

New data on four little-known species of the genus *Zelotes* Gistel, 1848 (Araneae, Gnaphosidae)*

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Summary

Some particularly interesting specimens of the genus *Zelotes* Gistel have been collected in different districts of Sicily. They belong to *Z. reconditus* Simon, recorded on this island for the first time, and *Z. labilis* Simon. For these species and for *Z. gallicus* Simon new morphological details and new information on their distribution and habitat preferences are provided. The subspecies *Z. reconditus mediocris* Simon has been elevated to species rank as the genital structures are different from those of *Z. reconditus*.

Introduction

During a series of sampling surveys carried out in different districts of Sicily from 1981 to 1995 some particularly interesting specimens of the genus *Zelotes* were collected. Some of these belong to *Z. reconditus* Simon, 1914, and others to *Z. labilis* Simon, 1914. Both species are poorly known.

Zelotes reconditus was originally described by Simon (1914) on the basis of the female, and at the same time he described the new subspecies *Z. reconditus mediocris* based only on a difference in body size. Later Denis (1950) described the male of the subspecies. Specimens collected in Sicily have been compared with the type material of *Z. reconditus* and *Z. reconditus mediocris* kept in the collection of the Muséum National d'Histoire Naturelle (Paris) (MNHN) and with Italian females of *Z. reconditus* identified by Murphy (Brignoli & Murphy, 1983). From comparisons of the genital morphology of the species and subspecies I have inferred that they are two different species. The male of *Z. reconditus* was hitherto unknown and is here described for the first time. *Zelotes reconditus* and *Z. mediocris* also share many genital characters with *Z. gallicus* Simon, 1914: these species are described in greater detail in this paper.

Zelotes labilis was described by Simon (1914) on the basis of the female; later Hadjissarantos, in his thesis on the Araneae of Attica (1940), described the male, and gave further morphological details on the female. Some two decades later Jézéquel (1962a) added details on the epigyne. As the thesis of Hadjissarantos is not easily available, I thought it would be useful to provide a new description of this species.

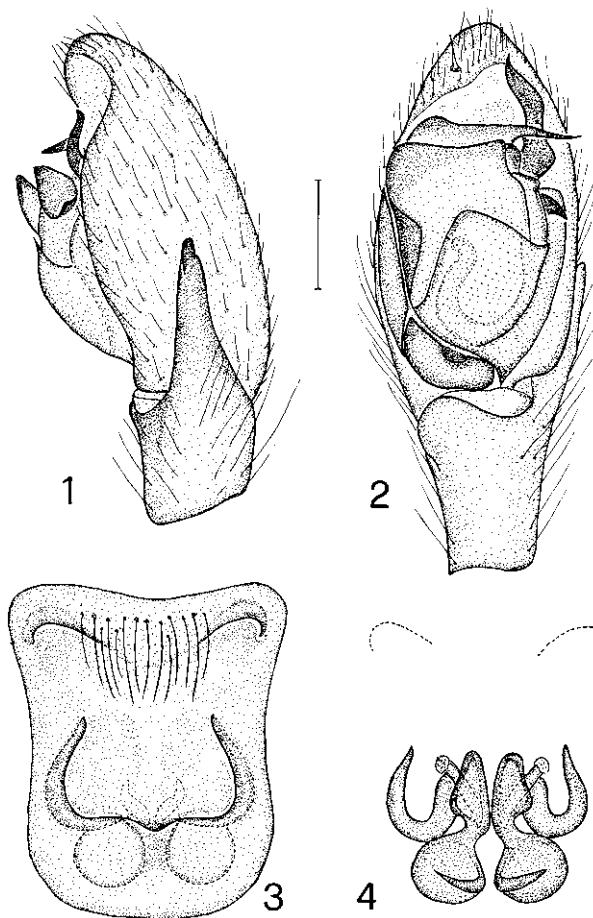
The spiders were identified by consulting the most important treatises and revisions on spider systematics (Simon, 1878, 1914; Tullgren, 1946; Reimoser, 1937; Grimm, 1985; Lohmander, 1944; Jézéquel, 1962a, b; Miller, 1967; Platnick & Shadab, 1983), and specimens were compared with specimens of *Zelotes* from the collection of the Muséum National d'Histoire Naturelle

(Paris). All measurements are in millimetres; the abbreviations used are those of Platnick & Shadab (1975): AME, ALE, PME, PLE, and MOQ, refer to the anterior median, anterior lateral, posterior median, posterior lateral eyes, and median ocular quadrangle. The leg spination of the specimens studied corresponds to the leg spination pattern used in the diagnosis of *Zelotes* by Platnick & Shadab (1983) with the exception that the spination of metatarsi I and II can be different in the species studied: femora I, II d1-1-0, p0-0-1; III, IV d1-1-0, p0-1-1, r0-1-1; patella III r0-1-0; tibiae: III p1-1-1, v2-2-2, r0-1-1; IV p1-1-1, v2-2-2, r1-1-1; metatarsi: I, II v2-0-0; III p1-2-2, v2-2-0, r1-1-2; IV p1-2-2, v2-2-2, r1-2-2.

Zelotes reconditus Simon, 1914 (Figs. 1–4)

Zelotes reconditus Simon, 1914: 179, 215, fig. 379 (D♀); Jézéquel, 1962b: 598, fig. 9 (♀).

Material examined: FRANCE (MNHN): *Alpes-Maritimes*: Nice, Menton, 4♀ (Simon, 1914) (AR 1828). *Pyrénées-Orientales*: Canigou, 2♀ (Simon, 1914) (AR 1826); Banyuls, 1♀ (Simon, 1914) (AR 1837); Arles-sur-Tech, 31 January 1932, 2♀ (Denis, 1933) (AR 1852). ITALY: *Messina*: *Eolian Islands*: Salina, environs of Malfa, 10 October 1984, stony pasture with numerous *Artemisia arborescens* bushes, 1♂. *Nebrodi Mountains, Monte Soro*: Portella Femmina Morta, Genisto-Potentilletum calabrae, 1580 m, S exposure, clay, 14 September 1981, 6♂ 2♀; 23 October 1981, 3♂. Portella Buffali,



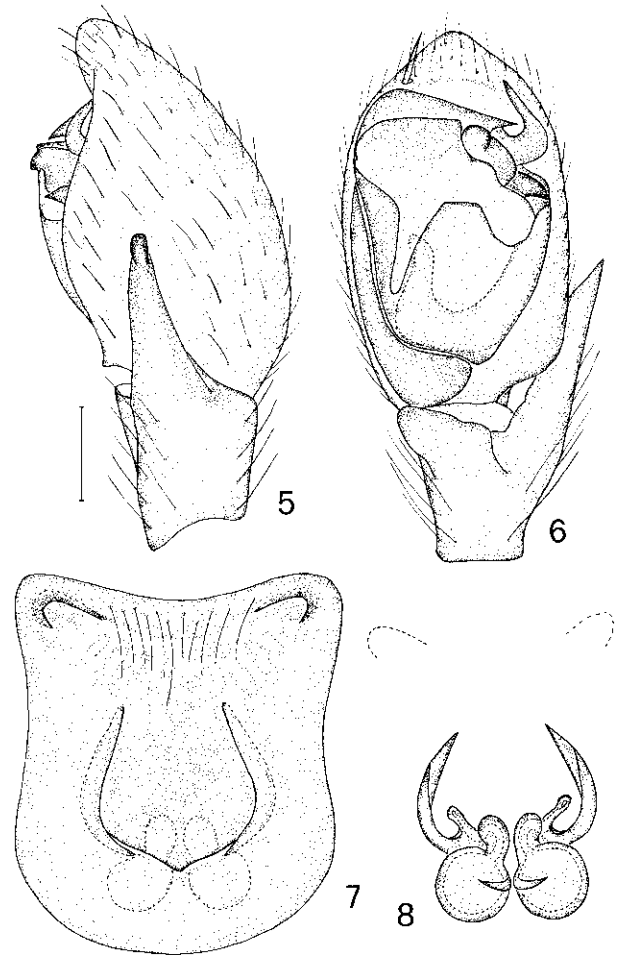
Figs. 1–4: *Zelotes reconditus* Simon. **1** Left male palp, lateral view; **2** Ditto, ventral view; **3** Epigynum, ventral view; **4** Epigynum, dorsal view. Scale line = 0.2 mm.

*Research supported by: Progetti di ricerca d'Ateneo 1999–2000 “Conservazione della Biodiversità in ambienti mediterranei”.

Cynosuro-Leontodontetum siculi, 1265 m, SE exposure, clay, 17 June 1981, 1♀; 24 October 1981, 4♂ 24♀; 895–950 m, 1 October 1985, 2♀; 21 November 1981, 4♀; 1260 m, NE exposure, 24 October 1981, 1♂ 2♀. Contrada Buffali, *Quercus cerris*, 1285 m, NNE-NE exposure, 24 October 1981, 1♀. *Malabotta*: Monte Polverello, 1300 m, E-NE exposure, lightly nitrophilous pasture, largely covered with *Pteridium aquilinum*, 27 October 1981, 1♂; Portella Zilla, *Calycotome infesta*, 1200 m, W-NW exposure, ground rich in humus, 16 September 1981, 1♀. *Valley of Caronia stream*: Slopes of Monte Pagano, *Quercus suber* and *Q. gussonei* wood, E exposure, 550 m, September 1987, 2♂; November 1987, 1♀; 14 September 1987, 1♀. **Syracuse**: *Iblei Mountains*: Cava Grande di Avola, 6 September/12 October 1989, shrub-land with *Quercus ilex*, 1♂. *Nature Reserve "Oasis of Vendicari"*: shrub-land with *Pistacia lentiscus* bushes, 28 August/18 September 1984, 1♀; 2–20 October 1984, 1♂; 1–20 October 1984, 4♂ 3♀. **Catania**: *Nature Reserve "Oasis of Simeto"*: Tamarisk area, plant community Nerio-Tamaricetea Br.-Bl. & O. Obolòs 1957, 30 August–21 September 1994, 1♂; 21 September–11 October 1994, 1♂. Quagmire area, plant community Juncetum-maritimo-acuti, 30 August–21 September 1994, 1♂. Saltwort area, plant community Salicornietum radicans Br.-Bl. 1993, 30 August–21 September 1994, 1♂ 1♀. **Latina**: Isola di Ponza, Bagno Vecchio, 1 March 1966, 1♀, P. M. Brignoli leg.; Piana d'Incenso, 8 December 1966, 1♀, A. Vigna leg., P. M. Brignoli coll., det. J. A. Murphy.

Description: *Male*: Dimensions ($n=1$): total length 5.8; prosoma length 2.3, width 1.8; opisthosoma length 3.5, width 1.9; femur II length 1.7. Eye sizes and interdistances: AME 0.06, ALE 0.08, PME 0.1, PLE 0.1; AME-AME 0.05, AME-ALE 0, PME-PME 0.03, PME-PLE 0.05, ALE-PLE 0.08; MOQ length 0.28, front width 0.18, rear width 0.23. *Female*: Dimensions ($n=1$): total length 6.0; prosoma length 2.4, width 2.0; opisthosoma length 3.5, width 1.8; femur II length 1.7. Eye sizes and interdistances: AME 0.08, ALE 0.1, PME 0.1, PLE 0.1; AME-AME 0.05, AME-ALE 0, PME-PME 0.03, PME-PLE 0.05, ALE-PLE 0.08; MOQ length 0.28, front width 0.18, rear width 0.23.

Prosoma trapezoidal, depressed, with posterior edge a little broader than anterior and notched medially; dark bronze, with narrow black marginal band. Anterior row of eyes procurved, medians circular and on small tubercle, laterals oval; posterior row straight, medians oval converging in front, laterals oval. Clypeus narrow. Chelicerae strong, cone-shaped, with small lateral condyle. In female chelicerae protrude from anterior edge of prosoma, in male vertical. Anterior cheliceral margin with three teeth, median tooth largest; one large conical tooth on posterior margin. Fang strong, long. Sternum dark bronze, with narrow red marginal band, and long bristles radiating outwards. Legs long, very bristly, with femora darker. Anterior tarsi and metatarsi equal in length, densely scopulate; metatarsi I v1 or 0, metatarsi II v2. Abdomen black, thickly covered with hairs and black bristles. Male with dorsal, anterior abdominal scutum. Anterior spinnerets short, strong, densely bristly, well separated at base, each with 5 spigots. Male palp with long femur slightly curved mesally. Tibia longer than patella. Retrolateral tibial apophysis (Fig. 1) sword-shaped, long, strong at base, pointed at tip. Intercalary sclerite large, medially situated. Embolus rectangular with sinuous edges, narrower near tip. Embolar projection long, crossing embolus and lateral edge of cymbium (Fig. 2). Epigyne (Figs. 3–4) with two lateral plica which converge anteriorly, delimiting a sclerotised plate. Median epigynal ducts



Figs. 5–8: *Zelotes mediocris* Simon. **5** Left male palp, lateral view; **6** Ditto, ventral view; **7** Epigynum, ventral view; **8** Epigynum, dorsal view. Scale line = 0.2 mm.

similar to those of *Z. gallicus* but much narrower anteriorly.

Distribution: Known only from the eastern Pyrenees, Alpes-Maritimes, Ponziane Isles (Central Italy), and Sicily.

Biology: The species lives in a variety of environments, ranging from sea level to 1600 m, in dry and moist grassland, dunes, shrub-land and woods. Adults are active from June to November.

Zelotes mediocris Simon, 1914, new status (Figs. 5–8)

Zelotes reconditus mediocris Simon, 1914: 179, 215, fig. 379 (D♀); Denis, 1950: 80, figs. 3–5 (♀, D♂); Jézéquel, 1962b: 599.

Material examined: FRANCE (MNHN): *Hautes-Pyrénées*: Bagnères-de-Bigorre, 1♀ (Simon, 1914) (AR 1845); Orédon, 1♂ 5♀ (Denis, 1950) (AR 1832).

Description: *Male*: Dimensions ($n=1$): total length 4.7; prosoma length 2.2, width 1.7; opisthosoma length 2.4, width 1.5; femur II length 1.3. *Female*: Dimensions ($n=1$): total length 4.7; prosoma length 2.1, width 1.6; opisthosoma length 2.5, width 1.5; femur II length 1.3. Eye sizes and interdistances, male and female: AME 0.05, ALE 0.08, PME 0.08, PLE 0.05; AME-AME 0.0, AME-ALE 0.01, PME-PME 0.03, PME-PLE 0.05, ALE-PLE 0.06; MOQ length 0.23, front width 0.18, rear width 0.2.

Prosoma rectangular, depressed, with posterior edge notched medially; dark bronze, with narrow black marginal band. Anterior row of eyes slightly procurved, medians and laterals circular; posterior row straight, medians oval, converging in front, laterals irregular. Clypeus narrow. Chelicerae short, strong, cone-shaped, with small lateral condyle. Chelicerae vertical. Anterior cheliceral margin with three teeth, median tooth largest; two conical teeth on posterior margin, proximal tooth larger. Fang long. Legs long, strong, very bristly. Anterior tarsi and metatarsi equal in length, densely scopulate, lighter than other segments; metatarsi I v2, metatarsi II v2-0, 2-1 or 2-2. Abdomen black, thickly covered with hairs and black bristles. Male with dorsal, anterior abdominal scutum. Anterior spinnerets short, strong, well separated at base, each with 5 spigots. Male palp with long femur slightly curved mesally. Tibia slightly longer than patella. Retrolateral tibial apophysis (Fig. 5) sword-shaped, long, strong at base, pointed at tip. Intercalary sclerite large, medially situated. Embolar projection short, pointed, just reaching embolus, which is short, strong near base and curved inwards, becoming gradually more slender towards pointed tip (Fig. 6). Epigyne (Figs. 7–8) with two lateral plica, long and slightly curved, posterior margin sinuous and pointed medially. Median epigynal ducts similar to those of *Z. gallicus* but shorter; lateral ducts long and thin.

Diagnosis: The palp of *Z. mediocris* is very similar to that of *Z. gallicus*: they differ in the shape of the embolus, in the dimensions and shape of the embolar base, which is larger in *Z. mediocris*, and in the dimensions of the terminal apophysis, which is larger and more angular in *Z. gallicus*. The palp of *Z. reconditus* differs from that of *Z. mediocris* in having a broader embolus with sinuous edges and a much longer embolar projection. It is important to emphasise that at least the male of *Z. mediocris* seems to show a greater morphological affinity with *Z. gallicus* than with *Z. reconditus*, even though the female was described as a subspecies of *Z. reconditus*.

Distribution: Known only from the western Pyrénées. Biology unknown.

Zelotes gallicus Simon, 1914 (Figs. 9–12)

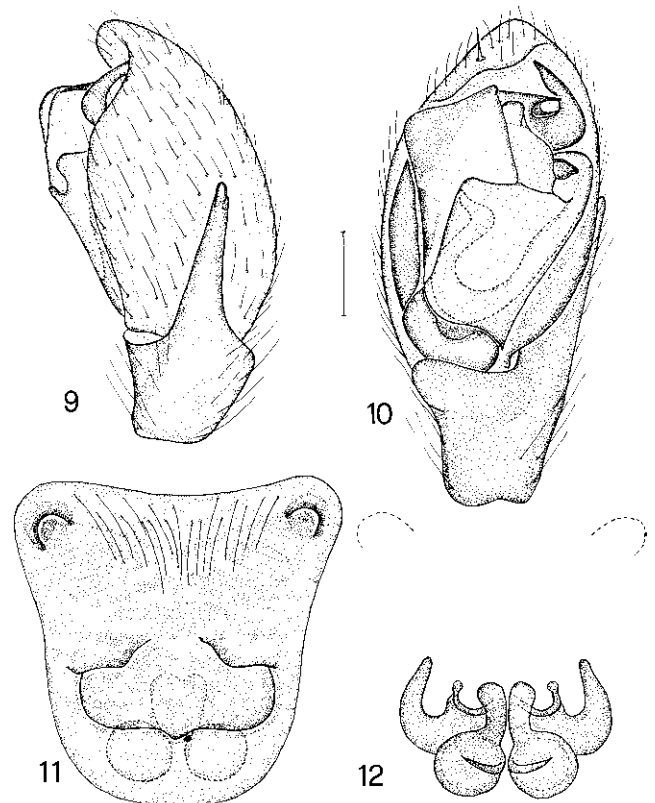
Zelotes gallicus Simon, 1914: 166, 179, 215, figs. 338, 381 (D ♂♀); Jézéquel, 1962a: 527, fig. 9 (♀).

Material examined: FRANCE (MNHN): Alpes Dauphiné, Provence: 19♀ (Simon, 1914) (AR 1717). *Vauchuse*: M. Lubéron, 2♂ (Simon, 1914) (AR 1715). *Vendée*: 2♀ (AR 1861); Forêt de Tranche, 2♀ (AR 1815). *Var*: Port Cros, 2♀ (AR 997). *Drôme*: M. ft du Saou, November 1919, 1♂ 4♀ (AR 1003).

Description: **Male:** Dimensions ($n=2$): total length 5.3–5.8; prosoma length 2.4–2.5, width 1.8–2.0; opisthosoma length 2.8–3.4, width 1.6–2.0; femur II length 1.5. Eye sizes and interdistances: AME 0.10, ALE 0.13, PME 0.08, PLE 0.08–0.1; AME-AME 0.03, AME-ALE 0, PME-PME 0.05, PME-PLE 0.05, ALE-PLE 0.05–0.08; MOQ length 0.23, front width 0.18, rear width 0.2. **Female:** Dimensions ($n=2$): there is great variability in size: total length 5.9–8.4; prosoma length 2.8–3.0, width 2.2–2.4; opisthosoma length 3.2–5.3, width 1.7–3.0;

femur II length 1.7–1.8. Eye sizes and interdistances: AME 0.08, ALE 0.1, PME 0.08, PLE 0.1; AME-AME 0.08, AME-ALE 0, PME-PME 0.05, PME-PLE 0.05, ALE-PLE 0.08; MOQ length 0.28, front width 0.2, rear width 0.24.

Prosoma oval, slightly compressed, anterior edge wide, posterior edge notched medially; bronze, with narrow dark marginal band. Anterior row of eyes slightly procurved, medians circular, laterals oval; posterior row procurved, medians oval, converging to rear. Two rows of eyes well separated. Clypeus rather wide. Chelicerae very strong, with small lateral condyle; chelicerae protrude from anterior edge of prosoma. Anterior cheliceral margin with three large teeth, middle tooth largest and pointed; posterior margin with two small teeth. Numerous long bristles cover dorsal and median surfaces of chelicerae. Fang long, slightly curved, strong at base, pointed at tip. Sternum orange, with narrow red marginal band, and long bristles radiating outwards. Legs long, strong, very bristly; dense scopulae on ventral surface of anterior tarsi and metatarsi; metatarsi I, II v2-1, p0. Abdomen black with red tints, densely covered with hairs and black bristles. Male with dorsal, anterior abdominal scutum, which is long and narrow. Anterior spinnerets strong, short, very bristly, well separated at base, each with 5–6 spigots. Male palp (Fig. 9) with retrolateral tibial apophysis sword-shaped, long, strong, apical part pointed and curved outwards. Intercalary sclerite small, medially situated. Embolar projection short, pointed, just reaching embolus, which is short, strong, pointed and slightly



Figs. 9–12: *Zelotes gallicus* Simon. **9** Left male palp, lateral view; **10** Ditto, ventral view; **11** Epigynum, ventral view; **12** Epigynum, dorsal view. Scale line = 0.2 mm.

curved inwards (Fig. 10). Epigyne (Figs. 11–12) characterised by two angular sclerotised plica near lateral epigynal margin, raised above epigynal plate. Median epigynal ducts large, slightly curved; paramedian epigynal ducts slender.

Distribution: Known from France (Simon, 1878, 1914; Denis, 1933, 1953, 1954, 1959, 1960, 1962, 1964), Spain (Pérez, 1985), Switzerland (Maurer, 1978), Italy (Caporiacco, 1936). The presence of this species in Denmark (Roewer, 1955) needs to be verified.

Biology: Not well known; Pérez reports specimens captured at Carrascal in the Spanish Pyrénées (1985).

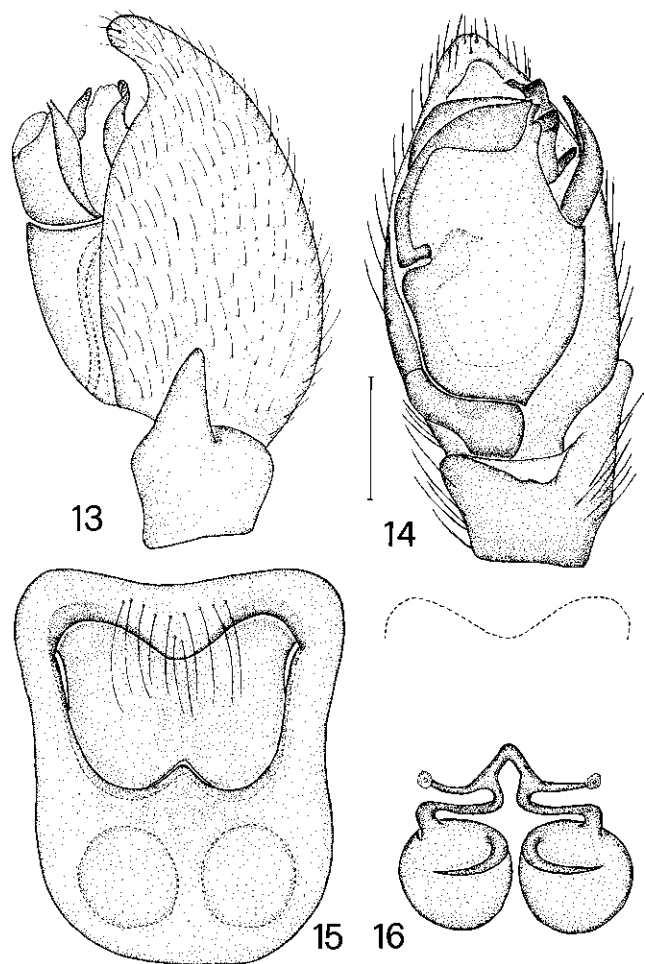
Zelotes labilis Simon, 1914 (Figs. 13–16)

Zelotes labilis Simon, 1914: 167, 219 (D♀); Hadjissarantos, 1940: 12, 82, 131, figs. 28–29 (♀, D♂); Jézéquel, 1962a: 529, fig. 15 (♀).

Material examined: ITALY: **Catania:** Nature Reserve "Oasis of Simeto": Saltwort area, plant community *Salicornietum radicans* Br.-Bl. 1993, 3–17 June 1994, 1♀ 1 juv.; 17 June–7 July 1994, 1♂.

Description: **Male:** Dimensions ($n=1$): total length 4.3; prosoma length 1.9, width 1.5; opisthosoma length 2.4, width 1.3; femur II length 1.0. Eye sizes and interdistances: AME 0.05, ALE 0.08, PME 0.06, PLE 0.06; AME-AME 0.17, AME-ALE 0.08, PME-PME 0.09, PME-PLP 0.05, ALE-PLP 0.08; MOQ length 0.2, front width 0.17, rear width 0.23. **Female:** Dimensions ($n=1$): total length 6.2; prosoma length 2.1, width 1.8; opisthosoma length 3.2, width 1.3; femur II length 1.3. Eye sizes and interdistances: AME 0.05, ALE 0.1, PME 0.08, PLE 0.08; AME-AME 0.18, AME-ALE 0, PME-PME 0.08, PME-PLP 0.03, ALE-PLP 0.05; MOQ length 0.25, front width 0.15, rear width 0.22.

Prosoma rectangular, wide and depressed; anterior edge wide, slightly concave, slightly broader than posterior, which is notched medially. Prosoma dark bronze, with narrow black marginal band; long bristles on posterior and lateral surfaces. Anterior row of eyes slightly procurved, eyes circular, medians on small tubercles; posterior row straight, eyes oval. Two rows of eyes well separated. Clypeus wide. Chelicerae long, strong, especially at base, with small lateral condyle; chelicerae protrude from anterior edge of prosoma. Anterior cheliceral margin with three large teeth, middle tooth largest and pointed; posterior margin with two small teeth. Numerous long bristles cover dorsal and median surfaces of chelicerae. Sternum orange, with dark marginal band, and long bristles radiating outwards. Legs long, slender, dark, with tarsi, metatarsi and medial surface of femur I lighter; anterior tarsi and metatarsi equal in length. Thin scopulae on ventral surface of anterior tarsi and metatarsi; metatarsi I and II without spines. Abdomen dark, densely covered with hairs and black bristles. Male with dorsal, anterior abdominal scutum, which is long and narrow. Anterior spinnerets long, well separated at base, each with 3–4 spigots. Male palp (Fig. 13) with retrolateral tibial apophysis short, strong, triangular. Embolus lateral, long, strong at base, narrowing and pointed at tip. Embolar projection large, laminar, slightly bent ventrally (Fig. 14). Epigyne (Fig. 15) with lateral and



Figs. 13–16: *Zelotes labilis* Simon. **13** Left male palp, lateral view; **14** Ditto, ventral view; **15** Epigynum, ventral view; **16** Epigynum, dorsal view. Scale line = 0.2 mm.

posterior epigynal margins M-shaped. Median epigynal ducts (Fig. 16) very thin, raised above and anterior to lateral part of spermathecae.

Distribution: Known from the eastern Pyrénées (Denis, 1933; Jézéquel, 1962a), Greece (Hadjissarantos, 1940) and Sicily (Di Franco, 1993).

Biology: The habitat preferences are unknown; in Sicily specimens have been collected in a rocky, grassy area and in a saltwort area.

Acknowledgements

I thank Mr J. Murphy and Prof. P. Alicata for advice and for revising the manuscript, the late and much missed Mrs J. Heurtault of the Muséum National d'Histoire Naturelle (MNHN) for lending material, and Prof. A. Messina for supporting this research.

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