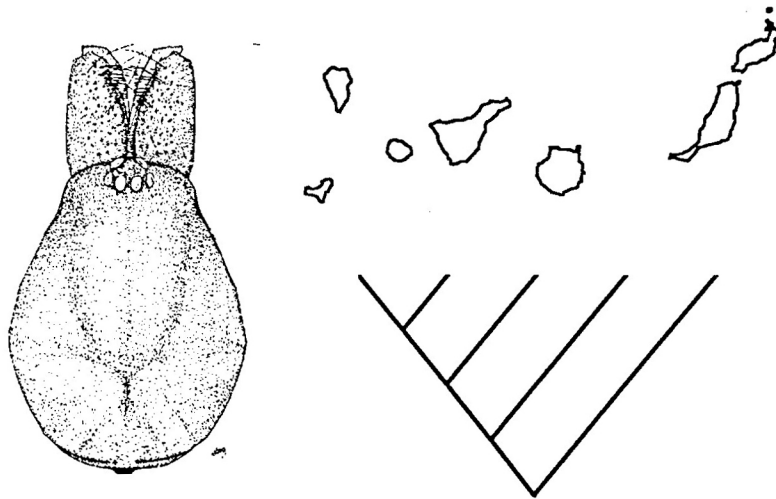


Departament de Biologia Animal  
Facultat de Biologia  
Universitat de Barcelona

Tesi Doctoral

COLONITZACIÓ I RADIACIÓ  
DEL GÈNERE *Dysdera* (ARACHNIDA, ARANEAE)  
A LES ILLES CANÀRIES



Miquel Àngel Arnedo Lombarte

1998

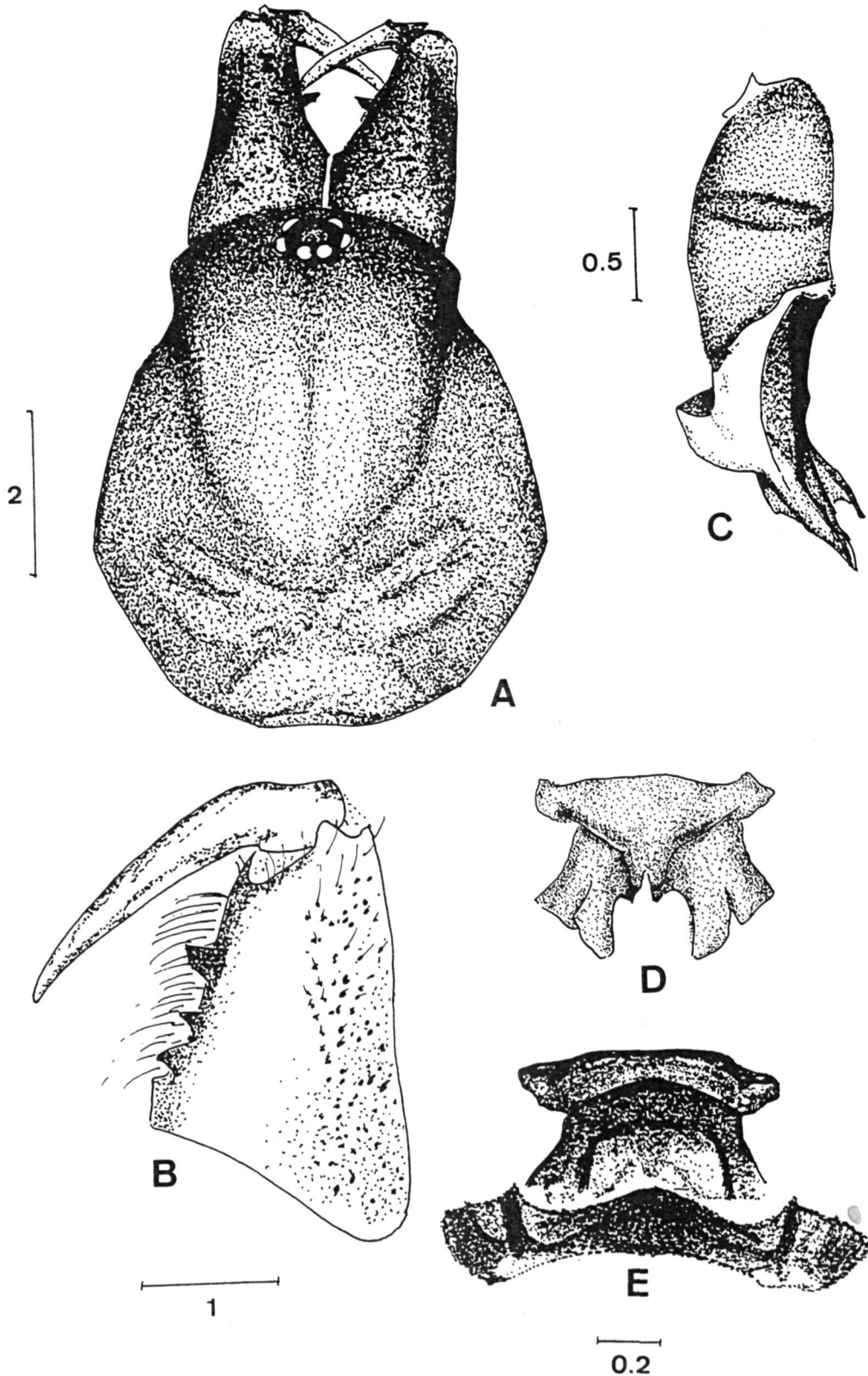


Fig. 9.—A–E. *Dysdera enghoffi* sp. n.—A Carapace, dorsal.—B. Left chelicera, ventral.—C. Left male bulbus, internal.—D. Endogyne, ventral.—E. Endogyne, dorsal. Scale bars in millimetres.

1.0–2.0; medial–proximal 0.0–1.0; distal 1–0.0.0; with two terminal spines. Fe4d spines in one row, 2; pa4 spineless; tb4d spines arranged in three bands; proximal 1.0.1; medial–proximal 1.2–1.1; distal 1.0.1; tb4v spines arranged in four bands; proximal 0.1.0; medial–proximal 0–1.1–2.1; medial–distal 0.1.0; distal 1.0.1; with two terminal spines.

Abdomen 7.5 mm long; grey; cylindrical. Abdomen dorsal hairs 0.072–0.108 mm long, thick, straight, not compressed, blunt, with tip not enlarged, uniformly, thickly distributed.

Copulatory bulbus (Fig. 9C) T scanty smaller than DD; DD bent about 45° in lateral view. DD sclerites equally developed; internal sclerite truncated at middle part of

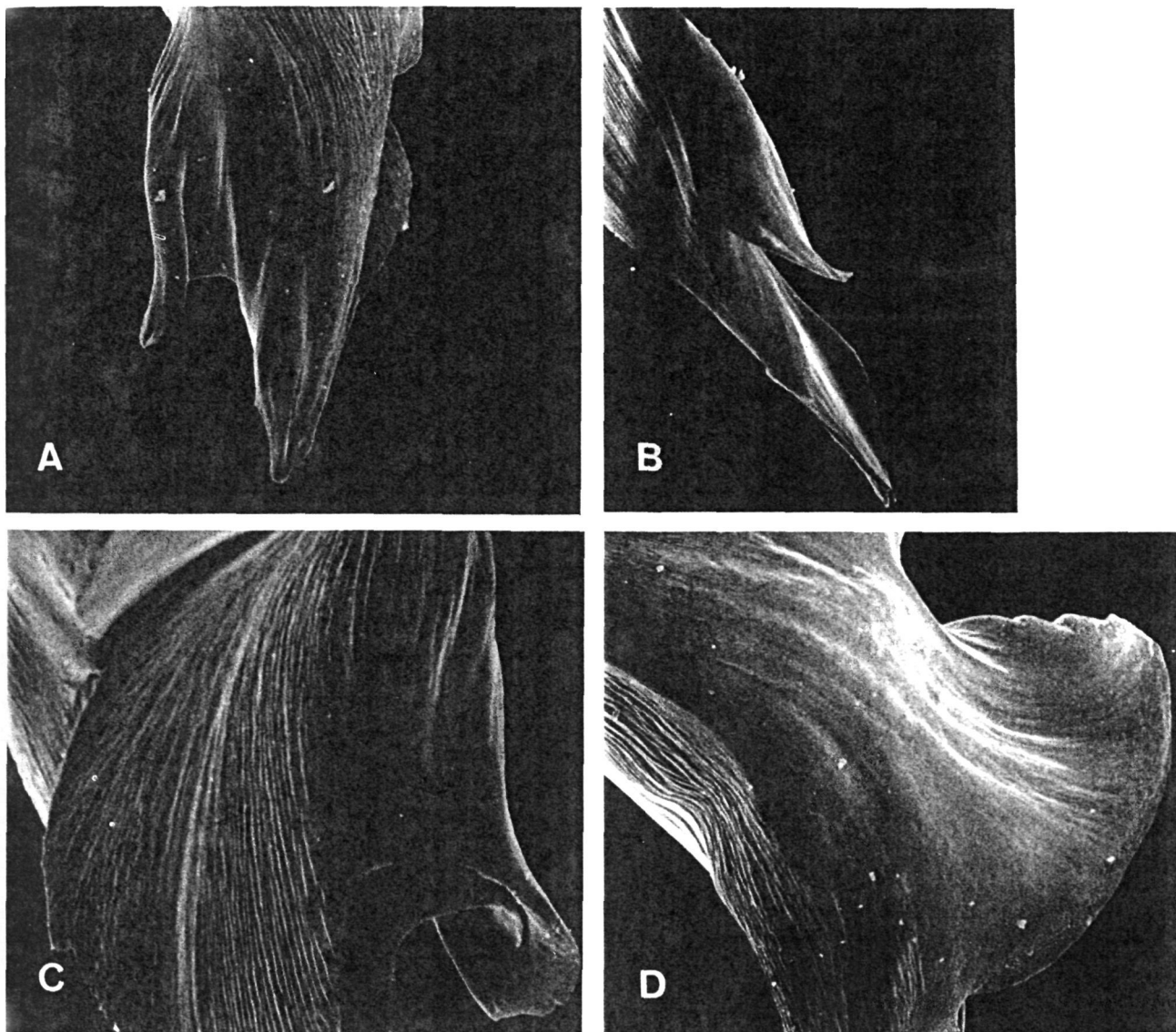


Fig. 10.—A–D. *Dysdera enghoffi* sp. n.; right male bulbus.—A. DD, frontal.—B. DD, external.—C. DD, posterior.—D. P, internal.

haematodoca. DD tip (Fig. 10A–C) with upper and lower sheets sticking together; upper sheet not projected over lower one; straight in lateral view. C present, poorly-developed; located close to DD tip; proximal border continuously decreasing; distal border markedly sloped; upper tip not projected, rounded; external side smooth. AC absent. LF absent. L well-developed; external border sclerotized, strongly folded, projected, distal border divergent, not continuous, with small fold at middle point. LA absent. AL present, well-developed; proximal border smooth, not fused with distal haematodoca. P (Fig. 10D) scantily sloped forming an angle of about  $135^\circ$  to T in lateral view; fused to T; narrow, reduced to ridge; strongly toothed, along upper margin; few teeth, about 4–6; not distally projected.

*Allotype female.* (Figs 9D–E, 11A–C). All characters as in male except: Carapace 5.6 mm long; maximum width 4.9 mm; minimum width 3.08 mm AME diameter 0.3 mm; PLE 0.3 mm; PME 0.23 mm; PME about 1/3 of diameter separated from PLE. Sternum very scantily wrinkled, mainly between legs and frontal border.

Chelicerae 2.56 mm long, about 1/3 of carapace length in dorsal view; fang 1.95 mm long; chelicera distal tooth

largest, basal as large as medial. Lengths of female legs described above: fe1 4.38 mm (all measurements in mm); pa1 3.03; ti1 3.59; me1 3.68; ta1 0.98; total 15.66; fe2 3.96; pa2 2.7; ti2 3.36; me2 3.4; ta2 0.93; total 14.35; fe3 3.59; pa3 2.05; ti3 2.28; me3 3.5; ta3 1.03; total 12.44; fe4 4.66; pa4 2.42; ti4 3.5; me4 4.85; ta4 1.17; total 16.59; fe Pdp 2.56; pa Pdp 1.44; ti Pdp 1.26; ta Pdp 1.68; total 6.94; relative length  $IV > I > II > III$ . Spination: Fe4d spines in one row, 3; tb4d arranged in four bands; proximal 1.0.1; medial–proximal 1.2.1; medial–distal 0.0–1.0; distal 1.0.1; tb4v arranged in four bands; proximal 0.1.0; medial–proximal 1.2.1; medial–distal 1.1.0; distal 1.0.1; with two terminal spines.

Abdomen 9.7 mm long; grey; cylindrical. Abdomen dorsal hairs 0.144–0.27 mm long, thick, curved, compressed, pointed, uniformly, thickly distributed.

DA (Fig. 9D–E) sclerotized around TB valva attachment as well as at ventral region; both regions completely fused, not distinguishable; DF around V wide. DA frontal border projected, pointed; lateral margins more or less parallel in dorsal view; twice as wide as long. Ventral tooth-like projections developed from S attachment; not turned to lateral sides; longer than lateral sclerotization of the DA; small lateral slit. S arms as long as DA; straight;

Table III. *Spination variability of Dysdera enghoffi sp. n.*

	Proximal	Med.-Proximal	Medial-Distal	Distal
Tibia 3 dorsal	1.1-2.1	1.0-1.1	0	1.0-1
Tibia 4 dorsal	1.0-1.1	1.1-2.1	0.0-1.0	1.0-1
Tibia 3 ventral	0.0-1.0	0-1.0-2.0-1	0-1.0-1.0-1	0-1.0-0
Tibia 4 ventral	0.1-2.0-1	0-1.1-2.1	0-1.0-2.0	1.0-1.1
	Number of rows		Number of spines	
Femur 3 dorsal	0		0	
Femur 4 dorsal	2		0-2/1-3	

tips dorsally projected; neck wider than arms. TB usual shape.

ALS (Fig. 11A) with piriform gland spigot in polar position; remaining piriform spigots no more external than major ampulate gland spigot; 10+1 piriform gland spigots; PMS and PLS (Fig. 11B-C) with 10-15 aciniform gland spigots.

*Intraspecific variation.* No clear morphological variability. Spination variability in Table III.

*Distribution.* Relatively rare species from laurel forest related habitats of La Gomera (Canary Islands).

#### *Dysdera hirguan sp. n.* (Figs 12A-E, 13A-B)

*Holotype.* 13/4/75, J. M. Fernandez leg.; num. 2781/114, stored at UB. Male: unknown.

*Type locality.* Bosque del Cedro, La Gomera, Canary Islands.

*Etymology.* The name of this species refers to Hirguan, a demon in the ancient mythology of La Gomera.

*Diagnosis.* Carapace nearly smooth; anterior lateral borders convergent; sharpened at maximum dorsal width point. Chelicera basal segment completely covered with granulation. This species can be distinguished from similar species like *D. enghoffi sp. n.* and *D. rugichelis* by presence of five cheliceral teeth, and huge size, more than twice the size of these species.

*Description. Holotype female* (Figs 12A-E, 13A-B). Carapace (Fig. 12A) 8.7 mm long; maximum width 6.7 mm; minimum width 4 mm. Brownish orange, frontally darker and becoming lighter towards back; smooth with some small black grains mainly anterior. Frontal border more or less rounded, about 1/2 of its length; lateral borders convergent; sharpened at point of maximum dorsal width, with back lateral borders straight; back margin wide and straight. AME diameter 0.32 mm; PLE 0.34 mm; PME 0.25 mm; AME on edge of frontal border; about one diameter apart, close to PLE; PME very close to each other, about half a PME diameter from PLE. Labium trapezoid-shaped, base wider than distal part; longer than wide at base; with semi-circular groove at tip. Sternum orange, frontally darker and becoming lighter towards back; smooth; uniformly covered in slender black hairs.

Chelicerae (Fig. 12B) 3.17 mm long, about 1/2 of carapace length in dorsal view; fang 2.96 mm long; basal segment dorsal, ventral sides completely covered with

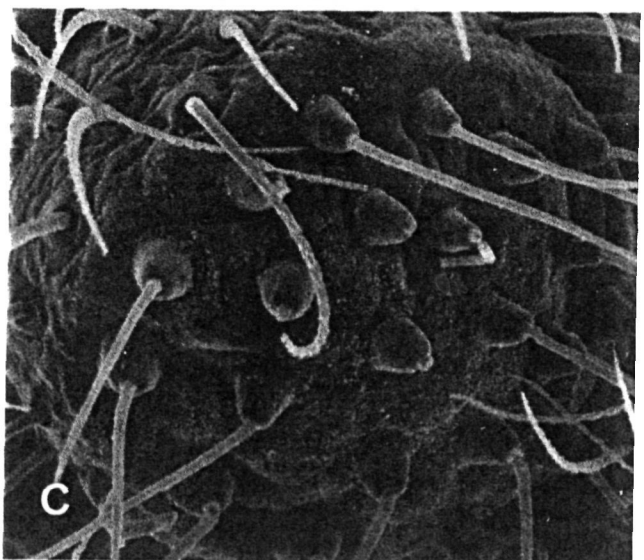
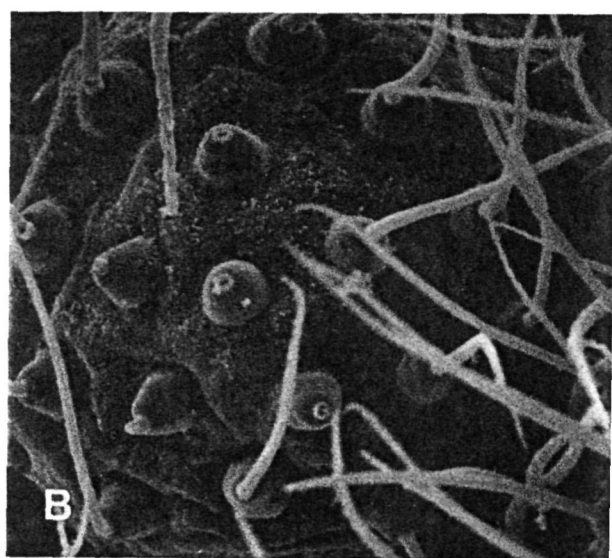
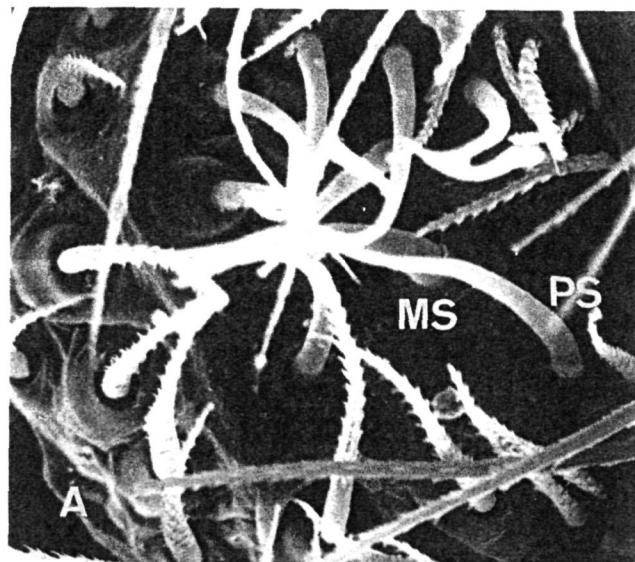


Fig. 11.—A-C. *Dysdera enghoffi sp. n.*; left female spinnerets.—A. ALS.—B. PMS.—C. PLS.

granulations. Chelicera inner groove long, more than 1/2 of cheliceral length; armed with five teeth and lamina at base; two more distal teeth and basal equal in size and larger than medials; distal tooth trapezoid, located near tip

of segment; basal tooth close to basal lamina. Legs orange. Lengths of female described above: fe1 7.56 mm (all measurements in mm); pa1 5.46; ti1 7.07; me1 7.07; ta1 1.33; total 28.49; fe2 6.79; pa2 4.76; ti2 6.3; me2 6.44; ta2 1.33; total 25.62; fe3 5.67; pa3 3.36; ti3 3.92; me3 5.46; ta3 1.33; total 19.74; fe4 7.42; pa4 4.06; ti4 5.6; me4 7.77; ta4 1.332; total 26.18; fe Pdp 4.13; pa Pdp 2.38; ti Pdp 2.24; ta Pdp 2.87; total 11.62; relative length  $I > IV > II > III$ . Spination: Palp, leg1, leg2 spineless. Fe3d spines in one row, 1; pa3 spineless; tb3d spines arranged in four bands;

proximal 1.1–0.1; medial–proximal 1.1–2.1; medial–distal 0.1–0.0; distal 1.0.1.; tb3v spines arranged in three bands; proximal 0–1.2–1.0–1; medial–proximal 0.0.1–0; distal 1.0.0; with two terminal spines. Fe4d spines in one row, 2–3; pa4 spineless; tb4d spines arranged in four bands; proximal 1.0.1; medial–proximal 1.2.1; medial–distal 0.0.1–0; distal 1.0.1; tb4v spines arranged in three bands; proximal 1.1.1; medial–proximal 1.1–0.1–0; distal 1.0.1; with two terminal spines. Legs covered with extremely long hairs.

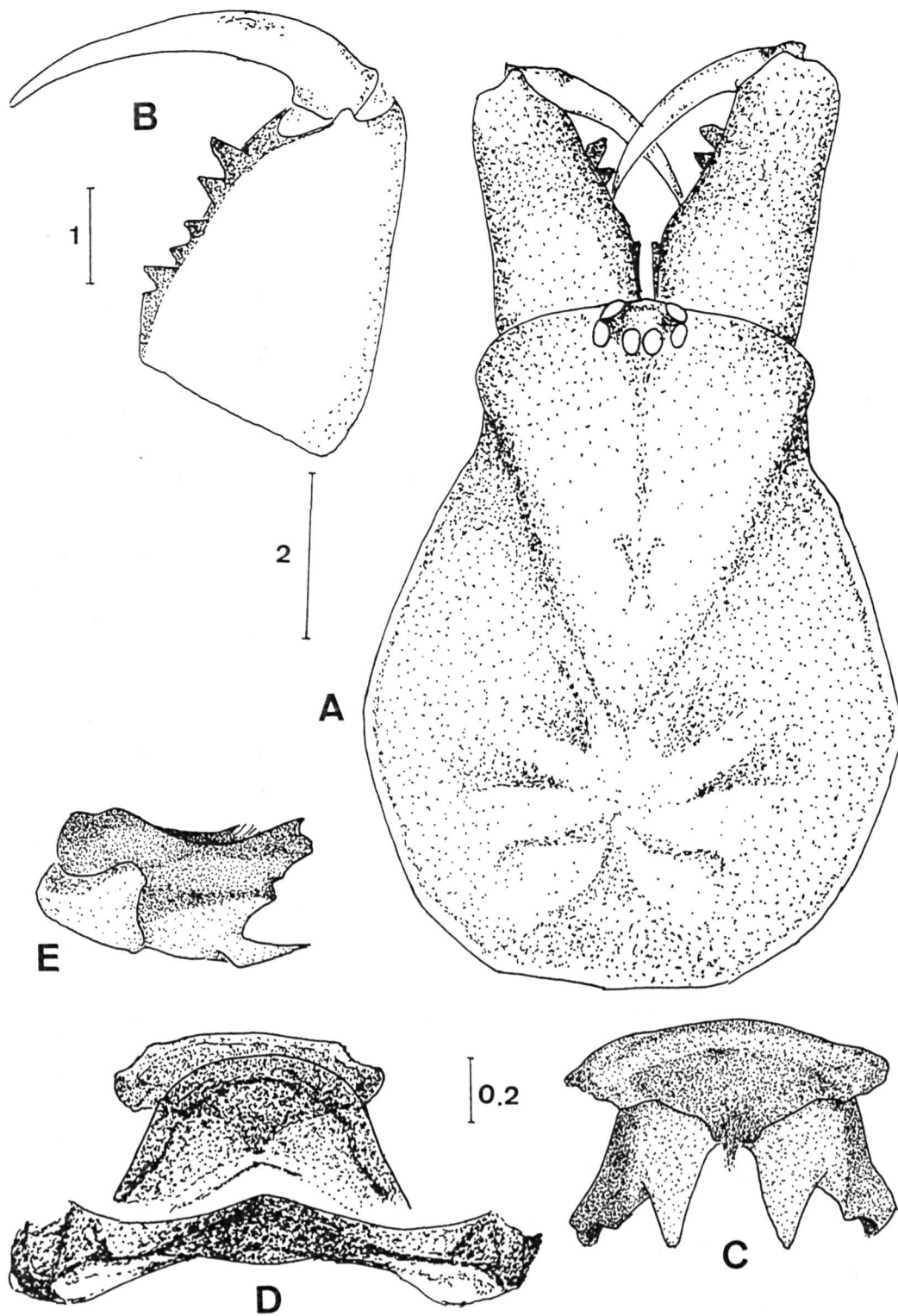


Fig. 12.—A–E. *Dysdera hircuan* sp. n. —A. Carapace, dorsal.—B. Left chelicera, ventral.—C. Endogyne, ventral.—D. Endogyne, dorsal.—E. Endogyne, lateral. Scale bars in millimetres.

Abdomen 10.8 mm long; whitish; cylindrical. Abdomen dorsal hairs 0.05–0.23 mm long, thin, curved, compressed, blunt, with tip not enlarged, uniformly, scantily distributed.

DA (Fig. 12C–E) sclerotized around TB valva attachment as well as at ventral region; both regions completely fused, not distinguishable; DF around V wide. DA frontal border projected, pointed; lateral margins more or less parallel in dorsal view; twice as wide as long. Ventral tooth-like projections developed from S attachment; not turned to lateral sides; as long as DA lateral sclerotization; small lateral slit. S arms as long as DA; straight; tips not projected; neck wider than arms. TB usual shape.

ALS (Fig. 13A) with piriform gland spigot in polar position; remaining piriform spigots no more external than major ampulate gland spigot; more than 20 piriform gland spigots; PMS and PLS (Fig. 13B) with more than 20 aciniform gland spigots.

*Distribution.* A rare species from laurel forest of La Gomera (Canary Islands).

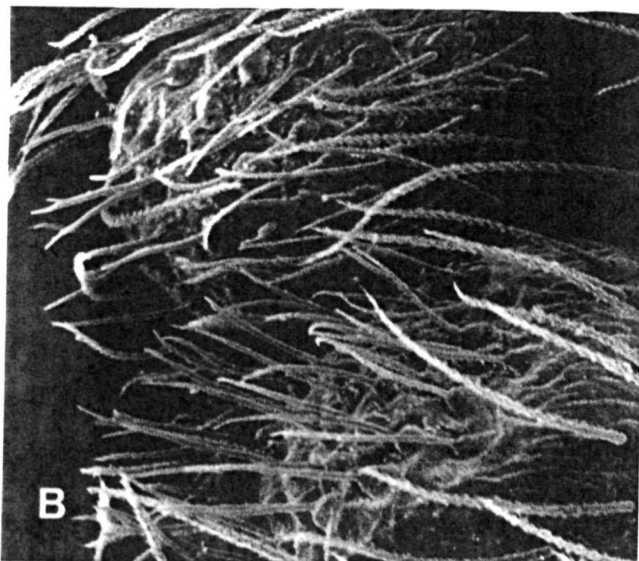


Fig. 13.—A–B. *Dysdera hircuan* sp. n.; right female spinnerets.—A. ALS.—B. PMS and PLS (lower).

*Dysdera levipes* Wunderlich, 1987 (Figs 14A–F, 15A–D, 16A–C)

*Dysdera levipes* Wunderlich, 1987: 59–60, fig 19–22 [♂].

*Dysdera multipilosa* Wunderlich, 1991: 301–302, figs 68–70 [♀]; new synonymy.

*Material examined.* *Dysdera levipes*: holotype male from Las Raices, Tenerife, Canary Islands; IV–VI, J. Wunderlich leg.; num. 37137; Stored at SMF. La Gomera: Hermigua: Pajarito; 1♂; 29/4/95; Oromí & Arnedo leg.; 2909 119 UB. 1♀; 29/4/95; Oromí & Arnedo leg.; 2915 119 UB. 1♀; 29/4/95; Oromí & Arnedo leg.; 2908 119 UB. Vallehermoso: Plain land between Bco. Higuera and Bco. San Juan, road to Ermita de Sta. Clara; 1♀; 30/4/95; Oromí & Arnedo leg.; 4147 (94) Freezer UB. Tenerife: Los Realejos: Palo Blanco; 1F 3087 UB, 1juv. 3096 UB, 1M 3097 UB, 1M 3099 UB. 1juv. 3100 UB, 1F 3101UB, 1juv. 3102 UB, 1F 3103 UB, 4juv. 3104 UB, 1juv. 3119 UB; 18/2/96; Arnedo & Oromí leg. *Dysdera multipilosa*: holotype from Barranco del Rio, Tenerife; 26/5–6/85; unknown leg.; num. 00700 P; Stored at UL.

*Diagnosis.* Carapace heavily wrinkled and cribellated, covered with small black grains, hairy; frontal border narrow, lateral borders divergent; rounded at maximum dorsal width point. This species can be easily distinguished by complete lack of spination. Chelicerae less than 1/4 of carapace length in dorsal view, basal segment proximal border of dorsal side strongly covered with granulations, cheliceral teeth equal in size and well-developed L differentiates it from other spineless species like *Dysdera teideensis* Wunderlich, 1991 or *Dysdera brevisetae* Wunderlich, 1991. Presence of eyes differentiates it from very similar cavernicolous species *Dysdera gollumi* Ribera & Arnedo, 1994.

*Description.* *Male* (Figs 1A–C, 15A–D). Carapace (Fig. 14A) 2.12 mm long; maximum width 1.72 mm; minimum width 0.98 mm. Dark red, darkened at borders; heavily wrinkled and cribellated, covered with small black grains; hairy, uniformly covered with white hairs. Frontal border more or less rounded, about 2/5 of its length; lateral borders divergent; rounded at point of maximum dorsal width, with back lateral borders rounded; back margin narrow, straight. AME diameter 0.16 mm; PLE 0.13 mm; PME 0.1 mm. AME on edge of frontal border; separated one from another about half diameter, touching PLE; PME very close to each other, about 1/3 of PME diameter from PLE. Labium trapezoid-shaped, base wider than distal part; as long as wide at base; with semicircular groove at tip. Sternum dark red; uniformly distributed; heavily wrinkled; covered in hairs mainly at margin.

Chelicerae (Fig. 14B) 0.7 mm long, less than 1/4 of carapace length in dorsal view; fang 0.49 mm long; basal segment proximal border of dorsal side strongly covered with granulations. Chelicera inner groove about 2/5 of cheliceral length; armed with three teeth and lamina at base; equal in size; distal tooth triangular, located more or less at centre of or scantily above groove; basal tooth close to lamina; medial tooth close to basal. Legs bicoloured, darker at proximal border becoming lighter to distal. Lengths of male described above. fe1 1.68 mm (all measurements in mm); pa1 0.91; ti1 1.54; me1 1.64; ta1 0.38; total 6.15; fe2 1.43; pa2 0.84; ti2 1.4; me2 1.33; ta2 0.31; total 5.31; fe3 1.12; pa3 0.63; ti3 0.91; me3 1.12; ta3 0.33; total 4.11; fe4 1.47; pa4 0.84; ti4 1.33; me4 1.61; ta4 0.38; total 5.63; fe Pdp 0.77; pa Pdp 0.35; ti Pdp 0.49; ta Pdp 0.52; total 2.13; relative length: I > IV > II > III. Spineless. Very long hairs on back legs as well as at pedipalps.

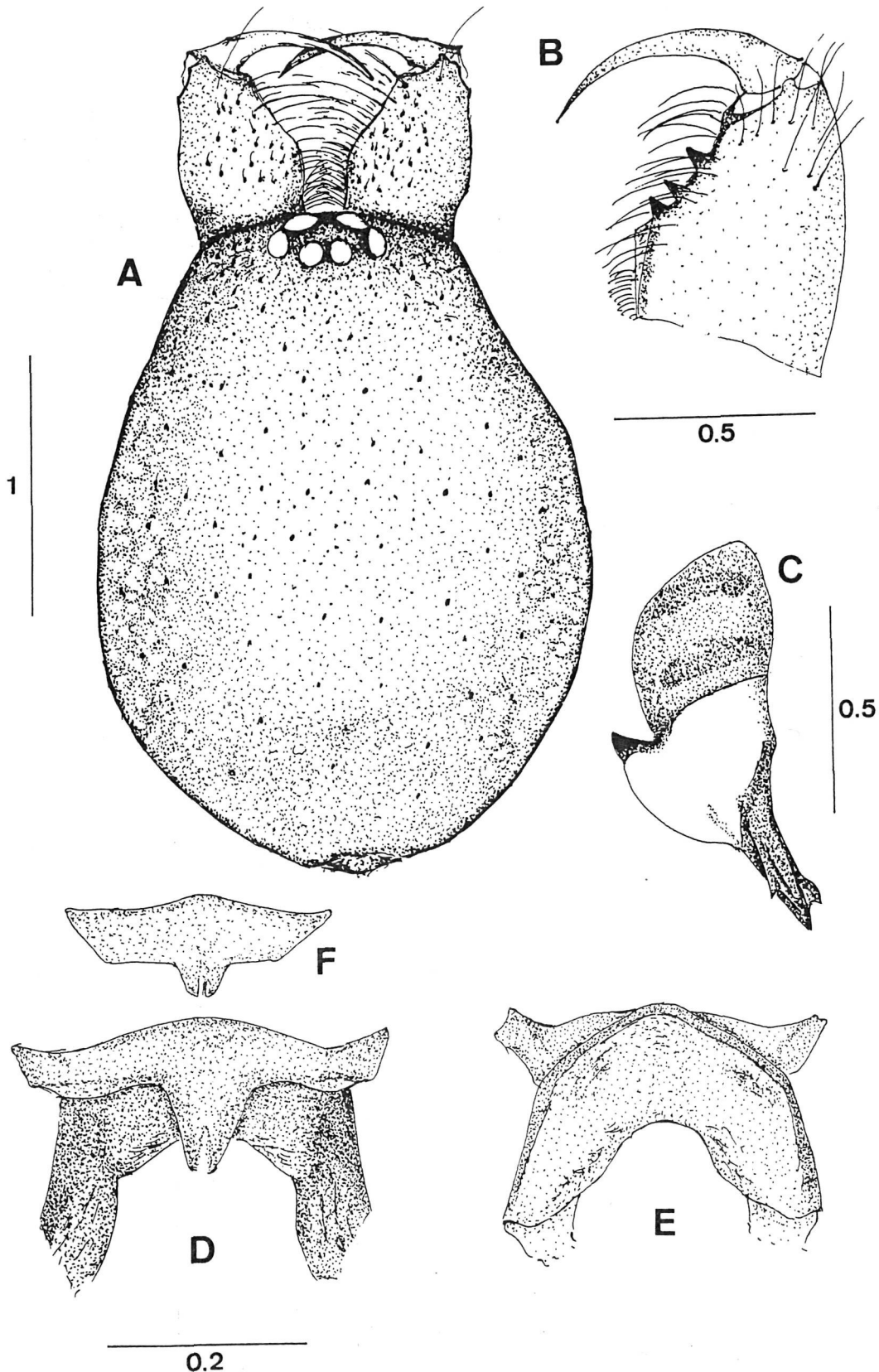


Fig. 14.—A–F. *Dysdera levipes* Wunderlich, 1991.—A. Carapace, dorsal.—B. Left chelicera, ventral.—C. Right male bulbus, external.—D. Endogyne, ventral.—E. Endogyne, dorsal.—F. Spermatheca variability, ventral. Scale bars in millimetres.

Abdomen 4.36 mm long; whitish; cylindrical. Abdomen dorsal hairs 0.09–0.11 mm long, thin, curved, compressed, pointed, uniformly, thickly distributed.

Copulatory bulbus (Fig. 14C) T scanty smaller than DD; both more or less in same axis in lateral view. DD sclerites equally developed; internal sclerite truncated at

middle part of haematodoca. DD tip (Fig. 15A–C) with upper and lower sheets sticking together; upper sheet not projected over lower one; straight in lateral view. C present, well-developed; located close to tip of embolus; proximal border sharply decreasing; distal border stepped; upper tip projected, pointed; external side excavated. AC

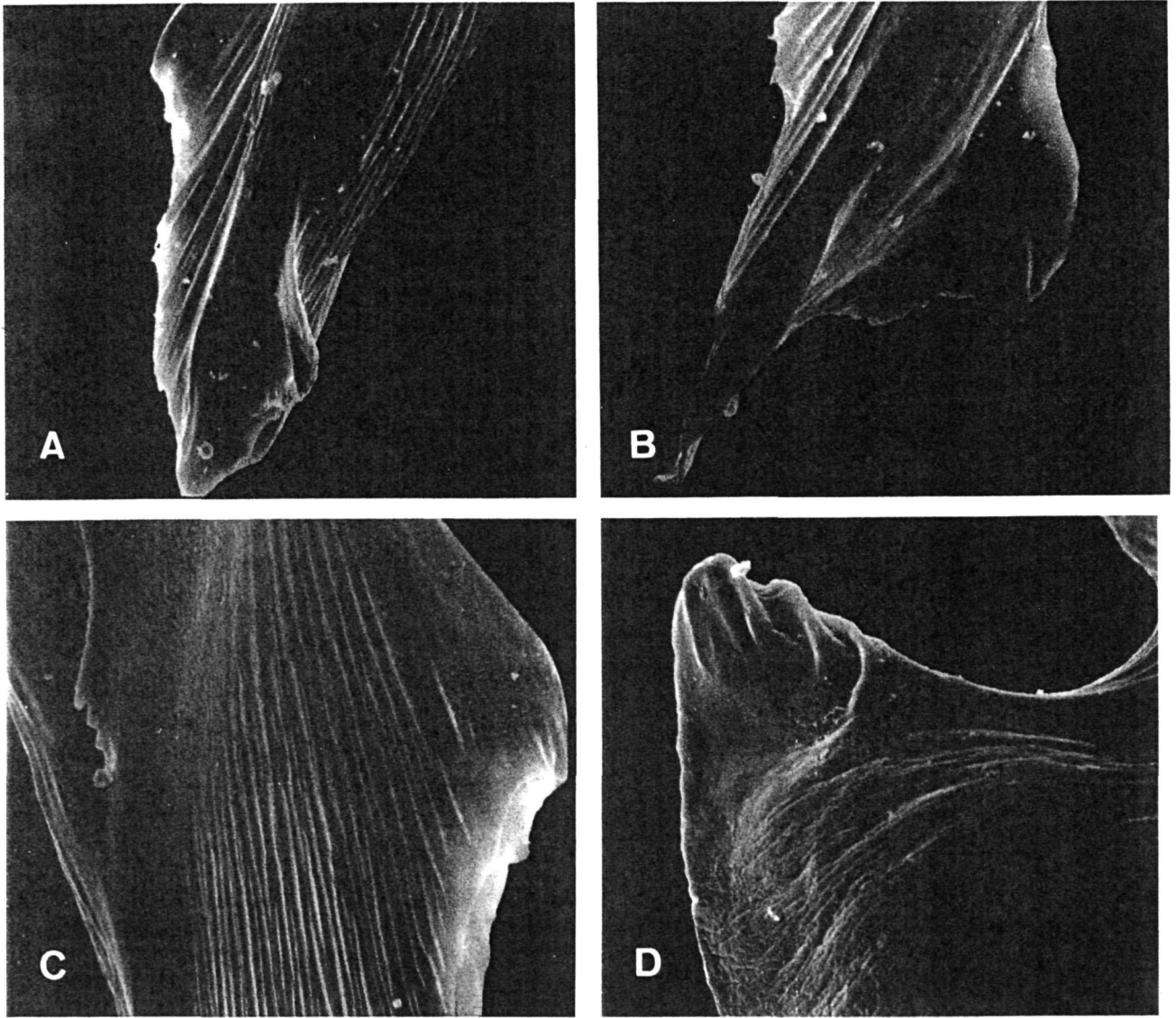


Fig. 15.—A–D. *Dysdera levipes* Wunderlich, 1991; right male bulbus.—A. DD, frontal.—B. DD, external.—C. DD, posterior.—D. P, external.

present. LF absent. L well-developed; external border not sclerotized, scanty fold, distal border divergent, continuous. LA absent. AL present, very poorly developed; proximal border fused with distal haematodoca. P (Fig. 15D) perpendicular to T in lateral view; fused to T; narrow, reduced to ridge; strongly toothed, only at its distal part; few teeth, about 4–6; distally scanty projected.

*Female.* (Figs 14D–F, 16A–C). All characters as in male except: Carapace 2 mm long; maximum width 1.49 mm; minimum width 0.83 mm. AME diameter 0.14 mm; PLE 0.14 mm; PME 0.07 mm; AME separated one from another about 2/3 of diameter; PME about 2/5 of its diameter separated from PLE.

Chelicerae 0.66 mm long; fang 0.42 mm long. Lengths of female legs described above: fe1 1.47 mm (all measurements in mm); pa1 0.87; ti1 1.43; me1 1.33; ta1 0.38; total 5.48; fe2 1.4; pa2 0.84; ti2 1.26; me2 1.26; ta2 0.35; total 5.11; fe3 1.15; pa3 0.56; ti3 0.91; me3 1.12; ta3 0.31; total 4.05; fe4 1.54; pa4 0.73; ti4 1.29; me4 1.47; ta4 0.31; total 5.34; fe Pdp 0.7; pa Pdp 0.31; ti Pdp 0.38; ta Pdp 0.42; total 1.81; relative length I > IV > II > III. Spineless. Legs covered with extremely long hairs.

Abdomen 4.23 mm long; whitish; cylindrical. Abdomen dorsal hairs 0.09–0.11 mm long, thin, curved, compressed, pointed, uniformly, thickly distributed.

DA (Fig. 14D–F) sclerotized around TB valva attachment as well as at ventral region; both regions completely fused, not distinguishable; DF around V wide. DA frontal border projected, pointed; lateral margins convergent in dorsal view; scanty wider than long. Ventral small scale beside S attachment; step discontinuity at internal borders. S arms as long as DA; scanty curved; ends projected forwards; neck as wide as arms. TB usual shape.

ALS (Fig. 16A) with piriform gland spigot in polar position; remaining piriform spigots more external than major ampulate gland spigot; 6 + 1 piriform gland spigots; PMS and PLS (Fig. 16B–C) with less than 6 aciniform gland spigots.

*Intraspecific variation.* Specimens from La Gomera are larger. Body hairiness is greater in females than in males but females from La Gomera are not as hairy as the female from Tenerife.



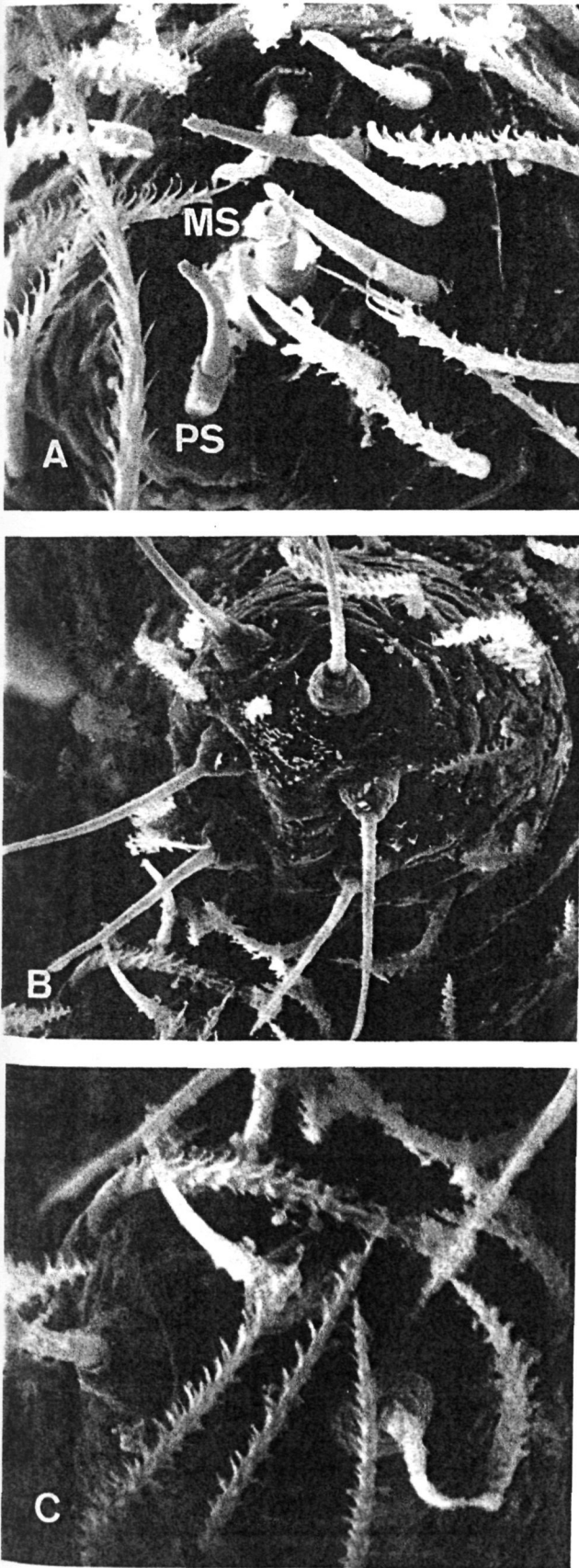


Fig. 16.—A–C. *Dysdera levipes* Wunderlich, 1991; right female spinnerets.—A. ALS.—B. PMS.—C. PLS.

**Distribution.** Not a very abundant species from Tenerife and La Gomera (Canary Islands) laurel forest related habitats.

**Comments.** After examination of the holotype of *D. multipilosa* the only diagnostic character found to separate that species from *D. levipes* was an increase in body hairiness. This was not considered to be enough to separate this specimen as a separate species.

***Dysdera orahan* sp. n.** (Figs 17A–D, 18A–D, 19A–B)

**Holotype.** 2/12/93, P. Oromí leg.; num. 2785/114, stored at the UB. Female: unknown.

**Type locality.** Puntallana, La Gomera, Canary Islands.

**Etymology.** The name in apposition of this species refers to Orahan, a god of the ancient inhabitants of La Gomera, thought to be the creator of all things on earth.

**Diagnosis.** Carapace cribellated, frontal border narrow, lateral borders divergent; rounded at maximum dorsal width point. Chelicerae less than 1/4 of carapace length, basal segment dorsal side scantily covered with granulation; chelicera teeth equal in size, distal tooth trapezoid located near tip of segment. Strong spination reduction. AL present, very poorly developed, proximal border toothed and not completely fused with distal haematodoca. This species can be distinguished from *Dysdera ramblae* sp. n. by spineless dorsal tibia IV and L shape.

**Description.** **Holotype male.** (Figs 17A–D, 18A–D, 19A–B). Carapace (Fig. 17A) 2.4 mm long; maximum width 1.91 mm; minimum width 1.17 mm. Orange, uniformly distributed; cribellated, covered with circular depressions with some small black grains mainly anterior. Frontal border more or less rounded, about 2/5 of its length; lateral borders divergent; rounded at point of maximum dorsal width, with back lateral borders rounded; back margin narrow, straight. AME diameter 0.17 mm; PLE 0.17 mm; PME 0.13 mm; AME on edge of frontal border; separated one from another about half diameter, touching PLE; PME very close to each other, less than a quarter of PME diameter from PLE. Labium trapezoid-shaped, base wider than distal part; as long as wide at base; with semicircular groove at tip. Sternum orange, uniformly distributed; strongly wrinkled; covered in hairs mainly at margin.

Chelicerae (Fig. 17B) 0.86 mm long, less than 1/4 of carapace length in dorsal view; fang 0.3 mm long; basal segment dorsal side scantily covered with granulation. Chelicera inner groove about 2/5 of cheliceral length; armed with three teeth and lamina at base; equal in size; distal tooth trapezoid, located near tip of segment; basal tooth close to basal lamina; medial tooth close to basal. Legs pale yellow. Lengths of male described above: fe1 1.77 mm (all measurements in mm); pa1 1.21; ti1 1.54; me1 1.44; ta1 0.42; total 6.38; fe2 1.63; pa2 1.12; ti2 1.35; me2 1.35; ta2 0.42; total 5.87; fe3 1.35; pa3 0.75; ti3 0.89; me3 1.07; ta3 0.37; total 4.43; fe4 1.82; pa4 1.07; ti4 1.4; me4 1.68; ta4 0.42; total 6.38; fe Pdp 0.93; pa Pdp 0.56; ti Pdp 0.51; ta Pdp 0.58; total 2.58; relative length: I = IV > II > III. Spination: Palp, leg1, leg2 spineless. Fe3d spineless; pa3 spineless; tb3d spines arranged in two bands; proximal 1.0.0; distal 1.0.0; tb3v with one terminal spine at the forward margin. Fe4d spineless; pa4 spineless; tb4d

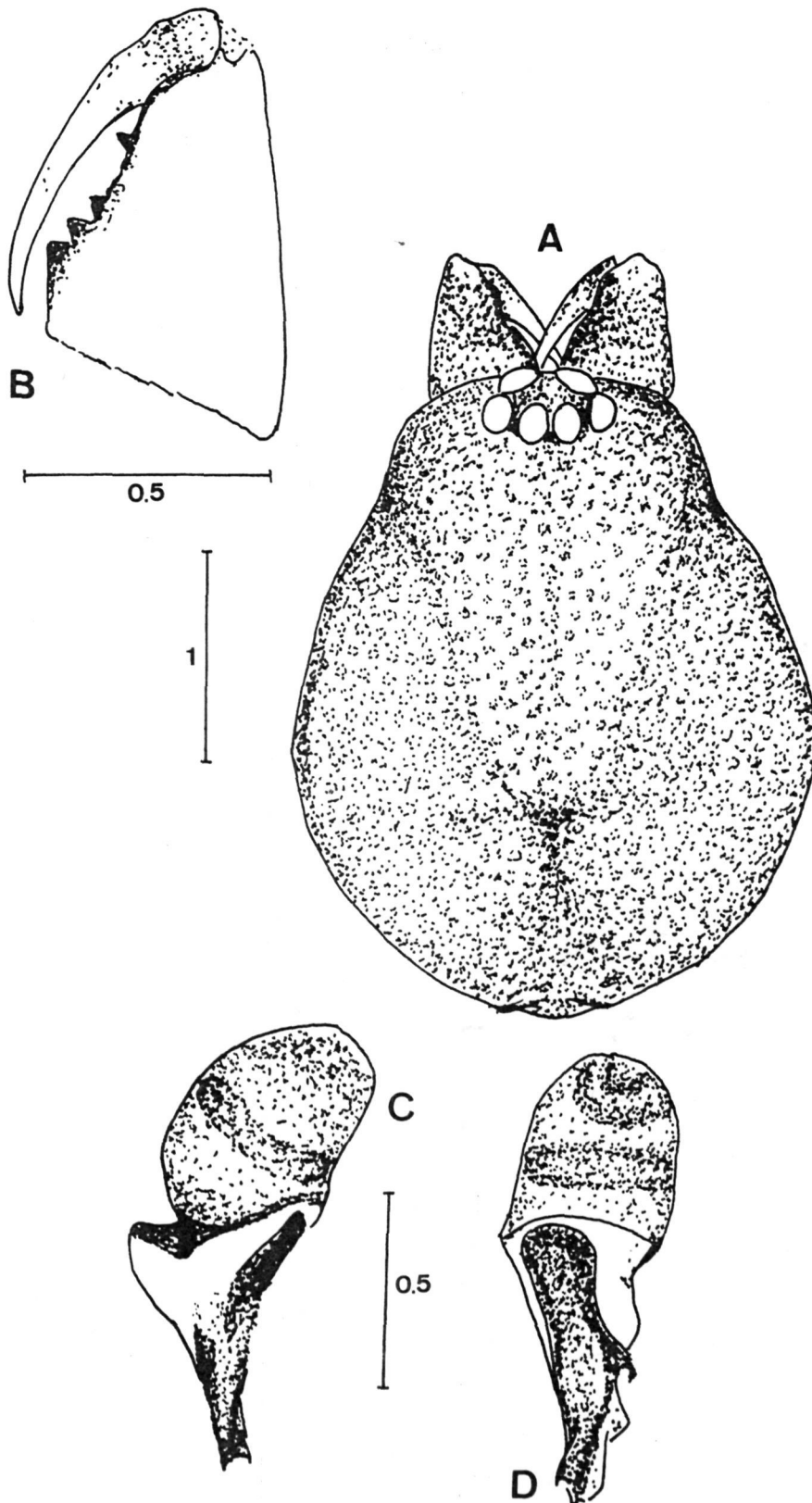


Fig. 17.—A–D. *Dysdera orahan* sp. n.—A. Carapace, dorsal.—B. Left chelicera, ventral.—C. Left male bulbus, internal.—D. Left male bulbus, frontal. Scale bars in millimetres.

spineless; tb4v spines arranged in one band; medial-proximal 0.1.0; with two terminal spines.

Abdomen 2.6 mm long; whitish; cylindrical. Abdomen dorsal hairs 0.036–0.054 mm long, thick, curved, compressed, blunt, with tip not enlarged, uniformly, thickly distributed.

Copulatory bulbus (Fig. 17C) T scanty smaller than

DD; both more or less in same axis in lateral view. DD sclerites equally developed; internal sclerite truncated at middle part of haematodoca. DD tip (Fig. 18A–C) with upper and lower sheets sticking together; upper sheet not projected over lower one; straight in lateral view. C present, well-developed; located close to tip of embolus; proximal border sharply decreasing; distal border stepped;