Boll. Zool. agr. Bachic.
Ser. II, 36 (3): 335-344

31 December 2004

M. OLMI

A contribution to the knowledge of the Embolemidae of Gabon, Costa Rica and Papua New Guinea (Hymenoptera Chrysidoidea) (*)

Abstract - Three new species of Embolemidae are described: *Embolemus gabonensis* (from Gabon), *E. hansoni* (from Costa Rica) and *E. searsi* (from Papua New Guinea). The male of *Ampulicomorpha gressitti* Olmi is described for the first time. New keys to the Embolemidae are proposed.

Riassunto - *Contributo alla conoscenza degli Embolemidae di Gabon, Costa Rica e Papua Nuova Guinea (Hymenoptera Chrysidoidea).*

Vengono descritte tre nuove specie di Embolemidae: *Embolemus gabonensis* (del Gabon), *E. hansoni* (di Costa Rica) ed *E. searsi* (di Papua Nuova Guinea). Il maschio di *Ampulicomorpha gressitti* Olmi è descritto per la prima volta.

Key words: Embolemidae, *Embolemus gabonensis*, *Embolemus hansoni*, *Embolemus searsi*, *Ampulicomorpha gressitti*, Gabon, Costa Rica, Papua New Guinea.

The Embolemidae are parasitoids of Homoptera Auchenorrhyncha (Olmi, 1995a, 1999a). It is a small family studied in recent years mainly thanks to the papers of Olmi (1995a, 1995b, 1997, 1998, 1999a, 1999b, 2004a, 2004b, 2004c) and Olmi & Portuondo Ferrer (2003). However, the family may be considered insufficiently known.

The family includes two extant genera (*Ampulicomorpha* Ashmead, 1893, and *Embolemus* Westwood, 1833), in addition to a fossil genus (*Baissobius* Rasnitsyn, 1975).

According to Achterberg & Kats (2000) the two above extant genera are synonyms, so that *Embolemus* is the only extant genus and gains priority on *Ampulicomorpha*. However, I continues to consider valid the genus *Ampulicomorpha* (see Olmi & Portuondo Ferrer, 2003), because usually the separation between *Embolemus* and *Ampulicomorpha* is not difficult. On the other hand, a few difficult cases are not sufficient to reject the separation of the two genera. As recognized also by Achterberg & Kats

(*) This study was supported by a grant of the University of Tuscia (University funds; former 60%).

(2000) probably "certainty about this problem will be gained after a thorough analysis of both sexes of the species involved, preferably including DNA analysis".

In recent years, I examined some collections of Embolemidae collected in Gabon, Costa Rica and Papua New Guinea. This study resulted in the discovery of three new taxa described herein.

MATERIAL AND METHODS

This paper is based on the study of embolemid specimens deposited in the following collections:

CA: California Academy of Sciences, San Francisco, California, U.S.A.
DA: Department of Entomology, University of California, Davis, California, U.S.A.
OL: Massimo Olmi's collection, c/o Department of Plant Protection, University of Tuscia, Viterbo, Italy
TG: U. W. Insect Museum, University of Wyoming, Laramie, Wyoming, U.S.A.
TW: American Entomological Institute, Gainesville, Florida, U.S.A.

The descriptions follow the terminology used by Olmi (1995a, 1999a). The measurements reported are relative, except for the total length (head to abdominal tip, without the antennae), which is expressed in millimetres.
In the figures of male genitalia the right half was removed.

SYSTEMATIC ACCOUNT

Ampulicomorpha gressitti Olmi

Ampulicomorpha gressitti Olmi, 1997, was described after the discovery of a single female specimen from Irian Jaya (New Guinea). Recently I discovered in TW two male specimens from Papua New Guinea. Though they were not found together with female specimens, I tentatively associated these males to *A. gressitti*. In New Guinea in fact only two species of *Ampulicomorpha* are present (*A. australis* Olmi, 1995, and *A. gressitti*), but both sexes of *A. australis* are known, whereas only a female specimen is known of *A. gressitti*. I believe then that the two above male specimens are the opposite sex of *A. gressitti*.

The following is the description of the male of *A. gressitti*:
MATERIAL EXAMINED: 2 male specimens: Papua New Guinea, Jimmi Valley, Gent R., 650 m, 7-26.II.1979, J. Sedlacek coll. (in TW).
DESCRIPTION OF THE MALE: fully winged; length 3.56-3.75 mm.
Head black-brown, with frons and clypeus brown; mandibles and palpi testaceous; antennae totally brown; mesosoma black-brown; gaster brown; legs testaceous.

Antennae filiform, articulated to two frontal contiguous processes; antennal segments in following proportions: 15:4:24:21:20:19:16:16:16:18.

Head shiny, completely granulated, convex, covered with fine short hairs; frontal area from anterior ocellus to the antennal toruli with an incomplete very short median furrow; this furrow is only visible near the antennal toruli and near the anterior ocellus; occipital carina complete; POL = 2; OL = 2; OOL = 7; OPL = 5; TL = 7; in the frontal area from clypeus to the antennal toruli, two convergent median and longitudinal sutures are directed from upper margin of the clypeus to the antennal toruli; these sutures are incomplete and reach only 0.5 length of frons; they are not parallel, but convergent towards the antennal toruli; clypeus with margins rounded; subocular sulcus absent; eyes large, shorter than the head (14:26). Pronotum dull, granulated, covered with fine short hairs, partly not visible, because hidden behind the occiput; in the visible pronotal region there is a strong median longitudinal furrow; pronotal tubercles reaching the tegulae; posterior surface of pronotum much shorter than scutum (4:18). Scutum dull, granulated, covered with fine short hairs; notauli incomplete, reaching approximately 0.25 length of scutum. Scutellum dull, weakly granulated, covered with fine short hairs. Metanotum very short, transverse. Propodeum dull, reticulate rugose; dorsal surface without longitudinal keels, with a basal trapezoid areola near the anterior margin of the propodeum; propodeum with a transverse keel between dorsal and posterior surface; posterior surface of propodeum rugose, with two complete longitudinal keels. Mesopleura and metapleura shiny, smooth, without sculpture.

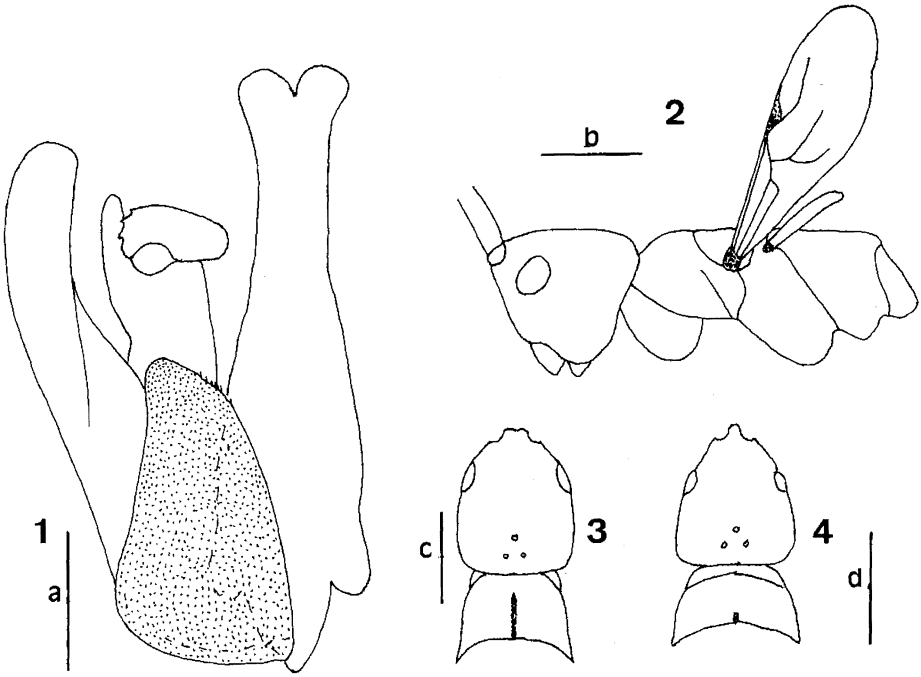
Forewing and hindwing slightly and totally darkened; distal part of stigmal vein very slightly longer than proximal part (21:20); 1SDC cell completely enclosed by pigmented veins; marginal cell open.

Dorsal proximal membranous process of the parameres with a few distal and marginal hairs (Fig. 1); maxillary palpi with 6 segments; labial palpi with 3 segments; tibial spurs 1, 2, 2.

REMARKS: because of the short petiole, the head black, the pronotum partly hidden behind the occiput, the dorsal proximal membranous process of the parameres with a few distal hairs and without papillae in the proximal region, the male of *Ampulicomorpha gressitti* Olmi is similar to that of *A. nepalensis* Olmi, 1997. However, these two species are different mainly because in the proximal membranous process of the parameres of *A. nepalensis* there are many papillae, together with many hairs; on the contrary, the papillae are absent in *A. gressitti* and the distal hairs are very few.

After the description of the male of *A. gressitti*, the key to the males of the world *Ampulicomorpha* published by Olmi (1999) can be modified by replacing the couplet 10 by the following new couplets:

10. Dorsal membranous process of the parameres with a few papillae in the proximal region (Fig. 19 in Olmi, 1995a), without hairs and papillae or scales distally..... .....*hachijoensis* (Hirashima & Yamagishi)
– Dorsal membranous process of the parameres without papillae in the proximal region, with hairs or/and papillae distally (Fig. 2 in Olmi, 1997; Fig. 1).....10'



Figs 1-4 - Male genitalia of *Ampulicomorpha gressitti* Olmi from Gent River (Papua New Guinea)(1; scale bar: a = 0.08 mm); female holotype of *Embolemus gabonensis* n. sp.: head and mesosoma in lateral view (2; scale bar: b = 0.48 mm) and head and pronotum in dorsal view (3; scale bar: c = 0.44 mm); female of *Embolemus capensis* Olmi from 20°35.36'S 46°33.48'E (Madagascar): head and mesosoma in dorsal view (4: scale bar: d = 0.49 mm).

10' Dorsal membranous process of the parameres with many hairs and papillae in the distal region (Fig. 2 in Olmi, 1997) ..... *nepalensis* Olmi
– Dorsal membranous process of the parameres only with a few hairs in the distal region, without papillae (Fig. 1) ..... *gressitti* Olmi

Embolemus gabonensis n. sp.

MATERIAL EXAMINED: female holotype: Gabon, Ogooue-Maritime Prov., Aire d'exploit rationelle de faune des Monts Doudou, 24.3 Km 307°NW Doussala, 02°13.21'S 10°24.21'E, 375 m, 29.II.2000, sifted litter in rainforest, B.L. Fisher coll., California Academy of Sciences, BLF 2170 (in CA!).

DESCRIPTION OF THE FEMALE (Fig. 2): brachypterous; length 3.62 mm.

Brown, with antennae and legs brown-testaceous; antennae geniculate, filiform, without

rhinaria; antennal segments in the following proportions: 26:6:12:13:12:12:11:11:10:14; antennae shorter than body, articulated to strong frontal processes; antennal toruli very far from the upper margin of the clypeus.

Head pyriform, dull, granulated, covered with short dense hairs, with dorsal side convex; occipital carina complete; ocelli present; POL = 3; OL = 4; OOL = 10; OPL = 4; TL = 13; major diameter of the posterior ocelli: 1; frontal line absent; eyes small, approximately 0.25 as long as head (7:28); region of frons from clypeus to antennal toruli with two very convergent and incomplete longitudinal and median sutures; these sutures are evanescent near the antennal toruli. Pronotum dull, granulated, covered with short hairs, crossed by a strong transverse impression; anterior collar very short; disc long; pronotal tubercles reaching the tegulae; disc of pronotum with a very long and strong longitudinal median furrow (this furrow is absent in the anterior declivity of pronotum) (Fig. 3); pronotum slightly longer than scutum (14:11). Scutum large, dull, granulated; notauli very short, only shortly visible at the anterior margin of the scutum; parapsidal lines (= parapsidal furrows) present. Scutellum dull, granulated, slightly broader than long (9:7), less broad than scutum (9:21). Metanotum shiny, without sculpture, transverse, distinctly separated from the propodeum, shorter than scutellum (1.5:7), approximately as broad as scutellum (10:9). Meso-metapleural suture complete. Mesopleura and metapleura dull, granulated, covered with dense short hairs; metapleura fused with the propodeum. Propodeum dull, with slightly prominent spiracles, without two lateral pointed apophyses on the sides of the posterior surface; dorsal surface of the propodeum separated from the posterior surface by a strong transverse keel; dorsal surface of the propodeum dull, reticulate rugose, with 2 median longitudinal keels forming a rectangular basal areola behind the metanotum; posterior surface of propodeum rugose, with two complete longitudinal keels.

Forewing short (Fig. 2), slightly shorter than mesosoma (52:55), about 7.5 times as long as tegulae (52:7); hind wings short, much shorter than mesosoma (20:55), much longer than fore tegulae (20:7). Petiole short. Maxillary palpi with 5 segments (Fig. 5); labial palpi with 2 segments (Fig. 6); 3rd segment of the maxillary palpi much broader than the other segments (Fig. 5); second segment of the labial palpi slender (Fig. 6); tibial spurs 1, 2, 2.

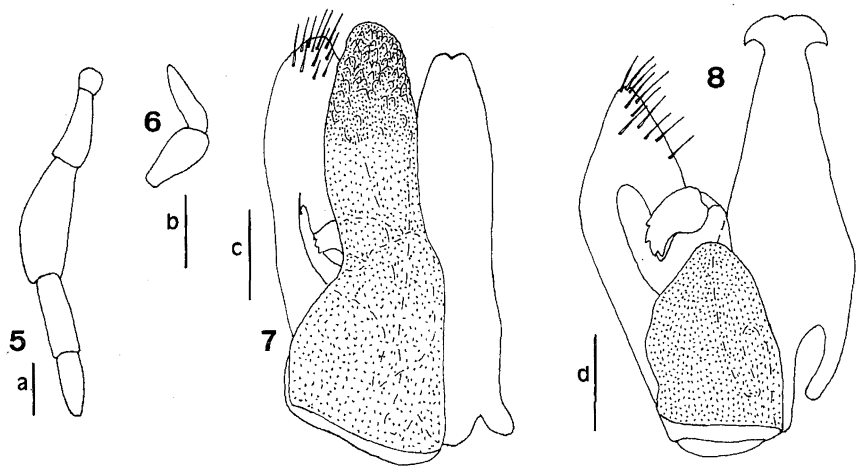
MALE: unknown.

DERIVATIO NOMINIS: the species is named after the country of origin.

REMARKS: because of the short forewing, the metanotum distinctly developed and as broad as scutellum, the hind wing and ocelli present, the palpal formula 5/2, *E. gabonensis* is similar to *E. capensis* Olmi, 1997.

After the description of *Embolemus gabonensis* n. sp. the following new key to the females of the world *Embolemus* may be proposed:

1. Metanotum distinctly developed (Fig. 27 in Olmi, 1995a).....2
– Metanotum less developed, invisible or hardly visible (Fig. 5 in Olmi, 1995a)..7
2. Metanotum distinctly developed, as broad as scutellum (Fig. 15 in Olmi, 1997) ..3
– Metanotum distinctly developed, broader than scutellum (Fig. 27 in Olmi, 1995a) 6



Figs 5-8 - Female holotype of *Embolemus gabonensis* n. sp.: maxillary (5; scale bar: a = 0.04 mm) and labial (6; scale bar: b = 0.08 mm) palpi; male genitalia of the holotypes of *Embolemus hansoni* n. sp. (7; scale bar: c = 0.07 mm) and *E. searsi* n. sp. (8; scale bar: d = 0.05 mm).

3. Hind wings absent; 3rd segment of the maxillary palpi slender (Fig. 16 in Olmi, 1997); palpal formula 3/2; second segment of the labial palpi slender (Fig. 5 in Olmi, 2004a) ..... *bestelmeyeri* Olmi
– Hind wings present, very reduced (Fig. 1 in Olmi, 2004a) or more than 0.5 as long as forewing (Fig. 16 in Olmi, 2004c); palpal formula 4/2 or 5/2; second segment of the labial palpi slender (Fig. 18 in Olmi, 2004c) or very large (Fig. 3 in Olmi, 2004a) 4
4. Ocelli absent; hind wings very reduced, approximately as long as tegulae (Fig. 3 in Olmi, 2004a); palpal formula 4/2 ..... *kheeli* Olmi
– Ocelli present; hind wings more than twice as long as tegulae (Fig. 16 in Olmi, 2004c; Fig. 2); palpal formula 5/2 5
5. Hind wings more than 0.5 as long as forewings (Fig. 16 in Olmi, 2004c); pronotum with a very short track of median longitudinal furrow visible at the posterior margin (Fig. 4) ..... *capensis* Olmi
– Hind wings less than 0.5 as long as forewings (Fig. 2); pronotum with a strong median longitudinal furrow visible on the posterior half of the pronotum (Fig. 3). ..... *gabonensis* n. sp.
6. Palpal formula 5/2 or 6/2; notauli at least partly visible (Fig. 27 in Olmi, 1995a); scutellum approximately as long as broad; hind wings absent ..*zealandicus* Olmi
– Palpal formula 4/2; notauli absent; scutellum approximately twice as broad as long; hind wings present and reduced ..... *notogeicus* Olmi
7. Eyes very small, less than 0,20 as long as head 8
– Eyes larger, 0,20 or more than 0,20 as long as head 10

8. Palpal formula 5/2 ..... *angustipennis* (Kieffer)
– Palpal formula 4/2 9
9. Fourth segment of the maxillary palpi very slender (Fig. 21 B in Olmi, 1995a) .. .. *ruddii* Westwood
– Fourth segment of the maxillary palpi less slender (Fig. 17 in Olmi, 1997). .... *andersoni* Olmi
10. Eyes approximately 0,22-0,25 as long as head; palpal formula 4/2 .... *nearcticus* (Brues)
Eyes approximately 0,20 as long as head 11
11. Segment 1 of fore tarsi longer (segment 2 of fore tarsi approximately 0,30 as long as segment 1); palpal formula 3/2 ..... *africanus* (Risbec)
– Segment 1 of fore tarsi shorter (segment 2 of fore tarsi approximately 0,38 as long as segment 1); palpal formula unknown (labial palpi 2-segmented) .... *krombeini* Olmi

Embolemus hansoni n. sp.

MATERIAL EXAMINED: male holotype: Costa Rica, Cartago Province, 4 Km NE Cañon, Genesis II, 2350 m, X. 1996, Paul Hanson coll. (in TG!).
FEMALE: unknown.
DESCRIPTION OF THE MALE: fully winged; length 3.00 mm.

Totally testaceous-brown.

Antennae filiform, not geniculate, filiform, articulated to prominent and contiguous processes; antennal toruli very far from upper margin of clypeus; antennal segments in following proportions: 14:4:17:17:16:16:14:14:14:17.

Head shiny, smooth, finely punctate, without sculpture among punctures, covered with fine short hairs, with dorsal side swollen; occipital carina complete; ocelli distinct; POL = 2; OL = 2; OOL = 7; OPL = 4; TL = 5; frons without a track of median furrow between anterior ocellus and antennal toruli; eyes large, approximately 0.3 as long as head (8:22); clypeus rounded; frons between clypeus and conical processes with two very convergent longitudinal and median sutures, the sutures do not reach the antennal toruli, but they reach about 0.40 length of space between antennal toruli and clypeus. Pronotum rugose, almost completely hidden behind the head, much shorter than scutum (3:17); pronotal tubercles reaching the tegulae. Scutum shiny, finely punctate, without sculpture among punctures, covered with fine short hairs; notauli incomplete, shortly and hardly visible near the anterior margin of the scutum. Scutellum shiny, smooth, finely punctate, without sculpture among punctures. Metanotum shiny, smooth, without sculpture. Propodeum with a slender transverse keel between dorsal and posterior surface; dorsal surface of propodeum dull, reticulate rugose and granulated, with 2 median and parallel irregular longitudinal keels (they do not reach the anterior margin of the propodeum and do not form a basal areola; on the place of the basal areola there is a short median longitudinal keel); posterior sur-

face of propodeum reticulate rugose, without longitudinal keels. Mesopleura and metapleura shiny, smooth, finely punctate, without sculpture among punctures.

Forewing totally slightly darkened, with 4 cells enclosed by pigmented veins (CC, BC, SBC, 1DC); 1SDC cell open, not completely enclosed by pigmented veins; stigmal vein with distal part slightly longer than proximal part (25:21); marginal cell open; hind wing hyaline.

Genitalia (Fig. 7) with a membranous process of the parameres longer than penis and parameres, the process distally hairless, without papillae, but showing a mosaic sculpture.

Maxillary palpi with 6 segments; labial palpi with 2 segments; tibial spurs 1, 2, 2.

Derivatio nominis: the species is named after the collector of the holotype, Dr. Paul Hanson.

After the description of *E. hansoni*, the key to the males of the world *Embolemus* proposed by Olmi (1997, 1998, 2004b) and Olmi & Portuondo Ferrer (2003) has to be modified (see the following *E. searsi* n. sp.).

Embolemus searsi n. sp.

Material examined: male holotype: Papua New Guinea, Morobe Prov., Tekadu, 07°38'S 146°34'E, 1-20.IV.2000, T.A. Sears & binatung brigade, Malaise trap (in DA!); 6 paratypes: 1 male paratype: same locality label of the holotype (in DA!); 2 male paratypes: same locality label, I.2000 (in DA!); 1 male paratype: same locality label, 9.II.2000 (in DA!); 1 male paratype: Gulf Prov., Ivimka Research Station, Lakekamu Basin, 07°44'S 146°30'E, 120 m, 24.III.2000, Malaise trap, T. Sears coll. (in DA!); 1 male paratype: same locality label, 13.IV.2000 (in OL!).

Female: unknown.

Description of the male: fully winged; length 2.37 - 2.87 mm (holotype 2.50 mm).

Head brown, with mandibles and clypeus testaceous; occasionally head completely testaceous-brown; antennae brown, with segments 1-2 testaceous; mesosoma brown, or occasionally testaceous-dark; gaster brown; legs yellow.

Antennae not geniculated, filiform, articulated to prominent contiguous processes; antennal toruli very far from the upper margin of the clypeus; antennal segments in the following proportions: 9:3:12:12:12:12:10.5:10.5:10:12.

Head shiny, finely punctate, without sculpture among the punctures, finely hairy, with dorsal side swollen; occipital carina complete; ocelli distinct; POL = 1.5; OL = 2; OOL = 5; OPL = 3; TL = 6; frons without (or occasionally with) a track of median furrow from anterior ocellus to the frontal antennal processes; eyes small, approximately 0,5 as long as head (10:18); region of frons from clypeus to antennal sockets with two very convergent longitudinal and median sutures; they are incomplete and only visible near the clypeus. Pronotum dull, crossed by a strong transversal impression; anterior collar hidden behind the head; posterior surface of pronotum shorter than half of scutum (4:14); pronotum shorter than scutum (5:14). Scutum dull, granulated; notauli incomplete, hardly visible near the anterior margin of the scutum. Scu-

tellum shiny, with anterior half granulated and posterior half finely punctate, without sculpture among the punctures, finely hairy. Metanotum short, transverse, rugose, or occasionally smooth. Propodeum dull, reticulate rugose, with a transverse keel between dorsal and posterior surface; dorsal and posterior surface of propodeum with 2 complete median longitudinal keels; these keels anteriorly limit a rectangular area situated near the metanotum. Mesopleura and metapleura smooth, shiny, without sculpture.

Forewing completely slightly darkened, with 4 cells enclosed by pigmented veins (CC, BC, SBC, 1DC); hind wing completely slightly darkened; distal part of stigmal vein approximately as long as proximal part (13:13).

Ninth abdominal sternite with a short rod; genitalia with a glabrous short dorsal process of the parameres (Fig. 8).

Maxillary palpi with 6 segments; labial palpi with 2 segments; tibial spurs 1, 2, 2.

Derivation nominis: the species is named after the collector of the holotype, Mr. T. Sears.

Remarks: after the descriptions of the previous *Embolemus hansoni* and *searsi*, the key to the males of the world *Embolemus* proposed by Olmi (2004c) can be modified by replacing couplet 17 as follows:

17. Proximal membranous process of the parameres very short (Fig. 30 B in Olmi, 1995a; Fig. 8) 18
– Proximal membranous process of the parameres long (Figs 23 A, 23 B, 30 A in Olmi, 1995a; Fig. 7) 20
18. Proximal membranous process of the parameres very short (Fig. 14 in Olmi, 1997) ..... *capensis* Olmi
– Proximal membranous process of the parameres longer (Fig. 30 B in Olmi, 1995a) 19
19. Distal part of stigmal vein much longer than proximal part. ..... *neotropicus* Olmi
– Distal part of stigmal vein approximately as long as proximal part. ..*searsi* n. sp.
20. Dorsal membranous process of the parameres longer than the penis and parameres (Fig. 7) ..... *hansoni* n. sp.
– Dorsal membranous process of the parameres much shorter than penis and parameres (Figs 23 A, B in Olmi, 1995; Fig. 1 in Olmi & Portuondo Ferrer, 2003). 21
21. Dorsal surface of the propodeum with posterior half smooth and shiny; distal apex of penis pointed (Fig. 1 in Olmi & Portuondo Ferrer, 2003) .... *cocoensis* Olmi & Portuondo Ferrer
– Dorsal surface of the propodeum completely dull and rugose; rarely only with two smooth areas on the sides of the dorsal surface; distal apex of penis broad (Figs 23 A, B in Olmi, 1995a) 22
22. Dorsal membranous processes of the parameres very near (Fig. 23 A in Olmi, 1995a) ..... *ruddii* Westwood
– Dorsal membranous processes of the parameres very far (Fig. 23 B in Olmi, 1995a) ..... *africanus* (Risbec)

ACKNOWLEDGMENTS

For the kind loan of material, the Author is much indebted to Bob Zuparko (San Francisco, California).

REFERENCES

ACHTERBERG C. VAN, KATS R.J.M. VAN, 2000 - Revision of the Palaearctic Embolemidae (Hymenoptera). - Zool. Meded. Leiden, 74: 251-269.

OLMI M., 1995a - A revision of the world Embolemidae (Hymenoptera Chrysidoidea). - Frustula entomol., N.S., XVII (XXXI): 85- 146.

OLMI M., 1995b - Dryinids and Embolemids in amber (Hymenoptera Dryinidae et Embolemidae). - Redia, 78 : 253-271.

OLMI M., 1997 - A contribution to the knowledge of the Embolemidae and Dryinidae (Hymenoptera Chrysidoidea). - Boll. Zool. agr. Bachic., Ser. II, 29 (2): 125-150.

OLMI M., 1998 - New Embolemidae and Dryinidae (Hymenoptera Chrysidoidea). - Frustula entomol., N.S., XXXI (XXXIV), 1997: 1-90.

OLMI M., 1999a , Hymenoptera Dryinidae - Embolemidae. - Fauna d'Italia 37: I-XVI + 1-425. Edizioni Calderini, Bologna.

Olmi M., 1999b , Description of two new species of Ampulicomorpha (Hymenoptera Embolemidae). , Boll. Zool. agr. Bachic., Ser. II, 31 (1): 1-10.

OLMI M., 2004a , Embolemus kheeli: a new species of Embolemidae (Hymenoptera: Chrysidoidea) from the Dominican Republic. - Zootaxa 500: 1-6.

OLMI M., 2004b - New species of Dryinidae and Embolemidae from Madagascar (Hymenoptera Chrysidoidea). - Frustula entomol. (2002), N.S., XXV (XXXVIII): 86-109.

OLMI M., 2004c - A catalogue of Dryinidae and Embolemidae of South Africa, with descriptions of new species (Hymenoptera Chrysidoidea). - Frustula entomol. (2003), N.S., XXVI (XXXIX): in press.

OLMI M., PORTUONDO FERRER E., 2003 - A new species of Embolemus from Cuba (Hym., Embolemidae). - Entomol. Monthly Mag. 139: 135-137.

PROF. MASSIMO OLMI - Dipartimento di Protezione delle Piante, Università della Tuscia, Via S. Camillo de Lellis, I-01100 Viterbo.

Accepted 5 November 2004