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## *Cheylostigmaeus tarae* sp. nov. and *Stigmaeus delaramae* sp. nov. (Acari: Stigmaeidae) from Kurdistan, Iran

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### Abstract

Two new species belonging to the family Stigmaeidae, *Cheylostigmaeus tarae* sp. nov. and *Stigmaeus delaramae* sp. nov., are described from specimens collected from soil and litter under pear trees, *Pyrus communis* L. (Rosaceae) in Iran. A key to all Iranian species of the genera *Cheylostigmaeus* (male) and *Stigmaeus* (female) are provided.

**Key words:** mite, predator, Raphignathoidea, pear, Baneh

### Introduction

The family Stigmaeidae (Acari: Raphignathoidea) is a large cosmopolitan group consisting of more than 30 genera and about 500 described species often found among scale insects, in or on soil, grass, leaf, mulch, lichen, bark, wood-boring beetles, crevices in rock and leaf cavities, and a few of them are parasitic on phlebotomine flies (Gerson *et al.* 2003; Khanjani *et al.* 2010b; Doğan *et al.* 2011; Dönel & Doğan 2011). Up to now, about 31 species have been recorded from round of the world (Khanjani *et al.* 2013; Hajizadeh *et al.* 2013 and Bagheri *et al.* 2014a) and of which seven species of the genus *Cheylostigmaeus* Willmann have been recorded from Iran, namely: *C. iranensis* Khanjani & Ueckermann 2002; *C. ferdowsii* Khanjani *et al.* 2010a; *C. gharakhani* Navaei–Bonab *et al.* 2011; *C. hassanpour* Bagheri & Ueckermann, 2011; *C. guilaniensis* Hajizadeh *et al.* 2013; *C. mahvashae* Khanjani *et al.* 2013 and *C. sepasgosariani* Bagheri *et al.* 2014a. In the present paper the eighth species, *C. tarae* sp. nov., is described.

Up to now about 137 species of the genus *Stigmaeus* Oudemans were recorded from round the world (Bagheri *et al.* 2014a,b) and of which 34 species were recorded from Iran and in this paper the 35<sup>th</sup> species is described and illustrated as *S. delaramae* sp. nov. Furthermore, a key to all known Iranian species of the genera *Cheylostigmaeus* and *Stigmaeus* is presented.

### Material and methods

Mites were collected from soil under pear trees and extracted in a Tullgren funnel. The collected mites were mounted directly on slides in Hoyer's medium. The slides were dried in an oven, sealed with industrial painting material and examined with an Olympus BX51 Differential Interference Contrast (DIC) microscope. Drawings were made with a camera Lucida. All measurements are presented in micrometers (µm) and the measurements of the holotype are followed by ranges of the paratypes in parentheses. The terminology and abbreviations used follows: Kethley (1990) for body chaetotaxy; Summers & Ehara (1965) for the male aedeagus; and Grandjean (1944, 1946) and Fan & Zhang (2004) for palp and leg chaetotaxy.

32.	Genua III–IV without setae . . . . .	<i>S. unicus</i> Kuznetsov, 1977	
-	Genua III–IV with one seta . . . . .		33
33.	Prodorsal shield smooth, eyes present, three pairs aggenital setae . . . . .	<i>S. pilatus</i> Kuznetsov, 1987	
-	Prodorsal shield with polygonal reticulation, eyes absent, five pairs of aggenital setae . . . . .	<i>S. sinai</i> Swift, 1987	
34.	Genital region with three pairs of aggenital ( <i>agl</i> –3), one pair of genital setae ( <i>gl</i> ) . . . . .		35
-	Genital region with four pairs of aggenital ( <i>agl</i> –4) and two pairs of genital setae ( <i>gl</i> –2) . . . . .	<i>S. petrophilus</i> Kuznetsov & Petrova, 1979	
35.	Aggenital region punctated, legs reticulated . . . . .	<i>S. echinopus</i> Summers 1962	
-	Aggenital region with polygonal reticulation, legs smooth . . . . .	<i>S. siculus</i> Berlese 1883	
36.	Femur II with four setae . . . . .		37
-	Femur II with five setae . . . . .		38
37.	Eyes present; tarsi II with 9 (1) setae . . . . .	<i>S. boshroyensis</i> Khanjani <i>et al.</i> , 2010	
-	Eyes absent; tarsi II with 7 (1) setae . . . . .	<i>S. malekii</i> Haddad Irani–Nejad <i>et al.</i> , 2006	
38.	Genua III with one seta, prodorsal shield reticulated . . . . .		39
-	Genua III without setae, prodorsal shield smooth . . . . .	<i>S. longipilis</i> Canestrini, 1889	
39.	Tarsi I with 13 (1) setae . . . . .		40
-	Tarsi I with 12 (1) setae . . . . .	<i>S. glypticus</i> Summers, 1962	
40.	Aggenital region with three pairs of setae ( <i>agl</i> –3) . . . . .		41
-	Aggenital region with two pairs of setae ( <i>agl</i> –2) . . . . .	<i>S. fissicomus</i> Ueckermann & Meyer, 1987	
41.	Coxisternal and legs reticulated . . . . .		42
-	Coxisternal and legs smooth . . . . .	<i>S. haddadi</i> Zarei & Bagheri, 2012	
42.	Ratio setae <i>d/v</i> '' on tibia IV 0.9; setae <i>d</i> on tibia IV 35 long . . . . .	<i>S. sphagneti</i> (Hull, 1918)	
-	Ratio setae <i>d/v</i> '' on tibia IV 1.4; setae <i>d</i> on tibia IV 60 long . . . . .	<i>S. delaramae</i> <b>sp. nov.</b>	

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