

TENUIPALPID MITES FROM NORTHERN IRAN AND DESCRIPTION OF THE MALE OF *CENOPALPUS RUBUSI* KHANJANI 2012

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ABSTRACT — The Tenuipalpidae are small, slow-moving, flat, red or green phytophagous mites that, despite the economic importance of some species, has been studied much less than the Tetranychidae. They have a great number of host plants including cultivated plants, ornamentals, fruit crops and forest trees. The aim of this study was to determine the species composition of tenuipalpid mites in the northern part of Iran, Mazandaran province. More than 150 plant species belonging to 41 families were inspected for possible infestation with tenuipalpid mites, among which 28 plant species were infested. Most of the infested plants are new records for the respective mite species. A total of 14 species of tenuipalpid mites belonging to five genera were collected and identified. Though citrus is the major fruit crop grown in Mazandaran province, flat spider mites were not yet reported from it in this area. In addition to this faunistic study, a male of *Cenopalpus rubusi*, which was collected on *Rubus persicus* Boiss., is described for the first time.

KEYWORDS — False spider mite; host plant; faunistic; male

INTRODUCTION

Mites of the family Tenuipalpidae (Order: Trombidiformes), commonly known as flat mites, are world-wide in distribution. Some of them are plant feeders of considerable economic importance especially a few species are injurious to citrus, tea, grapes and ornamentals (Jeppson *et al.*, 1975). About 1,100 species of tenuipalpids belonging to 38 genera have been described in this family (Mesa *et al.*, 2009; Beard *et al.*, 2013). These mites transmitted serious plant viruses in citrus, coffee, orchids and several woody ornamental plants (Chagas *et al.*, 2003; Childers *et al.*, 2003). Despite the economic impor-

tance of the family Tenuipalpidae, these mites have been studied much less than the Tetranychidae and Phytoseiidae in Iran (Rahmani *et al.*, 2008).

Reviewing literature revealed that up to now about 65 species of tenuipalpid mites belonging to 9 genera were reported from Iran (Beyzavi *et al.*, 2013; Khanjani *et al.*, 2013a). Tenuipalpid surveys were not yet studied in the Mazandaran province. Therefore, the major objective of this study was to determine the tenuipalpid species occurring in this region.

MATERIALS AND METHODS

Infested leaves from several plant species in the Mazandaran Province were collected and those of each plant separately bagged in plastic bags and transferred to the laboratory on the same day. The leaves were carefully examined under a stereomicroscope to collecting false spider mites. The mites were removed from the infested plant leaves with a fine camel hair brush, preserved in 75 % ethanol, cleared in Nesbitt's fluid and mounted in Hoyer's medium. The slides were then dried in an oven at about 45-50 °C for two weeks and then sealed with nail polish prior to examination. Mites were examined and drawn with a Nikon E600 research microscope equipped with a camera Lucida. Keys of Meyer (1979) and Khanjani *et al.* (2008; 2012a, b; 2013b) were used for the identification of species. Some specimens were sent to Drs. M. Khanjani (co-author) and E.A. Ueckermann of the ARC-Plant Protection Research Institute, Pretoria, South Africa for identification or species confirmation. Voucher specimens are deposited in the Acarological Collection at Sari Agricultural Sciences and Natural Resources University, Sari, Iran.

Setal notations used in the description of the male of *Cenopalpus rubusi* follows Lindquist (1985) and Mesa *et al.* (2009) as applied to the Tenuipalpidae in Khanjani *et al.* (2012b). Setae are measured from their insertion to their tips and the distances between setae represent the distances between their insertions. All measurements are given in micrometers (µm). Microsoft office 2007 was used to clean the figures.

RESULTS AND DISCUSSION

Genus *Aegyptobia* Sayed, 1950

Aegyptobia beglarovi

Livschitz and Mitrofanov, 1967

Aegyptobia meyeri Khosrowshahi and Arbabi, 1997: 32. *Aegyptobia kharazii* Mesa *et al.*, 2009: 15.

Distribution — worldwide especially: Egypt, Greece, Iran, Iraq, Mexico, United Arab Emirates and USA.

Specimens examined and associations — Sari (Sari Agricultural Sciences and Natural Resources University Campus): 36°39'N, 53°04'E, -10 m a.s.l. (Meters above sea level), 20 Feb. 2011 – 19 ♀♀ on *Thuja orientalis* L. (Cupressaceae).

Previous records from Iran — Tehran, Tehran province (Khosrowshahi and Arbabi, 1997); Mazandaran and Khuzestan Provinces (Kamali *et al.*, 2001); Mashhad, Razavi Khorasan province (Sadeghi Namaghi, 2010); Khabr, Kerman Province (Khanjani *et al.*, 2013a); Sanandaj, Kurdistan Province (Khanjani *et al.*, 2012a).

Comments — This species was described as *Aegyptobia meyeri* Khosrowshahi and Arbabi, 1997 which had been preoccupied by the species described by Hatzinikolis and Panou, 1996. Therefore it was changed into *A. kharazii* (Mesa *et al.*, 2009) and recently *A. kharazii* was considered as a junior synonym of *A. beglarovi* (Khanjani *et al.*, 2012a). The host plant *T. orientalis* is a new record (Mesa *et al.*, 2009).

Genus *Brevipalpus* Donnadieu, 1875

Brevipalpus californicus

Banks, 1904

Brevipalpus browningi Baker, 1949: 382. *Brevipalpus confusus* Baker, 1949: 380. *Brevipalpus woglumi* McGregor, 1949: 19. *Tenuipalpus vitis* Womersley, 1940: 241. *Tenuipalpus australis* Tucker, 1926: 3. *Tenuipalpus californicus* Banks, 1904: 55.

Distribution — Algeria, Angola, Australia, Brazil, Congo, Cyprus, Egypt, European Union, French Guiana, Greece, India, Israel, Italy, Japan, Libya, Malaysia, Mauritania, Mexico, Mozambique, Nepal, Papua New Guinea, Portugal, Senegal, Sri Lanka, South Africa, Thailand, United States and Zimbabwe.

Specimens examined and associations — Sari (Darab kola forest): 36°32'N, 53°16'E, 216 m a.s.l., 9 Oct. 2010 – 2 ♀♀ on *Alnus subcordata* C. A. Mey. (Betulaceae); Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 8 Sept. 2011 – 4 ♀♀ and 1 ♂ on *Rubus persicus* Boiss. (Rosaceae); 4 ♀♀ and 3 Deutonymphs on *Chrysanthemum coronarium* L. (Asteraceae); 4 ♀♀ on *Salix alba* L. (Salicaceae).

Previous records from Iran — This is the first record of this species from Iran.

Comments — The host plants: *A. subcordata*, *R. persicus*, *C. coronarium* and *S. alba* are new records for *B. californicus* (Childers *et al.*, 2003; Beard *et al.*, 2013).

Brevipalpus lewisi
McGregor 1949

Specimens examined and associations — Sari (Darab kola forest): 36°32'N, 53°16'E, 216 m a.s.l., 9 Oct. 2010 – 1 ♀ on *Alnus subcordata* C. A. Mey. (Betulaceae); Juybar county (Juybar): 36°38'N, 52°54'E, -8 m a.s.l., 1 Sept. 2011 – 4 ♀♀ and 2 Deutonymphs on *Campsis grandiflora* (Thunb.) (Bignoniaceae); Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 8 Sept. 2011 – 4 ♀♀ and 1 Deutonymph on *Actinidia deliciosa* (Chev.) C.F.Liang et Ferguson (Actinidiaceae); 1 ♀ and 1 Deutonymph on *Salix alba* (Salicaceae).

Previous records from Iran — Khorramabad, Lorestan Province (Khosrowshahi and Arbabi 1997); Tehran, Guilan, Mazandaran and Azarbaijan Provinces (Kamali *et al.* 2001); Kerman, Kerman Province; Jiroft (Dalfard and Karimabad), Kerman Province (Khanjani *et al.*, 2013a).

Comments — The host plants: *A. subcordata*, *C. grandiflora* and *S. alba* are new records for *B. lewisi* (Beard *et al.*, 2013).

Brevipalpus obovatus
Donnadieu, 1875

Brevipalpus pereger Donnadieu, 1875: 117. *Brevipalpus amicus* Chaudhri, 1972: 65. *Brevipalpus assamensis* Sadana and Gupta, 1983: 1. *Brevipalpus origanum* Baker, Tuttle and Abbatiello, 1975: 18. *Tenuipalpus bioculatus* McGregor, 1914: 354. *Tenuipalpus inornatus* Banks, 1912: 97. *Tenuipalpus pseudocuneatus* Blanchard, 1940: 11.

Distribution — Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Costa Rica, Democratic Republic of Congo, Ecuador, France, Germany, Hungary, India, Iran, Israel, Italy, Jamaica, Japan, Korea, Mauritius, Mexico, Pakistan, Papua New Guinea, Thailand, The Philippines, South Africa, Taiwan, USA, Venezuela.

Specimens examined and associations — Babol: 36°32'N, 54°41'E, -2 m a.s.l., 17 Oct. 2010 – 5 ♀♀ and 1 Deutonymph on *Prunus cerasus* L. (Rosaceae); Sari (Darabkola forest): 36°32'N, 53°16'E, 216 m a.s.l., 9 Oct. 2010 – 10 ♀♀ on *Alnus subcordata* Mey (Betulaceae); Ramsar: 36°47'N, 50°32'E, 20 m a.s.l., 27 May 2011 – 1 ♀ on *Pyrus communis* L. (Rosaceae); Chalus: 36°38'N, 50°25'E, 33 m a.s.l., 28 July 2011 – 6 ♀♀ on *Erythrina crista-galli* L. (Papilionaceae); Noor: 36°34'N, 52°00'E, -19 m a.s.l., 28 July 2011 – 8 ♀♀ on *Campsis grandiflora* (Thumb.) Loisel (Bignoniaceae); Noor (Anar jar village): 36°30'N, 51°58'E, 53 m a.s.l., 4 Aug. 2011 – 3 ♀♀ on *Smilax excels* L. (Liliaceae); Juybar: 36°38'N, 52°54'E, -8 m a.s.l., 1 Sept. 2011 – 5 ♀♀, 2 ♂♂ and 2 Deutonymphs on *Campsis grandiflora*; Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 8 Sept. 2011 – 8 ♀♀, 1 ♂ and 1 Deutonymph on *Campsis grandiflora*, 2 ♀♀ and 1 Deutonymph on *Chrysanthemum coronarium* L. (Asteraceae), 2 ♀♀ on *Rubus persicus* Boiss.; Sari (Sari University of Agricultural Sciences and Natural Resources Campus): 36°39'N, 53°04'E, -10 m a.s.l., 16 Dec. 2011 – 2 ♀♀ on *Borago officinalis* L. (Boraginaceae).

Previous records from Iran — Guilan, Mazandaran and Tehran Provinces (Kamali *et al.*, 2001); Hamedan (Abhendo village), Hamedan Province (Khanjani *et al.*, 2013a).

Comments — The host plants: *P. cerasus*, *A. subcordata*, *E. crista-galli*, *C. grandiflora*, *S. excels*, *R. persicus*, *B. officinalis* are new records for *B. obovatus* (Childers *et al.*, 2003; Beard *et al.*, 2013).

Genus *Cenopalpus* Pritchard and Baker, 1958

Cenopalpus bakeri
Düzgünes, 1967

Cenopalpus bakeri Düzgünes, 1967: 91. *Brevipalpus bakeri* Meyer 1979: 84. *Brevipalpus bakeriana* Ghai and Shenhmar, 1984: 127. *Cenopalpus bakeri* Hatzinikolis and Emmanouel, 1987: 18.

Distribution — Iran, Turkey.

Specimens examined and associations — Sari (Goharbaran): 36°49'N, 53°32'E, -22 m a.s.l., 19 Oct. 2010 – 4 ♀♀ on *Juglans regia* L. (Juglandaceae); Sari (Mahforooz Mahalle village): 36°40'N, 53°05'E, -5

m a.s.l., 19 Nov. 2010 – 22 ♀♀ and 1 Deutonymph on *Eriobotrya japonica*; Sari (Badeleh): 36°34'N, 52°11'E, 27 m a.s.l., 7 Dec. 2010 – 30 ♀♀ on *Crataegus microphylla* C. Koch (Rosaceae), 7 ♀♀ on *Cydonia oblonga* Mill. (Rosaceae); Ghaemshahr: 36°28'N, 52°51'E, 49 m a.s.l., 26 October 2010 – 12 ♀♀ on *Eriobotrya japonica* Lindl. (Rosaceae), – 4 ♀♀ on *Diospyros kaki* L. (Ebenaceae); Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 9 Sept. 2011 – 7 ♀♀ and 1 Deutonymph on *Eriobotrya japonica*, 9 ♀♀, 1 Deutonymph and 1 Larva on *Malus domestica* Borkh (Rosaceae); Behshahr county (Galugah): 36°42'N, 53°45'E, 62 m a.s.l., 30 June 2011 – 5 ♀♀ and 1 Deutonymph on *Cydonia oblonga*, 3 ♀♀ on *Crataegus microphylla*; Chalus county (Kushksara village): 36°37'N, 50°27'E, 66 m a.s.l., 28 July 2011 – 4 ♀♀ and 4 Deutonymphs on *Crataegus microphylla*. Ramsar: 36°32'N, 50°30'E, 20 m a.s.l., 27 May 2011 – 2 ♀♀ and 2 Deutonymph on *Pyrus communis* L.

Previous records from Iran — Shahriyar, Tehran Province (Khalil manesh 1351; Sepasgozariyan 1356), Tabriz, East Azarbaijan Province; Heyran, Ardabil Province; Hamedan, Hamedan Province (Khanjani *et al.* 2012b) Mazandaran and Tehran Provinces (Kamali *et al.*, 2001).

Comments — The host plants: *J. regia*, *E. japonica*, *Diospyros kaki*, *P. communis* are new records for *C. bakeri* (Khanjani *et al.*, 2013a).

Cenopalpus lanceolatisetae
Attiah, 1956

Brevipalpus lanceolatisetae Attiah, 1956: 436. *Cenopalpus lanceolatisetae* Pritchard and Baker, 1958: 192. *Brevipalpus lanceolatisetae* Meyer, 1979: 92. *Cenopalpus lanceolatisetae* Zaher, 1984: 59.

Distribution — Cyprus, Egypt, England, Greece, Iran, Jordan, Lebanon, Libya, Portugal.

Specimens examined and associations — Chalus county (Kushksara village): 36°39'N, 51°24'E, 20 m a.s.l., 28 July 2011 – 8 ♀♀, 2 ♂♂ and 3 Deutonymphs on *Alnus subcordata* Mey. (Betulaceae).

Previous records from Iran — Banmazaran and Shalan villages, Kermanshah Province; Baba Pir-Ahmad, Chahar Mahal va Bakhtiari Province (Khanjani *et al.* 2012b); Isfahan, Fars, Guilan,

Khuzestan and Tehran Provinces (Kamali *et al.* 2001).

Comments — This is the first report of *C. lanceolatisetae* from Mazandaran province and the host plant *A. subcordata* is a new record for it (Khanjani *et al.*, 2013a).

Cenopalpus irani
Dosse, 1971

Cenopalpus irani Dosse, 1971: 579; *Brevipalpus irani* Meyer, 1979: 84. *Cenopalpus irani* Khosrowshahi and Arbabi 1997: 13; Khanjani *et al.* 2012b: 28.

Distribution — Iran.

Specimens examined and associations — Sari (Badeleh, Faculty of Natural Resources Campus), 36°34'N, 53°11'E, 29 m a.s.l., 7 Dec. 2010 – 20 ♀♀, 1 ♂ and 4 Deutonymphs on *Carpinus betulus* L. (Betulaceae).

Previous records from Iran — Tehran Province (Tehran), Fars Provinces (Shiraz) (Khosrowshahi and Arbabi, 1997); Kerman Province. Kerman (Mehrnejad and Ueckermann 2001), Hamedan, Kermanshah and Kurdistan Provinces (Khanjani *et al.*, 2013a).

Comments — This species is widely distributed in Iran (Kamali *et al.*, 2001). This is the first report of *C. irani* from Mazandaran province and the host plant, *C. betulus* is a new record for this species (Beyzavi *et al.*, 2013).

Cenopalpus crataegi
Dosse, 1971

Cenopalpus crataegi Dosse, 1971: 580. *Brevipalpus crataegi* Meyer, 1979: 84; *Cenopalpus crataegi* Khosrowshahi and Arbabi 1997: 16; Khanjani *et al.* 2012b: 49.

Distribution — Iran.

Specimens examined and associations — Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 9 Sept. 2011 – 4 ♀♀ and 1 Deutonymph on *Eriobotrya japonica* Lindl. (Rosaceae).

Previous records from Iran — Karaj, Alborz Province (Khosrowshahi and Arbabi, 1997); Hamedan, Hamedan Province (Khanjani *et al.* 2012b).

Comments — This is the first report of *C. crataegi* for Mazandaran province and the host plant *E. japonica* is a new record for it.

Cenopalpus abaii

Khosrowshahi and Arbabi, 1997

Cenopalpus abaii Khosrowshahi and Arbabi, 1997: 7.
Cenopalpus abaii Khanjani *et al.*, 2012b: 39.

Distribution — Iran.

Specimens examined and associations — Sari (Shahid zare forest park): 36°33'N, 53°08'E, 70 m a.s.l., 4 June 2011 – 3 ♀♀, on *Quercus castaneifolia* May. (Fagaceae).

Previous records from Iran — Kazeron, Fars Province (Khosrowshahi and Arbabi, 1997; Kamali *et al.*, 2001).

Comments — This is a new report of *C. abaii* in Mazandaran province and the second record for Iranian tenuipalpid fauna.

Cenopalpus meyeræ

Khosrowshahi, 1991

Cenopalpus meyeræ Khosrowshahi, 1991: 6.

Cenopalpus meyeræ Khosrowshahi and Arbabi 1997: 15.

Distribution — Iran.

Specimens examined and associations — Sari (Shahid zare forest park): 36°33'N, 53°08'E, 70 m a.s.l., 4 June 2011 – 3 ♀♀, on *Quercus castaneifolia* C. A. May (Fagaceae); Sari(Goharbaran): 36°49'N, 53°32'E, -22 m a.s.l., 19 Oct. 2010 – 3 ♀♀ on *Juglans regia* L. (Juglandaceae); Sari: 36°34'N, 53°04'E. 30 m a.s.l., 30 June 2011 – 6 ♀♀ on *Cydonia oblonga* Mill. (Rosaceae)

Previous records from Iran — Tehran, Tehran province (Khosrowshahi and Arbabi 1997); Fariman and Mashhad, Razavi Khorasan (Sadeghi Namaghi, 2010).

Comments — This is the first report of *C. meyeræ* in Mazandaran province. The host plants: *Q. castaneifolia*, *J. regia* and *C. oblonga* are new records for *C. meyeræ*.

Cenopalpus rubusi

Khanjani, 2012

Cenopalpus rubusi Khanjani, 2012: 3.

Specimens examined and associations — Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 9 Sept. 2011 – 1 ♀ on *Rubus persicus* Boiss. (Rosaceae); Sari (Sari University of Agricultural Sciences and Natural Resources Campus): 36°39'N, 53°04'E, -12 m a.s.l., 18 Nov. 2010 and 19 May 2011 – 12 ♀♀, 1♂ and 6 Deutonymphs on *Rubus persicus*; Neka county (Hezar jerib), 36°35'N, 53°19'E, 234 m a.s.l., 22 October 2010 – 11 ♀♀ and 5 Deutonymphs on *Rubus persicus*.

Distribution — Iran.

Previous records from Iran — Angozhan village, Sanandaj, Kurdistan Province (Khanjani *et al.*, 2012b).

Comments — This is the first report of *C. rubusi* in Mazandaran province and the second report for the Iranian tenuipalpid mite fauna. The male of *C. rubusi* is described for the first time as follows:

Male — (n = 1) (Figures 1-2). Color in life is red. Length of body (excluding gnathosoma) 202; (including gnathosoma) 245; width (*sc2-sc2*) 102; length of leg I 133; leg II 105; leg III 116; leg IV 118.

Dorsum (Figure 1a) — The rostral shield with 2 medial lobes. Propodosoma with irregular small reticulations medially and irregular areolae sculpturing laterally. Sejugal furrow distinct; opisthosoma divided into 2 parts by transverse striae; metapodosoma ornamented with irregular small reticulations medially, opisthosoma with small areolae medially and irregular areolae laterally; pores absent. All dorsal setae lanceolate laterally barbed (Fig. 1a). Lengths of dorsal setae as follows: *v2* 28, *sc1* 35, *sc2* 25, *c1* 19, *c2* 26, *c3* 20, *d1* 16, *d3* 28, *e1* 9, *e3* 25, *f2* 16, *f3* 20, *h1* 15, *h2* 6; distances between dorsal setae: *v2-v2* 29, *v2-sc1* 22, *sc1-sc1* 67, *sc2-sc2* 102, *sc1-sc2* 25, *c1-c1* 38, *c1-c2* 28, *c2-c3* 7, *c2-c2* 93, *c3-c3* 107, *c1-d1* 26, *c3-d3* 31, *d1-d1* 42, *d1-d3* 32, *d3-d3* 106, *d1-e1* 27, *e1-e1* 27, *e1-e3* 35, *e3-e3* 92, *e3-f2* 27, *f2-f2* 73, *f2-f3* 17, *f3-f3* 51, *f3-h2* 21, *h1-h1* 4, *h1-h2* 8, *h2-h2* 26, *e1-h1* 73, *d3-e3* 35.

Venter (Figure 1b) — Venter of propodosoma and area between 3*a* and 4*a* smooth, metapodoso-

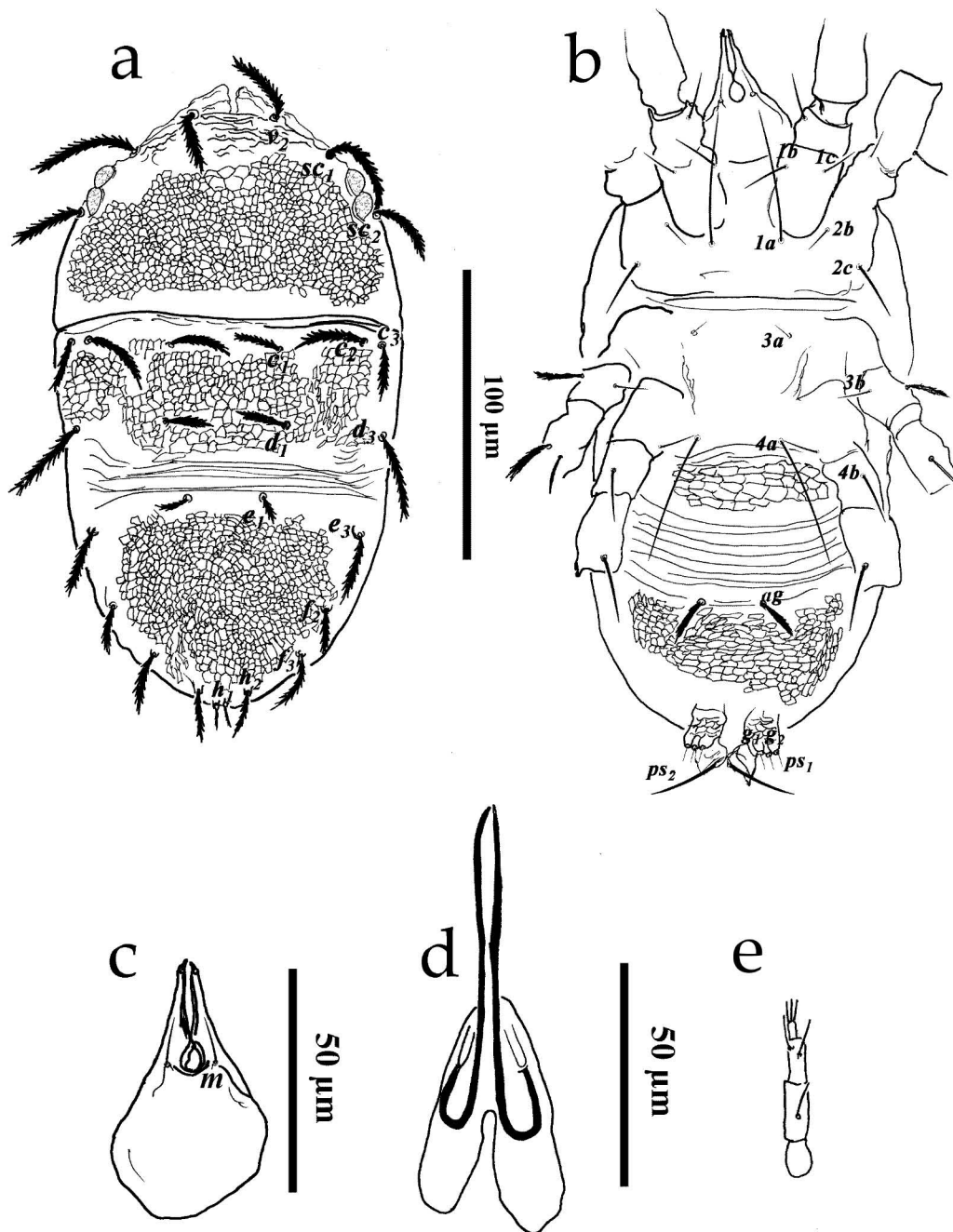


FIGURE 1: *Cenopalpus rubusi* Khanjani (male): a – Dorsum; b – Venter; c – Subcapitulum; d – Chelicerae; e – Palp.

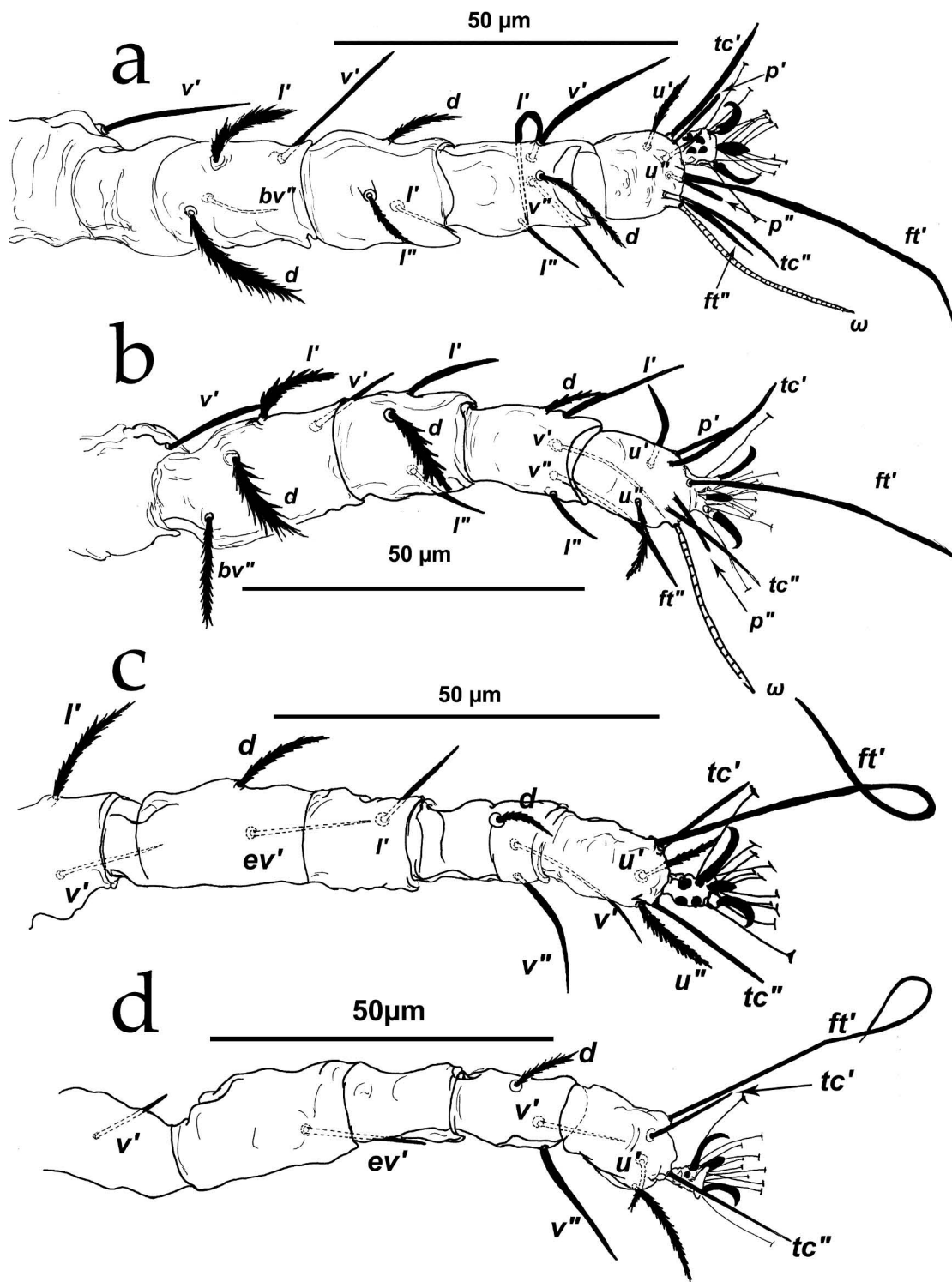


FIGURE 2: *Cenopalpus rubusi* Khanjani (male): a – Leg I; b – Leg II; c – Leg III; d – Leg IV.

mal area between 4a and ag reticulate anteriorly and with broad transverse striae posteriorly. Venter of opisthosoma reticulate medially and areolate laterally (Figure 1b); lengths of setae *la* 46, *1b* 20, *1c* 12, *2b* 14, *2c* 23, *3a* 9, *3b* 7, *4a* 67, and *4b* 12. Setae *1a* and *4a* long. Aggenital setae (*ag*) 14, longer than genital setae (*g*₁₋₂); setae *g*₁ 5, *g*₂ 5, *ps*₁ 5, *ps*₂ 20. Distances between genital area setae: *ag-ag* 21, *g*_{1-g}₁ 31, *g*_{2-g}₂ 26, *ps*_{1-ps}₁ 19, *ps*_{2-ps}₂ 12.

Gnathosoma (Figure 1c) — Similar to adult female. Subcapitulum with seta *m* 10, distance *m-m* 10. Chelicerae as in Figure 1d.

Legs (Figures 2) — Legs similar to adult female and shorter than idiosoma, Setal formulae of leg segments as follows: coxae 2-2-1-1; trochanters 1-1-2-1; femora 4-4-2-1; genua 3-3-1-0; tibiae 5-5-3-3; tarsi 9 (1 ω) – 9 (1 ω) – 5-5. Dorsal seta distinctly serrated (figs. 2). Tarsi I and II with solenidia I ω 31 and II ω 28 (Figures 2a-b).

Genus *Pentamerismus* McGregor, 1949

Pentamerismus oregonensis
McGregor, 1949

Oligomerismus oregonensis Gutierrez, Kreiter, Bolland and Cotton, 1989: 53-54.

Distribution — USA, Iran.

Specimens examined and associations — Sari (Badeleh, Faculty of Natural Resources Campus): 36°34'N, 53°11'E, 29 m a.s.l., 7 Dec. 2010 – 18♀♀, on *Juniperus communis* L. (Cupressaceae); Sari (Sari University of Agricultural Sciences and Natural Resources Campus): 36°39'N, 53°04'E, -10 m a.s.l., 23 Feb. 2011 – 6♀♀ on *Juniperus horizontalis* Moench; Sari (Baharestan Orchards): 36°35'N, 53°05'E, 28 m a.s.l., 2 June 2011 – 12♀♀ on *Thuja orientalis* L. (Cupressaceae); Tonekabon: 36°48'N, 50°52'E, -18 m a.s.l., 21 July 2011 – 5♀♀ on *Juniperus communis* L., Savadkuh county (Shirgah): 36°19'N, 52°50'E, 236 m a.s.l., 9 Sept. 2011 – 14♀♀ on *Thuja orientalis* L. and 1♀ on *Chrysanthemum coronarium*; Fereydunkenar: 36°41'N, 52°31'E, -26 m a.s.l., 18 Aug. 2011 – 6♀♀ on *Thuja orientalis* L.

Previous records from Iran — Mazandaran Province (Kamali *et al.*, 2001).

Comments — The host plants *C. coronarium*, *J. horizontalis* and *T. orientalis* are new records for *P. oregonensis*.

Pentamerismus ueckermanni
Khanjani and Gotoh, 2008

Distribution — Iran.

Previous records from Iran — Behshahr, Mazandaran Province (Khanjani and Gotoh 2008).

Specimens examined and associations — Tonekabon: 36°48'N, 50°52'E, -18 m a.s.l., 21 July 2011 – 4♀♀ on *Juniperus communis* L. (Cupressaceae).

Genus *Tenuipalpus* Donnadieu

Tenuipalpus punicae
Pritchard and Baker, 1958

Tenuipalpus punicae Pritchard and Baker, 1958: 240.
Tenuipalpus punicae Khosrowshahi and Arbabi 1997: 38; Khanjani *et al.* 2013a: 119.

Distribution — Iran, India, Iraq, Israel, Jordan, Spain, U.S.S.R.

Specimens examined and associations — Sari (Mahforooz Mahalleh village): 36°40'N, 53°05'E, -5 m a.s.l., 19 Nov. 2010 – 6♀♀ on *Punica granatum* L. (Punicaceae); Sari (Darab kola forest): 36°32'N, 53°16'E, 216 m a.s.l., 9 Oct. 2010 – 17♀♀, 1♂ on *Punica granatum*.

Previous records from Iran — generally distributed (Kamali *et al.* 2001); Shalan, Banmazaran and Zhalakeh, Kermanshah Province; Dalfard, Jiroft, Kerman Province (Khanjani *et al.* 2013a).

Comments — This mite is a serious pest of Pomegranate in Iran.

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