

New genus and species of Selenopidae (Arachnida, Araneae) from Madagascar and neighbouring islands

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A new spider genus, *Garcorops*, in the family Selenopidae is described from Madagascar and the Comoro Islands based on the type species *Garcorops madagascar* n.sp. (male and female). Two additional new species included in this genus are described and illustrated, namely *G. jocquei* (female only) from the Comoros and *G. paulyi* (female only) from Madagascar.

Key words: Afrotropical Region, new genus, new species, Comoro Islands, Madagascar.

INTRODUCTION

The Selenopidae is a small spider family represented by three genera and about 150 species, and has a cosmopolitan distribution. All species were initially included in the genus *Selenops* Latreille, 1819. Benoit (1968) redefined *Selenops* and proposed three new genera, *Anyphops*, *Hovops* and *Orops* (monotypic). He transferred several *Selenops* species from the Afrotropical Region to these new genera. Few species have been added to the Selenopidae since then. The first taxonomic revisions of the Selenopidae were undertaken by Corronca (1996, 1998a,b, 2000a,b, 2001). Corronca (1996) synonymized *Orops* Benoit, 1968, with *Selenops*. At present, *Selenops* is the only genus in the family that has a worldwide distribution and it is known both from subtropical and tropical areas. *Anyphops* Benoit, 1968, is endemic to the Afrotropical Region while *Hovops* Benoit, 1968, is endemic to Madagascar and includes all *Selenops* species previously recorded from that country (Benoit 1968). The selenopid genera can be distinguished by the arrangement of the eyes, the number of paired ventral spines on tibiae and metatarsi I and II, the leg lengths, the shape of the median apophysis, the tibial apophysis and conductor of the male palp and body hair type (Benoit 1968; Corronca 1996).

Little is known about the selenopids of Madagascar and the Comoro Islands. The Madagascan fauna is represented by six *Hovops* species (Benoit 1968), two *Selenops* species (one undescribed) and a single *Anyphops* (Corronca 1998b). From the Comoro Islands a single species, *Selenops comorensis* Schmidt & Krause, 1994, is known from Grande

Comore (Malakoff near Hilimandsodé; Schmidt & Krause 1994).

New spider material from Madagascar and the Comoro Islands revealed the presence of a new genus represented by three new species, and these are described below.

MATERIALS & METHODS

Specimens were made available by the Musée Royale de l'Afrique Centrale, Tervuren, Belgium (MRAC), and California Academy of Science, San Francisco, U.S.A. (CAS). The palpi and epigyna were dissected and clarified in lactic acid (90%) for 15–20 minutes in a double boiler. Abbreviations of morphological terminology follow those of Platnick & Shadab (1975).

DESCRIPTIONS

GARCOROPS n.gen.

Type species: *Garcorops madagascar* n.sp.

Diagnosis. This genus is characterized by: AME–ALE in a straight or slightly recurved row (Fig. 1A,C,D), PME > AME, almost 1.5 times AME diameter and PME–PLE in a strong, recurved row. Leg IV > leg II. Tibiae and metatarsi I and II with v2.2.2.2 and v2.2.2 spines, respectively. Male palp with two tibial apophyses, dorsal RTA > ventral RTA, with ventral RTA flattened (Fig. 2C); embolus long and slender (Fig. 2D); conductor T-shaped, tips slender and longer than in *Selenops*, and with basal rounded projection (Fig. 2D); median apophysis unbranched, subtriangular and paramedian apophysis subtriangular (Fig. 2C). Female

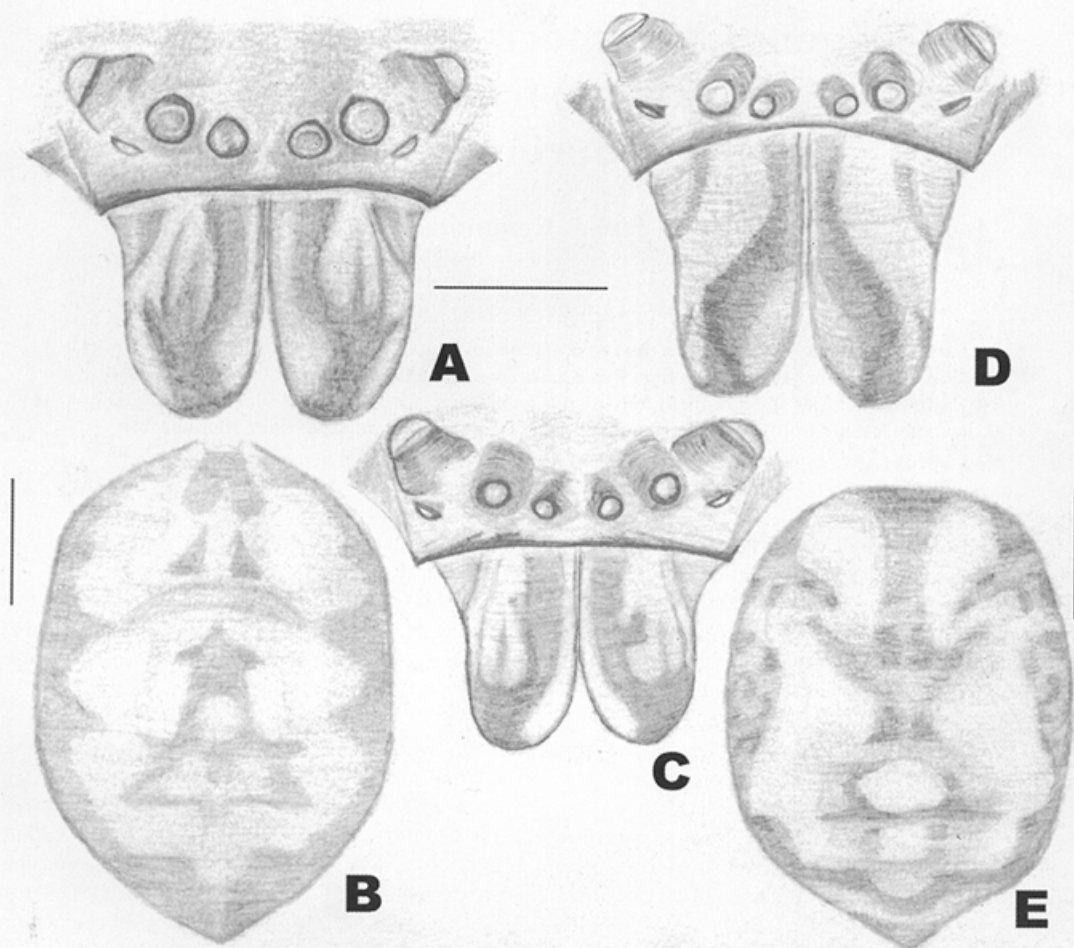


Fig. 1. A, *Garcorops jocquei*; anterior view of eyes and chelicerae showing colour pattern. B–C, *Garcorops paulyi*; B, dorsal abdominal colour pattern; C, anterior view of eyes and chelicerae showing colour pattern. D–E, *Garcorops madagascar*; D, anterior view of eyes and chelicerae showing colour pattern; E, dorsal abdominal colour pattern. Scale bars = 1 mm.

genitalia with copulatory apertures opening in central depression (middle field), lateral lobes without secondary epigynal pockets (Figs 2A, 3A,C); spermathecae well sclerotized and complex.

Etymology. The generic name is an arbitrary combination of letters and is masculine.

Relationships. *Garcorops* shares with *Anyphops* the four pairs of ventral spines on tibiae I and II and three pairs on the metatarsi I and II, but differs from it by the shape of the median apophysis of the male palp. The general shape of the unbranched median apophysis (MA) resembles some species of *Selenops*, but in *Garcorops* the MA is larger, subtriangular in shape, less sclerotized and without the curved tip typical of *Selenops* species.

The shape of the conductor resembles *Selenops* but in *Garcorops* it has a basal round projection, commonly found in some *Anyphops* species; the conductor in *Anyphops* differs, however, in other respects. The presence of a paramedian apophysis is shared with some *Anyphops* species. The general shape of the epigynum with a large central depression is shared with several *Selenops* and *Anyphops* species but it differs from them by the absence of secondary pockets of the epigynum, a character shared with *Anyphops* species. However, in *Garcorops* the lateral lobes are differentiated, separated, and the anterior margins are covered by a sclerotized, bridge-like structure. *Garcorops* is morphologically closest to *Anyphops* species in the B₁ group as defined by Lawrence (1940). This group

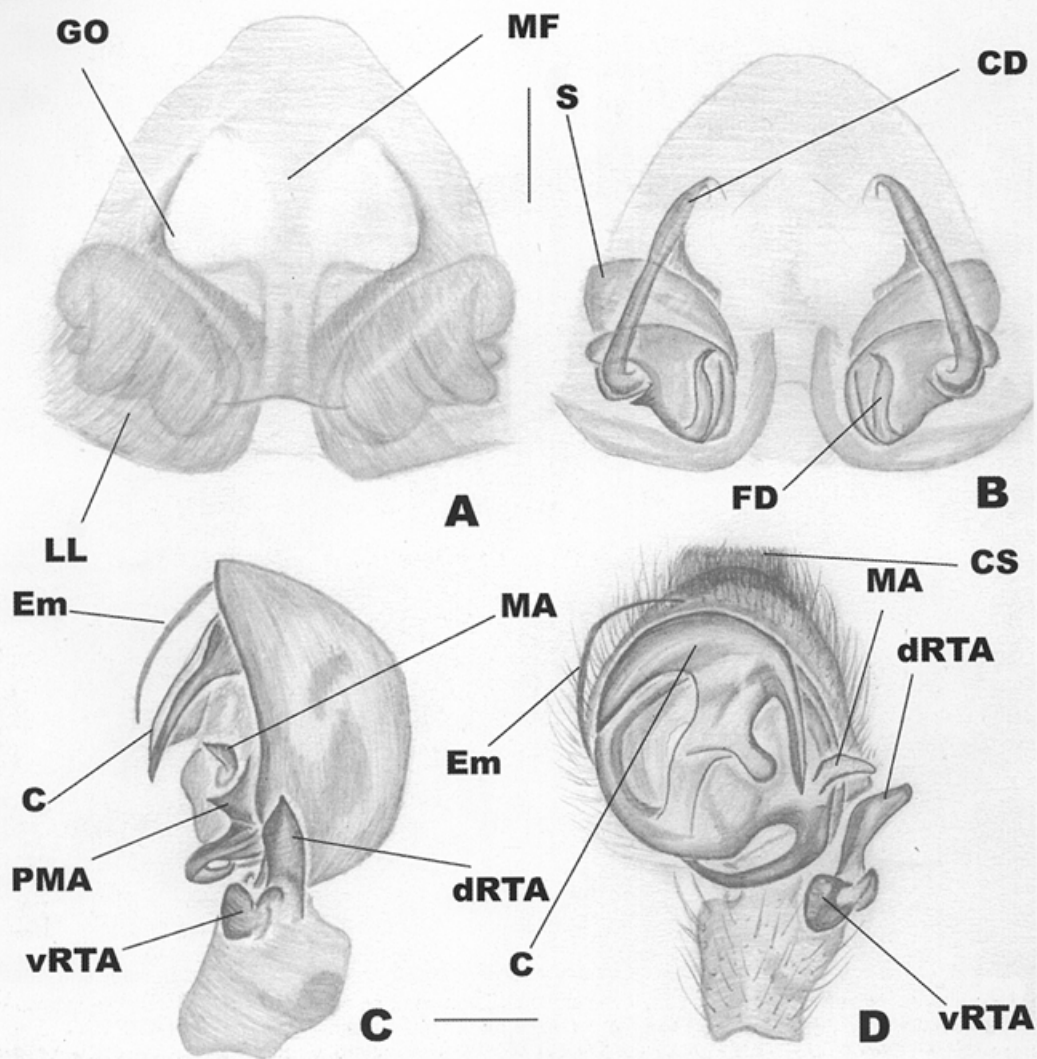


Fig. 2. A–D, *Garcorops madagascar*; A–B, general morphology of female genitalia: A, epigynum, ventral view; B, vulva; C–D, general morphology of male palp: C, lateral view; D, ventral view. Abbreviations: C, conductor; CS, cymbial scopula; CD, copulatory duct; Em, embolus; FD, fertilization duct; GO, genital opening; LL, lateral lobes; MA, median apophysis; MF, middle field; PMA, paramedian apophysis; dRTA, dorsal retrolateral tibial apophysis; vRTA, ventral retrolateral tibial apophysis; S, spermathecae. Scale bar = 0.25 mm.

is known from Kenya and South Africa and includes *A. lycosiformis* (Lawrence, 1940), *A. natalensis* (Lawrence, 1940) and *A. parvulus* (Pocock, 1900).

Description. Carapace orange to orange-brown, lateral margins with dark grey band. Chelicerae red-brown, with dark longitudinal inner band. Labium and sternum light grey. Dorsum of abdomen yellowish with light grey markings forming a distinct abdominal pattern; venter yellowish, without marks except lateral and posterior margins with dark spots or lines; body hairs simple.

Eyes: AME < PME; AME closer to clypeal edge; ALE and PME aligned; PLE separated from PME by half or more diameter of PME; ALE smallest, pale, for nocturnal. Carapace wider than long; clypeus narrow. Chelicerae with distinct large boss; cheliceral furrows with three prolateral and two retrolateral teeth. Labium as wide as long, sternum circular. Palpi with tibia longer than patella. Legs long, laterigrade, with leg IV > II; tarsi two-clawed, with one claw slightly pectinate, other smooth; trichobothria on all leg segments. Leg setae: femora I–IV with d1.1.1 and r1.1.1

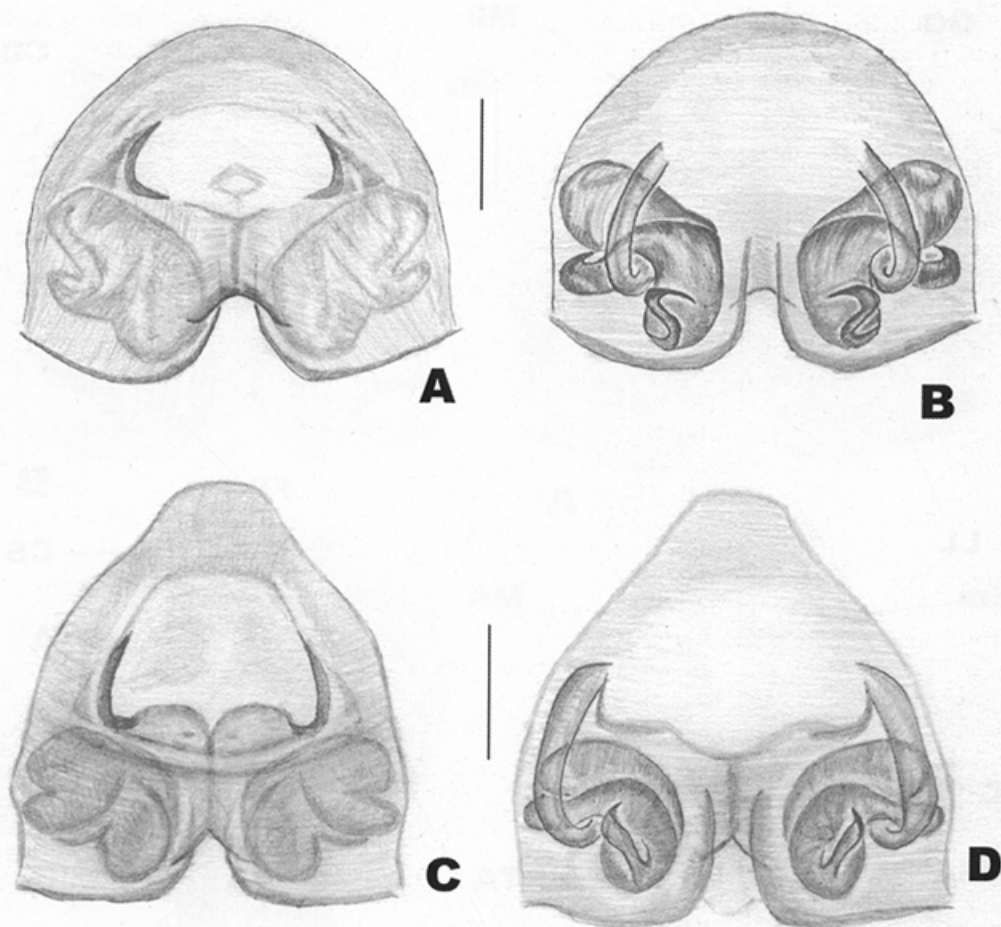


Fig. 3. A–B, *Garcorops jocquei*; A, epigynum, ventral view; B, vulva. C–D, *Garcorops paulyi*; C, epigynum, ventral view; D, vulva. Scale bars = 0.25 mm.

spines; tibiae I and II with v2.2.2.2 and metatarsi I and II v2.2.2 spines, males hyperspined. Abdomen truncated anteriorly. Palp of male with two tibial apophyses; dorsal RTA > ventral RTA; cymbial dorsal scopula well developed; embolus long and slender; conductor large, sclerotized, partly covering embolus, T-shaped with long lateral tips and round lateral projection basally; median apophysis unbranched, subtriangular. Epigynum with middle field as a central depression. Lateral lobes present, without secondary epigynal pockets. Spermathecae complex, well sclerotized.

***Garcorops madagascar* n.sp.**, Figs 1D, E, 2A–D

Type material. Holotype ♂ (MRAC 177.905): Madagascar, Tamatave, Foulpointe, forêt-*Asplenium*, December 1993, Pauly. Paratypes 3♀ (MRAC 177.905).

Etymology. The specific name is a noun in apposition taken from the type locality.

Diagnosis. See characters of male in genus description. The female of *G. madagascar* resembles *G. paulyi*, but differs in the shape of central depression and lateral lobes (Fig. 2A). Spermathecae with three lateral lobes, shape of copulatory and fertilization ducts distinct for species (Fig. 2B).

Description of holotype. Total body length 5.36 mm. Carapace 2.55 mm long, 3.00 mm wide. Eye sizes and interdistances: AME 0.15 mm, ALE 0.09 mm, PME 0.21 mm, PLE 0.25 mm, AME–AME 0.14 mm, AME–ALE 0.30 mm, AME–PME 0.07 mm, PME–PME 0.53 mm, PME–PLE 0.27 mm, PLE–PLE 1.17 mm, ALE–ALE 0.98 mm. Abdomen 2.81 mm long, 2.25 mm wide. Leg formula 4231. Leg lengths: I, femora 3.90 mm, patellae + tibiae 4.95 mm, metatarsi 3.83 mm, tarsi 1.80 mm, total

14.48 mm; II, 4.38 mm, 5.14 mm, 4.09 mm, 1.83 mm, total 15.44 mm; III, 4.57 mm, 5.05 mm, 3.94 mm, 1.76 mm, total 15.32 mm; IV, 5.14 mm, 5.06 mm, 3.86 mm, 1.73 mm, total 15.79 mm. Leg spination: femora I p1.1.1, d1.1.1, r1.1.1; II–IV, p1.1.0, d1.1.1, r1.1.1; tibiae I II p1.1.0, d0.1.0, v2.2.2.2, r1.1.0; III–IV p1.0.0, v2.2.1, r1.1.0; metatarsi I–II v2.2.2, r1.0.0, III v2.0.2, r1.0.0, IV, v2.0.1. r1.0.0. Carapace pale yellow, lateral margins with narrow, dark grey band. Chelicerae yellowish with dark band enclosing a pale median area (Fig. 1D). Legs pale yellow without markings. Dorsum of abdomen yellowish with light grey marks (Fig. 1E); venter pale yellow. Palp of male as in Fig. 2C,D.

Description of paratype. Total body length 6.10 mm. Carapace 2.33 mm long, 2.63 mm wide. Eye sizes and interdistances: AME 0.12 mm, ALE 0.09 mm, PME 0.19 mm, PLE 0.25 mm, AME–AME 0.18 mm, AME–ALE 0.26 mm, AME–PME 0.07 mm, PME–PME 0.47 mm, PME–PLE 0.28 mm, PLE–PLE 1.17 mm, ALE–ALE 0.97 mm. Abdomen 3.68 mm long, 2.51 mm wide. Leg formula 4321. Leg lengths: I, femora 2.36 mm, patellae+tibiae 2.81 mm, metatarsi 1.73 mm, tarsi 0.98 mm, total 7.88 mm; II, 2.74 mm, 3.15 mm, 1.95 mm, 1.05 mm, total 8.89 mm; III, 2.89 mm, 3.08 mm, 2.06 mm, 0.90 mm, total 8.93 mm; IV, 2.89 mm, 3.15 mm, 2.14 mm, 1.01 mm, total 9.19 mm. Leg spination: femora I p1.1.0, d1.1.1, r1.1.1; II–IV p1.0.0, d1.1.1, r1.1.1; tibiae I–II v2.2.2.2; III–IV v1.1.0; metatarsi I–II v2.2.2, III–IV v2.1.0. Colouration similar to male but legs with diffuse markings, femora I–II with one incomplete ring continuing into a narrow dark prolateral band, tibiae I–IV with two incomplete rings, distal one wider than proximal, metatarsi I–IV with two incomplete dark rings and tarsi with only one.

Remarks. In a few specimens only three pairs of ventral spines were present on tibiae I–II, and one male (CASENT 9003731) had the lateral basal projection of the conductor subtriangular and pointed, but other respects it was similar to males of the species. I consider these intraspecific variations.

Additional material. MADAGASCAR: Tamatave, Foulpointe (forêt sol sableux, marais à *Pandanus*, bac jaune), 2♂, January 1994; 1♀, July 1994, (forêt sur argile), Pauly, MRAC 177.728 and 201.872; Maroantsetra, Baie d'Antongil, 1♀, 6juv., Lambillon, MRAC 142.995. Antsiranana Province: Forêt d'Orangea, 3.6 km, 128°SE Remena, 1♂, 22–28/02/01, 12°15'32"S 49°22'29"E, 90 m, littoral forest, general collecting night, Rafanomezantsoa

et al., CAS (CASENT 9002278); Réserve Spéciale d'Ambre, 3.5 km 235°SW Sakaramy, 12°28'8"S 49°14'32"E, 325 m, 1♂, 1juv., 26–31/01/01, tropical dry forest, EF28 beating low vegetation, Fisher, Griswold *et al.*, CAS (CASENT 9006809); Réserve Spéciale de l'Ankarana, 13.6 km 192°SSW Anivorano Nord, 12°51'49"S 49°13'33"E, 1♂, 210 m, 16–21/02/01, tropical dry forest, general collecting day, Rafanomezantsoa *et al.*, CAS (CASENT 9000951); 22.9 km 224°SW Anivorano Nord, 12°54'32"S 49°6'35"E, 2♀, 80 m, 10–16/02/01, tropical dry forest, general collecting night, Rafanomezantsoa *et al.*, CAS (CASENT 9002441); 3♀, 1♂, 4 juv., 80 m, 10–16/02/01, tropical dry forest, general collecting, Boutin, CAS (CASENT 9003731); 13.6 km 192°SSW Anivorano Nord, 12°51'49"S 49°13'33"E, 1♂, 210 m, 16–21/02/01, tropical dry forest, general collecting day, Rafanomezantsoa *et al.*, CAS (CASENT 9000992); 1♀, 210 m, 16–21/02/01, tropical dry forest, beating low vegetation, Fisher, Griswold *et al.*, CAS (CASENT 9001526).

Garcorops jocquei n.sp., Figs 1A, 3A,B

Type material. Holotype ♀ (MRAC 208.085), Comoro Islands, Mayotte, Ngouja, 12°05'S 45°09'E, dry heavily grazed forest, 23 July–6 August 1998, Jocqué (pitfalls).

Etymology. The specific name is a patronym in honour of Dr Rudy Jocqué for his contribution to the knowledge of African spiders.

Diagnosis. This species is characterized by the shape of the central depression of epigynum which is wider than long (Fig. 3A); lateral lobes separated with a well-developed anterior sclerotized structure covering them. Spermathecae with copulatory ducts across the central area of the spermathecae; fertilization ducts S-shaped (Fig. 3B).

Description of holotype. Total body length 5.70 mm. Carapace 2.36 mm long, 2.55 mm wide. Eye sizes and interdistances: AME 0.16 mm, ALE 0.09 mm, PME 0.23 mm, PLE 0.25 mm, AME–AME 0.11 mm, AME–ALE 0.33 mm, AME–PME 0.05 mm, PME–PME 0.46 mm, PME–PLE 0.28 mm, PLE–PLE 1.17 mm, ALE–ALE 1.00 mm. Abdomen 3.34 mm long, 2.33 mm wide. Leg formula 4321. Leg lengths: I, femora 2.36 mm, patellae+tibiae 2.81 mm, metatarsi 1.80 mm, tarsi 1.00 mm, total 7.97 mm; II, 2.59 mm, 3.08 mm, 1.91 mm, 1.00 mm, total 8.58 mm; III, 2.74 mm, 3.04 mm, 2.10 mm, 1.00 mm, total 8.88 mm; IV, 2.85 mm, 3.00 mm, 2.14 mm, 1.00 mm, total 8.99 mm. Leg spination: femora I p1.1.0, d1.1.1, r1.1.1; II–IV, p1.0.0, d1.1.1,

r1.1.1; tibiae I–II v2.2.2, III v1.1.0, IV v1.1.0, r0.2.0; metatarsi I–II v2.2.2, III v2.1.0, VI v1.1.1. Carapace orange-brown, lateral margins with dark grey band. Chelicerae red-brown with dark inner bifurcated band (Fig. 1A). Legs pale yellow with markings, femora I and II with two dark rings joined together, forming a wide, black prolateral band, tibiae I–IV with a small dark dorsal and proximal spot. Dorsum of abdomen yellowish without dorsal markings, venter light grey. Epigynum and spermathecae as in Fig. 3A,B.

Male. Unknown

***Garcorops paulyi* n.sp.**, Figs 1B,C, 3C,D

Type material. Holotype ♀ (MRAC 205.748), Madagascar, Tamatave, Foulpointe, 1994, Pauly. Paratypes, 2♀ (MRAC 206.550, 206.860), same data as holotype.

Etymology. The specific name is dedicated to the collector of the specimens.

Diagnosis. This species shares with *G. madagascar* the general shape of the central depression of the epigynum (Fig. 3C), but it is not as wide as in *G. madagascar* (Fig. 2A); anterior sclerotized structure that joins the lateral lobes with posterior margin deep inverted V-shaped (Fig. 3C); shape and position of copulatory and fertilization ducts different from other species (Fig. 3D).

Description of holotype. Total body length 6.98 mm. Carapace 2.88 mm long, 3.19 mm wide. Eye sizes and interdistances: AME 0.16 mm, ALE 0.09 mm, PME 0.21 mm, PLE 0.25 mm, AME–AME 0.14 mm, AME–ALE 0.40 mm, AME–PME 0.09 mm, PME–PME 0.60 mm, PME–PLE 0.39 mm, Pl.F. Pl.F. 1.49 mm, ALF. ALF. 1.19 mm. Abdomen 4.10 mm long, 3.23 mm wide. Leg formula 4321. Leg lengths: I, femora 3.15 mm, patellae+tibiae 3.90 mm, metatarsi 2.40 mm, tarsi 1.20 mm, total 10.65 mm; II, 3.56 mm, 4.13 mm, 2.55 mm, 1.20 mm, total 11.44 mm; III, 3.83 mm, 4.00 mm, 2.81 mm, 1.20 mm, total 11.84 mm; IV, 3.86 mm, 4.05 mm, 3.08 mm, 1.35 mm, total 12.34 mm. Leg spination: femora I and IV p1.1.0, d1.1.1, r1.1.1; II–III p1.0.0, d1.1.1, r1.1.1; tibiae I–II v2.2.2, III v1.1.0, IV v1.1.1, r0.2.0; metatarsi I–II v2.2.2, III v2.0.1, VI v1.1.1. Carapace orange-brown, lateral margins with narrow dark grey band. Chelicerae red-brown with dark inner band (Fig. 1C). Legs pale yellow; femora I and II with one dark ring forming a wide black prolateral band, tibiae I–IV with a small dark dorsal and proximal spot and an incomplete dark ring with a pale longitudinal dorsal line. Dorsum

of abdomen yellowish with diffuse dorsal marks (Fig. 1B); venter light grey. Epigynum and spermathecae as in Fig. 3C,D.

Male. Unknown.

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