Studies on North African Linyphiidae VI. The genera *Pelecopsis* Simon, *Trichopterna* Kulczynski and *Ouedia* gen. n. (Araneae: Linyphiidae)

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Summary

Pelecopsis cedricola sp. n., *P. digitulus* sp. n., *P. kabyliana* sp. n., *P. kalaensis* sp. n., *P. lunaris* sp. n. and *P. riffensis* sp. n. are described from North Africa. Females and males of *P. majus* (Denis) were incorrectly matched; the correct male is described, whereas the other male is given the name *P. oujda* sp. n. Males and females of *P. hipporegia* (Denis) were also incorrectly matched; the females appear to be *P. bucephala* (O.P.-Cambridge); the correct female is described. *Pelecopsis semitecta* Denis and *P. uncinata* Denis are junior synonyms of *P. bucephala*. *Pelecopsis lucasi* (O.P.-Cambridge) is transferred to *Trichopterna*, and the new genus *Ouedia* is erected to receive *Trichopterna rufithorax* (Simon).

Pelecopsis amabilis (Simon), *P. inedita* (O.P.-Cambridge), *P. oranensis* (Simon), *P. suilla* (Simon), *P. bicornuta* Hillyard, *P. coccinea* (O.P.-Cambridge), *P. leonina* (Simon) and *P. modica* Hillyard are also redescribed, and a key to the North African species of *Pelecopsis* is provided.

Introduction

Since Holm's (1979) study of *Pelecopsis* Simon and *Trichopterna* Kulczynski, the two genera are excellently diagnosed. In agreement with Millidge (1977a), Holm limited the genus *Trichopterna* to its type species, *T. cito* (O.P.-Cambridge). The genus *Pelecopsis* on the contrary is very rich in species. Holm (1979) treated some thirty species, but only European and tropical African ones. In the present paper we will review all North African species, as far as type material was available.

Eight species of *Pelecopsis* have been cited in North Africa: *P. amabilis* (Simon), *P. aureipes* Denis, *P. bicornuta* Hillyard, *P. coccinea* (O.P.-Cambridge), *P. inedita* (O.P.-Cambridge), *P. lucasi* O.P.-Cambridge, *P. majus* (Denis), *P. modica* Hillyard and *P. oranensis* (Simon).

Six species from North Africa were described in the genus *Exechophysis*: *E. bucephala* (O.P.-Cambridge), *E. hipporegia* Denis, *E. leonina* Simon, *E. semitecta* Denis, *E. suilla* Simon and *E. uncinata* Denis. Millidge (1977a) synonymised *Pelecopsis* and *Exechophysis*, the former having priority. For this reason, Hillyard (1980) described *bicornuta* and *modica*, both closely related to *E. bucephala*, in the genus *Pelecopsis*.

A final species treated in this paper is *Trichopterna rufithorax* (Simon). According to Millidge (1977a), this species belongs to "another" genus.

All previous references concerning North Africa are included in this paper, making it a complete review of all known localities and distribution areas. In North Africa, where literature is scarce, this will facilitate the work of future students of the linyphiid fauna. For the same reason, we include figures of well-known South European species such as *P. inedita* and *P. bucephala*.

Nomenclature of the male palp is according to Holm (1979), and of the female epigyne according to Millidge (1984). Measurements are in mm.

Abbreviations: AE, PE = anterior, posterior eyes; AM, AL = anterior median, anterior lateral eyes; PM, PL = posterior median, posterior lateral eyes. Fe, Pa, Ti, Mt, Ta = femur, patella, tibia, metatarsus, tarsus; I = first legs; II = second legs, etc. TbMtI = relative position of trichobothrium on Mt I. Wil = Wilaya (Algerian province). BMNH = British Museum (Natural History); HECO = Hope entomological collections, Oxford; MNHNP = Muséum national d'Histoire naturelle, Paris; IRSNB = Institut royal des Sciences naturelles de Belgique; CRB = collection R. Bosmans.

Genus *Pelecopsis* Simon

Type species: Pelecopsis elongata (Wider).

Diagnosis: Small to medium-sized erigonine spiders of the *Pelecopsis* group. Cephalic part of cephalothorax in males with antero-dorsal elevation, bearing posterior median eyes, rarely also with anterior elevation; post-ocular sulci present, often with additional pit; thoracic part of both sexes with radiating lines of impressed punctures, rarely absent, in *bucephala* group each with a hair. Sternum with scattered punctures, posteriorly separating coxae IV by distance equal to, slightly more or slightly less than diameter of coxae IV. Chelicerae with hardly visible stridulating ridges. Tibiae of males generally spineless, of females with one dorsal spine shorter or slightly longer than tibia's diameter; position TbMtI = 0.38–0.85, Tb on MtIV present or absent. Abdomen of males with dorsal scutum, densely punctate, generally covering 2/3 of abdomen; venter with more or less developed brown spots before spinnerets and on long opercula; females of *bucephala* group also with a scutum, those of *nemoralis* group only with small brown spot before spinnerets.

North African *Pelecopsis* species can be classified into two clear-cut groups: the *nemoralis* group and the *bucephala* group. Apart from the fact that males of the *bucephala* group (except *coccinea*) have all impressed punctures provided with a hair, and that females of this group all possess abdominal scuta, differences lie only in the secondary genitalia. Relationships with other *Pelecopsis* species or species-groups are beyond the scope of this paper.

The nemoralis *group:* Male palp: Tibia with 1–2 trichobothria and with antero-dorsal and antero-lateral apophyses, the latter sometimes reduced; paracymbium simple, without hairs; protegulum produced, becoming membranous towards tip; radical part of embolic division elongate, directed postero-mesally, embolic part more or less spirally coiled in a narrow or wide clockwise spiral, as seen from posterior, sometimes almost screw-shaped; conductor membranes strongly developed, but their radical and suprategular parts difficult to distinguish,

partly sclerotised. Epigyne of females usually with two longitudinal more or less parallel sutures flanked by lateral pouches delimiting a median septum; vulva with short sperm ducts and simple spermathecae without atria.

The bucephala *group:* Male palp: Tibia with 1–2 trichobothria; patella often swollen; tibia with strong antero-dorsal apophysis; paracymbium simple, without hairs; pro- and suprategulum well-developed; radical part of embolic division relatively short and wide, directed posteriorly; embolus long and parallel-sided, more or less in a counter-clockwise semi-circle or spiral as seen from posterior. Ventral plate of epigyne strongly sclerotised, with posterior rim; vulva with relatively long sperm ducts and complicated spermathecae with an atrium; dorsal plate variable in form, oval, triangular or rectangular.

Both groups are closely related and are differentiated mainly by genital characters. Species of the *nemoralis* group have a longer posterior radical part of the embolic division, a clockwise spiral of the embolus, shorter sperm ducts and simply rounded spermathecae.

Distribution: Palaearctic, nearctic, tropical Africa.

Key to the North African species of *Pelecopsis*

Males

1. Tibia with antero-dorsal and antero-lateral apophyses, the latter rarely absent; embolus more compact, spirally coiled or screw-shaped, with elongate radical part; punctures on cephalothorax less abundant, on thoracic part never with hairs (*nemoralis* group) 2
— Tibia with one strong, antero-dorsal apophysis; embolus long and linear, more or less describing a semi-circle or spiral, with radical part relatively short and wide; cephalothorax with abundant punctures, each with a hair (*coccinea* excepted) (*bucephala* group) 14
2. Palpal cymbium with dorsal tubercle (Fig. 3) or angularity (Fig. 20) 3
— Palpal cymbium dorsally simply rounded (Fig. 12) 7
3. Cymbium angular dorsally (Fig. 20); tibia with finger-like antero-dorsal apophysis and small antero-lateral tooth (Figs. 20, 21) ..... *digitulus* sp. n.
— Cymbium with distinct dorsal tubercle (Figs. 3, 28); tibial apophyses different (Figs. 4, 29, 45, 53) 4
4. Lateral tibial apophysis a small hook, much shorter than dorsal apophysis (Fig. 4) ..... *amabilis* (Simon)
— Lateral tibial apophysis well-developed and not hooked (Figs. 29, 45, 53) 5
5. Antero-dorsal tibial apophysis truncated terminally (Fig. 53) ..... *kalaensis* sp. n.
— Antero-dorsal tibial apophysis pointed (Figs. 29, 45) 6
6. Dorsal and lateral tibial apophyses of about equal length (Fig. 45); suprategular apophysis needle-like (Figs. 44, 46) ..... *kabyliana* sp. n.
— Lateral apophysis somewhat shorter than dorsal apophysis (Fig. 29); suprategular apophysis different (Figs. 28, 30) ..... *hipporegia* (Denis)
7. Tibia with only one, antero-dorsal, apophysis (Figs. 37, 78) 8
— Tibia with dorsal and lateral apophyses (Figs. 13, 61, 69, 88, 93, 101) 9
8. Dorsal apophysis of tibia straight (Fig. 37) ..... *inedita* (O.P.-Cambridge)
— Dorsal apophysis of tibia gently curved in antero-lateral direction (Fig. 78) ..... *oranensis* (Simon)
9. Tibia sickle-shaped (Fig. 61) ..... *lunaris* sp. n.
— Tibia not sickle-shaped (Figs. 13, 69, 88, 93, 101) 10
10. Embolus in a wide spiral (Figs. 92, 94) *riffensis* sp. n.
— Embolus in a narrow spiral (Figs. 14, 70, 89, 102) 11
11. Palpal tibia relatively short, as wide as long (Fig. 13) ..... *cedricola* sp. n.
— Palpal tibia longer, at least 1.5 × as long as wide (Figs. 69, 88, 101) 12
12. Cephalothorax with protruding clypeus and elongated sulci (Fig. 67, 98) 13
— Clypeus straight; sulci oval (Fig. 86) ..... *oujda* sp. n.
13. Clypeus slightly protruding (Fig. 98); lateral tibial apophysis not hooked (Fig. 101) ..... *suilla* (Simon)
— Clypeus strongly protruding (Fig. 67); lateral tibial apophysis hooked (Fig. 69) ..... *majus* (Denis)
14. Antero-dorsal tibial apophysis gradually narrowing; tibia in dorsal view 1.5 × as long as wide (Fig. 122) ..... *coccinea* (O.P.-Cambridge)
— Antero-dorsal apophysis clearly defined; tibia in dorsal view more than twice as long as wide (Figs. 106, 114, 130, 138) 15
15. Tibial apophysis with 1–2 small terminal denticles (Figs. 113, 137) 16
— Tibial apophysis with 4–5 small terminal denticles (Figs. 105, 129) 17
16. Tibial apophysis with 2 small terminal denticles (Fig. 113); cephalothorax strongly protruding (Fig. 111) ..... *bucephala* (O.P.-Cambridge)
— Tibial apophysis with 1 small terminal denticle (Fig. 137); cephalothorax less protruding (Fig. 135) ..... *modica* Hillyard
17. Tibial apophysis with postero-basal tooth (Fig. 105); cephalic lobe without small anterior tubercle (Fig. 103) ..... *bicornuta* Hillyard
— Tibial apophysis without postero-basal tooth (Fig. 129); cephalic lobe with small anterior tubercle (Fig. 128) ..... *leonina* (Simon)

Females (females of *oujda* sp. n. and *suilla* (Simon) unknown):

1. Abdomen without dorsal scutum (*nemoralis* group) 2
— Abdomen with dorsal scutum (*bucephala* group) 12
2. Epigyne without distinct median septum, at most with short sutures near epigastric furrow (Figs. 39, 95) .. 3
— Epigyne with distinct median septum (Figs. 6, 15, 23) 4
3. Epigyneal plate strongly developed, slightly longer than wide, anteriorly with chitinised rim (Fig. 95) ..... *riffensis* sp. n.
— Epigyneal plate wider than long, usually with two pale spots before epigastric furrow separated by a darker longitudinal stripe (Fig. 39) ..... *inedita* (O.P.-Cambridge)

4. Median septum more than twice as wide as lateral pouches (Figs. 47, 80) 5
— Median septum less than 1.5 × as wide as lateral pouches (Figs. 6, 15, 23, 31, 55, 63, 71) 6
5. Median septum 3 × as wide as long (Fig. 47) ..... *kabyliana* sp. n.
— Median septum twice as wide as long (Fig. 80) ..... *oranensis* (Simon)
6. Median septum very short, accompanied by oval lateral pouches (Fig. 6) ..... *amabilis* (Simon)
— Median septum longer, accompanied by rounded lateral pouches (Figs. 15, 23, 31, 55, 63, 71) 7
7. Median septum with parallel margins (Fig. 71) ..... *majus* (Denis)
— Median septum narrowed in middle (Figs. 15, 23, 31, 55, 63) 8
8. Median septum half as wide as long, strongly widened anteriorly and posteriorly, and half as wide as lateral pouches (Fig. 63) ..... *lunaris* sp. n.
— Median septum longer than wide, and 1–1.5 × as wide as lateral pouches (Figs. 15, 23, 31, 55) 9
9. Median septum much wider anteriorly than posteriorly (Fig. 31) ..... *hipporegia* (Denis)
— Median septum not wider anteriorly than posteriorly (Figs. 15, 23, 55) 10
10. Median septum 1.5 × as wide as lateral pouches (Fig. 15); spermathecae large, twice as wide as lateral pouches (Fig. 17) ..... *cedricola* sp. n.
— Median septum as wide as lateral pouches (Figs. 23, 55); spermathecae only slightly wider than lateral pouches (Figs. 25, 57) 11
11. Antero-lateral margin of median septum strongly recurved, giving lateral pouches a rounded appearance (Fig. 23) ..... *digitulus* sp. n.
— Antero-lateral margin of median septum directed laterally, giving lateral pouches a more angular appearance (Fig. 55) ..... *kalaensis* sp. n.
12. Epigyne area as wide as long (Fig. 124); anterior part of sperm ducts very long and wide, extending anterior to spermathecae (Fig. 126) ..... *coccinea* (O.P.-Cambridge)
— Epigyne area much wider than long (Figs. 108, 116, 132, 140); anterior part of sperm ducts relatively narrower, not extending anterior to spermathecae (Figs. 110, 118, 134) 13
13. Dorsal plate of epigyne in postero-ventral view more than twice as wide as long (Figs. 109, 141) 14
— Dorsal plate 1.5 × or less as wide as long (Figs. 117, 133) 15
14. Posterior margin of epigyne sinuous and well-marked (Fig. 108); dorsal plate more rounded laterally (Fig. 109) ..... *bicornuta* Hillyard
— Posterior margin of epigyne less sinuous, less well-marked (Fig. 140); dorsal plate more rectangular (Fig. 141) ..... *modica* Hillyard
15. Posterior margin of epigyne as in Fig. 116, with two relatively large tubercles ..... *bucephala* (O.P.-Cambridge)
— Posterior margin of epigyne as in Fig. 132, with two relatively small tubercles ..... *leonina* (Simon)

***Pelecopsis amabilis* (Simon)** (Figs. 1–9)

Lophocarenum amabile Simon, 1884: 684 (descr. ♂).

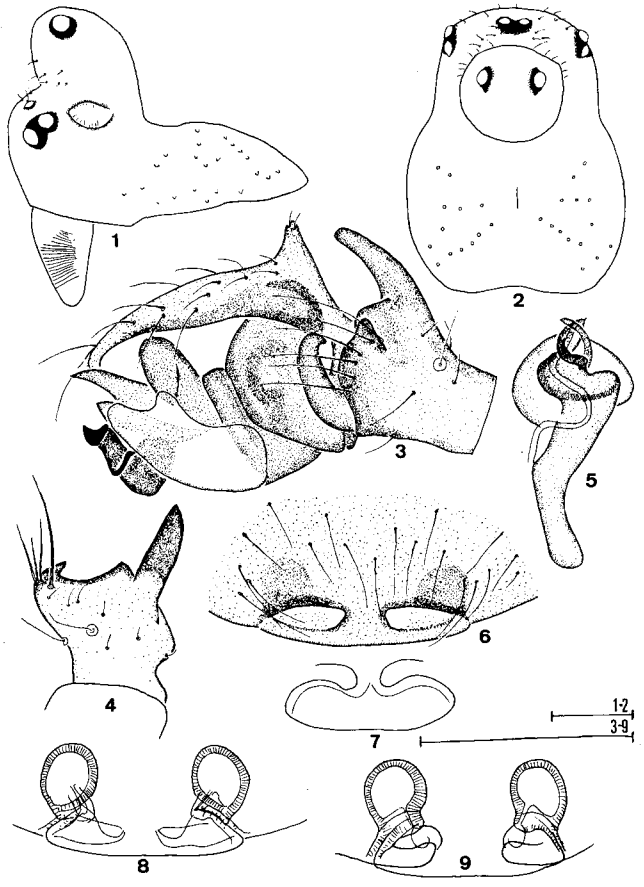
Diagnosis: Males of *Pelecopsis amabilis* are easily recognised by presence of dorsal and ventral scuta, shape of palpal tibia and cymbial tubercle, and females by their epigyne with narrow, short median septum with wide, transverse lateral pouches.

Type material: Neotype ♂, by present designation, from Algeria, Atlas of Blida, Meurdja; deposited in MNHNP.

Remarks: Denis (1962) indicated that the male holotype of *P. amabilis* had been lost. However, Simon's (1884) original detailed description of the colour, shape of the cephalothorax and male palpal tibia is accurate and enabled us to identify the commonest species discovered by us in the region of Algiers, the type locality of *amabilis*, as such. Denis (1937, 1962) attributed females collected in other regions of Algeria to *amabilis*, but these are not conspecific with the numerous females which occurred together with our positively identified males, and therefore concern other species. For reasons of nomenclatural stability, a male neotype collected in the region of Algiers has been designated.

Male neotype: Total length 1.56 (1.55–1.86), cephalothorax 0.77 (0.69–0.83) long, 0.55 (0.50–0.61) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.47	0.16	0.37	0.25	0.25	0.66
IV	0.52	0.16	0.44	0.33	0.23	—



Figs. 1–9: *Pelecopsis amabilis* (Simon). **1** Male cephalothorax, lateral view; **2** Idem, dorsal view; **3** Male palp, lateral view; **4** Male palpal tibia, dorsal view; **5** Embolic division, ventral view; **6** Epigyne, ventral view; **7** Dorsal plate, postero-ventral view; **8** Vulva, Meurdja; **9** Idem, Djurdjura Massif. Scale lines = 0.2 mm.

Cephalothorax reddish brown, eye region and base of cephalic lobe tinged with grey; chelicerae reddish brown; sternum ditto with greyish margins; legs yellowish brown; abdomen grey with purplish brown dorsal scutum and reddish brown ventral scutum. *Cephalothorax* (Figs. 1–2): Cephalic part with well-developed, rounded lobe and distinct concavity between median eyes; sulci oval, their largest diam. equal to diam. of lateral eye group; thoracic part with clearly marked impressed punctures in radiating lines. *Chelicerae:* With about 20, moderately developed stridulating ridges. *Sternum:* Smooth in middle, reticulated at sides, separating coxae IV by slightly more than their diam. *Legs:* Without visible spines. *Abdomen:* Scutum densely punctured, covering entire abdomen. *Palp* (Figs. 3–5): Tibia dorsally with finger-like, pointed anterior apophysis, laterally with small, hooked apophysis, and a row of 6 strong spines. Cymbium with pointed dorsal tubercle. Protegulum strongly produced, covering baso-lateral side of embolus. Suprategulum disc-shaped, with needle-like apophysis. Posterior part of radix long and narrow; embolus with wide, transverse basal part, then spirally coiled and pointed terminally.

Female: Total length 1.81–2.47; cephalothorax 0.61–0.86 long, 0.50–0.66 wide. Colour as in male, but abdomen uniformly dark grey. *Cephalothorax:* Striae clearly punctate. *Sternum:* Slightly reticulated. *Legs:* Tibiae with 1 dorsal spine, 0.6 × diam. of tibia. *Epigyne* (Figs 6–7): Median septum short and relatively narrow, separating two transverse oval pouches. Dorsal plate oval, partly visible in ventral view, 3.5 × as wide as long, and 7 × wider than median septum. *Vulva* (Figs. 8, 9): Spermathecae separated by nearly 2 diam., and 0.5 diam. from epigastric furrow; sperm ducts very short.

Material examined:

ALGERIA: *Wil. Alger:* El Harrach, 25 m, 3♂, 12♀, pitfalls in park around Institut national agronomique, 13 Jan.–13 May 1983. *Wil. Blida:* Atlas Blidéen, Meurdja, 900 m, 20♂, 5♀, pitfalls in planted forest, 20 Feb.–19 June 1983 (1♂ selected as neotype); idem, 14♂, 9♀, pitfalls in *Cedrus* plantation, 20 Apr. 1987–13 Mar. 1988. Chrea, Hakou Feraoun, 1100 m, 3♂, pitfalls in *Quercus ilex* forest, 23 March 1987. Meftah, Djebel Zerouela, 480 m, 3♂, 2♀, pitfalls in *Quercus suber* forest, 11 Dec. 1986–29 Jan. 1987; idem, 2♂, 6♀, *Myrtus* maquis, 10 Dec. 1984. Mouzaia, 400 m, 2♀, *Erica* litter, 19 Jan. 1984. Djebel Mouzaia, 1200 m, 1♂, under stones around Lake Mouzaia, 22 Apr. 1990, 1300 m, 2♂, pitfalls in *Acer* forest, 27 Jan. 1990. *Wil. Bouira:* Djurdjura Massif, Ait Ouabane, 1410 m, 5♂, pitfalls in *Cedrus* forest, 12 Apr. 1988; idem, Tala Rana, 1320 m, 1♂, pitfall in *Cedrus* forest, 21 Sep. 1989; idem, Tikjda, 1510 m, 1♂, pitfall in *Cedrus* forest, 24 Apr. 1982. *Wil. Boumerdes:* Ain Taya, 50 m, 1♂, pitfall in garden, 20 Jan. 1988, and 1♀, 14 Mar. 1988. Arbatache, 175 m, 1♀, litter along Oued Hamiz, 17 Feb. 1989. Djebel Bou Zegza, 900 m, 1♂, 1♀, *Quercus suber* litter, 9 Nov. 1984. Kadiria, Toulmout, 550 m, 2♀, pitfalls in *Quercus suber* forest, 20 Apr. 1990. Reghaia, 8 m, 1♂, 22♀, pitfalls in *Populus alba* forest, 4 Apr.–13 June 1988. Reghaia, 15 m, 1♂, pitfall in *Olea* maquis, 15 Dec. 1986. Zemmouri, 10 m, 2♂, pitfall in *Pinus halepensis* forest, 7 Jan. 1988. *Wil. Setif:* Djebel Babor, 1550 m, 1♀, *Quercus ilex* litter, 20 Apr. 1982; idem, 1800 m, 1♂, pitfall in *Cedrus* forest, 20 May 1982. *Wil. Tipaza:* Bouchaoui, 95 m, 2♂, 1♀, pitfall in *Eucalyptus* plantation, 27 Jan.–13 Feb. 1988. Staoueli, 100 m, 1♀, in *Pistacia lentisca* maquis, 27 Feb. 1988. *Wil. Tissemsilt:* Theniet-el-Had, 1550 m, 1♂, pitfall in *Cedrus* forest, 23 Mar. 1988. *Wil. Tizi Ouzou:* Between Chabet-el-Ameur and Tizi Ghenif, 125 m, 1♀, among *Oxalis* along Oued Djemaa, 1 May 1984. Yakouren, 800 m, 2♂, 3♀, pitfalls in *Quercus faginea* forest, 28 Apr. 1990.

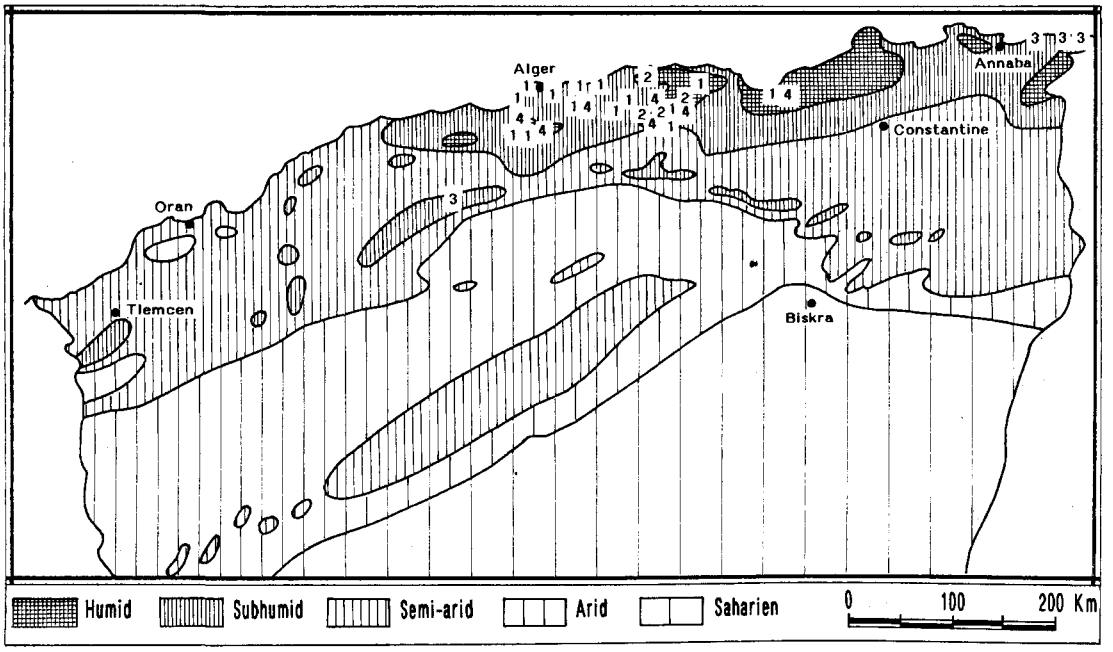
Distribution (Map 1): The extreme north of Algeria, from the wilaya of Tissemsilt in the west to the wilaya of Setif in the east.

Ecology: This species is common in all kinds of forest, bushes and maquis, especially at low altitudes, where it is the only species. It is rare at high altitudes, where it is replaced by other species. In Meurdja, adult males and females were found from December to March with a peak of both sexes in December (Fig. 154C).

Pelecopsis aureipes Denis

Pelecopsis aureipes Denis, 1962: 284 (descr. ♀).
Pelecopsis aureipes; Denis, 1968a: 146.

Distribution (Map 3): MOROCCO: Ain-Es-Sebâa, 1♀ (Denis, 1962). The exact localisation of this place is



Map 1: Distribution of *Pelecopsis* species in North Algeria. **1** *P. amabilis* (Simon); **2** *P. kabyliana* sp. n.; **3** *P. kalaensis* sp. n.; **4** *P. lunaris* sp. n.

unknown to us. It could correspond to Ain-Sebâa near Casablanca, or to Ain-es-Sfa, 10 km west of Oujda.

Remarks: This species is only known from a single female, which could not be traced in any Museum. Denis's figure (1962) of the epigyne is rather vague, and we were unable to find specimens resembling it.

Pelecopsis cedricola sp. n. (Figs. 10–17)

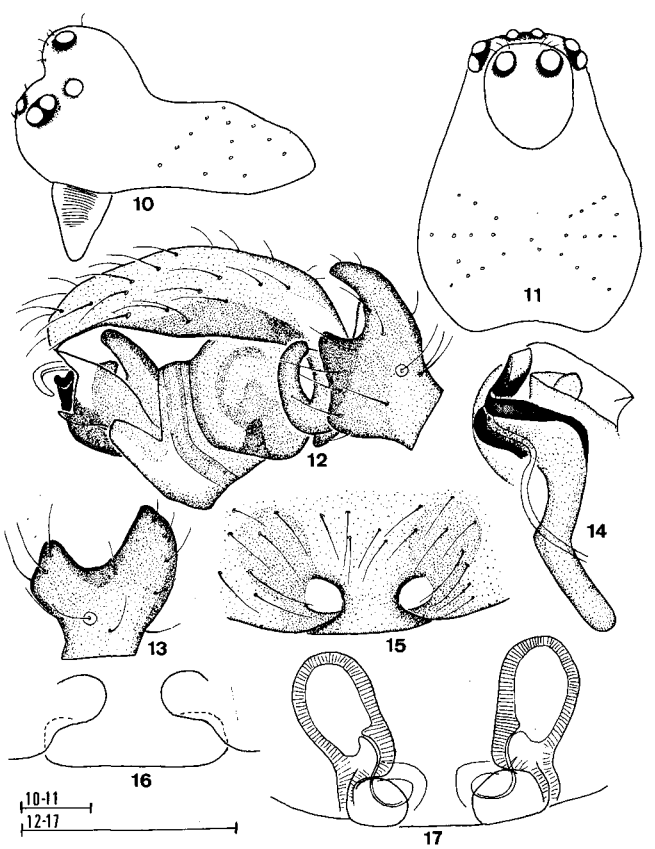
Diagnosis: Males of *P. cedricola* sp. n. are diagnosed by small cephalic sulci, and two blunt tibial apophyses. Females are larger than those of related species and have relatively small lateral pouches and large spermathecae.

Type material: Holotype ♂ from Algeria, Massif du Djurdjura, Tikjda (deposited in IRSNB); 17♂, 5♀ paratypes, same locality (deposited in IRSNB, MNHNP and CRB).

Male holotype: Total length 1.98 (1.74–2.06); cephalothorax 0.82 (0.80–0.87) long, 0.61 (0.60–0.68) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.58	0.20	0.46	0.38	0.29	0.50
IV	0.64	0.20	0.58	0.42	0.26	—

Cephalothorax reddish brown, margin, sulci and fovea darker grey-brown; chelicerae yellowish brown; sternum reddish brown, margin darker; legs orange to reddish brown, coxae and patellae paler; abdomen grey, dorsally with dark reddish brown scutum, ventrally with oval transverse spots before spinnerets and long opercula yellowish brown. *Cephalothorax* (Figs. 10–11): With prominent clypeus and small cephalic lobe, somewhat longer than wide, and with a distinct transverse frontal groove; sulci rounded, somewhat smaller than diam. of a lateral eye; thoracic part reticulated, with clear radiating impressed punctures. *Sternum:* Smooth, posteriorly separating coxae IV by slightly more than their diam. *Chelicerae:* With 14-15 stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Scutum covering 9/10 of abdomen, densely punctate. *Palp* (Figs. 12–14): Tibia with large, blunt dorsal apophysis and shorter blunt lateral apophysis. Cymbium unmodified. Tegulum ventrally produced, with prominent protegulum, and a large membrane, probably originating from suprategulum, covering lateral side of embolic division. Embolus semi-circular, twisted in middle.



Figs. 10–17: *Pelecopsis cedricola* sp. n. **10** Male cephalothorax, lateral view; **11** Idem, dorsal view; **12** Male palp, lateral view; **13** Male palpal tibia, dorsal view; **14** Embolic division, ventral view; **15** Epigyne, ventral view; **16** Dorsal plate, postero-ventral view; **17** Vulva. Scale lines = 0.2 mm.

Female: Total length 2.48–2.74; carapace 0.82–0.88 long, 0.70–0.78 wide. Colour as in male, but abdomen uniformly dark grey, without scutum. *Cephalothorax:* With clear impressed punctures and distinct median concavity. *Sternum:* Smooth, slightly reticulated at sides, posteriorly separating coxae IV by slightly more than their diam. *Legs:* Tibiae with 1 dorsal spine, slightly shorter than diam. of tibia. TbMtI = 0.52. *Epigyne* (Figs. 15–16): Median septum wider than lateral rounded pouches. Dorsal plate 3.3 × as wide as long, and 3 × as wide as median septum. *Vulva* (Fig. 17): Spermathecae oblique and elongated, separated by 1.5 diam. and 0.5 diam. from epigastric furrow; sperm ducts describing a large semi-circle.

Material examined:

ALGERIA: *Wil. Bouira:* Massif du Djurdjura, Tikjda, 1450 m, 2♂ (holotype, paratype), 4♀ (paratypes), by sieving litter in *Cedrus* forest, 2 Apr. 1982; idem, 16♂, 1♀ (paratypes), pitfall in dense *Cedrus* forest, 24 Apr. 1982; idem, 1♀, by sieving litter, 13 July 1988. *Wil. Tizi Ouzou:* Tala Guilef, 1950 m, 2♂, 2♀, montane grassland, 30 Apr. 1984; idem, 1600 m, 1♀, montane grassland, 17 Apr. 1984; idem, 1400 m, 1♂, montane grassland, 16 Mar. 1990, and 1♀, 22 Apr. 1989; idem, 2000 m, 1♀, montane grassland, 30 Apr. 1984.

Distribution (Map 2): Only known from high altitudes in the Djurdjura Massif.

Etymology: Most of the specimens were found in *Cedrus* forest, hence the name *cedricola*.

Pelecopsis digitulus sp. n. (Figs. 18–25)

Diagnosis: Males of *Pelecopsis digitulus* sp. n. are diagnosed by small tuft of hairs protruding from sulci, and small finger-like antero-dorsal apophysis of palpal tibia. Females can only be distinguished by epigyne and vulva, with rather narrow median septum, partly visible dorsal plate and short sperm ducts.

Type material: Holotype ♂ from Algeria, Massif de l'Ouarsenis, Theniet-el-Had (deposited in IRSNB); 24♂, 5♀ paratypes, same locality (deposited in IRSNB, MNHNP and CRB).

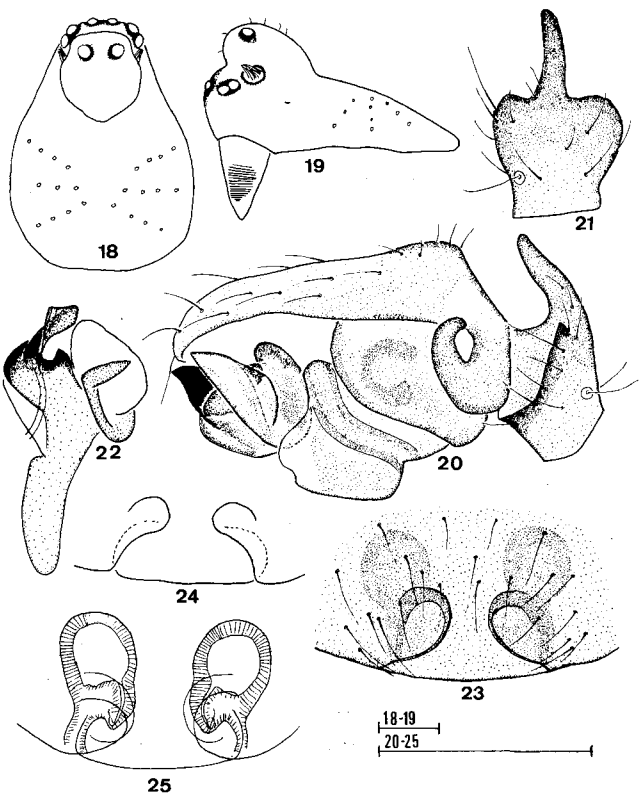
Male holotype: Total length 1.66 (1.52–1.88); cephalothorax 0.75 (0.72–0.75) long, 0.55 (0.55–0.58) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.50	0.16	0.38	0.30	0.25	0.47
IV	0.61	0.16	0.47	0.36	0.26	—

Cephalothorax with cephalic part greyish brown, thoracic part yellowish brown; chelicerae pale yellowish brown;

sternum yellowish brown; legs yellowish brown, coxae and patellae paler; abdomen dark brown, dorsal scutum dark greyish brown, long opercula and small area before spinnerets yellowish brown. *Cephalothorax* (Figs. 18–19): Cephalic lobe rather small, rounded, with distinct frontal groove; clypeus prominent, even nose-like in some paratypes; sulci rounded, somewhat wider than lateral eye group, with small group of protruding hairs; thoracic part smooth, with radiating impressed punctures. *Sternum:* Smooth, posteriorly separating coxae IV by their diam. *Chelicerae:* With 15 faint stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Scutum moderately punctate, covering 4/5 of abdomen. *Palp* (Figs. 20–22): Tibia with finger-like antero-dorsal apophysis and small antero-lateral tooth. Cymbium with basal angularity. Suprategulum very large, with semi-circular apophysis covering protegulum, then curving antero-dorsally towards tip of embolus. Embolus semi-circular, with wide basal part, and narrower, terminally-twisted distal part.

Female: Total length 2.02–2.32; cephalothorax 0.72–0.84 long, 0.58–0.68 wide. Colour as in male, but abdomen uniformly dark grey. *Cephalothorax:* In lateral view with moderate median concavity. Impressed punctures well expressed. *Sternum:* Smooth, with sparse impressed punctures, posteriorly separating coxae IV by slightly more than their diam. *Legs:* Tibiae with 1 dorsal spine, equal to diam. of tibia; TbMtI = 0.63. *Epigyne* (Figs. 23–24): Median septum longer than wide and slightly wider than rounded lateral pouches. Dorsal plate oval, 2.6× as wide as long and 3× wider than median septum. *Vulva* (Fig. 25): Spermathecae separated by 1.5 diam., and $\frac{2}{3}$ diam. from epigastric furrow.



Figs. 18–25: *Pelecopsis digitulus* sp. n. **18** Male cephalothorax, dorsal view; **19** Idem, lateral view; **20** Male palp, lateral view; **21** Male palpal tibia, dorsal view; **22** Embolic division, ventral view; **23** Epigyne, ventral view; **24** Dorsal plate, postero-ventral view; **25** Vulva. Scale lines = 0.2 mm.

Material examined:

ALGERIA: *Wil. Tissemsilt:* Massif de l'Ouarsenis, Theniet-el-Had, Rond Point des Cèdres, 1550 m, 25♂ (holotype and paratypes), 5♀ (paratypes), 2 Dec. 1987–19 July 1988; idem, 1450 m, 4♂, 1♀, pitfall in grassland in open *Cedrus* forest, 17 Jan. 1988; idem, 1400 m, 1♂, open *Cedrus atlantica* and *Quercus ilex* forest, 18 Dec. 1987. *Wil. Blida:* Atlas Blidéen, Meurdja, 950 m, 1♂, pitfall in *Cedrus* plantation, 18 Mar. 1983. *Wil. Djelfa:* Djelfa, Djebel Senalba, 1330 m, 2♂, 1♀, pitfalls in *Pinus halepensis* forest, 23 Mar.–2 May 1989. *Wil. M'sila:* S. Bou Saada, Djebel Messad, Aïn Oghrab, 650 m, 1♂, pitfall in *Pinus halepensis* forest, 10 Mar. 1990. *Wil. Tizi Ouzou:* Djurdjura Massif, Tala Guilef, 1600 m, 1♀, montane grassland, 17 Mar. 1984, and 1♀, 22 Apr. 1989.

Distribution (Map 2): *Pelecopsis digitulus* sp. n. occurs mainly on isolated peaks in the interior of Algeria: Djebel Ouarsenis, Djebel Senalba and Djebel Messad. Only single individuals were captured further to the north.

Ecology: In Theniet-el-Had, adult males of this species were captured from January to June, with a peak in January; adult females from February to June (Fig. 154B).

Etymology: The specific name is used as a noun in apposition and refers to the resemblance of the apophysis of the male palpal tibia to a small finger (Latin *digitulus* = small finger).

Pelecopsis hipporegia (Denis), comb. n. (Figs. 26–33)

Exechophysis hipporegia Denis, 1968b: 316 (descr. ♂, non ♀).
Pelecopsis amabilis (Simon); Denis, 1968b: 317 (footnote; misidentification).

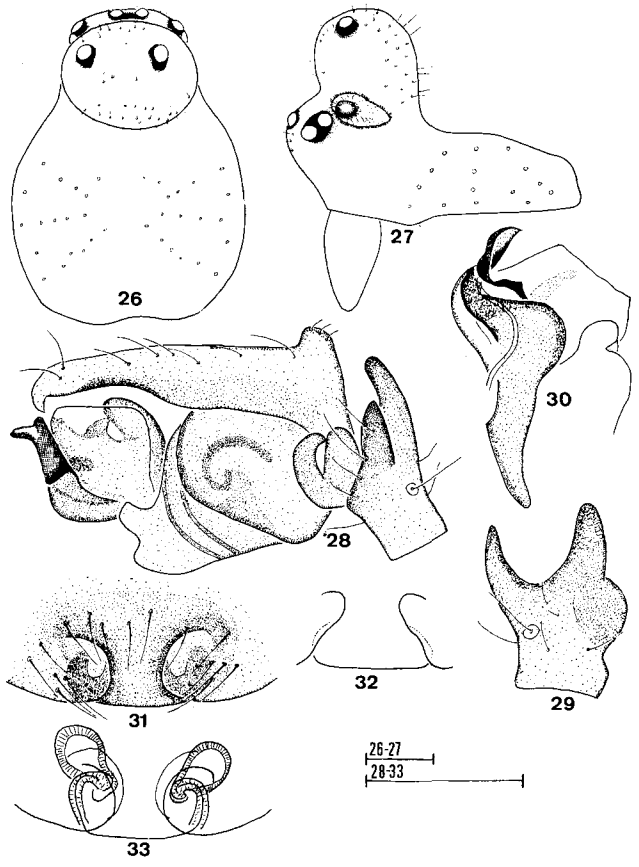
Type material: Holotype ♂ from Algeria, Annaba (= Bône); 2♂ paratypes, same locality (MNHNP 14261). The female "allotype" is *Pelecopsis bucephala* (O.P.-Cambridge).

Remarks: In his original description, Denis (1968b) indicated that *Exechophysis hipporegia* is abnormal in that genus by several characters. His major reason for placing it in *Exechophysis* was the presence in the same tube of a female which he thought to be conspecific and which was "incontestablement un *Exechophysis*". This female indeed is an "*Exechophysis*", but it belongs to *P.(E.) bucephala*. Strangely enough, Denis (1968b) indicated in a footnote that he found three other specimens of a second female in the same tube, which he identified as *P. amabilis*. These three females were found in the MNHNP, and they appear to be incorrectly identified; we think they are the real females of *hipporegia*. Another argument for matching them is the larger size of both males and females. A further female was captured by ourselves in the region of Annaba which is the type locality of the species.

Male holotype: Total length 1.97 (paratypes 2.0, 2.26); cephalothorax 0.84 (0.90, 0.96) long, 0.70 (0.72, 0.74) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.60	0.20	0.50	0.41	0.31	0.66
IV	0.74	0.20	0.67	0.50	0.31	—

All the types are bleached. *Cephalothorax* (Figs. 26–27): With prominent clypeus, shallow interocular groove and



Figs. 26–33: *Pelecopsis hipporegia* (Denis). **26** Male cephalothorax, dorsal view; **27** Idem, lateral view; **28** Male palp, lateral view; **29** Male palpal tibia, dorsal view; **30** Embolic division, ventral view; **31** Epigyne, ventral view; **32** Dorsal plate, postero-ventral view; **33** Vulva. Scale lines = 0.2 mm.

large cephalic lobe, somewhat wider than long in dorsal view; sulci oval, 1.5 × as wide as lateral eye group, with anterior pit. Radiating punctures well expressed.

Chelicerae: Stridulating ridges well expressed. *Palp* (Figs. 28–30): Patella relatively long (1.5 × as long as wide). Tibia with strong dorsal and lateral apophyses. Cymbium with blunt dorsal hump. Protegulum well developed; suprategulum disc-shaped, with relatively small apophysis. Embolic division with long radix and semi-circular embolus, with terminal part twisted and covered laterally by a large tegular or radical membrane.

Female: Total length 2.0–2.2; cephalothorax 0.79–0.85 long, 0.64–0.70 wide. Cephalothorax brown, margin greyish brown; chelicerae yellowish brown; sternum brown, margin grey-brown; legs yellowish orange, patellae paler; abdomen grey. *Cephalothorax:* Radiating punctures well expressed. *Sternum:* Slightly reticulated, especially at sides, separating coxae IV by slightly more than their diam. *Legs:* All tibiae with 1 dorsal spine, length 0.9 × diam. of tibia; TbMtI = 0.60. *Epigyne* (Figs. 31–32): Median septum well defined, much wider in front than behind; lateral pouches rounded, as wide as the septum. Dorsal plate 2.5 × as wide as long and twice as wide as median septum. *Vulva* (Fig. 33): Spermathecae separated by 1.5 diam., and 1 diam. from epigastric furrow. Sperm ducts very short.

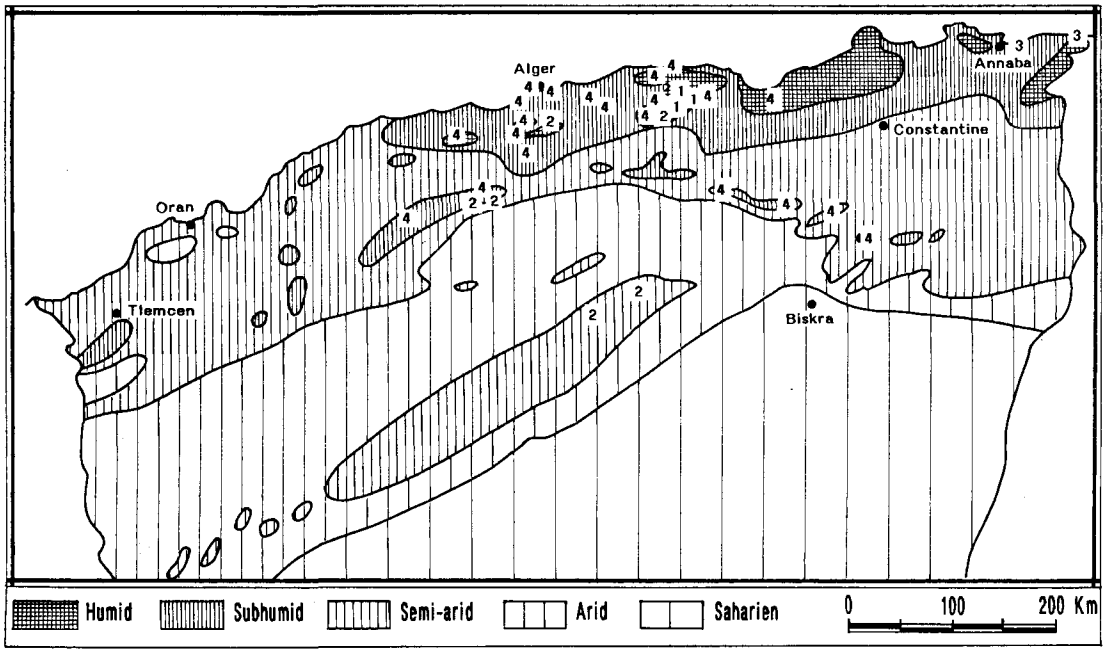
Material examined:

ALGERIA: *Wil. Annaba:* Annaba (= Bône), 3♂ (holotype and paratypes, MNHNP 14261); idem, 3♀ (sub *amabilis*, MNHNP). *Wil. El Tarf:* El Kala, 2 m, 1♀, litter of small *Fraxinus* forest, 5 Apr. 1982.

Distribution (Map 2): Only known from the extreme north-east of Algeria.

Pelecopsis inedita (O.P.-Cambridge) (Figs. 34–41)

Erigone inedita O.P.-Cambridge, 1875: 209 (descr. ♂, ♀, France); Simon, 1880: 56.
Erigone heterogaster O.P.-Cambridge, 1875: 211 (descr. ♂, ♀, Morocco).
Lophocarenum ineditum; Simon, 1884: 659; Simon, 1926: 482.
Pelecopsis inedita; Denis, 1962: 285; Denis, 1964b: 380; Denis, 1968a: 146; Thaler, 1977: 559.

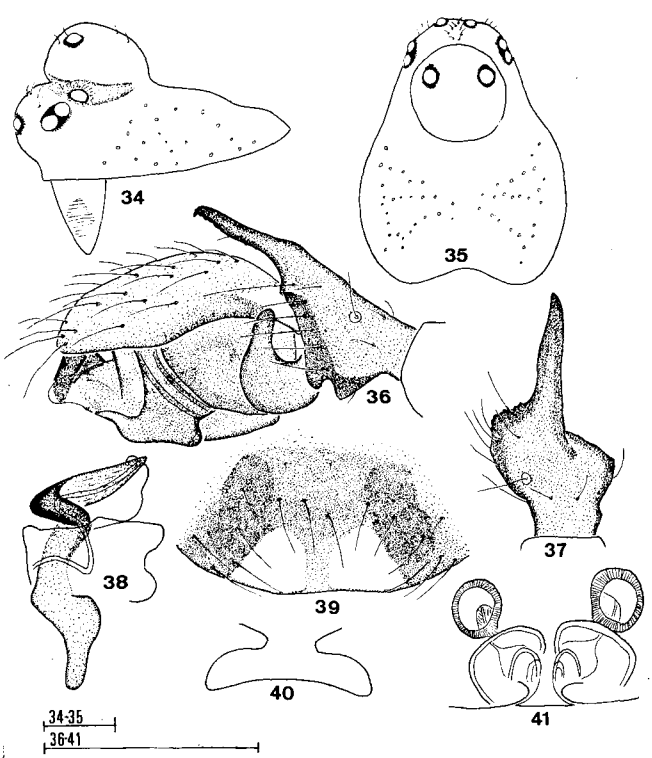


Map 2: Distribution of *Pelecopsis* species in North Algeria. **1** *P. cedricola* sp. n.; **2** *P. digitulus* sp. n.; **3** *P. hipporegia* (Denis); **4** *P. majus* (Denis).

Diagnosis: Males of *Pelecopsis inedita* are easily recognised by small dorsal scutum and straight antero-dorsal apophysis of palpal tibia. Females have a variable epigyne without distinct external sutures; however, dark colour of sternum, strongly punctate posteriorly, readily differentiates it from related species.

Male: Total length 1.48–1.90; cephalothorax 0.68–0.88 long, 0.54–0.64 wide. Cephalothorax dark brown, striae, fovea and margin blackish; legs yellowish orange; sternum dark brown; abdomen grey, scutum dark purplish brown. *Cephalothorax* (Figs. 34–35): With concave clypeus, protruding in region of anterior eyes, distinct and deep interocular groove and well-delimited cephalic lobe; sulci long and oval, continuing interocular groove, with small rounded pit; radiating striae distinctly punctate. *Chelicerae:* With 13 indistinct radiating ridges. *Legs:* No visible tibial spines. TbMtI = 0.61. *Abdomen:* Scutum covering $\frac{3}{5}$ of abdomen, moderately punctate. *Palp* (Figs. 36–38): Tibia with long, pointed antero-dorsal apophysis, medio-lateral crest and antero-ventral incision. Paracymbium much wider in middle than other species. Cymbium unmodified. Tegulum produced ventrally, with well-developed protegulum; no distinct supra-tegular apophysis. Radix angular in middle. Embolus semi-circular, gradually narrowing, accompanied by large tegular or radical membrane.

Female: Total length 1.46–2.48; cephalothorax 0.76–0.86 long, 0.58–0.70 wide. Colour and general appearance as in male. *Cephalothorax:* With distinct punctures, thoracic part strongly reticulated. *Legs:* No visible dorsal spines. TbMtI = 0.59. *Epigyne* (Figs. 39–40): Mostly without distinct outer chitinous structures, sometimes with traces of a median septum. Usually with two pale spots before epigastric furrow separated by darker stripe, and with anterolateral spermathecae visible through integument. Dorsal plate 3.5 × as wide as long and 2.5 × as wide as median septum. *Vulva* (Fig. 41): Spermathecae separated by nearly 2 diam., and slightly more than 1 diam. from the epigastric furrow.



Figs. 34–41: *Pelecopsis inedita* (O.P.-Cambridge). **34** Male cephalothorax, lateral view; **35** Idem, dorsal view; **36** Male palp, lateral view; **37** Male palpal tibia, dorsal view; **38** Embolic division, ventral view; **39** Epigyne, ventral view; **40** Dorsal plate, postero-ventral view; **41** Vulva. Scale lines = 0.2 mm.

Material examined and citations:

MOROCCO: Between Tanger and Fez (O.P.-Cambridge, 1875); Oued Nefifik, Aïn-es-Sebâa, Ben Nabet, Boulhaut (Denis, 1962), Mogador (Denis, 1968a). Tetouan S., 10 m, 2♂, 2♀, litter in garden on sandy soil along Oued Hadjera, 20 Apr. 1984. ALGERIA: *Wil. Alger:* Alger (Denis, 1962); El Harrach ("Maison Carré", Denis, 1962). Eucalyptus, 35 m, 1♂, 2♀, pitfalls in garden, 28 Apr. 1988; idem, 2♂, 15 Jan. 1990. *Wil. Annaba:* Edough Mountains, Chetaibi, 810 m, 1♀, under stone in grassland, 1 Mar. 1990. *Wil. Bejaia:* Aokas, 10 m, 1♀, grassland in dunes, 22 Nov. 1989. Tichi, 5 m, 1♀, grassland in dunes, 18 Apr. 1982; idem, 2♂, 2♀, 21 May 1988. *Wil. Batna:* Batna (Denis, 1962). *Wil. Biskra:* Biskra, 130 m, 4♂, 1♀, grassland in flooded park, 10 Apr. 1982. *Wil. Blida:* Atlas Blidéen, Djebel Mouzaia, 1250 m, 2♂, 3♀, stones in grassland around Lake Mouzaia, 14 May 1988. *Wil. Boumerdes:* Beni Amrane, 95 m, 1♀, stones along Oued Isser, 9 Apr. 1990. Sidi Daoud, 35 m, 1♀, stones along Oued Sebaou, 4 Dec. 1987. Zemmouri, 10 m, 1♀, litter in dunes, 4 Apr. 1984. *Wil. Chleff:* W. Damous, 5 m, 4♀, *Pistacia* litter in dunes, 17 Apr. 1987. *Wil. Djelfa:* Hassi Babbah, El Mesrane, 950 m, 5♂, 1♀, pitfalls in stabilised dunes, 20 Mar. 1989. *Wil. El Tarf:* El Kala, 10 m, 4♂, pitfalls in *Pistacia* shrubs around Lake Oubeira, 1 Mar. 1990. El Kala, 10 m, 1♂, maquis around Lake Tonga, 28 Dec. 1987. El Kala, Lac Melah, 5 m, 1♀, dunes, 23 Nov. 1989. *Wil. Laghouat:* Aflou N., 1400 m, 2♂, 3♀, low *Euphorbia* bushes, 6 Oct. 1988. *Wil. M'sila:* M'sila (Denis, 1962). *Wil. Oran:* Saline d'Arzew, 70 m, 1♀, litter, 14 Jan. 1988. *Wil. Skikda:* Collo, Tamanart, 25 m, 1♂, *Quercus suber* litter, 6 June 1987. *Wil. Tipasa:* Bou Haroun, 30 m, 1♀, *Pinus halepensis* litter, 26 Jan. 1987. Sidi Fredj, 10 m, 1♂, 1♀, pitfalls in dune grassland, 19 Jan. 1987, and 2♀, 18 Mar. 1987. *Wil. Tizi Ouzou:* NE Ain-el-Hammam, 240 m, 2♀, stones along Oued Boubekir, 10 Oct. 1987. *Wil. Tlemcen:* Magnia, 350 m, 1♀, stones along Oued Tafna, 23 Apr. 1984. A tube from MNHNP (5352) containing 9♂, 6♀ is labelled: "Algérie: El Harrach (= Maison Carré), Oued el Kebir, Alger, M'sila, Batna". TUNISIA: Isle of Tabarka (Denis, 1964b), Cherichera (Thaler, 1977). 10 km S. Beja, Essemen, 1♂, on branches in *Olea* orchard, 12 Sep. 1985. EGYPT: Alexandria, 3♂, 3♀ (MNHNP 4418; Simon, 1880). Ramleh (Simon, 1884). GREECE: Crete: Hersonniou, 2♂, 1♀, 10 Apr. 1979 (CRB). SPAIN: Barcelona: Pineda de Mar, 2♂, 6♀, among stones near beach, 8 Apr. 1991 (CRB).

Distribution (Map 3): A Mediterranean and North African species. In Europe, hitherto cited from Portugal, France and Italy, but here reported also in Spain and on Crete; in North Africa from Morocco, Algeria, Tunisia and Egypt. In Algeria, it is common in coastal dunes, but also in sandy areas further inland.

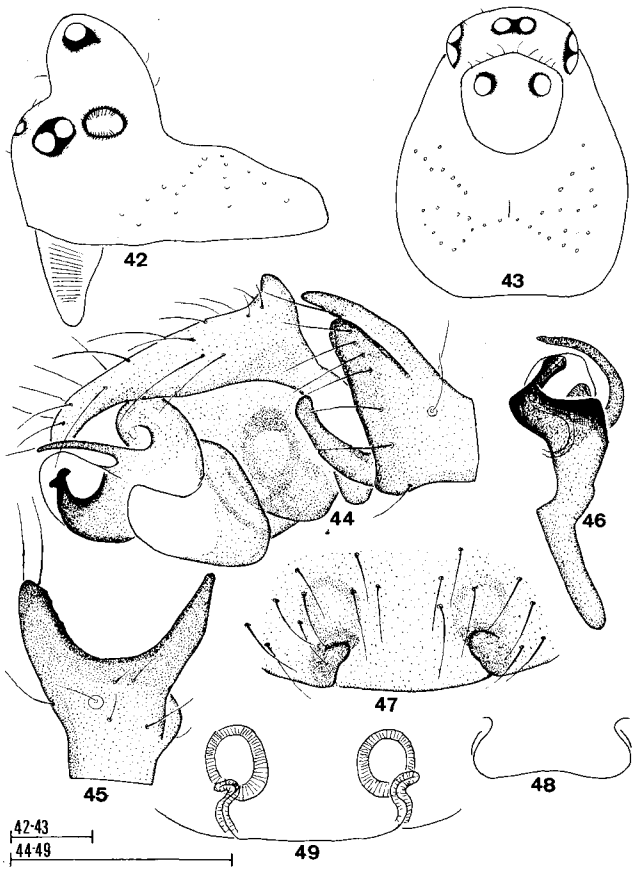
Pelecopsis kabyliana sp. n. (Figs. 42–49)

Diagnosis: Males characterised by dorsal cymbial horn, two large tibial apophyses and linear suprategular apophysis; females by short and wide median septum.

Type material: Holotype ♂ from Algeria, Djurdjura Massif, Tala Guilef (deposited in IRSNB); 15♂, 1♀ paratypes, same locality (deposited in IRSNB, MNHNP and CRB).

Male holotype: Total length 1.58 (1.55–1.86); cephalothorax 0.75 (0.69–0.83) long, 0.58 (0.55–0.63) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.50	0.16	0.42	0.30	0.25	0.55
IV	0.58	0.16	0.52	0.36	0.25	—



Figs. 42–49: *Pelecopsis kabyliana* sp. n. **42** Male cephalothorax, lateral view; **43** Idem, dorsal view; **44** Male palp, lateral view; **45** Male palpal tibia, dorsal view; **46** Embolic division, ventral view; **47** Epigyne, ventral view; **48** Dorsal plate, postero-ventral view; **49** Vulva. Scale lines = 0.2 mm.

Cephalothorax yellowish brown, margin, fovea and cephalic lobe greyish brown; chelicerae and legs yellowish orange; sternum yellowish brown with darker margins; abdomen grey with oval purplish brown dorsal scutum and triangular yellowish brown ventral scutum. *Cephalothorax* (Figs. 42–43): Cephalic part with interocular concavity and slender, high cephalic lobe carrying PME, somewhat angular in front; postocular sulci oval, slightly larger than LE group. Thoracic part slightly reticulated at sides and with poorly expressed radiating punctures. *Sternum:* Smooth, separating coxae IV by $\frac{7}{6}$ their diam. *Chelicerae:* With about 15 faint stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Dorsal scutum covering $\frac{9}{10}$ of length. *Palp* (Figs. 44–46): Tibia with slightly curved, large, pointed antero-dorsal apophysis and large, bluntly pointed antero-lateral apophysis, bearing several spines along its lateral margin. Cymbium with distinct dorsal tubercle. Protegulum well developed, whitish. Suprategulum large, with linear, long apophysis. Embolus semi-circular, with broad base and narrower terminal part.

Female: Total length 1.8–2.4; cephalothorax 0.76–0.80 long, 0.58–0.62 wide. Colour as in male, but abdomen uniformly dark grey to dark purplish, without scutum. *Cephalothorax:* In lateral view with strong median concavity. Impressed punctures clearly visible. *Legs:* Tibiae with 1 dorsal spine, $\frac{4}{5}$ diam. of tibia. TbMtI = 0.64. *Epigyne* (Figs. 47–48): Median septum poorly defined, relatively short, 3× as wide as long. Dorsal plate rectangular, invisible in ventral view, twice as wide as long and 1.3× as wide as median septum. *Vulva* (Fig. 49): Spermathecae separated by $\frac{5}{3}$ diam., and slightly less than 1 diam. from epigastric furrow. Sperm ducts very short.

Material examined:

ALGERIA: *Wil. Tizi Ouzou:* Djurdjura Massif, Tala Guilef, 1600 m, 6♂ (holotype, 5 paratypes), pitfall in *Cedrus* forest, 22 Mar. 1989; idem, 5♂ (paratypes), 3 May 1989; idem, 1400 m, 4♂ (paratypes), pitfall in *Quercus ilex* forest, 19 Mar. 1987; idem, 1550 m, 1♂, 1♀ (paratypes), by sieving litter in *Quercus ilex* forest, 1 May 1984. Taguemount Azouz, 800 m, 1♂, pitfall in *Olea* orchard, 26 Jan. 1989. Boukhalfa, 180 m, 1♂, pitfall under *Olea* shrubs, 20 Dec. 1988, and 2♂, 1♀, 24 Apr. 1989. *Wil. Bouira:* Djurdjura Massif, Ait Ouabane, 1410 m, 1♂, 1♀, pitfall in *Cedrus* forest, 6 Oct. 1987.

Distribution (Map 1): This species is restricted to the region called "Grande Kabylie". All localities have a humid climate.

Etymology: The name is derived from the region where the species was discovered.

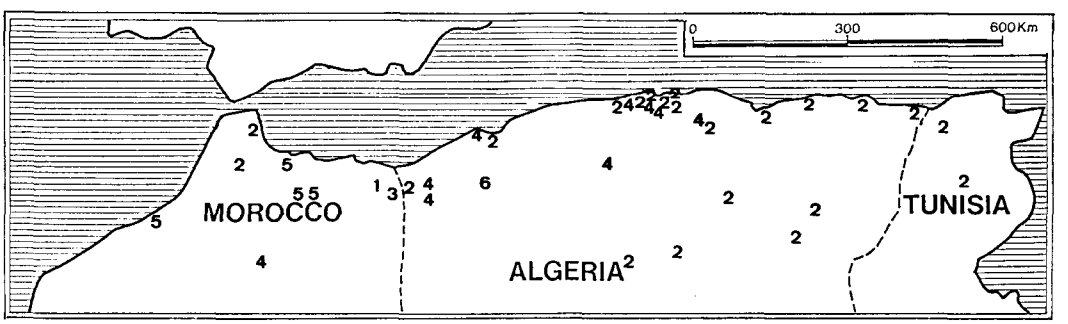
Pelecopsis kalaensis sp. n. (Figs. 50–57)

Diagnosis: Males of *Pelecopsis kalaensis* are recognised by truncated antero-dorsal tibial apophysis and cymbial tubercle of palp. The female epigyne resembles closely that of *digitulus* but differs by laterally directed anterior border of median septum, directed postero-laterally in *digitulus*.

Type material: Holotype ♂ from Algeria, El Kala (deposited in IRSNB); 1♂, 3♀ paratypes, same locality (deposited in IRSNB and MNHNP).

Male holotype: Total length 1.42 (1.36–1.64); cephalothorax 0.68 (0.68–0.75) long, 0.54 (0.54–0.61) wide. Legs:

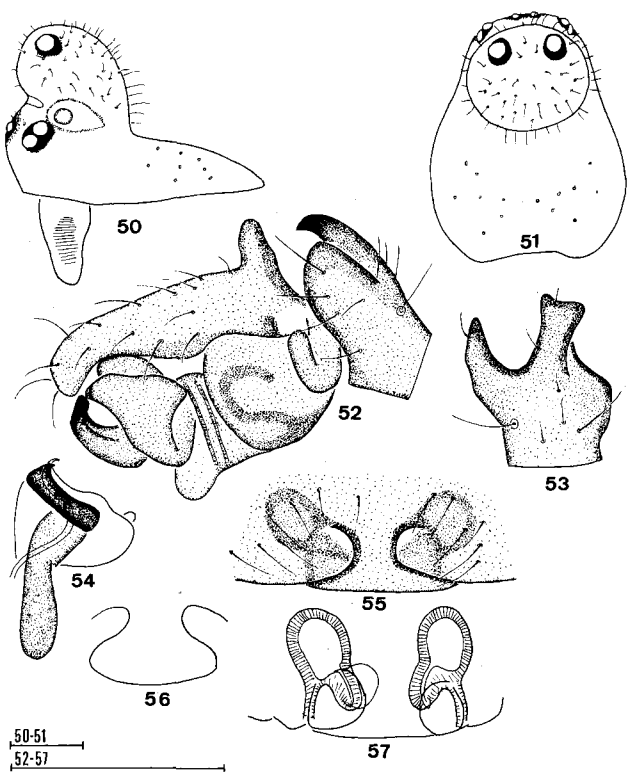
	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.42	0.17	0.33	0.27	0.23	0.68
IV	0.50	0.16	0.44	0.22	0.30	—



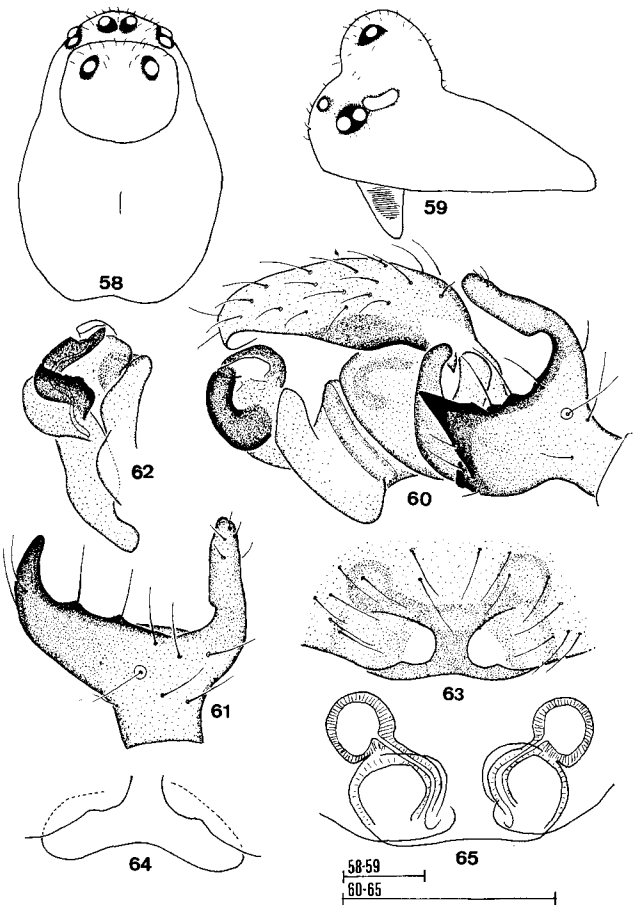
Map 3: Distribution of *Pelecopsis* species in North Africa. **1** *P. aureipes* Denis; **2** *P. inedita* (O.P.-Cambridge); **3** *P. oujda* sp. n.; **4** *P. oranensis* (Simon); **5** *P. riffensis* sp. n.; **6** *P. suilla* (Simon).

Cephalothorax yellowish brown with cephalic lobe somewhat paler; margin, striae and eye region greyish brown; chelicerae pale yellowish brown; sternum yellowish brown suffused with grey; legs orange-brown, patellae and coxae paler; abdomen grey, scutum dark purplish brown. *Cephalothorax* (Figs. 50–51): With deep transverse interocular groove and high cephalic lobe, oval in dorsal view, provided with numerous long hairs; sulci oval, 1.5 × as wide as diam. of lateral eyes, with a circular pit. Thoracic part reticulated at sides, radiating punctures indistinct. *Sternum:* Smooth, posteriorly separating coxae IV by $\frac{6}{5}$ their diam. *Chelicerae:* With 16 faint stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Scutum covering $\frac{4}{5}$ of abdomen, moderately punctate. *Palp* (Figs. 52–54): Tibia with large antero-dorsal apophysis, truncate at tip, and large antero-lateral lobe. Cymbium with distinct basal tubercle. Protegulum moderately produced ventrally. Suprategulum disc-shaped with large widened apophysis, truncate at tip. Embolus with parallel margins, terminally pointed; relatively short and moderately curved, describing at most $\frac{1}{4}$ of a circle.

Female: Total length 1.70–1.82; carapace 0.68–0.72 long, 0.52–0.55 wide. Colour as in male, but abdomen uniformly dark grey to dark purplish, without scutum. *Cephalothorax:* Impressed punctures clearly discernible. *Legs:* Tibiae with 1 dorsal spine, length $\frac{4}{5}$ × diam. of Ti. *Epigyne* (Figs. 55–56): Median septum well developed, as wide as lateral pouches and with a large part of dorsal plate visible. Dorsal plate twice as wide as long and 2.2 × as wide as median septum. *Vulva* (Fig. 57): Spermathecae separated by 1.5 diam., and slightly less than 1 diam. from epigastric furrow.



Figs. 50–57: *Pelecopsis kalaensis* sp. n. **50** Male cephalothorax, lateral view; **51** Idem, dorsal view; **52** Male palp, lateral view; **53** Male palpal tibia, dorsal view; **54** Embolic division, ventral view; **55** Epigyne, ventral view; **56** Dorsal plate, postero-ventral view; **57** Vulva. Scale lines = 0.2 mm.



Figs. 58–65: *Pelecopsis lunaris* sp. n. **58** Male cephalothorax, dorsal view; **59** Idem, lateral view; **60** Male palp, lateral view; **61** Male palpal tibia, dorsal view; **62** Embolic division, ventral view; **63** Epigyne, ventral view; **64** Dorsal plate, postero-ventral view; **65** Vulva. Scale lines = 0.2 mm.

Material examined:

ALGERIA: *Wil. El Tarf:* El Kala, 3 m, 2 ♂, 2 ♀ (holotype, paratypes), pitfalls in maquis bordering Lake Oubeira, 30 Mar. 1988; idem, 1 ♀ (paratype), in dry litter along Lake Oubeira, 3 Apr. 1982. Cap Rosa, 5 m, 1 ♀, *Quercus suber* litter, 4 Apr. 1982. Sidi Embarek, N. Garaet El Mkadaa, 10 m, 1 ♀, pitfall in small maquis of *Olea europaea*, 2 Mar. 1990. *Wil. Tissemsilt:* Djebel Ouarsenis, Bou Caid, Maison forestière Aïn Antar, 1400 m, 1 ♂, 1 ♀, among stones in *Cedrus atlantica* forest, 24 Mar. 1988.

Distribution (Map 1): *Pelecopsis kalaensis* sp. n. has a remarkably disjunct distribution. It was found at low altitudes in the extreme NE of Algeria, but later also at high altitude during an isolated excursion to the main peak of the Ouarsenis Massif. Remarkably, it was not collected during a one-year survey of another peak of the Ouarsenis Massif; the *Pelecopsis* species collected there were *P. digitulus* sp. n., *P. majus* and *P. oranensis*.

Etymology: The name is derived from the type locality, El Kala.

Pelecopsis lunaris sp. n. (Figs. 58–65)

Diagnosis: Closely related to *P. nemoralioides* (O.P.-Cambridge) by sickle-shaped palpal tibia, but differs by more elongate dorsal tibial apophysis. Females are recognised by narrow median septum of epigyne.

Type material: Holotype ♂ from Algeria, wilaya de Setif, Djebel Babor (deposited in IRSNB); 13♂, 15 ♀

paratypes, same locality (deposited in IRSNB, MNHNP and CRB).

Male holotype: Total length 1.55 (1.44–1.69); carapace 0.72 (0.66–0.72) long, 0.52 (0.50–0.52) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.42	0.16	0.33	0.25	0.25	0.56
IV	0.47	0.16	0.44	0.33	0.25	—

Cephalic part of cephalothorax olive-brown suffused with grey, thoracic part yellowish brown, margin and striae greyish; chelicerae yellowish brown; sternum brown suffused with grey; legs yellowish brown, patellae paler; abdomen grey, dorsally with brownish black scutum, ventrally with oval spot before spinnerets and long opercula brown. *Cephalothorax* (Figs. 58–59): Cephalic lobe rather small, slightly wider than long, with distinct interocular frontal groove; sulci oval, with maximal diam. equal to diam. of lateral eye group. Thoracic part reticulated, with no visible punctures. *Sternum:* Smooth, posteriorly separating coxae IV by somewhat more than their diam. *Chelicerae:* With 15–16 faint stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Scutum scarcely punctate, covering $\frac{9}{10}$ of abdomen. *Palp* (Figs. 60–62): Cymbium unmodified. Tibia sickle-shaped in lateral view, with strong dorsal and lateral apophyses. Tegulum ventrally strongly produced, with strong membranous protegular process. Suprategulum a rounded plate in lateral view. Embolus semi-circular, distally abruptly narrowed.

Female: Total length 1.44–2.16; carapace 0.66–0.77 long, 0.52–0.58 wide. Colour as in male, but abdomen uniformly dark grey, without scutum. *Cephalothorax:* No impressed punctures, and without median concavity in lateral view. *Legs:* No visible dorsal spines. TbMtI = 0.55. *Epigyne* (Figs. 63–64): Median septum diabolo-shaped, posteriorly with large part of dorsal plate visible; latter well-developed, 4 × as wide as median septum. *Vulva* (Fig. 65): Spermathecae separated by 2 diam., and 1 diam. from epigastric furrow. Sperm ducts long and gently curved.

Material examined:

ALGERIA: *Wil. Blida:* Atlas Blidéen, Meurdja, 950 m, 1 ♂, sieving litter in *Cedrus* plantation, 15 Dec. 1987. Idem, Chrea, 1520 m, 9 ♂, 11 ♀, pitfalls in *Cedrus atlantica* forest, 22 Sep. 1987–9 May 1988. Idem, Ghellai, 1350 m, 1 ♀, pitfall in *Cedrus atlantica* plantation, 2 June 1988. *Wil. Bouira:* Djurdjura Massif, Tikjda, 1510 m, 4 ♂, 5 ♀, pitfall in *Cedrus atlantica* forest, 16 Dec. 1987–2 June 1988; Tala Rana, 1320 m, 2 ♀, pitfall in *Cedrus atlantica* forest, 11 Apr. 1988. *Wil. Medea:* Col des 2 Bassins, 920 m, 4 ♂, 4 ♀, pitfall in small *Cedrus atlantica* plantation, 16 Dec. 1988–18 Feb. 1989. *Wil. Setif:* Djebel Babor, 1850 m, 13 ♂, 15 ♀ (holotype and paratypes), pitfalls in *Cedrus atlantica* forest, 2 Dec. 1988; idem, 1800 m, 1 ♂ (paratype), pitfall in *Cedrus* forest, 20 May 1982. *Wil. Tizi Ouzou:* Djurdjura Massif, Tala Guilef, 1400 m, 12 ♂, 2 ♀, pitfalls in *Cedrus atlantica* forest, 3 May 1989.

Distribution (Map 1): *Pelecopsis lunaris* sp. n. occurs exclusively in *Cedrus* forest on three isolated mountain chains near the coast: the Atlas of Blida, the Djurdjura Massif and the Djebel Babor.

Etymology: The name refers to the shape of the male palpal tibia, Latin noun *lunaris* = sickle-shaped.

Pelecopsis majus (Denis, 1945) (Figs. 66–73)

Lophocarenum majus Denis, 1945: 50 (descr. ♀).
Pelecopsis major; Denis, 1962: 288; Denis, 1968a: 147 (descr. ♀, non ♂).

Type material: Holotype ♀ from Algeria, Algiers; examined (BMNH 1948.112449).

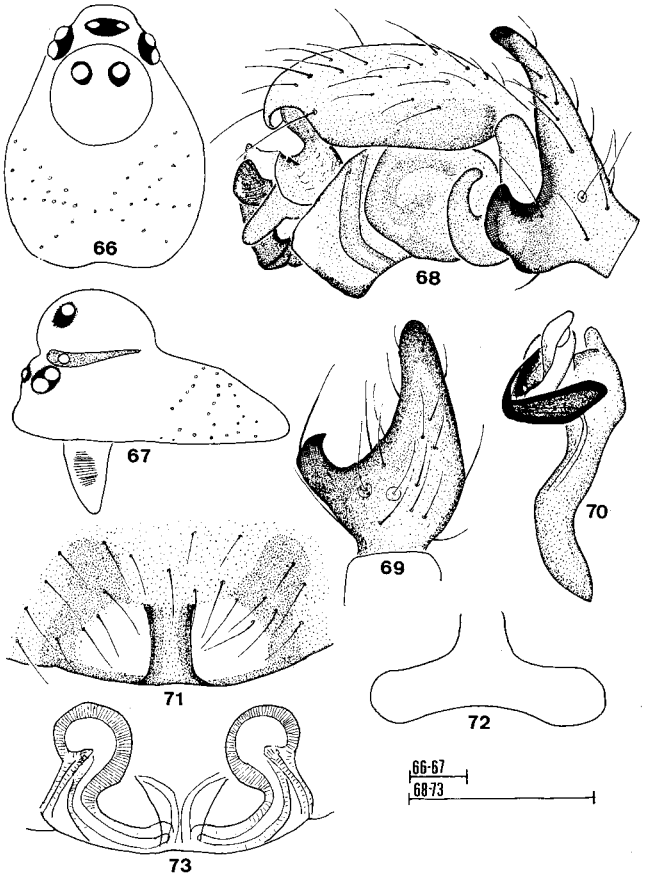
Diagnosis: Males are easily recognised by anterior nose-like projection of carapace, and females by parallel margins of median septum of epigyne.

Remarks: Denis (1945) originally spelled the name of this species "*majus*", referring to its larger body size. Later (Denis, 1962, 1964a, 1968a) he changed it to "*major*", probably trying to correct the incorrect spelling of *majus*. However, the correct spelling of "larger" in Latin is "*maior*", and he therefore made a second mistake! Denis' alteration has to be considered an incorrect emendation and the name *majus* should be retained.

A single female of this species was described from Algiers. Later, Denis (1964a: 340) described a single male from Morocco (Oujda) which he matched with this female. However, on several occasions females identical with the holotype were found together with a different male, which we consider to be the correct male; this is therefore described below as the male of *P. majus*, and a new name for the male described by Denis is proposed later in this paper.

Female holotype: Total length 2.69 (2.16–3.30); cephalothorax 0.91 long (0.80–1.24), 0.79 wide (0.65–1.00). Legs:

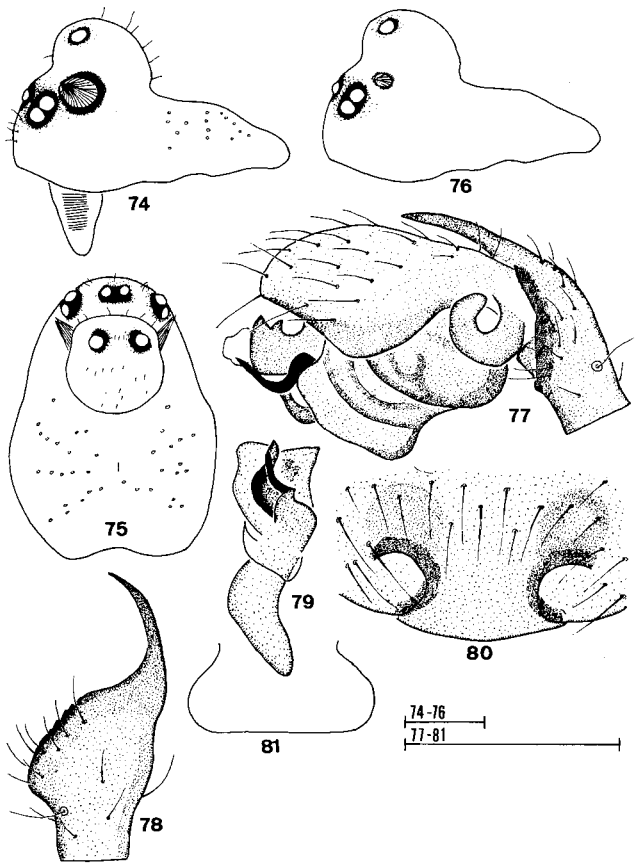
	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.67	0.24	0.55	0.46	0.34	0.49
IV	0.80	0.24	0.74	0.49	0.29	—



Figs. 66–73: *Pelecopsis majus* (Denis). **66** Male cephalothorax, dorsal view; **67** Idem, lateral view; **68** Male palp, lateral view; **69** Male palpal tibia, dorsal view; **70** Embolic division, ventral view; **71** Epigyne, ventral view; **72** Dorsal plate, postero-ventral view; **73** Vulva. Scale lines = 0.2 mm.

Cephalothorax with cephalic part reddish brown, thoracic part yellowish red; chelicerae yellowish red; sternum reddish brown, margin greyish; legs yellowish red, patellae and tarsi paler; abdomen dark grey to dark purplish, without scutum. *Cephalothorax:* With indistinct dorsal concavity in lateral view. Impressed punctures very clear, not only in radiating lines but also between them and in front of fovea. Thoracic part reticulated. *Legs:* Tibiae with 1 dorsal spine, $\frac{1}{3}$ diam. of Ti. *Epigyne* (Figs. 71–72): Median septum with parallel margins, flanked by two rounded paler areas. Dorsal plate invisible in ventral view, incised at one side, 3.5 × wider than long and 5 × wider than its stalk. *Vulva* (Fig. 73): Spermathecae separated by slightly more than 1 diam., and slightly less than 1 diam. from epigastric furrow. Sperm ducts describing a quarter of a circle to base of septum.

Male: Total length 1.66–2.38; cephalothorax 0.74–1.08 long, 0.59–0.82 wide. Colour generally as in female. Cephalic part reddish brown with postocular area paler; thoracic part yellowish red; abdomen with dark bistre-brown to black scutum, ventrally with long opercula and area before spinnerets yellowish red, rest greyish. *Cephalothorax* (Figs. 66–67): Cephalic part with more or less developed "nose", with rounded antero-dorsal tubercle and strongly elongate sulci with small anterior pit. Thoracic part reticulated, with distinct punctures. *Sternum:* Smooth in middle, slightly reticulated at sides, posteriorly separating coxae IV by $\frac{7}{6}$ × their diam. *Chelicerae:* With 18 faint stridulating ridges. *Legs:* No visible dorsal spines. *Abdomen:* Scutum densely punctate, covering $\frac{9}{10}$ of abdomen. *Palp* (Figs. 68–70): Tibia with strong dorsal apophysis and shorter, quadrangular meso-lateral lobe. Tegulum ventrally produced. Suprategulum well developed, semi-circular at first, then crossing embolus to its lateral side and produced into a lobe. Embolus rather wide, describing a semi-circle, terminally with a membranous lateral lobe.



Figs. 74–81: *Pelecopsis oranensis* (Simon). **74** Male cephalothorax, lateral view (Theniet-el-Had); **75** Idem, dorsal view (Theniet-el-Had); **76** Idem, lateral view, holotype (Oran); **77** Male palp, lateral view; **78** Male palpal tibia, dorsal view; **79** Embolic division, ventral view; **80** Epigyne, ventral view (Theniet-el-Had); **81** Dorsal plate, postero-ventral view (Theniet-el-Had). Scale lines = 0.2 mm.

Material examined:

ALGERIA: *Wil. Algiers:* Algiers, 1 ♀ (holotype), 24 Nov. 1948 (BMNH). *Wil. Batna:* S'Gag, 1650 m, 1 ♂, 1 ♀, litter in *Cedrus* forest, 9 Apr. 1988; idem, 18 ♂, 2 ♀, pitfalls, 11 Apr. 1989. Monts de Belezma, Col Telmet, 1820 m, 2 ♂, pitfall in *Cedrus atlantica*, 26 Feb. 1988; idem, 1 ♀, *Cedrus* litter, 8 Apr. 1982. *Wil. Blida:* Atlas Blidéen, Chrea, 830 m, 4 ♂, 1 ♀, pitfall in *Pinus halepensis* forest, 15 Jan.–2 Mar. 1988; idem, 1150 m, 2 ♂, pitfall in *Quercus ilex* forest, 7 Nov. 1985; idem, Pic Abdelkader, 1520 m, 1 ♀, pitfall in *Cedrus* forest, 15 June 1988. Djebel Mouzaia, 1300 m, 3 ♂, 2 ♀, pitfalls in *Acer* forest, 4 Nov. 1985. *Wil. Chleff:* Tacheta, 800 m, 7 ♂, 8 ♀, pitfalls in *Quercus faginea* forest, 23 Mar.–11 Apr. 1988. *Wil. Bouira:* Djurdjura, Tala Rana, 1300 m, 2 ♂, pitfall in *Cedrus* forest, 5 Jan.–16 Feb. 1988. *Wil. Boumerdes:* Djebel Bou Zegza, 900 m, 1 ♂, litter in *Quercus suber* forest, 9 Nov. 1984. Kadiria, Toulmout, 550 m, 1 ♀, pitfall in *Quercus suber* forest, 20 Apr. 1990. *Wil. Medea:* Col de Beni Chicao, 1230 m, 1 ♀, pitfall in mixed *Quercus ilex–Q. suber* forest, 28 Mar. 1989. *Wil. M'sila:* Djebel Maadid, 1600 m, 3 ♂, pitfalls in montane grassland, 6 Jan. 1990. *Wil. Setif:* Djebel Babor, 800 m, 1 ♂, litter of *Quercus ilex* bushes, 20 May 1982; idem, 1600 m, 13 ♂, 2 ♀, pitfalls in open *Cedrus* forest, 12 June 1989. Djebel Bouthaleb, 1450 m, 7 ♂, 2 ♀, pitfalls in *Cedrus* forest, 20 Apr. 1989, and 5 ♂, 6 Jan. 1990. *Wil. Tiaret:* Ain Halouf, 1050 m, 1 ♀, pitfall in *Quercus ilex* shrubs, 22 May 1990. *Wil. Tipasa:* Douadouda, 50 m, 1 ♂, 5 ♀, pitfalls in *Olea europaea* maquis, 12 Feb. 1987. Sidi Fredj, 10 m, 3 ♂, 1 ♀, pitfall in *Olea* maquis in dunes, 12 Dec. 1986; idem, 25 m, 1 ♀, pitfall in *Pinus halepensis* forest, 26 Jan. 1987. Zeralda, 10 m, 1 ♂, 12 ♀, pitfall in *Quercus coccifera* maquis, 23 Feb.–27 May 1988. *Wil. Tissemsilt:* Theniet-el-Had, 1400 m, 10 ♂, 7 ♀, pitfalls in mixed *Quercus faginea-Cedrus atlantica* forest, 23 Oct. 87–13 Mar. 1988; idem, 1500 m, 43 ♂, 10 ♀, pitfalls in dense *Cedrus* forest, 23 Oct. 1987–13 Mar. 1988. *Wil. Tizi Ouzou:* Mizrana, 300 m, 1 ♀, pitfall in *Quercus suber* forest, 27 Apr. 1990. Tala Guilef, 1420 m, 3 ♂, 3 ♀, pitfalls in montane grassland, 23 May 1989; 1600 m, 3 ♂, *Cedrus* forest, 12 Dec. 1988. Tigzirt, 50 m, 1 ♀, among stones in grassland, 26 Jan. 1990.

Variability: The specimens collected on the isolated peaks more to the south have a tendency to be smaller, and have a less pronounced anterior cephalic nose.

Distribution (Map 2): Originally described from Algiers, *Pelecopsis majus* appears to occupy a large area of North Algeria, from Tiaret in the west to Batna in the east. In the north, it occurs in lowland as well as in highland, but further south, it occurs only at higher altitudes on isolated peaks, such as the Ouarsenis Massif, Djebel Maadid and Djebel Bouthaleb.

Pelecopsis oranensis (Simon) (Figs. 74–84)

Lophocarenum oranense Simon, 1884: 685 (descr. ♂).
Pelecopsis oranensis; Denis, 1962: 282 (descr. ♂, ♀).

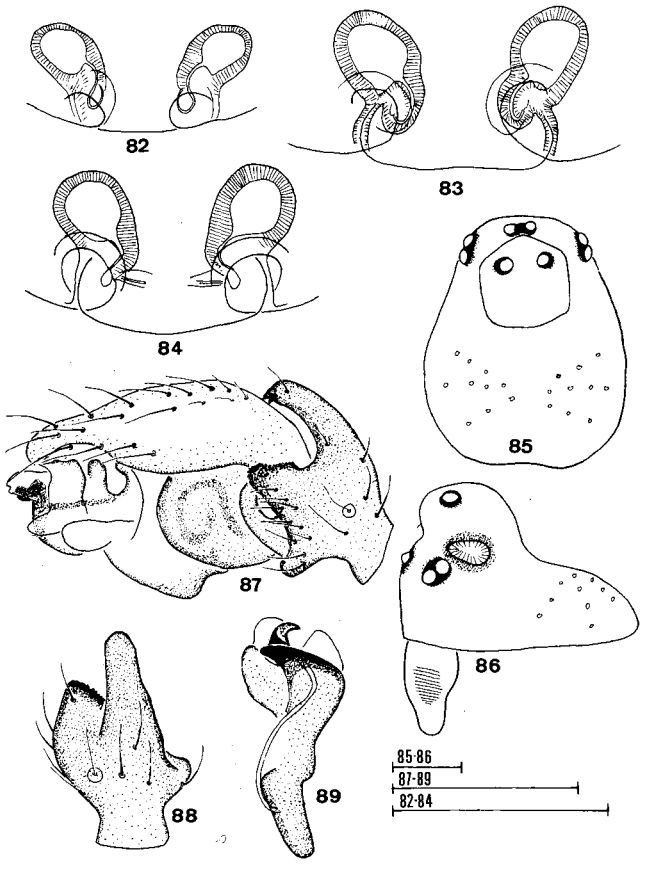
Type material: Holotype ♂ from Algeria, Oran; examined (MNHNP 6123); in the same tube 2 ♀, not mentioned in Simon's original description.

Diagnosis: Males of *Pelecopsis oranensis* are diagnosed by gently curved dorsal apophysis of male palpal tibia. Females are closely related to *P. digitulus* sp. n. but differ by epigyne with wider septum and smaller lateral pouches.

Male holotype: Total length 1.69 (1.31–1.77); cephalothorax 0.72 (0.63–0.77) long, 0.58 (0.50–0.58) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.50	0.16	0.38	0.36	0.30	0.58
IV	0.58	0.16	0.47	0.36	0.27	—

Cephalothorax yellowish brown, cephalic part olive-brown; chelicerae yellowish brown; sternum yellowish brown suffused with grey, margin grey; legs yellowish brown, coxae and patellae paler; abdomen grey, dorsal scutum dark grey-brown, long opercula and small area before spinnerets yellowish brown. *Cephalothorax* (Figs. 74–76): Cephalic part with rounded lobe and shallow interocular groove; sulci rounded, with protruding tuft of hairs, as wide as diam. of a lateral eye in holotype, but much wider in all recently collected males. Thoracic part with radiating impressed punctures, reticulated at sides. *Sternum:* Smooth, posteriorly separating coxae IV by slightly more than their diam. *Chelicerae:* With 13 faint stridulating ridges. *Legs:* No visible dorsal spines. TbMtI = 0.58. *Abdomen:* Scutum covering $\frac{4}{5}$ of abdomen, densely punctate. *Palp* (Figs. 77–79): Tibia with tapering dorsal apophysis, terminally gently curved in antero-lateral direction; medio-lateral margin denticulate. Cymbium unmodified. Tegulum ventrally produced. Suprategulum terminally with two teeth. Embolus short and twisted, only slightly curved.



Figs. 82–84: *Pelecopsis oranensis* (Simon). **82** Vulva, paratype (Oran); **83** Idem (Theniet-el-Had); **84** Idem (Tlemcen).
Figs. 85–89: *Pelecopsis oujda* sp. n. **85** Male cephalothorax, dorsal view; **86** Idem, lateral view; **87** Male palp, lateral view; **88** Male palpal tibia, dorsal view; **89** Embolic division, ventral view. Scale lines = 0.2 mm.

Female: Total length 2.25–2.58; cephalothorax 0.77–0.80 long, 0.66–0.67 wide. Colour as in male, but abdomen uniformly dark grey to dark purplish, without scutum. *Cephalothorax:* Impressed punctures present. *Legs:* Tibiae with 1 dorsal spine, equal to diam. of Ti. TbMtI = 0.57. *Epigyne* (Figs. 80–81): Median septum relatively wide, wider than lateral rounded pouches. Dorsal plate oval, twice as wide as long, and 1.5 × as wide as septum. *Vulva* (Figs. 82–84): Spermathecae separated by 1 diam., and 0.5 diam. from epigastric furrow. Sperm ducts describing a quarter of a circle.

Material examined:

ALGERIA: *Wil. Blida:* Atlas Blidéen: Meurdja, 950 m, 1 ♀, *Cedrus atlantica* forest, 15 Dec. 1987; Chrea, 1240 m, 1 ♀, *Cedrus* litter, 26 May 1985; Chrea, 1450 m, 1 ♀, pitfall in *Cedrus atlantica* forest, 20 Dec. 1987; Meftah, 480 m, 1 ♀, *Arbutus unedo* litter, 15 May 1984. *Wil. Oran:* Oran, Camp des planteurs, 1 ♂ (holotype), 2 ♀, *Pinus* litter (MNHNP 6123). *Wil. Tipasa:* Tipasa, 30 m, 1 ♀, among stones in Roman ruins, 2 Feb. 1987. *Wil. Tissemsilt:* Ouarsenis Massif, Theniet-el-Had, Rond Point des Cèdres, 1550 m, 16 ♂, 18 ♀, 5 Oct. 1987–19 Apr. 1988. Idem, 1400 m, 1 ♀, pitfall in mixed *Quercus faginea-Cedrus atlantica* forest, 18 Dec. 1987. *Wil. Tizi Ouzou:* Massif du Djurdjura, Tala Guilef, 1600 m, 1 ♂, montane grassland, 17 Apr. 1984. *Wil. Tlemcen:* S. Tlemcen, col de Zarifète, 1150 m, 1 ♀, pitfall in *Quercus ilex* forest, 6 May 1984. S. Tlemcen, forest of Tal Terny, 1300 m, 1 ♀, pitfall in *Quercus ilex* forest, 24 May 1990. MOROCCO: E. Khenifra, Lac Azigza, 1575 m, 1 ♀, mixed *Cedrus-Quercus* forest, 13 May 1984.

Remark: The size of the post-ocular sulci is variable (Figs. 74, 76). The holotype has small sulci, but all specimens collected by ourselves have wide sulci. Holm (1979) reported a similar dimorphism for *Pelecopsis mengei*.

Ecology: In Theniet-el-Had, males of this species were captured from November to April, with a peak in January, and adult females from January to June, with a peak in April (Fig. 154A).

Distribution (Map 3): *Pelecopsis oranensis* was hitherto only known from the type locality in Oran, but appears to be widely distributed in North Algeria, from Tlemcen in the east to Tizi Ouzou in the west, and in the NE of Morocco. It was collected in large numbers only in the Ouarsenis Massif.

Pelecopsis oujda sp. n. (Figs. 85–89)

Pelecopsis major; Denis, 1964a: 340 (descr. ♂); Denis, 1968a: 147.

Type material: Holotype ♂ from Morocco, Oujda (MNHNP 28894).

Diagnosis: Pelecopsis oujda sp. n. is diagnosed by the shape of the two denticulate tibial apophyses.

Male holotype: Total length 2.0; cephalothorax 0.74 long, 0.60 wide. Legs (both legs IV absent):

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.50	0.21	0.41	0.34	0.28	0.59

Bleached. According to Denis (1964a), cephalothorax yellowish orange, legs yellowish and abdomen black with brown scutum. *Cephalothorax* (Figs. 85–86): With straight clypeus and rounded cephalic lobe, somewhat acuminate in front; sulci large and oval, twice as wide as diam. of lateral eye group, provided with interiorly directed hairs. Thoracic part with punctate radiating striae. *Chelicerae:* With 11–12 indistinct stridulating ridges. *Sternum:* Smooth, separating coxae IV by their diam. *Legs:* No distinct dorsal spines. *Abdomen:* Scutum

not well defined because of shrivelling of abdomen. *Palp* (Figs. 87–89): Tibia with long, gradually narrowing antero-dorsal apophysis, denticulate and curved downwards at tip, and lobe-like denticulate antero-lateral apophysis. Cymbium unmodified. Protegulum well-developed. Suprategulum disc-shaped, with blunt apophysis. Embolic division with long radix and broad curved embolus, terminally suddenly narrowed and pointed.

Female: Unknown.

Material examined: MOROCCO: Oujda, holotype ♂, R. Jeannel leg. (MNHNP 28894, sub *P. major*).

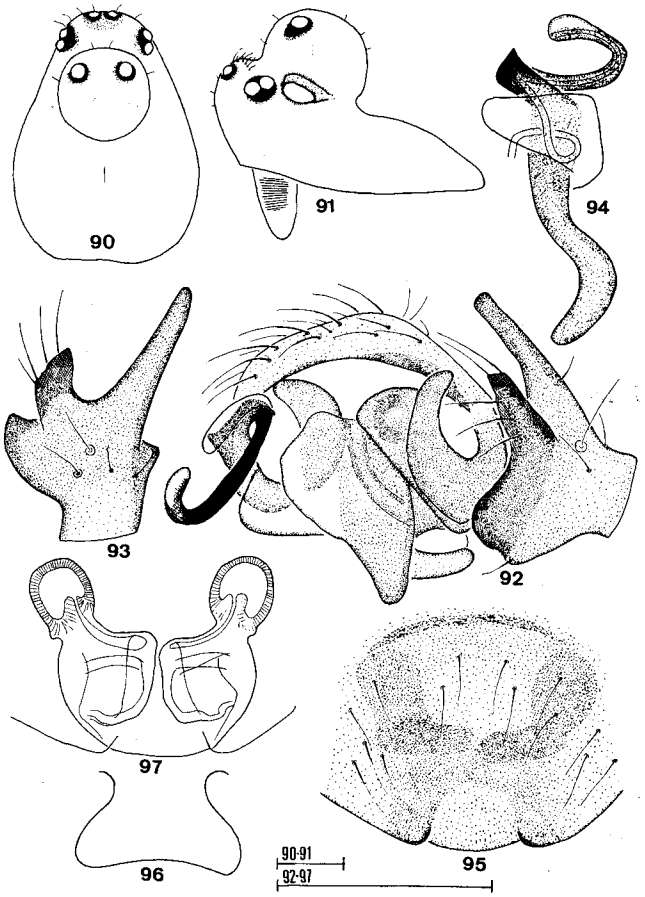
Distribution (Map 3): *Pelecopsis oujda* sp. n. is only known from a single male collected at Oujda in the NE of Morocco. It could be the unknown male of *P. aureipes* Denis, the type locality of which is probably near Oujda, as mentioned above.

Etymology: The specific name *oujda* is a noun in apposition and refers to the type locality.

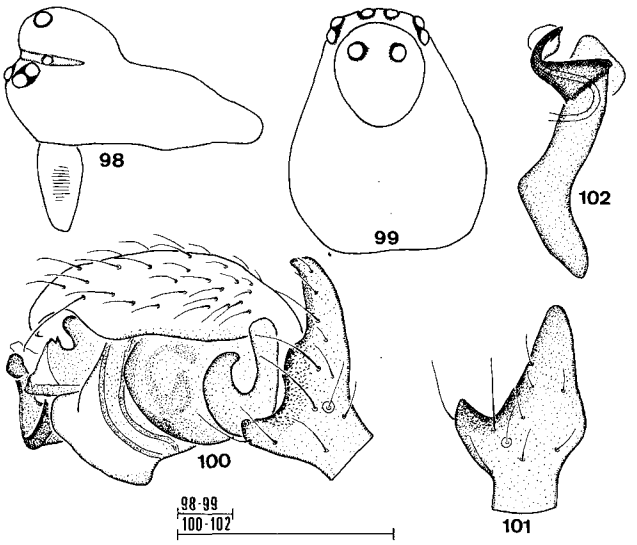
Pelecopsis riffensis sp. n. (Figs. 90–97)

Type material: Holotype ♂ from Morocco, Djebel Tazeka (deposited in IRSNB); 3 ♂, 15 ♀ paratypes, same locality (deposited in IRSNB, MNHNP and CRB).

Diagnosis: Easily recognised by shape of male palpal tibia, long circular embolus and large development of epigyne.



Figs. 90–97: *Pelecopsis riffensis* sp. n. **90** Male cephalothorax, dorsal view; **91** Idem, lateral view; **92** Male palp, lateral view; **93** Male palpal tibia, dorsal view; **94** Embolic division, ventral view; **95** Epigyne, ventral view; **96** Dorsal plate, postero-ventral view; **97** Vulva. Scale lines = 0.2 mm.



Figs. 98–102: *Pelecopsis suilla* (Simon). **98** Male cephalothorax, lateral view; **99** Idem, dorsal view; **100** Male palp, lateral view; **101** Male palpal tibia, dorsal view; **102** Embolic division, ventral view. Scale lines = 0.2 mm.

Holotype male: Total length 1.66 (1.62–1.68); cephalothorax 0.80 long (0.72–0.80), 0.58 wide (0.52–0.58). Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.50	0.18	0.40	0.30	0.27	0.45
IV	0.58	0.16	0.51	0.40	0.26	—

Cephalothorax yellowish to orange-brown, with fovea and striae greyish; chelicerae and legs yellowish brown, patellae paler; sternum yellowish brown suffused with grey; abdomen dark grey, with dark purplish brown scutum. *Cephalothorax* (Figs. 90–91): With strongly protruding clypeus, deep interocular depression and rather small cephalic lobe, provided with numerous hairs; sulci oval, largest diam. equal to diam. of lateral eye group, and situated in a larger oval depression. Thoracic part reticulated at sides, without punctate striae. *Chelicerae:* With 14 stridulating ridges. *Sternum:* Smooth, separating coxae IV by their diam. *Abdomen:* Scutum sparsely punctate, covering $\frac{9}{10}$ of abdomen. *Palp* (Figs. 92–94): Tibia with long, parallel-sided dorsal apophysis, truncated at tip, and shorter, pointed lateral apophysis, provided with several spines. Suprategulum disc-shaped, without distinct apophysis. Embolus first directed anteriorly, with mesal tooth, then describing a complete circle, linear and terminally rounded.

Female: Total length 1.80–2.30; cephalothorax 0.75–0.80 long, 0.58–0.64 wide. Colour as in male, but abdomen uniformly dark grey. *Cephalothorax:* In lateral view with distinct median concavity. Thoracic part reticulated, radiating punctures more or less expressed, depending on specimen. *Epigyne* (Figs. 95–96): Ventral plate strongly developed, slightly longer than wide with well-marked anterior margin; septum represented only by two small sutures near epigastric furrow. Dorsal plate 1.5× as wide as long. *Vulva* (fig. 97): Spermathecae separated from each other and from epigastric furrow by 1.8 diam. Sperm ducts very long, first directed anteriorly, then curving antero-laterally to spermathecae.

Material examined:

MOROCCO: Taza, Djebel Tazeka, 1850 m, 4 ♂ (holotype, paratypes), 15 ♀ (paratypes), pitfalls in *Cedrus atlantica* forest, 22 Apr.–8 May 1984; idem, 1575 m, 1 ♀, pitfall in *Quercus faginea* forest, 8 May 1984. S. Taza, Bab Bou Idir, 3 ♀, pitfall in *Quercus ilex* forest, 8 May 1984. Ketama, 16 km W., 1750 m, 3 ♂, 3 ♀, pitfalls in dense *Cedrus atlantica* forest, 20 Apr.–15 May 1984. Tetouan, 10 km S., 125 m, 1 ♀, pitfall in *Eucalyptus* plantation, 15 May 1984. Casablanca, 1 ♀, no further data (J. Mertens leg.).

Distribution (Map 3): Mainly the Riff Atlas in Morocco, and once near the coast in Casablanca; this part of Morocco was however not sampled by us.

Etymology: The species is named after its main distribution region.

Pelecopsis suilla (Simon) comb. n. (Figs. 98–102)

Exechophysis suilla Simon, 1884: 693 (descr. ♂); Denis, 1968b: 317.

Diagnosis: Closely related to *P. majus* and *P. oujda*, but differs clearly by shape of cephalic tubercle and by tibial apophyses of male palp.

Type material: Holotype ♂ from Algeria, Saida, Monts de Daya; examined (MNHNP 5264).

Male holotype: Total length 1.96; cephalothorax 0.84 long, 0.70 wide. Bleached. According to original description, cephalothorax was dark brown. *Cephalothorax* (Figs. 98–99): Cephalic part with rounded antero-dorsal tubercle, protruding clypeus and distinct transverse interocular groove, continuing laterally in elongate sulci, latter with small rounded pit, less wide than diam. of an LE. No visible impressed punctures on thoracic part, but this might be due to bleaching. *Chelicerae:* With 10–11 indistinct stridulating ridges. *Sternum:* Smooth, posteriorly separating coxae IV by slightly more than their diam. *Legs:* No visible dorsal spines. TbMtI = 0.51. *Palp* (Figs. 100–102): Tibia with long, triangular antero-dorsal apophysis, and shorter, obtuse lateral apophysis with denticulate margin; with 1 trichobothrium. Cymbium unmodified. Protegulum slightly protruding. Posterior part of radix elongated; embolus semi-circular, gradually narrowing, terminally with a membranous lobe.

Female: Unknown.

Material examined:

ALGERIA: *Wil. Saida:* Entre Saida et Magenta, Daia Mountains, ♂ holotype (MNHNP 5264).

Distribution (Map 3): Only known from the type locality.

Pelecopsis bicornuta Hillyard (Figs. 103–110)

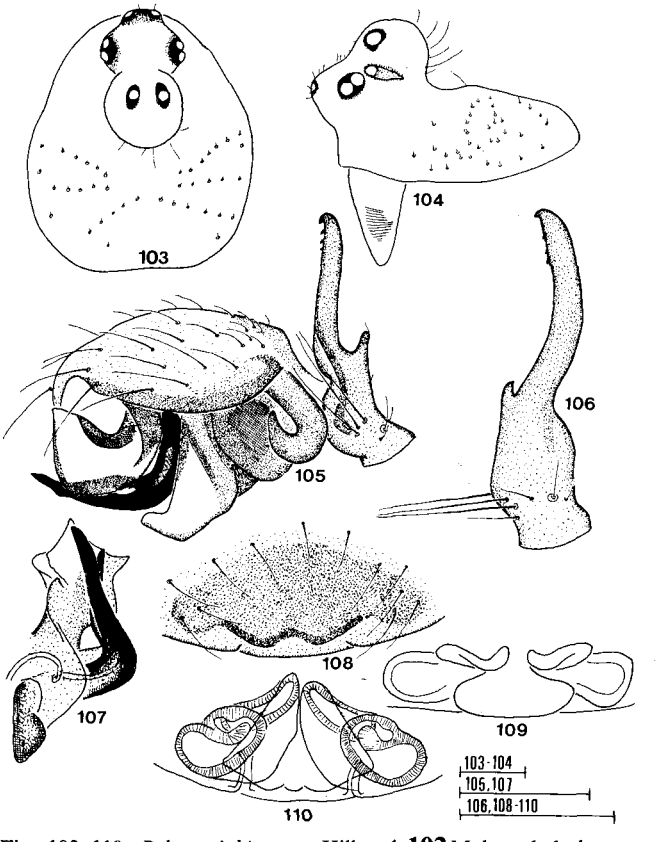
Pelecopsis bicornuta Hillyard, 1980: 134 (descr. ♂, ♀).

Diagnosis: Males are easily diagnosed by postero-basal tooth of tibal apophysis; females by sinuous posterior margin of epigyne, and rectangular dorsal plate.

Type material: Holotype ♂, paratype ♀ from Spain, Cadiz, Facinas (BMNH 1979.10.31.1,2); examined.

Male: Total length 1.98–2.34; cephalothorax 0.84–0.91 long, 0.68–0.76 wide. Cephalothorax orange-brown, suffused with some black in cephalic region; sternum orange-brown, suffused with black towards edges; legs pale orange-brown; abdomen grey, scutum glossy brown. *Cephalothorax* (Figs. 103–104): Cephalic part with anterior and antero-dorsal projections, the latter provided with a pit smaller than diam. of an AL. Thoracic part with distinct radiating punctures, each with a minute hair, not extending on clypeus. *Sternum:* Smooth in middle, reticulated and shallowly punctate at sides, separating coxae IV by $\frac{3}{4}$ their diam. *Legs:* No visible dorsal spines. TbMtI = 0.54. *Abdomen:* Scutum covering $\frac{4}{5}$ to all of abdomen. *Palp* (Figs. 105–107): Patella swollen, twice as long as wide. Tibia with four long basal spines, and with elongated antero-dorsal apophysis, provided posteriorly with basal tooth and terminally with 4 denticles. Protegulum produced anteriorly. Suprategular apophysis strongly developed, describing a wide semi-circle with superior and inferior margins chitinised. Radical part of embolic division rather short and narrow; embolus at angle of nearly 90° to radix, first directed laterally, in middle curved anteriorly, terminally slightly widened and bluntly pointed.

Female: Total length 2.25–2.60; cephalothorax 0.90–1.02 long, 0.74–0.82 wide. Colour, punctures on cephalothorax and abdominal scutum as in male. *Cephalothorax:* With median concavity in lateral view. *Legs:* All tibiae with 1 dorsal spine, 1.2 × diam. of tibia; TbMtI = 0.54. *Epigyne* (Figs. 108–109): Obscure, with chitinous ridge in front of epigastric furrow, and posterior margin indented. Dorsal plate oval, wider than long. *Vulva* (Fig. 110): Sperm ducts long and wide, first directed anteriorly, then curving postero-laterally to coiled spermathecae.



Figs. 103–110: *Pelecopsis bicornuta* Hillyard. **103** Male cephalothorax, dorsal view; **104** Idem, lateral view; **105** Male palp, lateral view; **106** Male palpal tibia, dorsal view; **107** Embolic division, ventral view; **108** Epigyne, ventral view; **109** Dorsal plate, postero-ventral view; **110** Vulva. Scale lines = 0.2 mm.

Material examined and citations:

SPAIN: *Cadiz:* Facinas, ♂ holotype, ♀ paratype, 20 May 1978 (BMNH). Tarifa, 2 ♂, 3 ♀, Apr. 1990 (P.Poot leg.). MOROCCO: *Middle Atlas:* Source Oum er Rbia (Hillyard, 1980). *Riff Atlas:* 10 km E. Chechaouen, 500 m, 9 ♂, 4 ♀, *Q. suber* litter, 15 May 1984. E. Khenifra, Lac Azigza, 1575 m, 1 ♀, *Cedrus* and *Quercus* litter, 13 May 1984.

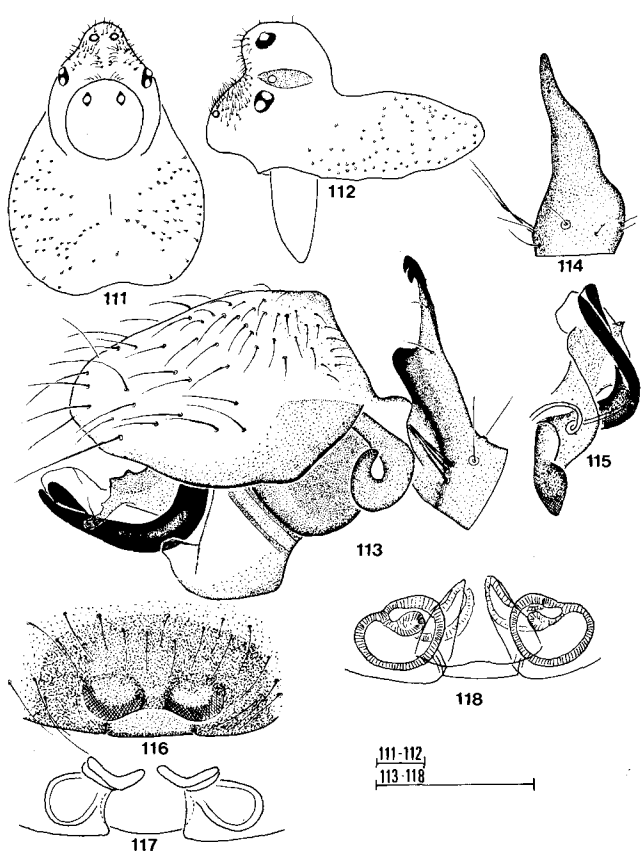
Distribution (Map 4): Described by Hillyard (1980) from the province of Cadiz in Spain and from the Middle Atlas in Morocco. In Spain, we cite a locality in the same province, and in Morocco, we collected it in the Riff Atlas.

Pelecopsis bucephala (O.P.-Cambridge) (Figs. 111–118)

Erigone bucephala O.P.-Cambridge, 1875: 217 (descr. ♂, ♀).
Exechophysis bucephala; Simon, 1884: 691; Simon, 1899: 83; Simon, 1911: 416; Simon, 1926: 483; Denis, 1955: 209; Denis, 1968a: 147; Denis, 1968b: 312.
Pelecopsis bucephala; Millidge, 1977a: 21 (n. comb); Hillyard, 1980: 138.
Exechophysis semitecta Denis, 1968b: 315 (descr. ♀). **Syn. nov.**
Exechophysis uncinata Denis, 1968b: 315 (descr. ♂, ♀). **Syn. nov.**
Exechophysis hipporegia Denis, 1968b: 316 (♀, non ♂; misidentification).

Diagnosis: Males of *Pelecopsis bucephala* are distinguished by strongly protruding cephalothorax and two terminal denticles on palpal tibial apophysis; females by posterior tubercles of epigyne and nearly quadrangular dorsal plate.

Type material: Holotype ♂ and 13 ♂, 24 ♀ paratypes of *Exechophysis uncinata* from Algeria, Saida (MNHNP 13069); examined.



Figs. 111–118: *Pelecopsis bucephala* (O.P.-Cambridge). **111** Male cephalothorax, dorsal view; **112** Idem, lateral view; **113** Male palp, lateral view; **114** Male palpal tibia, dorsal view; **115** Embolic division, ventral view; **116** Epigyne, ventral view; **117** Dorsal plate, postero-ventral view; **118** Vulva. Scale lines = 0.2 mm.

Remarks: All previous authors (e.g. Denis, 1968b; Hillyard, 1980) indicate that this species has only one terminal denticle on the tibial apophysis of the male palp. However, all material examined by us showed two closely-set but distinct denticles. Denis (1968b) distinguished *uncinata* from *bucephala* by this non-existent difference and the two species are therefore synonymised. *E. semitecta* (type not available, probably lost) has according to Denis' (1968b) drawings two posterior tubercles on the epigyne, and is therefore also synonymised.

We do not agree with Bonnet (1956), who claimed that *bucephalus* is a substantive and should not be changed to *bucephala* when combined with *Exechophysis* or *Pelecopsis*. Since O.P.-Cambridge (1875), in his original description of *Erigone bucephala*, combined *bucephala* in gender with *Erigone*, he clearly used *bucephala* as a latinised adjective, derived from the Greek adjective "boekefalos". Bonnet's (1956) opinion is thus rejected.

Male: Total length 2.00–2.80; cephalothorax 1.00–1.28 long, 0.82–0.90 wide. Cephalothorax reddish orange-yellow, head heavily tinged with brown; sternum reddish orange-yellow; legs bright orange-yellow; abdomen black, scutum deep blackish to bistre-brown. *Cephalothorax* (Figs. 111–112): Cephalic part with two projections, upper part of clypeus a bold, obtuse nose-like projection, and region of PM forming a globular tubercle; ocular area with numerous hairs; whole covered with dark punctures, more conspicuous on thoracic part. *Sternum:* With abundant punctures, posteriorly separating coxae IV by slightly less than their diam. *Legs:* No visible dorsal spines. *Abdomen:* Entirely coriaceous, with large scutum, thickly set with punctured spots. *Palp* (Figs. 113–115): Patella 3.5 × as long as wide. Tibia with long antero-dorsal apophysis, provided with antero-basal tooth and two terminal recurved denticles. Cymbium angular dorsally. Tegulum and protegulum protruding, whitish. Suprategular apophysis well developed but poorly chitinised. Embolic division as in *bicornuta* except for embolus, split in middle into two parallel branches connected by a membrane.

Female: Total length 1.98–2.75; cephalothorax 0.85–1.14 long, 0.72–0.94 wide. General characters as in male, thoracic part of cephalothorax, sternum and scutum equally punctured. *Cephalothorax:* In lateral view with distinct concavity. *Abdomen:* Scutum usually covering entire abdomen, but in one specimen only $\frac{3}{4}$ its length. *Epigyne* (Figs. 116–117): Posterior margin with two well-developed tubercles. Dorsal plate rectangular, not much wider than long. *Vulva* (Fig. 118): Strongly resembling preceding species.

Material examined and citations from North Africa:

62 ♂, 204 ♀ from Simon collection, labelled "Fr. mér., Sp., Alg., Corse (MNHNP 4426). FRANCE: *Bouches du Rhone:* Camargue, 45 ♂, 31 ♀ (MNHNP, Coll. Denis). Banyuls, jardin, 5 ♂, 5 ♀ (MNHNP, Coll. Denis). Hérault: St. Saturnin, 1 ♀, 23 May 1986 (P. Poot leg.). ALGERIA: *Wil. Algiers:* El Harrach, 25 m, 3 ♂, 18 ♀, pitfalls in botanical garden of Institut national agronomique, 30 Jan.–31 Oct. 1985; idem, 8 ♂, 8 ♀, 16 May 1982. Saoula, Ouled Belhadj, 100 m, 1 ♂, pitfall in *Pinus halepensis* forest, 9 Jan. 1988. *Wil. Annaba:* Annaba (misidentified ♀ allotype of *E. hipporegia*; MNHNP 14621). *Wil. Batna:* Belezma Mountains, Col Telmet, 1820 m, 1 ♀, pitfall in *Cedrus* forest, 26 Feb. 1988. *Wil. Blida:* Atlas Blidéen, Djebel Mouzaia, 1400 m, 1 ♂, pitfall in mixed deciduous forest, 22 May 1982. Djebel Zerouela, Meftah, 480 m, 1 ♀, rough grassland, 7 Apr. 1987. *Wil. Bouira:* Er Rich,

750 m, 4 ♂, 1 ♀, among stones, 15 Apr. 1990. Massif du Djurdjura, Tikjda, 1510 m, 1 ♀, by beating *Cedrus* branches, 1 June 1988. *Wil. Chleff:* Damous, 5 m, 1 ♀, among stones in dunes, 13 Apr. 1977. *Wil. El Tarf:* Berrihane, 30 m, 4 ♀, wet grassland, 1 Mar. 1990. El Kala, E. Lake Tonga, 10 m, 5 ♂, 7 ♀, wet grassland, 27 Mar. 1988; El Kala, Cap Rosa, 50 m, 2 ♂, maquis in dunes, 29 Mar. 1988. *Wil. Oran:* Daiet el Bragat along W18, 100 m, 1 ♂, 2 ♀, among dry *Salicornia*, 25 Apr. 1984. *Wil. Saida:* Saida, 14 ♂, 24 ♀ (holotype and paratypes of *E. uncinata*; MNHNP). Oum Djerane, 40 km SE Saida, 1300 m, 1 ♀, among stones in *Quercus ilex* maquis, 15 Sep. 1981. Tifrit, 925 m, 1 ♀, litter of *Quercus ilex* forest, 4 May 1984. *Wil. Setif:* Monts du Hodna, Djebel Bouthaleb, 1300 m, 2 ♀, among stones near rivulet, 29 June 1988. *Wil. Sidi Bel Abbes:* Lamtar, Oued Mekera, 4 ♀, 13 May 1979. *Wil. Tiaret:* Frenda, 1 ♂ (MNHNP 19801). *Wil. Tissemsilt:* Theniet-el-Had, 1400 m, 4 ♀, litter of *Cedrus* forest, 23 Aug. 1988. *Wil. Tlemcen:* S. Tlemcen, S. Col d'Hafir, 900 m, 1 ♂, 3 ♀, among herbs along Oued Tafna, 5 May 1984. S. Tlemcen, Col de Zarifete, 1150 m, 2 ♀, pitfalls in *Quercus ilex* forest, 6 May 1984. Tlemcen, 5 km W. along N7, 850 m, 3 ♀, among stones and grasses along small rivulet, 23 Apr. 1984. MOROCCO: Between Tanger and Fez (Simon, 1909); Oued Cefrou (Simon, 1911); Ifrane (Denis, 1955).

Distribution (Map 4): According to literature known from France, Italy, Spain, Balearics, Morocco, and Algeria, but only the localities from France and Algeria can be confirmed here by material examined by us. Simon's (1909, 1911) and Denis' (1955) citations from Morocco could refer to species described later. In Algeria, the species is very common in the north, where it lives at low altitudes in a wide variety of habitats.

Pelecopsis coccinea (O.P.-Cambridge) (Figs. 119–126)

Erigone coccinea O.P.-Cambridge, 1875: 205 (descr. ♂).
Lophocarenum coccineum; Simon, 1884: 684.
Pelecopsis coccinea; Denis, 1962: 290 (descr. ♀); Denis, 1968a: 147; Millidge, 1977b: 117.

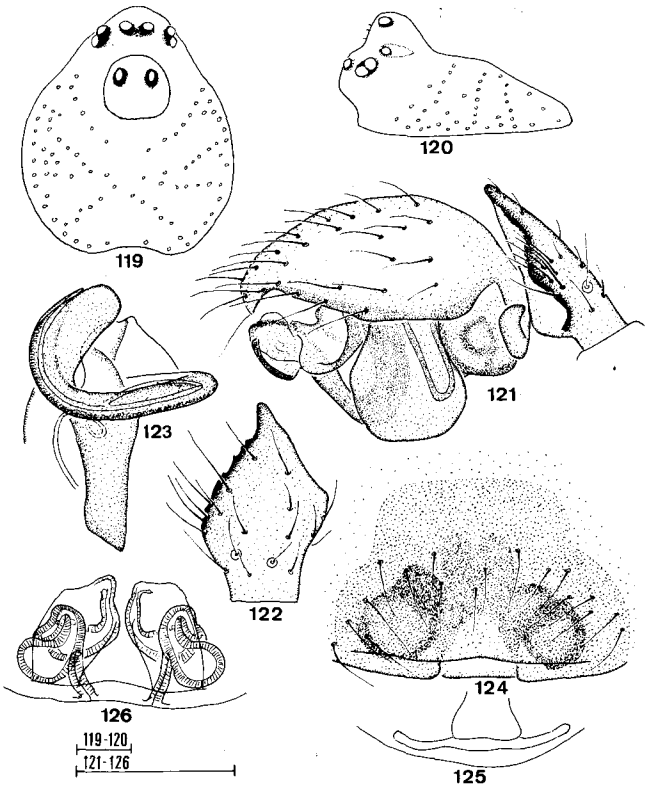
Type material: Holotype ♂ from Morocco labelled "*Erigone coccinea* (Simon) 706: 97, Morocco" (BMNH 706.07); examined.

Remark: O.P.-Cambridge (1875) described this species from one male sent to him by Simon and mentions the Col de Natoia in France as type locality. Later the species was only cited from Morocco (Simon, 1884; Denis, 1962, 1968a). This is most probably the correct type locality.

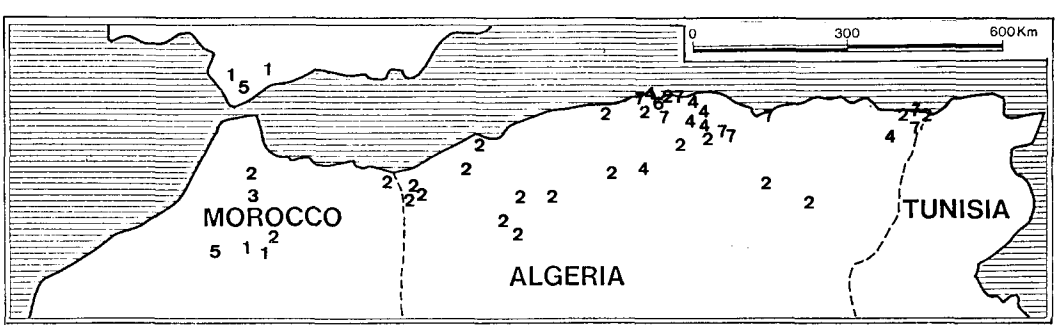
Male holotype: Total length 1.92 (2.22, paratype); cephalothorax 0.91 (0.92) long, 0.70 (0.71) wide. Legs:

	Fe	Pa	Ti	Mt	Ta	TbMt
I	0.76	0.22	0.59	0.50	0.38	0.40
IV	0.78	0.22	0.68	0.56	0.32	—

Sternum deep brown-black. Abdomen glossy black. *Cephalothorax* (Figs. 119–120): Cephalic part with small anterior tubercle, somewhat larger antero-dorsal tubercle, small interocular groove and concave clypeus. Sulci rather small, smaller than diam. of a lateral eye, situated in small oval depression. Thoracic part strongly punctured in radiating lines. *Sternum:* Strongly punctate; smooth in middle, reticulated at sides, posteriorly separating coxae IV by slightly more than their diam. *Legs:* No tibial spines observed. TbMtI = 0.40. *Abdomen:* Scutum covering $\frac{9}{10}$ of abdomen, densely and strongly punctate. *Palp* (Figs. 121–123): Patella relatively short, 1.25× as long as wide. Tibia with triangular antero-dorsal apophysis, its lateral margin denticulate. Protegulum well developed, covering basal part of embolus. Suprategular apophysis as in *bicornuta*, but less developed. Radical part of embolic division relatively short and wide, at angle of 90° to embolus; latter strongly developed and circular, terminally with small sperm duct tooth and large rounded lobe.



Figs. 119–126: *Pelecopsis coccinea* (O.P.-Cambridge). **119** Male cephalothorax, dorsal view; **120** Idem, lateral view; **121** Male palp, lateral view; **122** Male palpal tibia, dorsal view; **123** Embolic division, ventral view; **124** Epigyne, ventral view; **125** Dorsal plate, postero-ventral view; **126** Vulva. Scale lines = 0.2 mm.



Map 4: Distribution of *Pelecopsis, Trichopterna* and *Ouedia* species in North Africa. **1** *P. bicornuta* Hillyard; **2** *P. bucephala* (O.P.-Cambridge); **3** *P. coccinea* (O.P.-Cambridge); **4** *P. leonina* (Simon); **5** *P. modica* Hillyard; **6** *T. lucasi* (O.P.-Cambridge); **7** *O. rufithorax* (Simon).

Female: Total length 2.14–2.30; cephalothorax 0.86–1.04 long, 0.74–0.84 wide. *Cephalothorax:* Strongly punctate, even on clypeus; in lateral view without median concavity, but with median angularity. *Legs:* No tibial spines observed. TbMtI = 0.49. *Epigyne* (Figs. 124–125): Ventral plate longer than wide, with transverse groove just before epigastric furrow. Dorsal plate slightly wider than long. *Vulva* (Fig. 126): Sperm ducts with very wide openings, probably corresponding with wide terminal part of male embolus, at first directed anteriorly, then curving postero-laterally to coiled spermathecae.

Material examined:

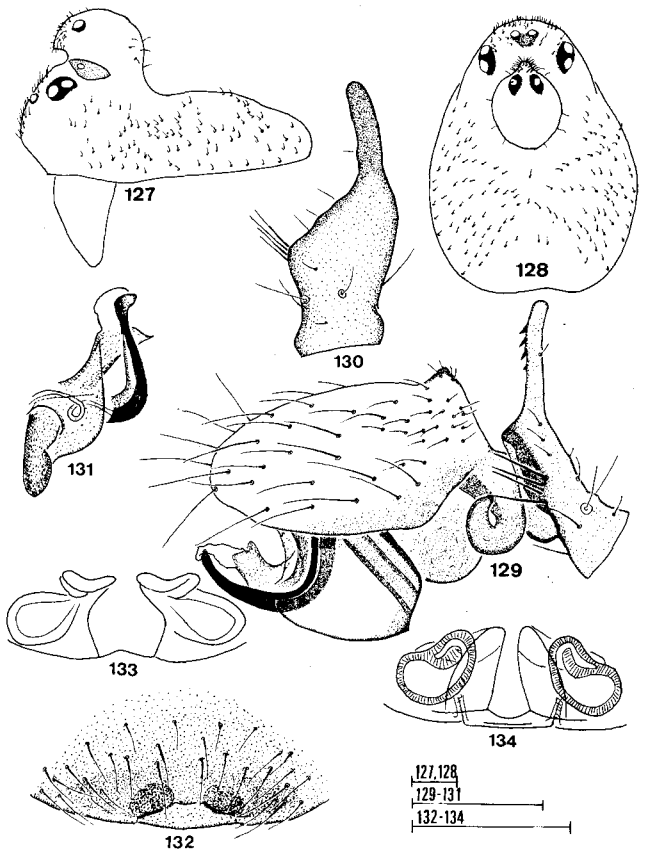
MOROCCO: 1 ♂, 2 ♀ labelled "Maroc" (MNHNP 4412); 1 ♂, labelled Morocco (BMNH). According to Denis (1962), the specimens were captured between Tanger and Fez.

Distribution (Map 4): This species is only known from Morocco. It was erroneously cited from France by O.P.-Cambridge (1875) and from Algeria by Roewer (1942).

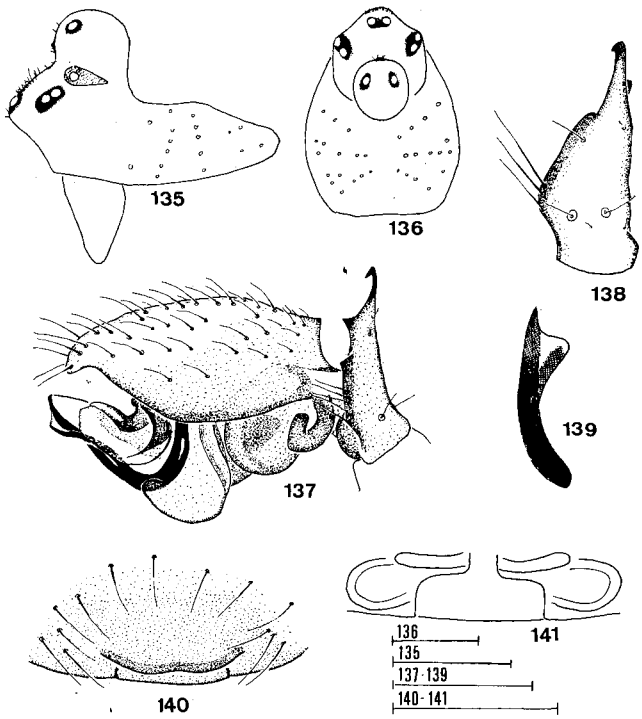
Pelecopsis leonina (Simon) (Figs. 127–134)

Exechophysis leonina Simon, 1884: 693 (descr. ♂); Denis, 1968b: 314 (descr. ♂, ♀).

Diagnosis: Males are diagnosed by peculiar anterior tubercle on cephalic lobe, and row of denticles on palpal tibia. Females have epigyne with less chitinised posterior margin and smaller tubercles than in *bucephala*.



Figs. 127–134: *Pelecopsis leonina* (Simon). **127** Male cephalothorax, lateral view; **128** Idem, dorsal view; **129** Male palp, lateral view; **130** Male palpal tibia, dorsal view; **131** Embolic division, ventral view; **132** Epigyne, ventral view; **133** Dorsal plate, postero-ventral view; **134** Vulva. Scale lines = 0.2 mm.



Figs. 135–141: *Pelecopsis modica* Hillyard. **135** Male cephalothorax, lateral view; **136** Idem, dorsal view; **137** Male palp, lateral view; **138** Male palpal tibia, dorsal view; **139** Distal part of embolus, ventral view; **140** Epigyne, ventral view; **141** Dorsal plate, postero-ventral view. Scale lines = 0.5 mm (Figs. 135–136), 0.2 mm (Figs. 137–141).

Type material: Lectotype ♂, 2 ♂, 3 ♀ paralectotypes from Algeria, Boghar and Bordj Menaël (MNHNP 4416); designated by Denis (1968b), examined.

Male: Total length 2.40–2.86; cephalothorax 1.16–1.24 long, 0.90–1.00 wide. Colour and general appearance as in *bicornuta* except for following characters: *Cephalothorax* (Figs. 127–128): Cephalic part with rounded antero-dorsal tubercle, provided with a characteristic anterior tubercle; clypeus slightly protruding; sulci oval, provided with a small pit. *Legs:* No visible dorsal spines. TbMtI = 0·48–0·56. *Palp* (Figs. 129–131): Patella not swollen, 2.6 × as long as wide. Tibia with long antero-dorsal apophysis, provided with 4 subterminal denticles; at its base with 4 long spines. Cymbium with baso-dorsal tubercle. Suprategulum well developed. Embolic division as in *E. bucephala* except for embolus which is simply rounded at its tip.

Female: Total length 2.24–2.92; cephalothorax 0.88–1.10 long, 0.82–1.00 wide. Colour and general appearance as in male. *Legs:* Tibiae with 1 dorsal spine, on TiI slightly longer than diam. *Epigyne* (Figs. 132–133): Posterior margin of ventral plate less chitinised than in other species. Dorsal plate lozenge-shaped. *Vulva* (Fig. 134): As in *bucephala*.

Material examined and citations:

ALGERIA: "Algérie", 8 ♂, 5 ♀ (MNHNP 4416) (type series). In his original description, Simon (1884) mentions the following localities: Wil. Medea: Ksar el Boukhari; Wil. Boumerdes: Bordj Menaël. *Wil. Souk Ahras:* N. Bou Hadjar, 250 m, 1 ♀, among stones around artificial lake, 22 Nov. 1989 (probable identification, needs to be confirmed by males). *Wil. Tizi Ouzou:* N. Boghni, 150 m, 2 ♂, 4 subadults, among *Oxalis* along Oued Boghni, 15 Apr. 1982. Beni Yenni, 850 m, 1 ♂, 2 ♀, 3 subadults, among *Oxalis* and stones, 14 Apr. 1982. Between Tizi Ghenif and Chabet-el-Ameur, 125 m, 1 ♂, 2 ♀ among *Oxalis*, 1 May 1984.

Distribution (Map 4): Most of the new records are from the same region as the previous ones: Grande Kabylie. One female collected much further east near Bou Hadjar probably also belongs to *leonina*.

Pelecopsis modica Hillyard (Figs. 135–141)

Pelecopsis modica Hillyard, 1980: 134 (descr. ♂; ♀).

Diagnosis: Males of *P. modica* are closely related to *bucephala*, but differ by less protruding cephalic tubercle, and by single denticle on apophysis of male palpal tibia. Females are closely related to *bicornuta* and differ by less sinuous posterior margin of ventral plate of epigyne, and by more rectangular dorsal plate. This should however be confirmed by examination of additional material, as our observations are based on only one specimen.

Type material: Holotype ♂, paratype ♀, from Spain, Cadiz, Sierra de Luna (BMNH 1979.10.31.6,7); examined.

Male: Total length 2.45; cephalothorax 1.15 long, 0.80 wide. Colour and general appearance as in *bucephala* except for following: *Cephalothorax* (Figs. 135–136): Anterior cephalic lobe less protruding, and antero-dorsal lobe with small anterior wart. *Legs:* All tibiae spineless; TbMtI = 0.58–0.60. *Palp* (Figs. 137–139): Antero-dorsal apophysis terminally with 1 recurved denticle, medio-laterally with a long crest, and antero-mesally with a sharp tooth.

Female: Total length 2.69; cephalothorax 1.11 long, 0.86 wide. *Epigyne* (Figs. 140–141): As described in diagnosis. *Vulva:* Not examined.

Material examined and citations:

SPAIN: *Cadiz:* Sierra de Luna, 1 ♂, 1 ♀, 20 May 1978 (BMNH, holotype and paratype). MAROC: Oulmes (Hillyard, 1980).

Distribution (Map 4): Known from south of Spain and central Morocco.

Genus *Trichopterna* Simon

Diagnosis: Medium-sized erigonine spiders of the *Pelecopsis* group. Cephalic part of cephalothorax with relatively small antero-dorsal elevation, bearing posterior median eyes; post-ocular sulci present; no impressed punctures. Sternum with broad and truncate posterior projection, separating posterior coxae by less than their diameter. Chelicerae: Stridulating ridges numerous, more densely arranged towards base. Spines: Tibial spines absent in males; female tibiae with one dorsal spine, as long as tibia's diameter. Metatarsi I-III with trichobothrium, position 0.73–0.76. Abdomen of both sexes without dorsal scutum. Palp: Tibia with 1 trichobothrium, and with antero-dorsal and antero-lateral apophyses. Paracymbium simple, without hairs. Pro- and suprategulum well developed. Radical part of embolic division relatively short and wide, nearly transverse. Embolus long and linear, semi-circular. Epigyne with square dorsal plate, laterally delimited by two nearly parallel sutures. Sperm ducts long and contorted; spermathecae simple, rounded, with small atrium.

The genus is closely related to *Pelecopsis* and is differentiated only by genital characters: long, linear embolus, transverse disposition of radical part of embolic division, and long, contorted sperm ducts of epigyne.

Distribution: Europe, North Africa.

Type species: Trichopterna cito (O.P.-Cambridge).

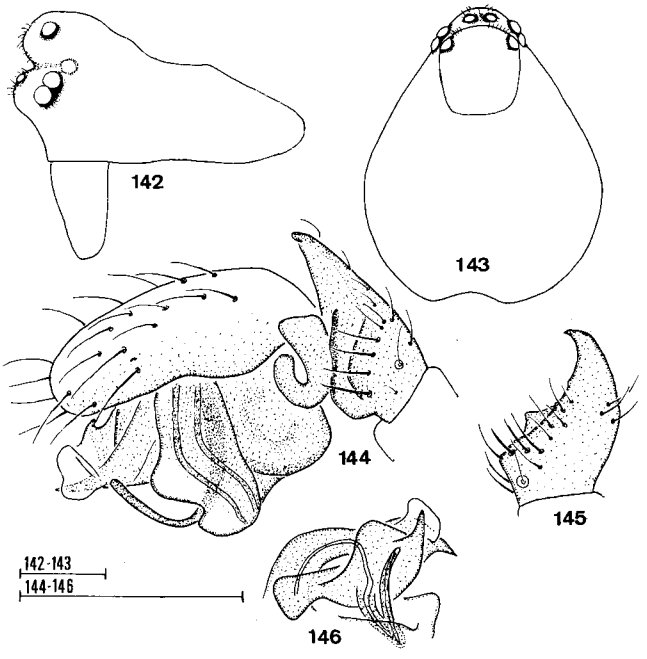
Trichopterna lucasi (O.P.-Cambridge) comb.n. (Figs. 142–146)

Erigone lucasi O.P.-Cambridge, 1875: 208 (descr. ♂).
Lophocarenum lucasi; Simon, 1884: 684.
Pelecopsis lucasi; Denis, 1945: 50; Denis, 1962: 281.

Type material: Holotype ♂ from Algeria, Algiers; examined (BMNH 70697).

Remarks: Hitherto, this species was classified in *Pelecopsis*. However, *Pelecopsis lucasi* differs from most other *Pelecopsis* species by the absence of a scutum and radiating punctures. A detailed analysis of the male palpal structure reveals a thin, linear embolus and an almost transverse radix. In this, it is related to *Trichopterna cito*, the only species left in the genus *Trichopterna* at the moment (Holm, 1979), and we therefore transfer it to that genus.

Male: Total length 1.36 (1.21–1.31); cephalothorax 0.65 (0.66) long, 0.49 (0.50) wide. Cephalothorax dark brown, large area before fovea, striae and margin greyish, cephalic tubercle whitish; sternum grey-brown; legs and chelicerae pale yellowish brown; abdomen grey. *Cephalothorax* (Figs. 142–143): With small cephalic lobe, slightly longer than wide, bearing posterior median eyes, with shallow sulcus, smaller than diam. of a lateral eye, and strong interocular transverse groove; clypeus slightly concave. *Legs:* TbMtI = 0.73; no tibial spines observed. *Abdomen:* Without scutum. *Male palp* (Figs. 144–146): Tibia with antero-dorsal apophysis, with curved pointed



Figs. 142–146: *Trichopterna lucasi* (O.P.-Cambridge). **142** Male cephalothorax, lateral view; **143** Idem, dorsal view; **144** Male palp, lateral view; **145** Male palpal tibia, dorsal view; **146** Embolic division, ventral view. Scale lines = 0.2 mm.

tip, and lateral crest bearing numerous spines. Protegulum sac-like and prominent, incised antero-ventrally. Suprategulum strongly developed, curved, with pointed apophysis. Seminal duct returns completely before entering embolic division. Radical part of embolic division short, truncate, nearly transverse. Embolus long and thin, proximal part covered by protegulum, first making a loop in ventral direction, then pointing antero-dorsally, not extending beyond suprategular apophysis and radical membrane.

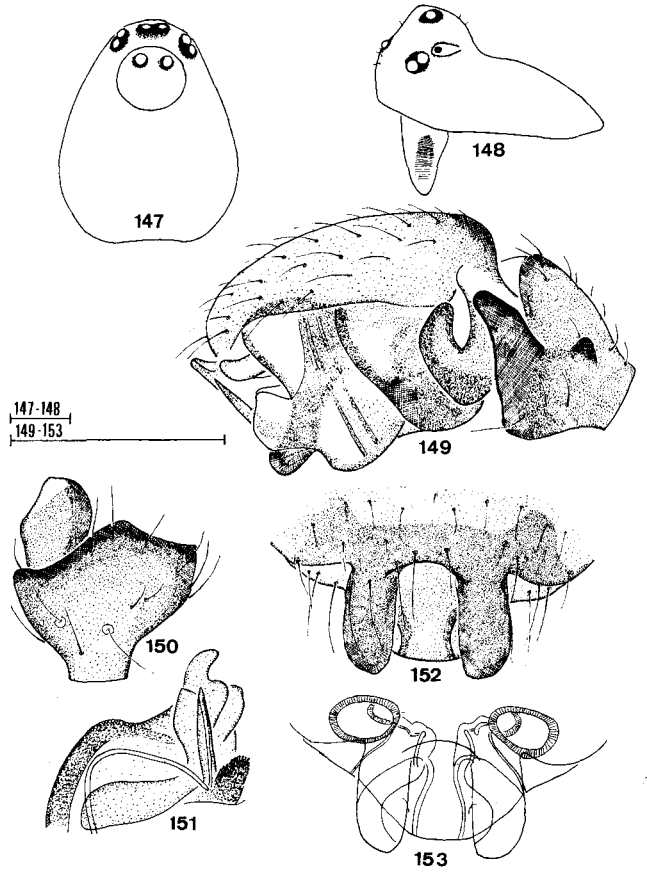
Material examined:

ALGERIA: *Wil. Algiers:* Algiers: 1♂ (BMNH, holotype); 2 ♂, 1 subadult ♀ (MNHNP 4414).

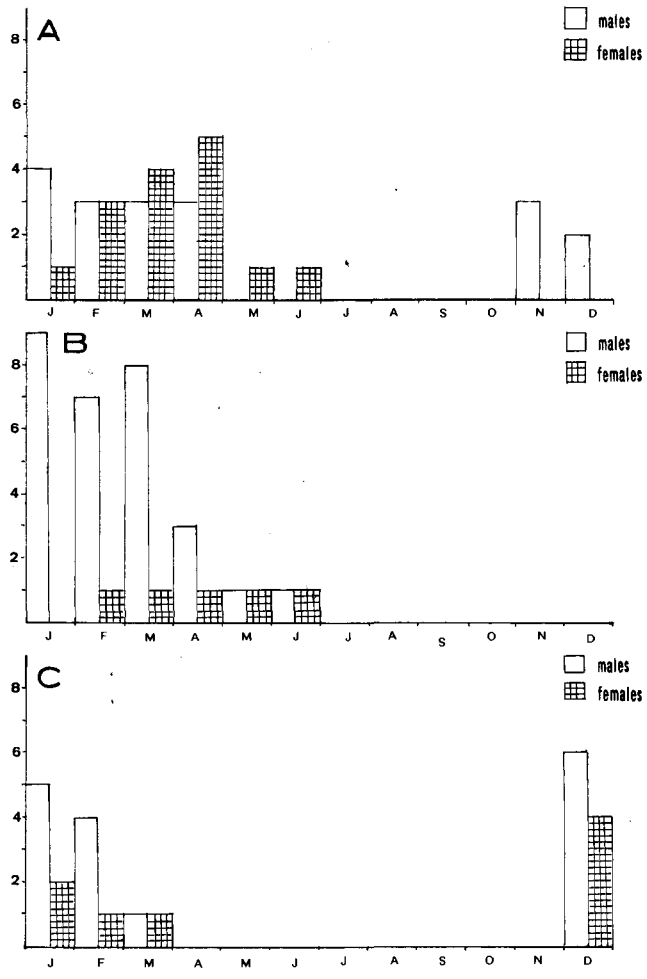
Distribution: Only known from type locality near Algiers. Although this is the region most intensively surveyed by us, we did not collect it.

Genus *Ouedia* gen. n.

Diagnosis: Medium-sized erigonine spiders of the *Pelecopsis* group. Cephalic part of cephalothorax with antero-dorsal elevation, bearing posterior median eyes; post-ocular sulci present; no impressed punctures. Sternum with broad and truncate posterior projection, separating posterior coxae by $\frac{4}{3}$ their diameter. Chelicerae: Stridulating ridges poorly developed, about 25 in number. Spines: Tibial spines absent in males; female tibiae with one dorsal spine, as long as tibia's diameter. Metatarsi I-III with trichobothrium, position on Mt I 0.32–0.38. Abdomen of both sexes without dorsal scutum. Palp: Tibia with 2 trichobothria, and conical, with small lateral and large antero-ventral apophyses. Paracymbium simple, without hairs. Pro- and suprategulum well developed. Posterior part of radix of embolic division directed mesally. Embolus short, straight and pointed. Epigyne with two strong prolongations over epigastric furrow. Spermathecae simple, oval.



Figs. 147–153: *Ouedia rufithorax* (Simon). **147** Male cephalothorax, dorsal view; **148** Idem, lateral view; **149** Male palp, lateral view; **150** Male palpal tibia, dorsal view; **151** Embolic division, ventral view; **152** Epigyne, ventral view; **153** Vulva. Scale lines = 0.2 mm.



Figs. 154: Phenology of *Pelecopsis* species captured by pitfall trapping in Algeria. **A** *P. oranensis* (Simon), Theniet-el-Had; **B** *P. digitulus* sp. n., Theniet-el-Had; **C** *P. amabilis* (Simon), Meurdja.

The genus is closely related to *Pelecopsis*. It is differentiated by absence of abdominal scuta, but these are also lacking in some *Pelecopsis* and *Trichopterna* species. Genital characters, however, separate it readily from *Pelecopsis* and *Trichopterna*: short, straight embolus, mesally oriented tailpiece of radix, and posterior prolongations of epigyne.

Distribution: The genus is Mediterranean.

Types species: Ouedia rufithorax (Simon) comb. n.

Ouedia rufithorax (Simon) comb. n. (Figs. 147–153)

Erigone rufithorax Simon, 1882: 241 (descr. ♂); Pavesi, 1884: 459.
Lophocarenum rufithorax; Simon, 1882: 674.
Trichopterna rufithorax; Simon, 1926: 484 (descr. ♂, ♀).
"Trichopterna" rufithorax; Millidge, 1977a: 23; 1979: 327.

Diagnosis: This species is recognised at once by its reddish colour. The large lateral apophysis of male palpal tibia, and two prolongations of female epigyne, provide further diagnostic characters.

Male: Total length 1.46–1.74; cephalothorax 0.72–0.74 long, 0.60–0.62 wide. Cephalic part of carapace reddish brown, thoracic part red, striae, margin and spot before fovea darkened; chelicerae brown; sternum reddish brown with grey margin; legs orange-red, coxae and patellae paler; abdomen dark grey to black. *Cephalothorax* (Figs. 147–148): Cephalic part with protruding clypeus and large antero-dorsal lobe, separated by a pubescent concavity. Sulci oval, with small pit, smaller than a lateral eye. Thoracic part reticulated. *Chelicerae:* With about 25 faint stridulating ridges. *Sternum:* Smooth, separating coxae IV by $\frac{4}{3}$ their diam. *Legs:* No tibial spines. TbMtI = 0.38. *Palp* (Figs. 149–151): Tibia conical, with small lateral tubercle and strong, blunt ventro-lateral apophysis. Paracymbium without hairs. Protegulum protruding anteriorly, membranous. Embolus short and straight.

Female: Total length 1.90–1.96; cephalothorax 0.60–0.77 long, 0.56–0.66 wide. Colour as in male. *Cephalothorax:* With distinct median concavity in lateral view. *Legs:* All tibiae with 1 dorsal spine, as long as diam. of tibia. TbMtI = 0.32. *Epigyne* (Fig. 152): With two strong parallel prolongations over epigastric furrow. *Vulva* (Fig. 153): Spermathecae oval, separated by 1.2–1.5 diam. Sperm ducts not entering prolongations.

Material examined:

ALGERIA: *Wil. Bejaia:* Tichi, 5 m, 1 ♀, rough grassland, 17 Apr. 1982. *Wil. Blida:* Atlas Blidéen, Meurdja, 950 m, 1 ♂, along rivulet, 1 Apr. 1982. *Wil. Bordj Bou Arreridj:* El Mehir, 900 m, 1 ♀, pitfall in young *Pinus halepensis* plantation, 15 Apr. 1990. *Wil. Bouira:* Col de Dirah, 900 m, 4 ♀, pitfalls in rough grassland along Oued Djenane, 10 Apr. 1988. *Wil. Boumerdes:* Zemmouri, 10 m, 1 ♂, 3 ♀, dunes, 8 Nov. 1985. *Wil. El Tarf:* El Kala, Lac Tonga E., 10 m, 2 ♂, 3 ♀, marshy grassland, 27 Mar. 1988. El Kala, Lac Oubeira, 10 m, 1 ♂, pitfalls near lake, 30 Mar. 1988. El Kala, Lac Melah, 3 m, 1 ♀, litter along lake, 16 Apr. 1982. *Wil. Tipasa:* Sidi Fredj, 25 m, 1 ♂, pitfall in *Pinus halepensis* forest, 18 Dec. 1986.

Distribution (Map 4): The few earlier records of this species are from southern France and Italy (Millidge, 1979). Pavesi (1884) cited it from Tunisia, but erroneously according to Simon (1926: 484, footnote). Our records confirm its presence in North Africa. In Algeria, it appears to be rather common, but only in the extreme north.

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