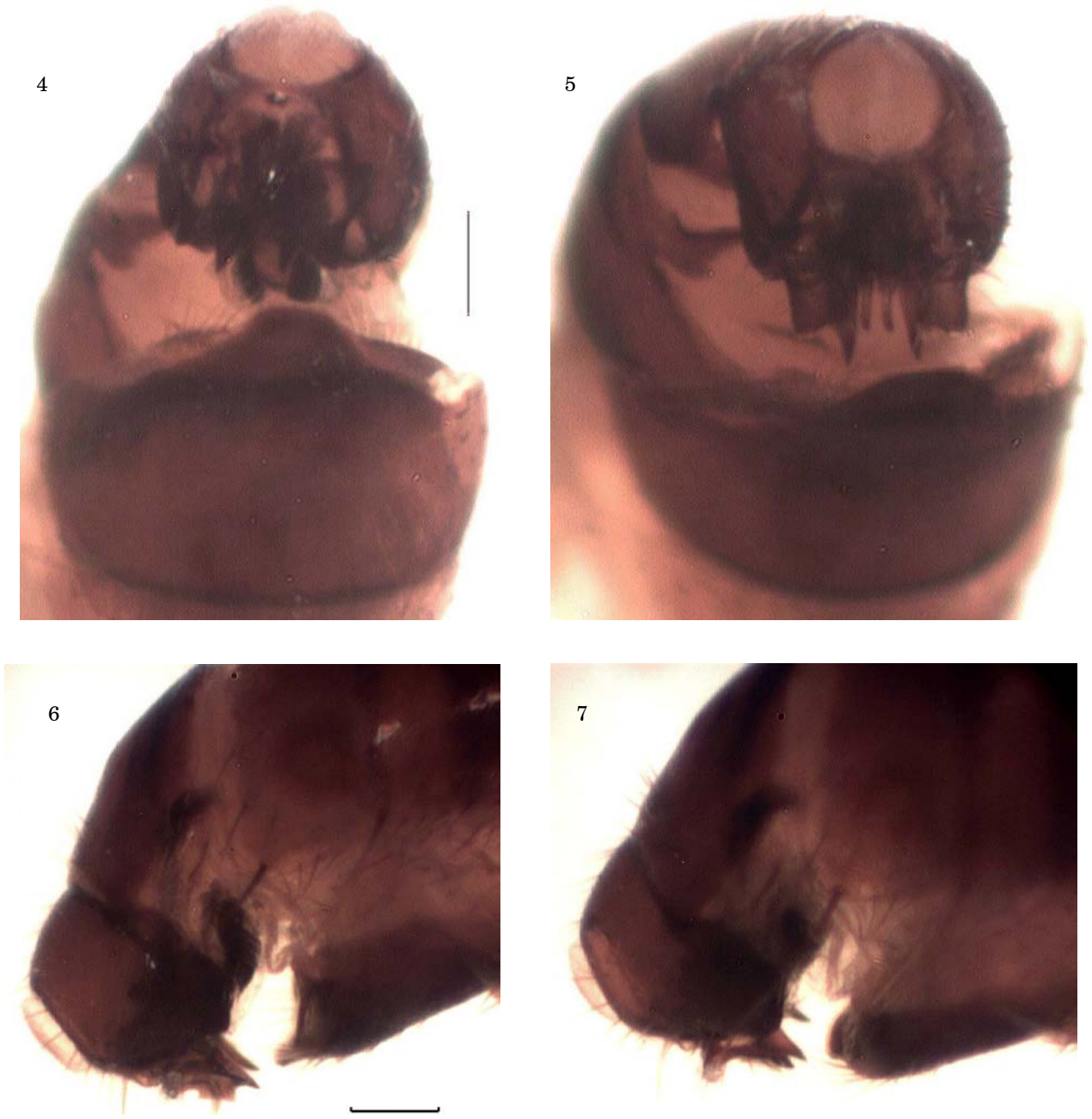
Biology: unknown. The specimen was collected by net in a property with fruit trees.

Distribution: hitherto only known from northwestern Spain.

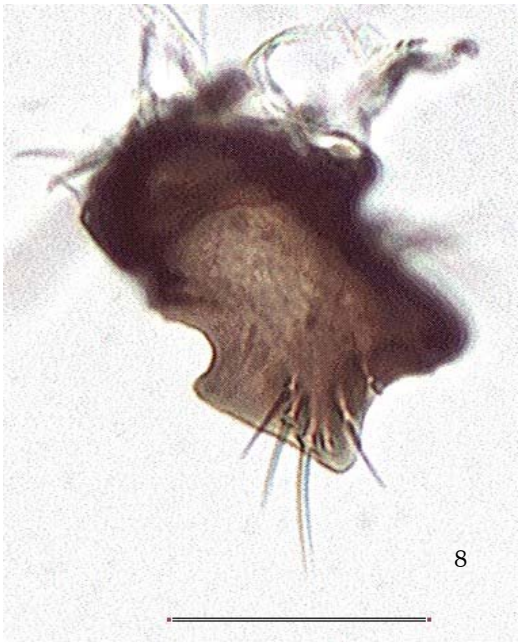
Etymology: the specific name refers to the enigmatic, confusing combination of features.

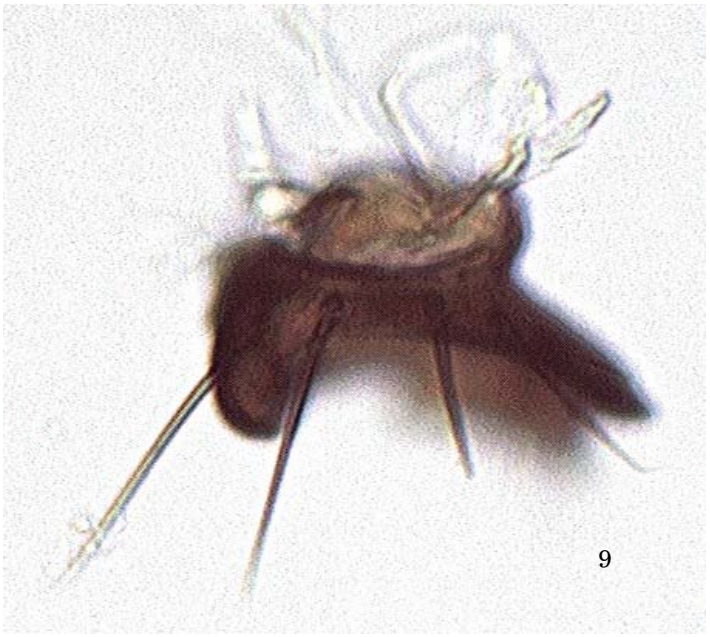
The original microphotographies included as figures in this work are available in the same Internet Web page where the corresponding Boletín BIGA 10 is published: http://www.biga.org/Boletin_BIGA/Boletin_BIGA10/index_uk.html

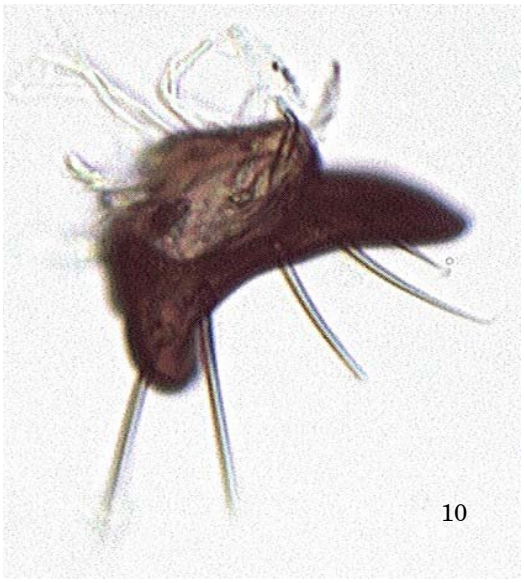
Figs 1-3. *Phthitia* (*Kimosina*) *enigmatica* sp.n.:
1) midleg in anterior view,
2) midtibia in dorsal view,
3) midtibia and metatarsus in posterodorsal view.
Scale bars = 100 µm.



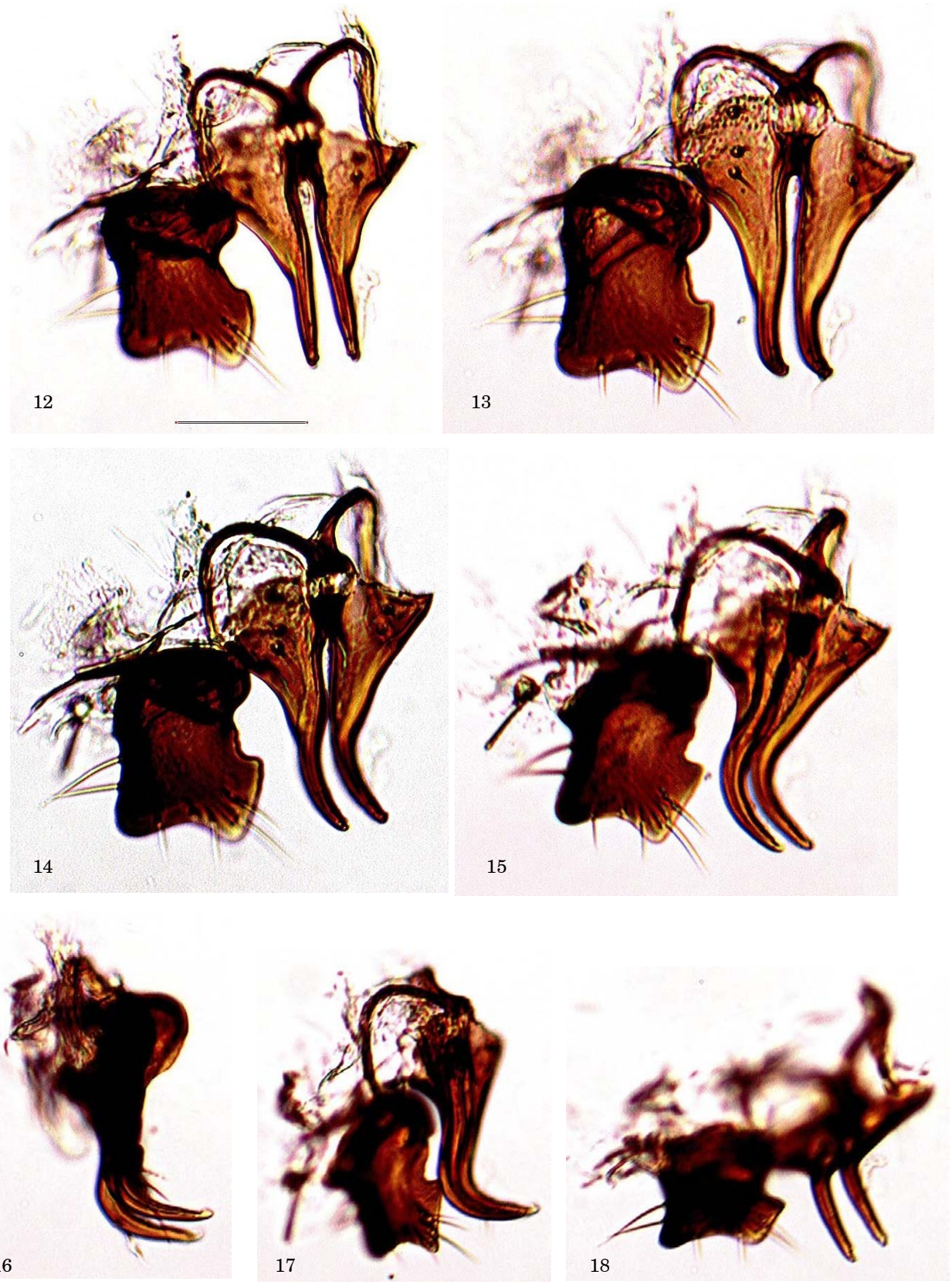
Figs 4-7. *Phthitia* (*Kimosina*) *enigmatica* sp.n.:
4) postabdomen in ventral view,
5) postabdomen in posteroventral view,
6) postabdomen in lateral view,
7) postabdomen in dorsolateral view.
Scale bars = 100 µm.







Figs 8-11. *Phthitia* (*Kimosina*) *enigmatica* sp.n.:
8) rigth surstylus in broadest view,
9) rigth surstylus in lateral view,
10) rigth surstylus in dorsal view,
11) rigth surstylus in ventral view.
Scale bar = 100 µm.



Figs 12-18. *Phthitia* (*Kimosina*) *enigmatica* sp.n.:
12) left surstylus, mesolobus (posterior view) and arch-shaped arms (posterior view),
13-16) left surstylus, mesolobus and arch-shaped arms, in different views,
17) left surstylus, mesolobus (lateral view) and arch-shaped arms (lateral view),
18) left surstylus, mesolobus (dorsal view) and arch-shaped arms (dorsal view).
Scale bar = 100 µm.

Figs 19-22. *Phthitia* (*Kimosina*) *enigmatica* sp.n.:
19) aedeagal complex in lateral view,
20) aedeagal complex in lateroventral view,
21) aedeagal complex in dorsal view,
22) epandrium (empty) and cerci in ventrolateral view.
Scale bars = 100 µm.

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