

# Erythraeidae and Trombidiidae (Allothrombiinae) (Acari: Prostigmata) from Mallorca (Balearic Islands), with description of two new species.

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Descriptions of *Erythraeus (E.) picaforticus* nov. sp. and *Grandjeanella ainae* nov. sp. collected on Mallorca (Balearic Islands) are given. *Balaustium florale* Grandjean is new to the fauna of Spain and *Erythraeus (E.) southcotti* Goldarazena & Zhang, *E. (Z.) preciosus* Goldarazena & Zhang, *Allothrombium fuliginosum* (Hermann) and *A. monochaetum* Goldarazena & Zhang are new to the fauna of Balearic Islands.

**Keywords:** Acari, Erythraeidae, Trombidiidae, new species, faunistic, Balearic Islands.

ERYTHRAEIDAE I TROMBIDIIDAE (ALLOTHROMBIINAE) (ACARI: PROSTIGMATA) DE MALLORCA (ILLES BALEARS), AMB LA DESCRIPCIÓ DE DUES NOVES ESPÈCIES. Es descriuen dues noves espècies: *Erythraeus (E.) picaforticus* nov. sp. i *Grandjeanella ainae* nov. sp. de Mallorca (Illes Balears). *Balaustium florale* Grandjean és una cita nova per a la fauna d'Espanya i *Erythraeus (E.) southcotti* Goldarazena & Zhang, *E. (Z.) preciosus* Goldarazena & Zhang, *Allothrombium fuliginosum* (Hermann) i *A. monochaetum* Goldarazena & Zhang són noves per a la fauna de les Illes Balears.

**Paraules clau:** Acari, Erythraeidae, Trombidiidae, noves espècies, faunística, Illes Balears.

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## Introduction

Erythraeid mites based on larvae in Spain constantly weakly are known. To date only *Leptus akkus* Haitlinger, 1990, *L. mirennae* Haitlinger, 1994, *Grandjeanella multisetosa* Zhang & Goldarazena, 1996, *G. bella* Zhang, 1996, *G. haitlingeri* Goldarazena & Zhang, 1997, *Abrolophus neobrevicollis* Zhang & Goldarazena, 1996, *Erythraeus (Z.) lancifer* Southcott, 1995, *Charletonia blascoi* Southcott, 1993, *E. (E.) southcotti* Goldarazena & Zhang,

1998, *E. (E.) preciosus* Goldarazena & Zhang, 1998 in continental Spain were found (Haitlinger, 1990, 1994, Southcott, 1993a, 1995, Zhang & Goldarazena, 1996, Goldarazena & Zhang, 1997a, b, 1998). Moreover, from Canary Island are known: *Erythraeus (E.) tinnae* Haitlinger, 1997, *E. (Z.) fabiolae* Haitlinger, 1987 (Haitlinger, 1997). No erythraeid species are known from Balearic Island.

Also trombidiid mites based on larvae in Spain are very weakly known. To date from continental Spain are known: *Paratrombium wel-*

*bourni* Goldarazena & Zhang, 1997, *Allothrombium monochaetum* Goldarazena & Zhang, 1997, *A. trititium* Zhang, 1995, *A. pulvinum* Ewing, 1917 (Goldarazena & Zhang, 1997). Moreover, from Canary Island are known *Allothrombium amiraeli* Haitlinger, 1997 and belongs to Eutrombidiidae *Eutrombidium verdense* Southcott, 1993 (Southcott, 1993b, Haitlinger, 1997). No species are known from Balearic Islands.

In this paper two new erythraeid mites are described, one species is noted the first time for Spain and four species are noted the first time for Balearic Islands.

## Material and methods

53 larvae of mites and one deutonymph were collected from plants, in May and June, in various localities in Mallorca. Only one specimen was collected on unidentified Homoptera and one deutonymph on *Tarentola mauritanica* (Lacertilia: Gekkonidae).

Specimens were preserved in ethanol and mounted later in Berlese's medium. Holotypes of the new species are deposited in the Museum of Natural History, Wrocław University (MNH-WU). Paratype is in author's collection.

Measurements are expressed in micrometers ( $\mu\text{m}$ ). Abbreviations used in the text are explained in Haitlinger (1999).

Erythraeidae Robineau-Desvoidy, 1828

### *Erythraeus (Erythraeus) picaforticus* nov. sp.

Figs. 1-9

#### Diagnosis

Dorsal surface with 72 setae, NDV=96, PsGd distinctly longer than PsFd, TiI 156, TiIII 362. Ip 3034.

#### Description

Larva. Dorsum with 72 barbed setae. Two pairs of eyes; diameter of lens the same in all eyes (Fig. 1). Dorsal scutum with AL and PL barbed. Anterior sensillae (AM) about twice shorter than posterior sensillae (S), both with setules on

their 1/2 distal part. Two longitudinal lines in median part of scutum are present (Fig. 3).

Ventral surface of idiosoma with two sternalae 1a bearing some setules; setae 3a shorter also with setules. Behind coxae III 24 setae each with many setules. Coxalae I-III, all with short setules, coxalae 1b the longest (Fig. 2).

Gnathosoma (GL measured between basis capituli and tip of hypostomal lip) each with nude hypostomalae and galealae. Palpfemur and palpgenu each with one seta, both setulose. Palpgenua distinctly longer than palpfemorala. Palptibia with three barbed setae (Fig. 4). Palptarsus bears 7 setae (with solenidion); one of them is barbed. Eupathidium  $\zeta$  with spikes (Fig. 5).

Leg lengths. I 944, II 904, III 1186. Ip = 3034.

Leg setal formula. Leg I. Ta 1 $\omega$ , 2 $\zeta$ , 22B; Ti 2 $\phi$  + companion seta, 1 $\kappa$ , 11B; Ge 1 $\delta$ , 1 $\kappa$ , 8B; Tf 5B; Bf 2B; Tr 1B (Fig. 6).

Leg II. Ta 1 $\omega$ , 2 $\zeta$ , 21B; Ti 2 $\phi$ , 15B; Ge 1 $\kappa$ , 8B; Tf 5B; Bf 2B; Tr 1B (Fig. 7).

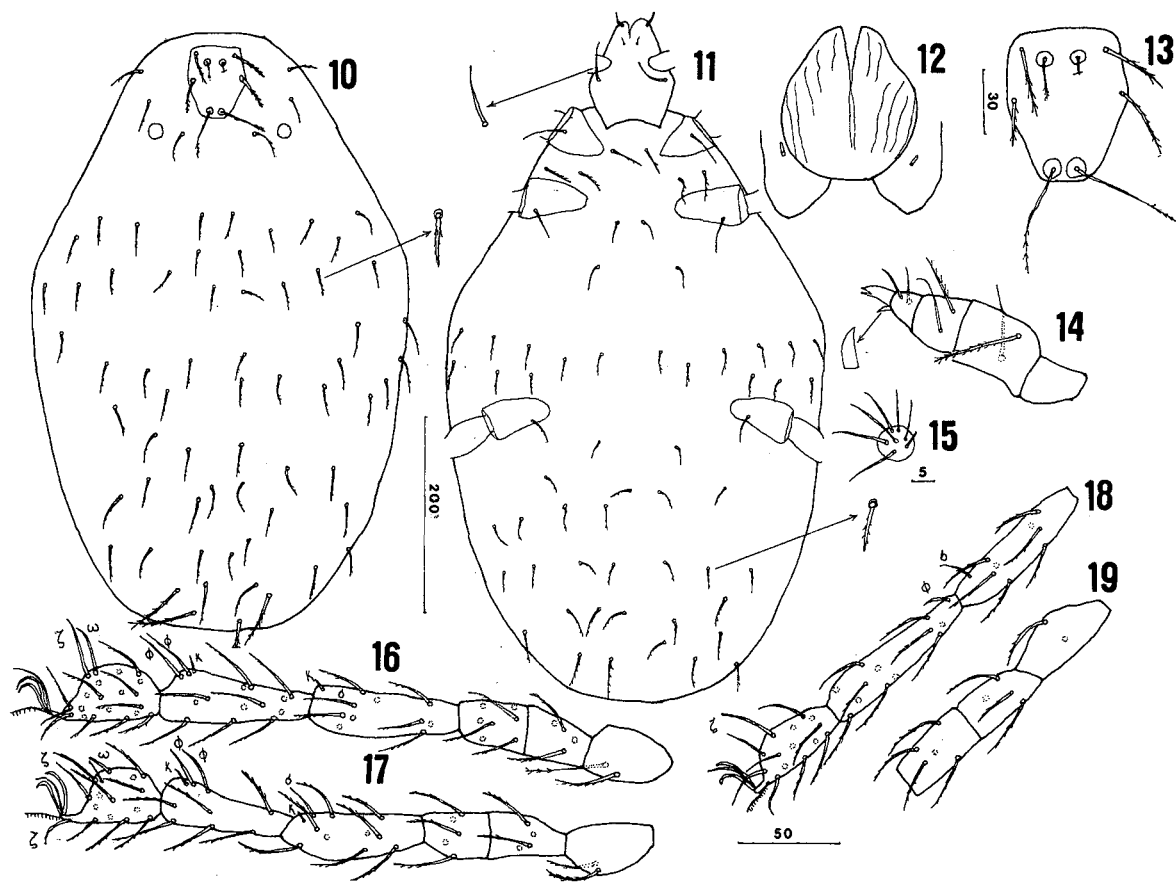
Leg III. Ta 1 $\zeta$ , 21B; Ti 1 $\phi$ , 14B; Ge 8B; Tf 5B; Bf 2B; Tr 1B (Fig. 8).

Measurements. IL 470, IW 370, AW 84, PW 136, AA 16, SB 24, LX 18, ASBa 38, ISD 56, L 120, W 190, AAS 38, AP 54, AL -, PL 84, AM 46, S 90, DS 60-76, eye plate 52, eye lens anterior 12, e. l. posterior 12, GL 174, 1a 64, sc1 40, coxala I 114, coxala II 53, coxala III broken, PsFd 60, PsGd 92, TaI(L) 156, TaI(H) 22, TiI 214, GeI 166, TfI 150, BfI 130, TrI 54, CxI 74, TaII(L) 142, TaII(H) 26, TiII 224, GeII 140, TfII 112, BfII 144, TrII 76, CxII 96, TaIII(L) 172, TaIII(H) 22, TiIII 362, GeIII 188, TfIII 156, BfIII 146, TrIII 74, CxIII 88.

Material examined: holotype: larva, Mallorca, Can Picafort 29 V 2002, from plants; leg. R. Haitlinger. MNHWU.

**Eymology.** Named according the place where the holotype was collected.

**Remarks.** This species is similar to *E. (E.) kresnensis* Beron, *E. (E.) southcotti* Goldarazena & Zhang, *E. (E.) sabrinae* Haitlinger & Saboori and *E. (E.) shojaii* Saboori & Babolmorad.



**Figs. 1-9.** *Erythraeus (Erythraeus) picaforti* nov. sp., larva. 1- idiosoma, dorsal view; 2 - idiosoma and gnathosoma, ventral view; 3 - scutum; 4 - palp, dorsal view; 5 - palptarsus; 6 - leg I, tarsus-trochanter; 7 - leg II, tarsus-trochanter; 8 - leg III, tarsus-telofemur; 9 - leg III, basifemur-trochanter.

**Figs. 1-9.** *Erythraeus (Erythraeus) picaforti* nov. sp., larva. 1- idiosoma, visió dorsal; 2 - idiosoma i gnatosoma, visió ventral; 3 - scutum; 4 - palp, visió dorsal; 5 - palptars; 6 - pota I, tars-trocànter; 7 - pota II, tars-trocànter; 8 - pota III, tars-telofémur; 9 - pota III, basifémur-trocànter.

From *E. (E.) kresnensis* it differs in longer AW (84 vs 58), PL (84 vs 63), S (90 vs 78), shorter SBa (16 vs 28), ISD (56 vs 75) and number of ventral setae fV (24 vs 16); from *E. (E.) southcottii* it differs in fV (24 vs 16), longer AW (84 vs 50-60), W (190 vs 118-148), PL (84 vs 62-70), GL (174 vs 120-156 own measurements) and TiIII (362 vs 244-308); from *E. (E.) sabrinae* in longer AW (84 vs 60), W (190 vs 132), PL (84 vs 70) and TiIII (362 vs 304); from *E. (E.) shojai* in longer AW (84 vs 58-61), GL (174 vs 138-143) and TiIII (362 vs 305-319).

***Erythraeus (Erythraeus) southcottii*** Goldarazena & Zhang, 1998

Material: Mallorca: 11, 28 V 2002, Port de Pollença, 21, 26 V 2002, Can Picafort, 31, 29 V 2002, Lluc, Coll de sa Bataia, 11, 30 V 2002, Can Gelat n. Porto Colom, 11, 31 V 2002, Can Xoret n. Felanitx, 121, 28 V 2002, Cala de Sant Vicenç, 21, 29 V 2002, Port Sóller, 11, 29 V 2002, Valldemossa, obtained from undetermined Aphidoidea (Homoptera).

This species was known only from Navarra and Aragón from Spain. It was obtained on *Therioaphis luteola* (Börner) (Homoptera, Aphidoidea, Callaphidiidae) and *Orius albipennis* Reuter (Heteroptera, Anthocoridae); larvae were captured in 24 June and 20 July (Goldarazena & Zhang, 1998). *E. (E.) southcottii* in Mallorca is very common. Total were captured 23 larvae, all in May and excluding of one specimen all were obtained from plants.

***Erythraeus (Zaracarus) preciosus*** Goldarazena & Zhang, 1998

Material: 11, 30 V 2002, Artà, 21, 28 V 2002, Cala de Sant Vicenç, 11, 1 VI 2002, Can Picafort.

This species was known only from Navarra and Aragón from Spain. It was obtained on *T. luteola* and *Aphis* sp. (Homoptera); larvae were captured on 20, 24 June and 19 July (Goldarazena & Zhang, 1998). *E. (Z.) preciosus* is probably common in Mallorca; all specimens were obtained from plants.

***Grandjeanella ainae*** sp. n.

Figs. 10-19

**Diagnosis**

fD = 63, fV = 29; fnTr 2-2-2, fnBFfe 4-4-4. fnTFe 7-5-5, fnGe 10-9-8, fnTi 12-12-12, fnTa 18-18-14, fSoI 0-1-2-1, II 0-1-2-1, III 0-1-1-0; fκI 1-1, II 1-1, III 0-0, fδ 2-2-2. Ip = 1105.

**Description**

Larva. Holotype larva. Dorsum with 63 barbed setae; setae near posterior border of idiosoma more than twice longer than anterior setae (Fig. 10). Scutum with two pairs of setae and two pairs of sensilla present. Posterior pair of sensilla (S) situated near the posterior edge of the scutum. AL and PL with setules. AL somewhat shorter than PL. Sensilla with fine barbs only on distal portion (Fig. 13). One pair of eyes present lateral to scutum. Two pairs of setae placed laterally to scutum and posterior to eyes.

Ventral surface of idiosoma with one pair of setae 1a between coxae I, two pairs of setae between coxae I and II, a pair of setae 2a between coxae II, 19 setae between coxae II and III and 29 setae posterior to coxae III. All ventral setae with setules except four setae beyond coxae II (Fig. 11). Coxalae I-II both ?nude, coxalae III barbed; coxalae I are the longest. NDV = 92.

Leg lengths (with coxae, without claws) I 360 holotype, 368 paratype; II 338, 350; III 406, 400. Ip = 1105, 1118.

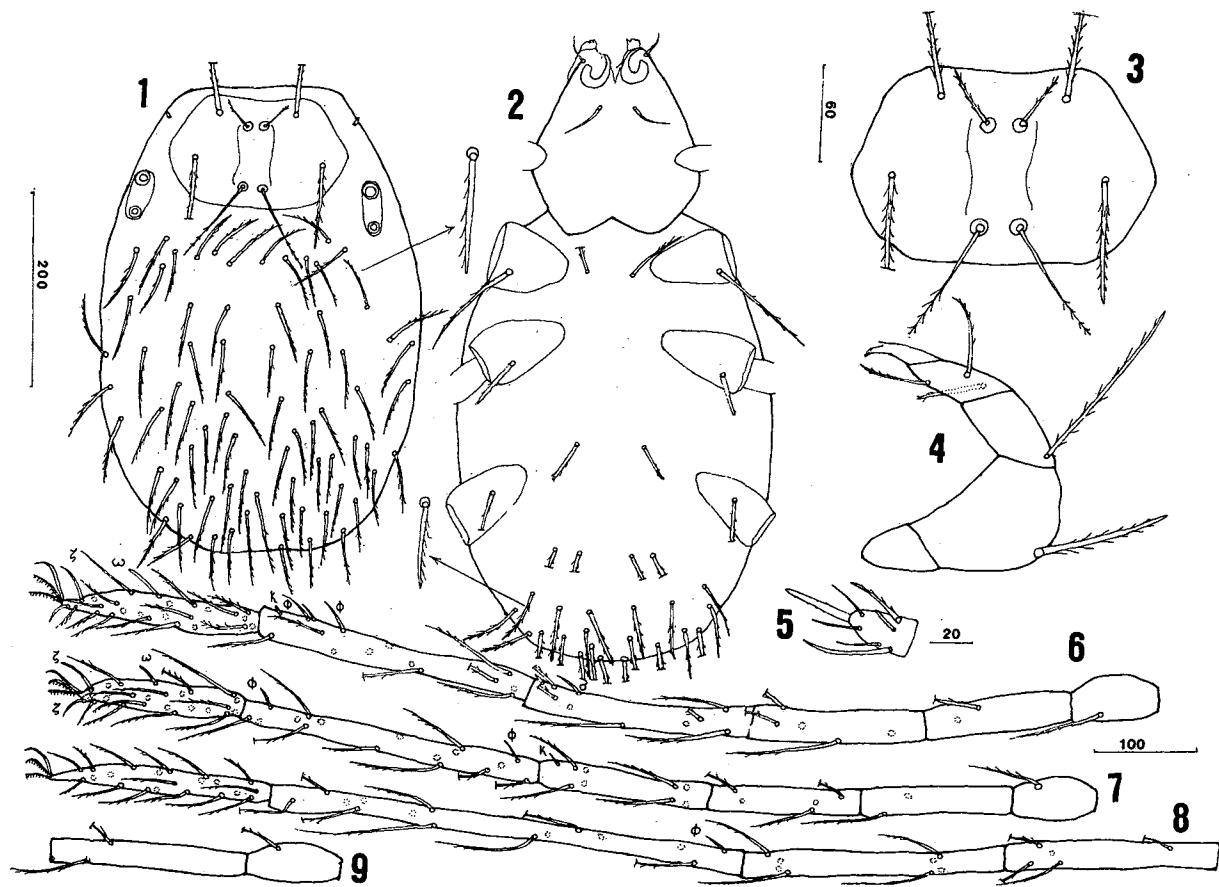
Leg setal formula. Leg I, Ta 1ω, 2ζ, 18B; Ti 2φ, 1κ, 12B; Ge 1δ, 1κ, 10B; Tf 7B; Bf 4B; Tr 2B (Fig 16).

Leg II. Ta 1ω, 2ζ, 12B; Ti 2φ, 1κ, 12B; Ge 1κ, 1δ, 9B; Tf 5B; Bf 4B; Tr 2B (Fig. 17).

Leg III. Ta 2ζ, 14B; Ti 1φ, 12B; Ge 1δ, 8B; Tf 5B; Bf 4B; Tr 2B (Figs 18, 19).

Gnathosoma short. Hypostomalae (sc1) ?nude, setae or1 and or2 nude. Palpfemur with two barbed setae. Chelicerae with longitudinal lines on dorsal surface (Fig. 12). Palptibial claw bifurcate. Accessory claw cone-shaped. Palpgenu and palptibia each with two barbed setae (Fig. 14). Palptarsus with 7 nude setae (Fig. 15).

Measurements. II. 590 holotype, 857 paratype, IW 381, 609, AW 40, 40, PW 54, 58, AA 16, 16, SB 12, 16, LX 10, 8, ASBa 18, 17,



**Figs. 10-19.** *Grandjeanella ainae* nov. sp., larva. 10 - idiosoma, dorsal view; 11 - idiosoma and gnathosoma, ventral view; 12 - chelicerae, dorsal view; 13 - scutum; 14 - palp, dorsal view; 15 - palptarsus; 16 - leg I, tarsus-trochanter; 17 - leg II, tarsus-trochanter; 18 - leg III, tarsus-genu; 19 - leg III, telfemur-trochanter.

**Figs. 10-19.** *Grandjeanella ainae* nov. sp., larva. 10 - idiosoma, visió dorsal; 11 - idiosoma i gnatosoma, visió ventral; 12 - quelícer, visió dorsal; 13 - scutum; 14 - palp, visió dorsal; 15 - palptars; 16 - pota I, tars-trocànter; 17 - pota II, tars-trocànter; 18 - pota III, tars-genu; 19 - pota III, telfémur-trocànter.

AM 26, 22, S 54, 48, ISD 48. 50, L 70, 72, W 62, 64, AAS 14, 18, AP 24, 24, AL 34, 30, PL 36, 32, DS 24-60, eye lens, 12, 12, GL 110, 106, 1a 26, 30, 2a 26, 30, sc1 38, 34, coxala I 42, 44, coxala II 34, 28, coxala III 28, 26, PsFd 38, 44, PsGd 26, 28, TaI(L) 50, 54, TaI(H) 30, 28, TiI 74, 68, GeI 72, 70, Tfi 36, 34, Bfi 42, 48, Tri 32, 34, Cxi 54, 60, TaII(L) 48, 48, TaII(H) 24, 24, TiII 62, 60, GeII 56, 60, TfiII 32, 32, BfiII 34, 38, TriII 40, 40, CxiII 66, 72, TaIII(L) 52, 48, TaIII(H) 22, 22, TiIII 84, 82, GeIII 72, 72, TfiIII 44, 46, BfiIII 44, 46, TriIII 46, 42, CxiIII 64, 67.

Material examined: holotype, larva; Mallorca, Can Picafort, 26 May 2002, from plants; leg. R. Haitlinger. MNHWU. Paratype: the same data as in holotype; in author's collection.

Etymology. The name of the species was derived from the name Aina.

Remarks. The new species belongs to the species group having posterior sensillary setae placed near posterior border of scutum. To this group belongs *G. bella* Zhang & Goldarazena, *G. multisetosa* Zhang & Goldarazena, *G. haitlingeri* Goldarazena & Zhang and *G. kamalii* Saboori & Atamehr. *G. ainae* n. sp. differs from *G. bella* by shorter AM (22-26 vs 52), PL (32-36 vs 45), W (62-64 vs 77) and TaI (50-54 vs 71); from *G. multisetosa* by the number of dorsal setae (63 vs 160), shorter PL (32-36 vs 38-43), TaIII (48-52 vs 66-72) and longer ISD (48-50 vs 31-37), from *G. haitlingeri* by shorter AW (40 vs 70), W (62-64 vs 86), AL (30-34 vs 54), PL (32-36 vs 67), TiI (68-74 vs 106) and smaller number of dorsal and ventral setae; from *G. kamalii* by shorter PL (32-36 vs 44-49), TaI (50-54 vs 74-77) and fewer number of dorsal setae (29 vs ~120).

***Balaustium florale*** Grandjean, 1947

Material. 19I, 29 V 2002, Luc de Sa Botaia, 11, 28 V 2002, Can Xoret n. Felatnix, 11, 29 V 2002, Port Sollier, 11, 26 V 2002.

This species was known only from Corsica (France) (Grandjean, 1947). In Mallorca is very common. Grandjean (1947) in his description of the species gave good illustration but without measurements. Therefore, are given standard

measurements below.

Measurements (n=22). IL 457-597, IW 305-413, AW 24-40, MW 36-44, PW 66-84, SBa 8-14, SBp 8-14, ASBa 6-16, AM 24-34, S 40-48, ISD 42-48, L 62-72, W 20-30, AAS 9-14, AP 32-42, AL 16-20, ML 16-20, PL 20-24, DS 18-30, eye 8-10, GL 74-92, pgl 24-30, 1a 34-38, 2a 24-26, coxala I 30-34, coxala II 24-34, coxala III 26-30, PsFd 30-36, PsGd 20-32, TaI(L) 52-56, TaI(H) 24-28, TiI 54-62, GeI 56-64, Tfi 32-40, Bfi 34-44, Tri 30-34, Cxi 46-56, TaII(L) 44-52, TaII(H) 20-26, TiII 44-50, GeII 44-50, TfiII 24-28, BfiII 26-34, TriII 24-30, CxiII 50-60, TaIII(L) 46-52, TaIII(H) 20-24, TiIII 54-64, GeIII 52-54, TfiIII 32-36, BfiIII 30-34, TriIII 28-34, CxiIII 48-54.

New species to fauna of Spain.

***Balaustium* sp.**

Single specimen (deutonymph) was obtained from *Tarentola mauritanica* (Lacertilia: Gekkonidae) in Picafort 27 V 2002.

This is the first record of *Balaustium* from reptiles. Larvae of this genus rarely were obtained on animals. *B. wratislaviensis* Haitlinger was recorded from *Talpa europaea* L., *Pipistrellus pipistrellus* (Schreber) and *Parus major* L. (Haitlinger, 1996).

The adults or deutonymphs sometimes attacks man (Newell, 1963). From other vertebrates has not been obtained.

***Allothrombium fuliginosum*** (Hermann, 1804)

Material. 1I, 29 V 2002, Lluç, Coll de sa Bataia.

Common species in Europe. In Spain was noted by Robaux (1967) (adults). This is the first record of *A. fuliginosum* from Balearic Islands.

***Allothrombium monochaetum*** Goldarazena & Zhang, 1997.

Material. 1I, 27 V 2002, Can Picafort.

Species known only from Navarra in Spain (Goldarazena & Zhang, 1997). This is the first record of *A. monochaetum* from Balearic Islands.

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