

because all the necessary knowledge about the functional morphology and anatomy of the structures is lacking.

In the sister species *E. ovata* (see Hippa & Oksala, 1983) no comparable variation is found, but its populations are very uniform (Figs. 9, 10) and the geographic variation is also small. The epigyne of *E. latimana* can always be distinguished from that of *E. ovata* by a modified, not simple, posterior marginal area (cf. Figs. 1-8 and 9-10).

#### Acknowledgements

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### Spiders of the Galápagos Islands. I. Mysmenidae (Araneae)

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#### Introduction

In 1982 we undertook an expedition to the Galápagos Islands with the purpose of studying their spider fauna. During a three-month stay (February-

April) we visited a number of islands (Isabela, Santiago, San Cristóbal, Santa Fé and Santa Cruz) and collected considerable numbers of spiders in the different vegetational zones in various places on each island. It is our intention to publish the results of our collecting according to the progress we make in the study of this material. Araneological publications about the Galápagos are scarce and, mostly, descriptions of new species are incorporated in general revisions so that no real faunistic survey exists, save the species list of Roth & Craig (1970) which is very incomplete (some families identified only down to genus level). From our preliminary sorting we noticed that a large number of new species have to be added to this list. Since the South American spider fauna is in general badly known, we will not take into account whether a species is endemic or not, for a species first found on the islands is in this case not necessarily endemic.

Together with our own material we still study the material caught by the late S. Jacquemart during his expedition made in 1974 (8 January-17 March).

### Family Mysmenidae

The presence of a mysmenid species was first cited in the species list of Roth & Craig (1970) as being a *Mysmena* n. sp. (leg. N. Leleup, 4 ♀♀, Isla Santa Cruz). During our stay, we found a considerable number of them in different localities on Isla Santa Cruz. The distribution area of this species seemed not to be restricted to Santa Cruz, for we found a couple on top of the Volcán Sierra Negra (Isabela), while Jacquemart brought some juveniles from Isla Santiago and Isla San Cristóbal. They seem to belong to the same species, though more material from these islands is needed for a thorough biometric study.

### *CALOMYSPOENA* new genus

Type species: *Calomyspoena santacruz* sp. n.

#### Diagnosis of genus

Small spiders; carapace slightly longer than broad (much longer in female), pars cephalica of male slightly elevated with AME overhanging clypeus; anterior eye row recurved, median quadrangle broader than long; male palpus with modified cymbium, divided at apex into a number of extensions, long coiled embolus and a lateral secondary apophysis, cymbial thorn present, bulbus ovoid; clasping spur on Mt I and II in male; femoral organ on Fe I in female. The creation of this new

genus is based on the general palpal conformation.

*Derivatio nominis*: The generic name is a fusion of *Calodipoena* and *Mysmena*, the specific name is derived from Santa Cruz where most of the specimens were caught.

### *Calomyspoena santacruz* sp. n. (Figs. 1-10)

#### Male

*Carapace length*: 0.28-0.31 mm (n = 7). *Carapace width*: 0.24-0.26 mm (n = 7). *Total length*: 0.65-0.74 mm (n = 7). *Carapace* (Figs. 1-3): Dorsally black, sides and excavated hindpart yellowish, black border. *Sternum* (Fig. 4): Yellowish with two pairs of dusky transverse marks, heart-shaped, blunt posteriorly. *Eyes*: Eight subequal eyes; anterior row recurved; posterior row slightly procurved; AM overhanging clypeus, large and separated by nearly twice their diameter; AL and PL nearly touching; PM separated by their diameter. *Chelicerae*: Anterior margin with two large teeth, posterior margin with one tooth. *Legs* (Fig. 1): Clasping spur on Mt I and II. Approximate measurements (range based on holotype and 6 paratypes) given in Table 1. Leg formula: I > II > III > IV or in some specimens I > II > IV > III. *Abdomen*: Black with many pale spots; dorsum with three pairs of white oval patches; posterior creamy white with yellow-brown transverse bars, usually with a hump. *Male palp* (Figs. 5-6): Cymbium modified (apical end divided into a number of extensions), the long coiled embolus lies, in rest, on top of the cymbium and is protected by a row of inward-curved small strong spines lying on one of

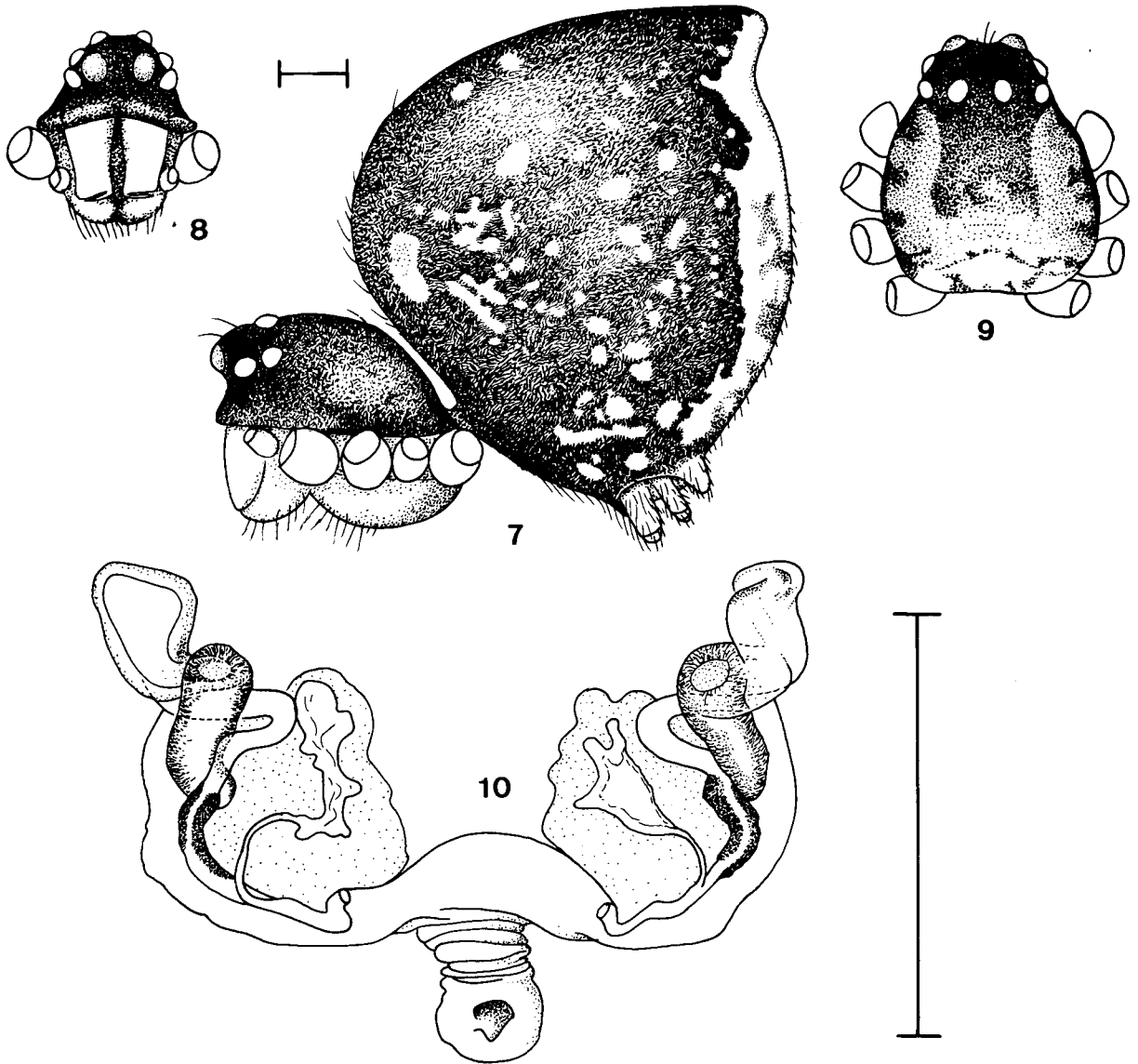
♂	Fe	Pa	Ti	Mt	Ta	Total
I	0.26-0.31	0.11-0.12	0.18-0.20	0.15-0.16	0.16-0.19	0.88-0.96
II	0.20-0.24	0.10-0.11	0.15-0.18	0.11-0.15	0.14-0.18	0.71-0.84
III	0.16-0.24	0.07-0.10	0.10-0.14	0.09-0.11	0.13-0.15	0.59-0.70
IV	0.16-0.22	0.07-0.10	0.10-0.16	0.09-0.13	0.13-0.15	0.65-0.74
♀						
I	0.29-0.34	0.13-0.15	0.21-0.26	0.16-0.20	0.18-0.22	1.02-1.13
II	0.25-0.29	0.12-0.14	0.18-0.26	0.16-0.17	0.18-0.20	0.89-1.00
III	0.19-0.22	0.08-0.11	0.12-0.16	0.11-0.15	0.15-0.18	0.68-0.79
IV	0.25-0.30	0.08-0.13	0.18-0.20	0.14-0.17	0.16-0.19	0.84-0.95

Table 1: *Calomyspoena santacruz* sp. n. Approximate leg measurements. Male based on holotype and 6 paratypes, female based on 6 paratypes.

the extensions (Fig. 6); seven spiny hairs on shallow tubercles in centre of cymbium (Fig. 5); "cymbial thorn" present (= Kegeldorn des Paracymbium of Kraus, 1967). Bulbus ovoid with long coiled embolus and short lateral chitinised apophysis (Fig. 5A) of complex structure. Tibia cup-like, fringed with long spiny hairs and with a dorsal row of strong bristles.

#### Female

*Carapace length*: 0.32-0.36 mm (n = 6). *Carapace width*: 0.30 mm. *Total length*: 0.80-1.06 mm (n = 6). As male except in following respects: *Carapace* (Figs. 7-9): Less elevated. *Eyes*: AM closer to each other, separated by slightly more than their diameter; PM separated by slightly more than their diameter.



Figs. 7-10: *Calomysnoena santacruzii* sp. n., female. 7 lateral view; 8 prosoma, frontal view; 9 prosoma, dorsal view; 10 vulva. Scale lines = 0.1 mm.

*Chelicerae*: Anterior margin with three large teeth; posterior margin with three (or four?) small, only slightly perceptible, teeth. *Legs*: Femoral organ on Fe I. Approximate measurements (based on 6 paratypes) given in Table 1. Leg formula:  $I > II > IV > III$  in all specimens measured. *Epigynum* (Fig. 10): Receptaculum clearly divided into two parts. The ducti discharge into a small atrium. Medium part of ductus bordered with glandular tissue. Half-way along these ducti there discharges a second ductus which leads into the lumen of a formless transparent tissue-mass. The scape can be short or long. This could be that the cymbial thorn is inserted into the small excavation at the rounded tip of the scape and that the embolus is introduced into the atrium while the scape is stretched out by the pulling action of the

cymbium, thus widening the atrial fissure.

#### Material examined

The detailed distribution of *Calomyspoena santacruz* sp. n. on Isla Santa Cruz is shown in Fig. 11. This map is based upon our own samples (leg. L. Baert & J.-P. Maelfait). The numbers indicated on the map coincide with those cited in the text below (Site no. 9, leg. S. Jacquemart, also indicated on map).

#### Male holotype

*Isla Santa Cruz*, Barranco near C.D.R.S. (1), altitude 20 m, 19 March 1982; together with 3 male paratypes, 8 female paratypes and one male subadult.

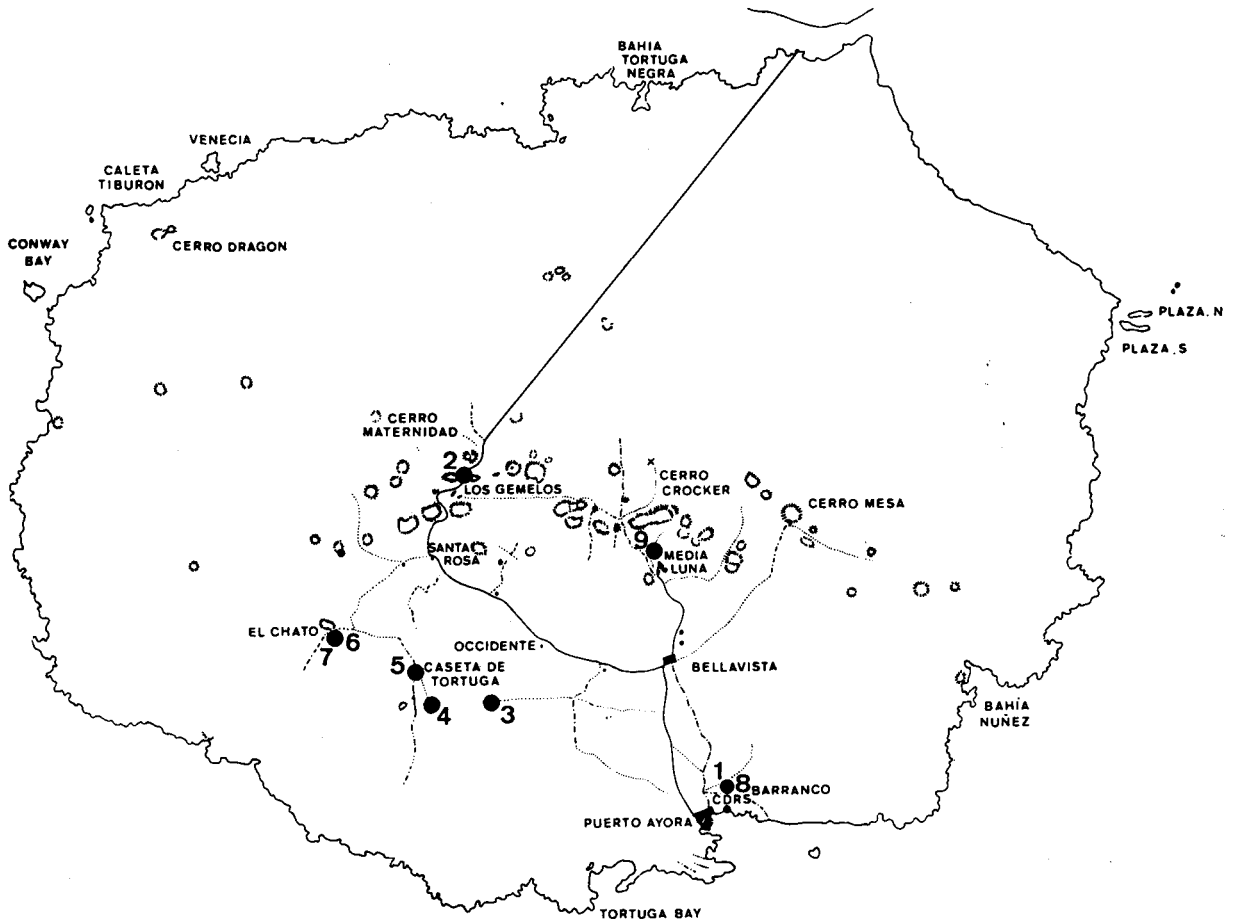


Fig. 11: Distribution map of *Calomyspoena santacruz* sp. n. on Isla Santa Cruz.

*Paratypes*

*Isla Santa Cruz*, Los Gemelos (2), alt. 580 m, 13 Mar. 82, 1 ♂, 1 ♀; Caseta Occidente (3), alt. 170 m, 17-18 Mar. 82, 7 ♀♀, 1 juv.; Caseta Tortuga: (4), alt. 150 m, 20 Mar. 82, 2 ♀♀; (5) 1 ♂, 3 ♀♀; El Chato: (6), alt. 190 m, 30 Mar. 82, 1 ♂, 21 ♀♀, 3 juv.; (7) alt. 280 m, 30 Mar. 82, 1 ♀, 1 juv.; Barranco near C.D.R.S. (8) alt. 20 m, 29 Mar. 82, 2 ♂♂, 9 ♀♀, 3 juv.; *Isla Isabela*, Volcán Sierra Negra, alt. 160 m, 23 Mar. 82, 1 ♂, 1 ♀, 1 juv. (leg. L. Baert & J.-P. Maelfait).

*Isla Santa Cruz*, Media Luna (9), 15 Feb. 74, 3 ♂♂, 5 ♀♀, 9 juv.; Top of island, 28 Feb. 74, 1 ♀; Transition zone, 7 Feb. 74, 1 juv.; near Bella Vista, 17 Feb. 74, 1 ♀, 2 juv. *Isla San Cristóbal*, Culture zone, 2 Feb. 74, 1 juv.; *Isla Santiago*, top of island, 17 Mar. 74, 1 juv. (leg. S. Jacquemart).

*Isla Santa Cruz*, alt. 200 m, Nov. 64, 4 ♀♀ (leg. L. & N. Leleup).

Types at the Institut royal des Sciences Naturelles de Belgique (Bruxelles) (I.R.Sc.N.B. 171) and the Charles Darwin Research Station (Galápagos).

*Habitat*

In most cases we found *C. santacruzi* sp. n. running between the stems of grass clumps, which were covered by a thick network of silken threads. They were often found in large numbers together in the same clumps. From our capture data we can also conclude that they often occur together with *Wasmannia* ants (except at the highest altitudes where no *Wasmannia* ants live), where normally, with the exception of oonopids, small pholcids and ochyroceratids, no other spiders can survive. Another important factor for the presence of this species seems to be a moist micro-environment.

*Discussion*

There are considerable prosomatic similarities (see Table 2) between this newly described Galápagos species and both known genera *Calodipoena* Gertsch & Davis, 1936 and *Mysmena* Simon, 1894, but the general palpal conformation requires the creation of a new genus. The more complicated male palp with

	<i>Calodipoena</i> (As classified by Brignoli, 1980) except <i>C. colima</i> & <i>C. conica</i>	<i>C. colima</i> (Gertsch, 1960)	<i>Mysmena</i> <i>calypso</i> Gertsch, 1960	<i>Mysmena</i> <i>leucoplagiata</i> (Simon, 1879)	<i>Calomyspoena</i> <i>santacruzi</i> gen. n., sp. n.
<b>Carapace</b>	length > width	length > width	length = width	length = width	length > width
<b>Pars cephalica</b>	slightly elevated	slightly elevated	strongly elevated	strongly elevated	slightly elevated
<b>Anterior eye row</b>	recurved	recurved	recurved	recurved	recurved
<b>Posterior eye row</b>	slightly procurved	slightly procurved	recurved	recurved	slightly procurved
<b>Median ocular quadrangle</b>	width > length	width > length	width > length	width > length	width > length
<b>AM eyes</b>	overhanging clypeus	overhanging clypeus	overhanging clypeus	overhanging clypeus	overhanging clypeus
<b>Abdomen</b>	+ hump	+ hump	no hump	no hump	+ hump
<b>Palpus:</b>					
<b>Cymbium</b>	not modified	not modified	modified into groove	modified into groove	modified, no groove
<b>Large coiled embolus</b>	present	present	present	present	present
<b>Secondary apophysis</b>	absent	apical position	apical position	absent	lateral position
<b>Cymbial thorn</b>	absent	absent	absent	present	present
<b>Distribution</b>	Neotropical species	Mexico	New Mexico	Mediterranean species (Palearctic)	Galápagos

Table 2: Summary of specific characters of male *Calodipoena* Gertsch & Davis, 1936, *Mysmena* Simon, 1894 and *Calomyspoena* gen. n.

its modified cymbium (divided at the apex into a number of extensions), the presence of a short lateral apophysis of complicated structure and the presence of the "cymbial thorn" (identical to the "Kegeldorn des Paracymbium" of *Mysmena leucoplagiata* (Simon), cf. also in *Mysmenella*) makes it clear that this species is not a *Calodipoena*. The male palpus shows more affinities (as does the vulva) with that of *M. leucoplagiata*, but the presence of a secondary lateral apophysis, the modified cymbium not being transformed into a kind of furrow (supplementary conductor with function of protecting the embolus against breaking off?), the ovoid form of the bulbus (flattened in *Mysmena*), make this species clearly different from the *Mysmena* species as recently delimited by Brignoli (1980).

The general vulva structure also differs substantially from that of *M. leucoplagiata*, especially the receptaculum, divided into two clearly defined sacs, both with a large lumen, in contrast to the spirally coiled lumen of *M. leucoplagiata*.

We would also like to draw attention to some (possible?) anomalies in the classification of the *Calodipoena* and *Mysmena* species as put forward by Brignoli (1980).

1. The statement that the "Kegeldorn des Paracymbium" of Kraus (1967) should be identical with the "distal end of bulb produced into a short, coiled spine" of Gertsch (1960) in *Mysmena calypso* Gertsch, seems to be misleading. We are quite certain that the "Kegeldorn" (which we call in more exact terms "cymbial thorn") of the Galápagos species is a cymbial structure and that this is surely also the case in *M. leucoplagiata* (the pronounced transparency of the cymbium in these species makes this fact hardly discernible). It seems to us most unlikely that an embolic structure (coiled spine in *M. calypso*) can be identical to a cymbial structure. *Calodipoena colima* (Gertsch) also possesses, as *M. calypso*, an

apical coiled spine, a probable second embolus after Gertsch (1960). Though the general prosoma characteristics of both species, *C. colima* and *M. calypso*, coincide very well with those of the type species of their respective genera, we think that the systematic position of both species should be revised for certainty.

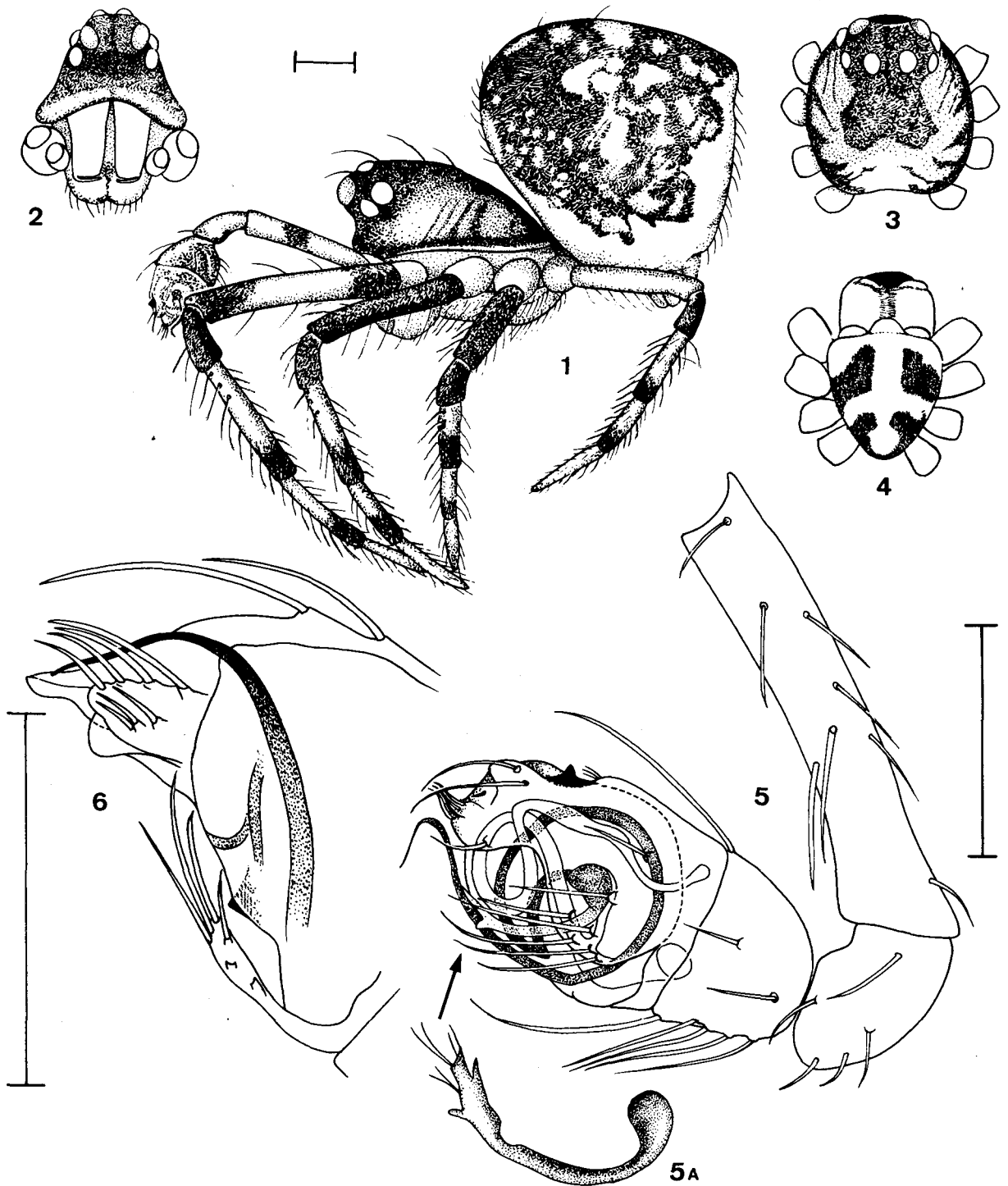
2. The status of the Algerian *Calodipoena conica* (Simon) is, as Brignoli (1980) has already stated, very uncertain as to the following characters: straight anterior eye row not overhanging the clypeus as in other *Calodipoena* species, the unusual form of the palpal tibia, the general appearance of the bulbus and no clasping spur.

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Figs. 1-6: *Calomyspoena santacruzii* sp. n., male. 1 lateral view; 2 prosoma, frontal view; 3 prosoma, dorsal view; 4 sternum; 5 left palp; 5A detail of lateral apophysis; 6 detail of top of cymbium. Scale lines = 0.1 mm.