J. Crop Prot. 2013, 2 (1): 63-73 _____

A new species of Laelapidae (Acari: Mesostigmata) from Iran

Ali Reza Nemati[1]* and Mohammad Reza Kavianpour[2]

1. Department of Plant Protection, Agricultural College, Shahrekord University, Shahrekord, Iran.
2. Department of Plant Protection, Faculty of Agriculture, Shahid Chamran University of Ahvaz, Iran.

Abstract: Soil-dwelling mites and among them Gamasina (Acari, Mesostigmata) are widely distributed in soils, rich in species and have great ecological significance in the respective ecosystems. A survey was conducted to study Laelapidae (Mesostigmata) mites in Ahwaz (Khuzestan province), Iran during 2010-2012. Samples were taken from soil and litters and then mites extracted using Berlese funnel, cleared in lactic acid and mounted in Hoyer's medium. Among some species of this family, *Gaeolaelaps jondishapouri* n. sp., collected from soil is described and illustrated. *G. jondishapouri* n. sp. is characterized by dorsal shield with 39 pairs of setae (including *Px2-3*), *r6* and *R1-6* being off dorsal shield on soft lateral cuticle; posterior part of dorsal shield with abrupt contraction between S4 and S5 setae; *st1* on weakly sclerotized pre-sternal area out of sternal shield, *iv1-2* slit-like. A key to the adult females of the species of *Gaeolaelaps* with abrupt constriction in dorsal shield (Karg's *angusta* species group) is provided.

Keywords: *Gaeolaelaps*, Iran, Laelapidae, mite

Introduction

The laelapid mites are found in several habitats as free-living predators or associated with vertebrates and invertebrates (Faraji and Halliday, 2009; Hyatt, 1964; Ryke, 1963; Strong and Halliday, 1994; Walter and Oliver, 1989). *Gaeolaelaps* Evans & Till 1966, is one of the genera of this family that was considered by some of researchers in recent years (Beaulieu, 2009; Faraji and Halliday, 2009; Walter and Moser, 2010; Trach, 2012). Some of those located *Gaeolaelaps* in family Laelapidae as a subgenus for genus *Hypoaspis* sensu lat. (Evans and Till, 1966; costa, 1968 and 1974; Karg, 1962, 1982, 1989, 1987; Tenorio, 1982). Van Aswegen and Loots (1970) relegated this genus to species groups under the subgenus *Hypoaspis*. Some of specialists categorized *Gaeolaelaps* as a full genus of family Laelapidae (Rosario, 1981; casanueva, 1993 and Beaulieu, 2009). We follow the last group and treat *Gaeolaelaps* as a separate genus. Some species of *Gaeolaelaps* are important in biological control of agricultural pests (Beaulieu, 2009; Gerson *et al*., 2003; Trach, 2012; Walter and Moser, 2010). For example members of *Gaeolaelaps aculeifer* (Canestrini), are increasingly used as biocontrol agents on greenhouse crops or in mushroom cultures against their pests (Beaulieu, 2009; Zhang, 2003). In this paper we describe a new species of *Gaeolaelaps* discovered from soil and litter in Khuzestan province, south-west of Iran.

Materials and Methods

Sampling of *Gaeolaelaps* mites was made from various soil and litter samples from different

Handling Editor: Dr. Mohammad Khanjani

* **Corresponding author**, e-mail: nemati.alireza@agr.sku.ac.ir
Received: 18 January 2013; Accepted: 3 February 2013

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

parts of Esfahan, Chaharmahal Va Bakhtiari and Khuzestan provinces in Iran. Mites were extracted from samples using Berlese funnels, placed in lactic acid at 55 °C for clearing and then mounted in Hoyer's medium on permanent microslides. All specimens were examined under a phase contrast microscope. Line drawings were made using a drawing tube and figures were performed with Corel X-draw software, based on the scanned line drawings. Eight specimens were used for most characters measurements. All the measurements are given in micrometers (μm). Notations for dorsal setae follow that of Lindquist and Evans (1965). We have attempted to identify all pore-like structures, but we acknowledge that some may have been overlooked. Holotype and some of paratypes (four females and two males) are deposited in the Acarological Laboratory, Department of Plant Protection, Agricultural College, Shahrekord University, Shahrekord, Iran. Two female paratypes are deposited in the Senckenberg Museum fur Naturkunde Gorlitz Am Museum 1 02826 Gorlitz Germany. One female and one male are deposited in the collection of the Iranian Acarological Society (Tehran Universisty).

Results

Genus *Gaeolaelaps* Evans & Till, 1966
Type species: *Laelaps aculeifer* Canestrini (1884), by original designation (Evans & Till 1966).

***Gaeolaelaps jondishapouri* n. sp. Nemati and Kavianpour**

(Figs. 1-15)

Specimens examined. Holotype, female, soil, Ahwaz, Khuzestan province, Iran, 2010; coll., M. Kavianpour. Paratypes: seven females, three males, soil, Ahwaz, Khuzestan province, Iran, 2011-2012, coll., A. Nemati.

Diagnosis. Female; dorsal shield with 39 pairs of setae (including *px2-3*), *r6* and *R1-6* being off dorsal shield on soft lateral cuticle, posterior part of dorsal shield with abrupt contraction between *S4* and *S5* setae; *st1* on weakly sclerotized presternal area out of sternal shield, *iv1-2* slit-lik; epigynal shield flask-shaped; peritremes long, extending almost to posterior part of coxa I; anterior margin of epistome denticulate; deutosternum with six rows of denticles.

Description of the female. (Figs 1-12). **Dorsal idiosoma**. (Fig 1). Dorsal shield oval-shaped, 543-550 long, width at level of setae r3 270-340 (n = 8), posterior part with abrupt contraction between *S4* and *S5* setae, reticulate throughout, shield with 39 pairs of simple setae, 22 pairs in podonotal (*j1-6*; *z1-6*; *s1-6*; *r2-5*) and 17 pairs in opisthonotal region (*J1-5*, *Z1-5*, *S1-5*), including *px2-3* between *J* and *Z* series; dorsal setae with moderate length (36-45), except *z1* (17-19) shorter, setae *s1* and *Px2–3* tend to be slightly shorter (30-34) than other setae, and *S3–5, Z5* tend to be the longest (50-60). The cuticle between dorsal and ventral side of the body bearing *r6* (34-36), *R1* (25-29), *R2* (30-38), *R3* (34-42), *R4* (42-50), *R5* (52-60) and *R6* (62-70). Podonotal with seven and opisthonotal with eleven pairs of lyrifissures and pore-like structures that were discerned on the dorsal shield with the distribution in figure 1.

Venter. (fig. 2). Tritosternum with columnar base (44-49) and pilose laciniae (119-139). Presternal area unsclerotized with transverse lines. Sternal shield with 120-138 length and 130-145 width at level of *st2*, broadest width between coxae II-III (190-200), with two pairs of slit-like lirifissures, *iv1* posterior to *st1*, *iv2* between *st2* and *st3*. Sternal shield with anterior margin not well discernible and posterior margin concave, bearing three pairs of simple setae (36-40), *st1* off sternal shield and on unsclerotized presternal are, the surface of sternal shield smooth as in figure 2. *St4* (30-34) and liryfissure *iv3* located on soft cuticle. Endopodal plates mediad coxae III-IV angular, and not fused with posterior part of sternal shield. Epigynial shield with full length 180–213 (from posterior end of hyaline part to posterior tip); narrowest width between coxae IV 105-115, and maximum width posterior to setae *st5* (120–132), the ratio of length to width (L/W) is about 1.4, anterior margin hyaline, without discernible reticulation throughout,

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

with two inverted V-shaped lines, bearing one pair of setae (*st5* = 30-33) at margins. A narrow strip of exopodal plates surrounded coxae IV and fused with endopodal at posterior margin of coxae IV, small exopodal plate between coxae II and III. Anal shield pyriform, with rounded anerior margin and slightly reticulated, 99-103 long, 94-96 wide, post-anal seta (33-36) slightly longer than paranal setae (27-30). Cribrum like a strip of teeth, extending laterally to a point beneath of post-anal setal insertion. Opisthogastric surface with one pair of suboval metapodal plates (31-36 × 8-10), one pair of minute platelets (between metapodal plate and paragenital platelet), one pair of narrow, elongate paragenital platelets and nine pairs of smooth setae, *JV1-3* (30-32), *JV4*= (39-41), JV*5* (57-60) and *ZV1-4* (30-33). There are five pairs of pore-like structures on opisthogastric surface and one pair on the lateral margin of anal shield. The stigma surrounded by short, narrow and pointed stigmatal plate which extends posteriorly past the level of middle margin of coxae IV for a distance ca. thrice the diameter of the stigma. Peritremes long, extending to posterior margin of coxa I.

Gnathosoma. (Figs. 4-6). Epistome (Fig. 5): like an inverted v-shape (subtriangular) with fine denticulate anterior margin; Hypostome (Fig. 4) with 3 pairs of similar smooth simple setae; *h1* (31-37), *h2* (24-30), *h3* (27-30), and palpcoxal setae (*pc)* (36-41). Deutosternal groove with 6 rows of denticles, corniculi normal and horn-like, extending beyond palp trochanter. Internal malae projecting laterally and medially, fine and fringed laterally with long branches adjacent to curniculi, almost exceeding the tip of corniculi, more finely fringed along median projection, (Fig. 4). Chelicerae (Fig. 6) normal for the genus, chelate-dentate, arthrodial processes developed, movable digit (75-84) long with 2 large teeth, middle article (240-245), fixed digit with 5 teeth + offset tooth (gabelzahn), setaceous pilus dentilis small (Fig. 6). Palp chaetotaxy normal (sensu Evans and Till 1965), with simple setae except *al* on femur thickened, spine-like, *al1* and *al2* of genu thickened, *al1* with the tip rounded and *al2* spine-like, palp tarsal claw two-tined (Fig. 7).

Legs. (Figs. 9-12).

Tarsi I-IV with claws and ambulacra. leg I 539-549, coxa (85-90), trochanter (44-48), femur (123-126), genu (87-95), tibia (36-39), tarsus (155-161); leg II 444-452, coxa (28-33), trochanter (58-60), femur (80-84), genu (65-70), tibia (73-77), tarsus (129-136); leg III 418-422, coxa (28-32), trochanter (58-60), femur (71-77), genu (58-62), tibia (60-65), tarsus (129-136); leg IV 623-628, coxa (28-32), trochanter (70-77), femur (130-135), genu (80-85), tibia (95-100), tarsus (200-208). Legs I and IV longer than legs II and III. The chaetotaxy of all leg segments are normal for *Gaeolaelaps* (sensu Beaulieu, 2009). All leg setae smooth and pointed. Chaetotaxy of legs is as follows: Leg I: coxa 0 0/1 0/1 0; trochanter 1 0/2 1/1 1; femur 2 2/1 3/3 2; genu 2 3/2 3/1 2; tibia 2 3/2 3/1 2. Leg II: coxa 0 0/1 0/1 0; trochanter 1 0/2 0/1 1; femur 2 3/1 2/2 1; genu 2 3/1 2/1 2; tibia 2 2/1 2/1 2 (*av* and *pv* slightly thickened); tarsus 3,3/2,3/2,3 + *mv*, *md*. Leg III: coxa 0 0/1 0/1 0; trochanter 1 0/2 0/1 1; femur 1 2/1 1/0 1; genu 2 2/1 2/1 1; tibia 2 1/1 2/1 1; tarsus 3 3/2 3/2 3 + *mv*, *md* (except of *ad3* and *pd3*, the other setae slightly thickened). Leg IV: coxa 0 0/1 0/0 0; trochanter 1 0/2 0/1 1; femur 1 2/1 1/0 1; genu 2 2/1 3/0 1; tibia 2 1/1 3/1 2; tarsus 3,3/2,3/2,3 + *mv*, *md*. Ventral setae on femur, genu, tibia and tarsus of legs II, III, IV slightly thicker than dorsal and lateral setae on those segments.

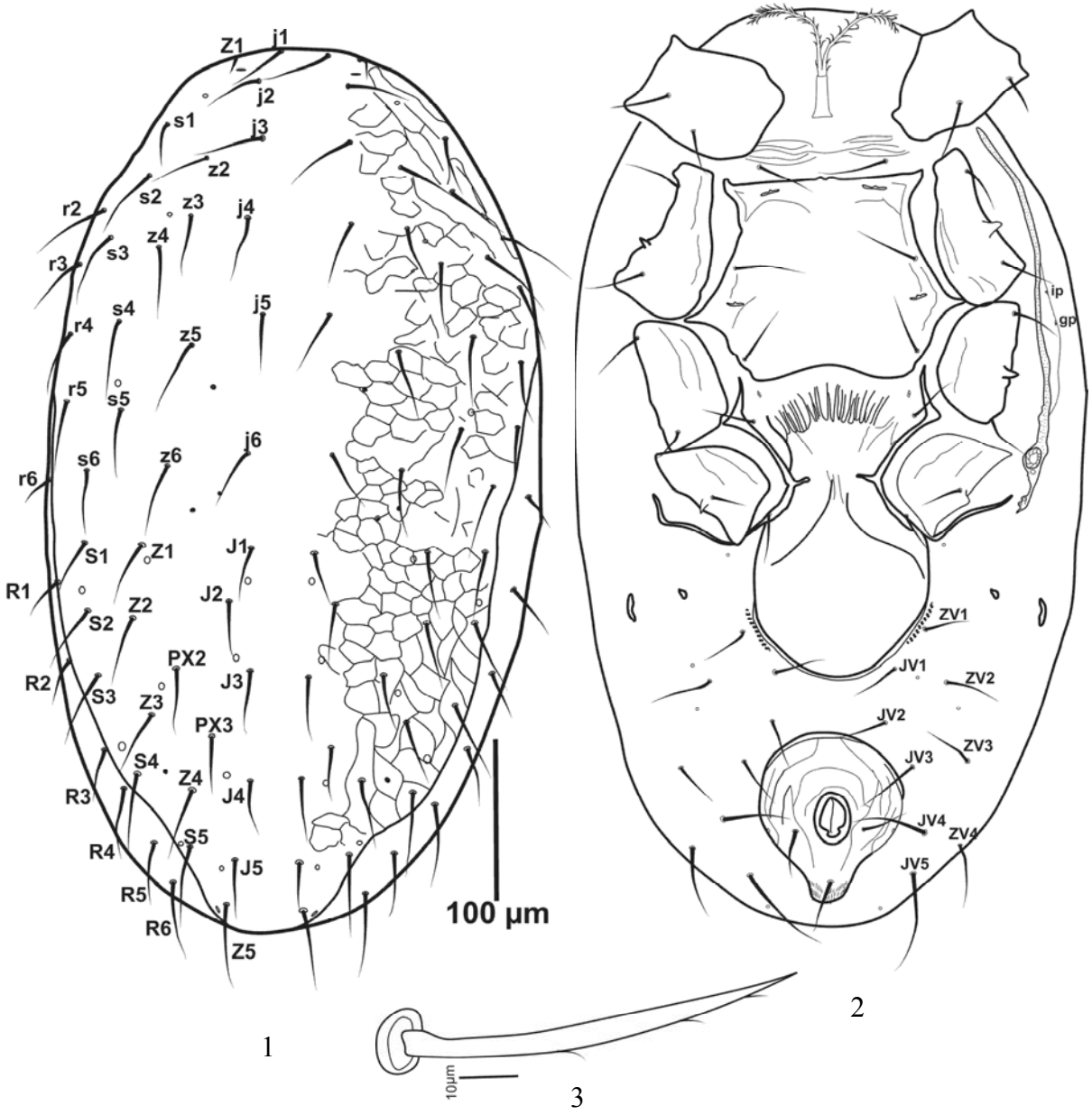
Male. Dorsal idiosoma. (Fig. 13). Dorsal shield (519–555 long × 271–305 wide), dorsal chaetotaxy as for female, except for *J5*, *Z5* and *S5* setae that are slightly thicker.

Ventral idiosoma. (Fig. 14). Holoventral shield (420–432 long × 240–247 wide) reticulated throughout, bearing 9 pairs of simple and pointed setae, *st2–5* (24–32), *JV1–3*, *ZV1–2* (23–44), para-anal and post-anal (32–37), *st1* off holoventral shield and located on weakly sclerotized area anterior to the shield. Metapodal platelet free. Soft cuticle with *JV4* (35–41), *JV5* (61–67).

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

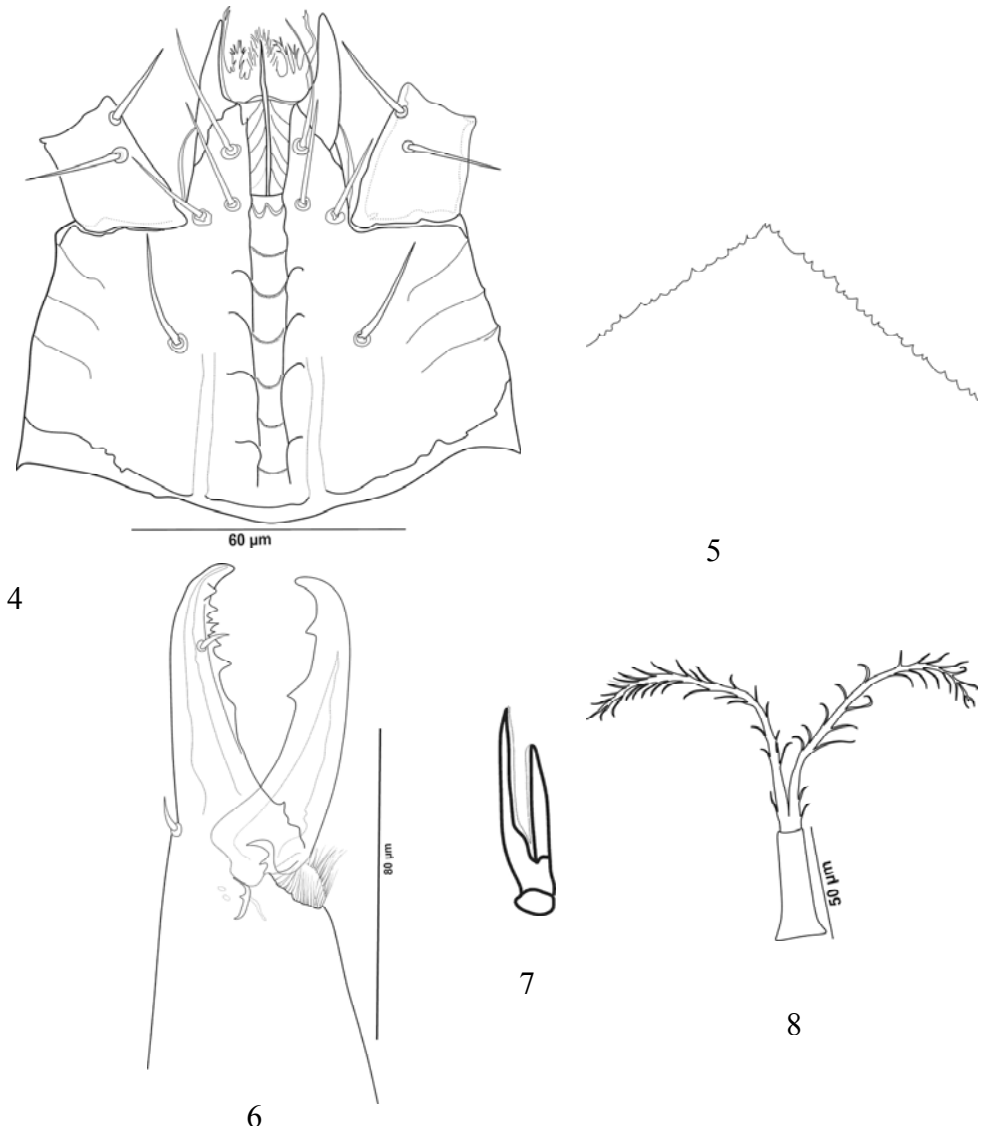
Gnathosoma. As in female except setae slightly shorter with *h1* (18-22), *h2* (24-26), *h3* (18-21), *pc* (29–32); chelicerae (Fig. 15) with middle segment (170–173), fixed digit (59-62) bearing two large and offset teeth with four small teeth between them. Pilus dentilis setiform. Movable digit (42–45) with one tooth; spermatodactyl relatively small.

Legs. Tarsi I-IV with claws and ambulacra. leg I (490-450), leg II (390-402), leg III (350-355), leg IV (500-510), Legs I and IV longer than legs II and III. Structure and chaetotaxy as in female.



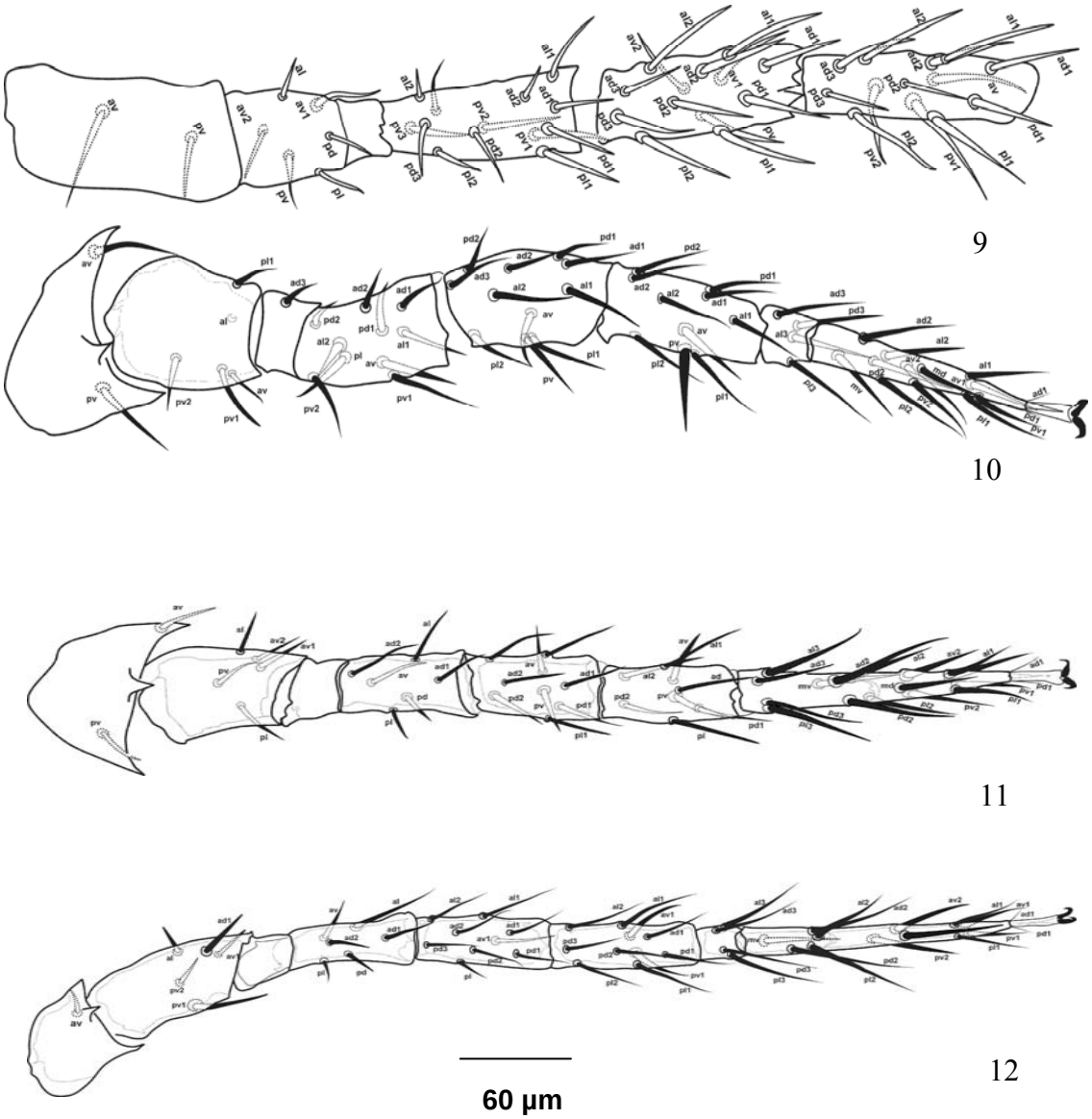
Figures 1-3 *Gaeolaelaps jondishapouri* Nemati & Kavianpour sp. n., (Female): 1. Dorsum, 2. Venter, 3. Dorsal setae (*Z4-5*, *J4-5*, s and *S*).

[DOR: 20.1001.1.22519041.2013.2.1.10.8]



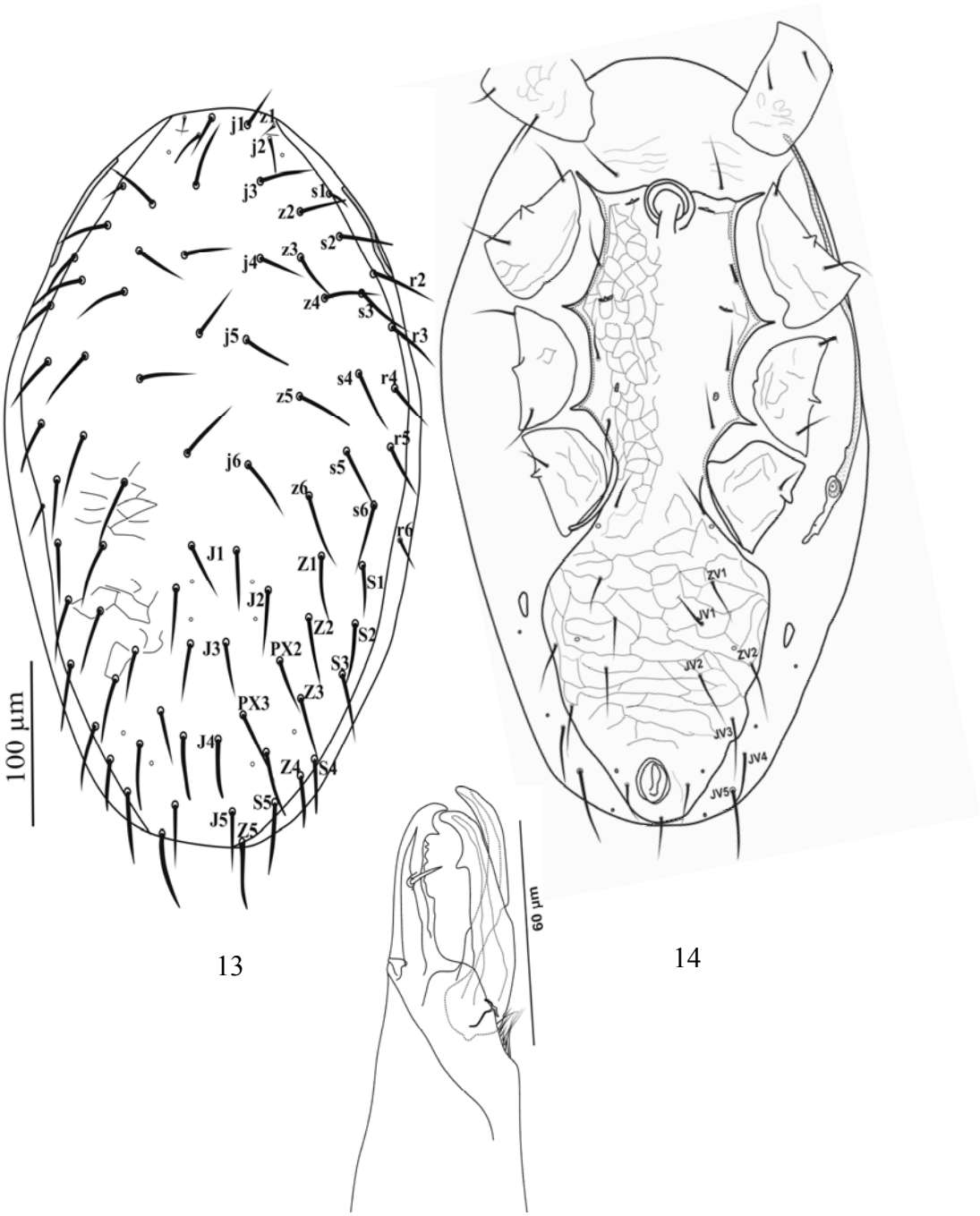
Figures 4-8 *Gaeolaelaps jondishapouri* Nemati & Kavianpour sp. n. (Female): 4. Hypostome, 5. Epistome, 6. Chelicera, 7. Apotel, 8. Tritosternum.

[DOR: 20.1001.1.22519041.2013.2.1.10.8]



Figures 9-12 *Gaeolaelaps jondishapouri* Nemati & Kavianpour sp. n. (Female): 9. Leg I, 10. Leg II, 11. Leg III, 12. Leg IV.

[DOR: 20.1001.1.22519041.2013.2.1.10.8]



13 14

15

Figures 13-15 *Gaeolaelaps jondishapouri* Nemati & Kavianpour sp. n. (Male): 13. Dorsum, 14. Venter, 15. Chelicera.

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

Etymology. The name of species refers to ancient name (Jondishapour) of Shahid Chamran University, Ahwaz, Iran, where the specimens were collected.

Remarks: According to Karg's (1979), *G. jondishapouri* n. sp., belongs to the *Hypoaspis* (*Geolaelaps*) *angusta* species group. Karg (1979) considered four species in this group: *G. qeenslandicus* (Womersley), *G. angusta* (Karg), *G. elongata* (Hirschman) and *G. angustiscutatus* (Willmann). *G. jondishapouri* n. sp. differs from those in having *st1* seta off sternal shield and on unsclerotized presternal area. It also differs from *G. qeenslandicus* and *G. angusta* in the shape and dimensions of sternal shield, palp-tarsal claw and the form of setae especially on femur, genu and tarsus of legs II-IV. The length-Width (L/W) ratio of sternal shield in those species is 2:1, palp-tarsal claw three tined and femur, genu and tarsus of legs II-IV with thickened spine or spur-like setae while in *G. jondishapouri* n. sp. the L/W is about 0.9-0.95, palp-tarsal claw two tined and without thickened spine or spur-like setae on femur, genu and tarsus of legs II-IV. The lateral margins of dorsal shield in *G. elongata* is without a curvature at posterior end while *G. jondishapouri* n. sp. with abrupt constriction between *S4-5*. *G. angustiscutatus* is without *PX* setae but *G. jondishapouri* n. sp. is with *PX2-3*.

There are other species of genus *Gaeolaelaps* which would be considered as members of *angusta* species group: *G. kassaii* (Van Aswegen & Loots, 1970), *G. zhoumanshuae* (Ma, 1997), *G. dactylifera* (Fouly & Al-Rehiayani, 2011) and *G. changlingensis* (Ma, 2000).

In *G. kassaii* dorsal setae, some of the setae on leg II, postanal setae and some ventral setae are bipectinate while in *G. jondishapouri* all setae are simple and pointed apically.

G. zhoumanshuae with dorsal setae very short, none of which are long enough to reach the next seta in series, genital shield remarkably longer than wide (L/W 2: 1), while *G. jondishapouri* n. sp. has longer dorsal setae, some of them reach to the base of next seta in series and length of the genital shield is not remarkably longer than width (L/W 1.4-1.44).

G. changlingensis with *st1* seta on sternal shield, dorsal shield with abrupt constriction between *S2-3* and caudal part V shape and *G. dactylifera* with 37 pairs of dorsal setae, and *z1* longer than *j1* while *G. jondishapouri* with 39 pairs of dorsal setae, *st1* off sternal shield and on unsclerotized presternal area, dorsal shield with abrupt constriction between *S4-5* and *j1* is two times as long as *z1*.

Key to species of *Gaeolaelaps* with abrupt constriction in dorsal shield (Karg's *angusta* species group)

1- Dorsal setae, some of setae on leg II, postanal seta and some ventral setae bipectinate …….*G. kassaii* (Van Aswegen and loots, 1970)
- All dorsal and ventral setae simple ……2
2- Dorsal setae very short, all of them not reaching to the base of next seta in series; genital shield remarkably longer than wide, L/W 2:1 …….*G. zhoumanshuae* (Ma, 1997)
- Dorsal setae longer, some of them reach to the base of next seta in series; genital shield not remarkably longer than wide ……3
3- Dorsal shield in podonotal at level of *z4* or *z5* setae being narrow caudally ……4
- Dorsal shield in opisthonotal at level of *Z3* or *Z4* setae being narrow caudally ……9
4- Without S1 and *S4* in opisthonotal (incomplete S series); with two pairs of narrow and elongate metapodal shields …… …*G. dactylifera* (Fouly & Al-Rehiayani, 2011)
- With *S1* and *S4* in opisthonotal (complete S series); with one pair of narrow and elongate metapodal shields …….5
5- Seta *av2* on femur II spine-like, some setae on tarsus II and IV thickened and spine or spur-like ……6
- Seta *av2* on femur II simple, setae on tarsus II and IV not thickened and spur or spine-like….8
6- Palp tarsal claw two tined; at least with one pair of *PX* setae on dorsal shield …… …… *G. fishtowni* (Ruf & Kohler, 1993)
- Palp tarsal claw three tined; without *PX* setae on dorsal shield ……7
7- Leg I shorter than idiosoma; epistome with a row of equal denticles; dorsal shield without a

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

curvature …….*G. angusta* (Karg, 1965)
- Leg I longer than idiosoma; epistome with 2 teeth longer than the others; dorsal shield with a curvature in posterior part ……. …….. *G. queenslandicus* (Womersley, 1956)
8- Dorsal shield with *PX* setae; movable digit of chelicerae with 10 teeth ……. …….*G. elongata* (Hirschmann, 1969)
- Dorsal shield without *PX* setae; movable digit of chelicerae with 7 teeth …….. ……*G. angustiscutatus* (Willmann, 1951)
9- *St1* on presternal area; dorsal shield with abrupt constriction between *S4-5*and caudal part bell-shaped ……*G. jondishapouri* **n. sp.**
- *St1* on sternal shield; dorsal shield with abrupt constriction between *S2-3* and caudal part V-shaped ……*G. changlingensis* (Ma, 2000)

References

Beaulieu, F. 2009. Review of the mite genus *Gaeolaelaps* Evans and Till (Acari: Laelapidae) and description of a new species from North America, *G. gillespiei* n. sp., Zootaxa, 2158: 33-49.

Canestrini, G. 1884. Acari nuovi o poco noti. Atti del Reale Istituto Veneto di Scienze. Lettere ed Arti, (Series 6), 2: 693-724 + Plates VI-IX.

Casanueva, M. E. 1993. Phylogenetics of the Free-living and arthropod associated Laelapidae (Acari: Mesostigmata). Gayana Zoology, 57 (1): 21-46.

Costa, M. 1968. Little known and new litter-inhabiting laelapine mites (Acari: Mesostigmata) from Israel. Israel Journal of Zoology, 17: 1-30.

Costa, M. 1974. Mesostigmatic mites (Acari: Mesostigmata) from the Mediterranean shores of Israel. I. The genus *Hypoaspis* Canestrini, 1884. Israel Journal of Entomology, 9: 219-228.

Evans, G. O. & Till, W. M. 1965. Studies on the British Dermanyssidae (Acari: Mesostigmata). Part I. External morphology. Bulletin of the British Museum (Natural History), Zoology, 13: 247–294.

Evans, G. O. and Till, W. M. 1966. Studies on the British Dermanyssidae (Acari: Mesosotigmata). Part II. Classification. Bulletin of the British Museum (Natural History) Zoology, 14: 107-370.

Faraji, F. and Halliday, B. 2009. Five new species of mites (Acari: Laelapidae) associated with large Australian cockroaches (Blattodea: Blaberidae). International Journal of Acarology, 35 (3): 245-264.

Fouly, A. H. and AL.Rehiayani, S. M. 2011. Predaceous mites in Al-Qassim region, Saudi Arabia, with description of two new Laelaidae species (Acari: Gamasida: Laelapidae). Journal of Entomology, 8 (2): 139-151.

Gerson, U., Smiley, R. L. and Ochoa, R. 2003. Mites (Acari) for Pest Control. Blackwell Science Ltd, Iowa, 539 p.

Hirschmann, W., Bernhard, F., Greim, E. and Götz, H. 1969. Gangsystematik der Parasitiformes, Teile 75. Zwanzig neue *Hypoaspis*–Arten. Acarologie. Schriftenreihe für Vergleichende Milbenkunde, 12: 133-141.

Hyatt, K. H. 1964. A collection of Mesostigmata (Acari) associated with Coleoptera and Hemiptera in Venezuela. Bulletin of the British Museum (Natural History) Zoology, 11: 465-509.

Karg, W. 1962. Zur Systematik und Postembryonalen Entwicklung der Gamasiden (Acarina, Parasitiformes) landwirtschaftlich genutzter Boden. Mitteilungen aus dem Zoologischen Museum in Berlin, 38: 23-119.

Karg, W. 1965. Larvalsystematische und phylogenetische Untersuchung sowie Revision des Systems der Gamasina Leach, 1915 (Acarina, Parasitiformes). Mitteilungen aus dem Zoologischen Museum in Berlin, 41: 193-340.

Karg, W. 1982. Zur Kenntnis der Raubmilbeng *Hypoaspis* Canestrini 1884 (Acarina, Parasitiformes). Mitteilungen aus dem Zoologischen Museum in Berlin 58: 233-256.

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

Karg, W. 1987. Neue Raubmilbenarten der Gattung *Hypoaspis* Canestrini 1884 (Acarina, Parasitiformes). Zoologische Jahrbücher Abteilung für Systematik Ökologie und Geographie der Tiere, 114: 289-302.

Karg, W. 1989. Zur Kenntnis der Untergattungen *Geolaelaps*, *Alloparasitus* und *Laelaspis* der Raubmilbengattung *Hypoaspis* Canestrini 1884 (Acarina, Parasitiformes). Mitteilungen aus dem Zoologischen Museum in Berlin, 65: 115-126.

Lindquist, E. E. and Evans, G. O. 1965. Taxonomic concepts in the Ascidae, with a modified setal nomenclature for the idiosoma of the Gamasina (Acarina: Mesostigmata). Memoirs of the Entomological Society of Canada, 47: 1-64. doi: 10.4039/entm9747fv.

Ma, L. 1997. Three new species of Gamasina in soil (Acari: Laelapidae, Parasitidae, Pachylaelapidae). Acta Arachnologica Sinica, 6 (1): 31-36.

Ma, L. 2000. Description of a new species of the Gamasid mites (Laelapidae). Entomotaxonomia, 22 (2): 150-152.

Rosario, R. M. T. 1981. Philippine Hypoaspidinae (Acarina: Mesostigmata: Laelapidae). Philippine Entomologist, 5: 23-82.

Ruf, A. and Koehler, H. 1993. *Hypoaspis fishtowni* sp. nov. (Acari, Mesostigmata, Laelapidae): a new predatory mite. Acarologia, 34: 193–198.

Ryke, P. A. J. 1963. Some free-living Hypoaspidinae (Acari : Mesostigmata) from South Africa. Revista de Biologia, 5: 1-15.

Strong, K. and Halliday, B. 1994. Three New Species of *Hypoaspis* Canestrini (Acarina: Laelapidae) Associated with Large Australian Cockroaches. Journal of Australian Entomological Society, 33: 87-96

Tenorio, M. J. 1982. Hypoaspidinae (Acari: Gamasida: Laelapidae) of the Hawaiian Islands. Pacific Insects, 24 (3-4): 259-274.

Trach, V. A. 2012. *Gaeolaelaps carabidophilus* n. sp., a new mite species (Acari: Mesostigmata: Laelapidae) from carabid beetles (Coleoptera: Carabidae) from Southern Ukraine. Acarologia, 52 (2): 157-163.

Van Aswegen, P. I. M. and Loots, G. C. 1970. A taxonomic study of the genus Hypoaspis Canestrini sens. lat. (Acari: Laelapinae) in the Ethiopian region. Publicações Culturais da Companhia de Diamantes de Angola 82: 167-213.

Walter, D. and Moser, J. 2010. *Gaeolaelaps invictianus*, a new and unusual species of Hypoaspidine mite (Acari: Mesostigmata: Laelapidae) phoretic on the Red imported fire ant *Solenopsis invicta* Buren (Hymenoptera: Formicidae) in Louisiana, USA. Internnational Journal of Acarolrology, 36 (5): 399-407. doi: 10.1080/ 01647954. 2010. 481263

Walter, D. E. and Oliver, J. H. 1989. *Geolaelaps oreithyiae*, n. sp. (Acari: Laelapidae), a thelytokous predator of arthropods and nematodes, and a discussion of clonal reproduction in the Mesostigmata. Acarologia, 30: 293-303.

Willmann, C. 1951. Untersuchungen über die terrestrische Milbenfauna im pannonischen Klimagebiet Österreichs. Sitzungs Öst Akad Wissensch Math-Naturwiss Abteilung I., 160: 91-176.

Womersley, H. 1956. On some new Acarina-Mesostigmata from Australia, New Zealand and New Guinea. Journal of the Linnean Society of London (Zoology), 42: 505-599.

Zhang, Z.-Q. 2003. Mites of greenhouses: identification, biology and control. CABI Publishing. 244 pp.

[DOR: 20.1001.1.22519041.2013.2.1.10.8]

گونه‌ی جدیدی ازکنه‌های خانواده‌ی Laelapidae (Acari: Mesostigmata) از ایران

علیرضا نعمتی*[1] و محمدرضا کاویانپور[2]

۱- گروه گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه شهرکرد
۲- گروه گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه شهید چمران اهواز
* پست الکترونیکی نویسنده مسئول مکاتبه: nemati.alireza@agr.sku.ac.ir
دریافت: ۲۹ دی ۱۳۹۱؛ پذیرش: ۱۵ بهمن ۱۳۹۱

چکیده: کنه‌های خاکزی و به‌ویژه راسته‌ی میان‌استیگمایان دارای پراکنش گسترده‌ای در خاک هستند. آنها دارای تنوع گونه‌ای و اهمیت اکولوژیک زیادی در این اکوسیستم‌ها هستند. تحقیقی برای بررسی کنه‌های خانواده‌ی Laelapidae (Mesostigmata) در منطقه اهواز، استان خوزستان، ایران در سال‌های ۹۱-۱۳۹۰ انجام شد. نمونه‌ها از خاک و گیاه‌خاک جمع‌آوری شدند. کنه‌ها با استفاده از قیف برلز استخراج، به‌کمک محلول اسید لاکتیک شفاف و با استفاده از محلول هویر از آنها اسلایدهای میکروسکوپی تهیه شد. از بین برخی از نمونه‌های این خانواده، گونه‌ی *Gaeolaelaps jondishapouri* n. sp. از خاک جمع‌آوری و توصیف شد. مهم‌ترین صفات این گونه شامل موارد زیر است: صفحه پشتی با ۳۹ جفت مو (از جمله *PX2-3*)، موهای *r6* و *R1-6* خارج از صفحه پشتی و روی ناحیه غشایی، ناحیه عقبی صفحه پشتی با یک خمیدگی بین موهای *S4* و *S5*، موهای *st1* خارج از صفحه سینه‌ای و روی ناحیه پیش‌سینه‌ای، *iv1-2* شیارمانند. کلید شناسایی گونه‌های جنس *Gaeolaelaps* که دارای خمیدگی در قسمت انتهایی صفحه پشتی می‌باشند ارائه شده است.

واژگان کلیدی: *Gaeolaelaps*، ایران، Laelapidae، کنه

[DOR: 20.1001.1.22519041.2013.2.1.10.8]