



<http://dx.doi.org/10.11646/zootaxa.3780.1.6>

<http://zoobank.org/urn:lsid:zoobank.org/pub:7AD1E7AB-9825-4928-AB3D-5F1D39D337B8>

## A new record and a new species of the genus *Agistemus* Summers (Acari: Stigmaeidae) from Greece

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### Abstract

The genus *Agistemus* Summers (Acari: Stigmaeidae) is reported for the first time in Greece. *Agistemus duzgunesae* Koç, Çobanoğlu & Madanlar, a new record for the Greek fauna, is re-described and illustrated based on specimens collected from various plants. Furthermore, *Agistemus macrosetosus* Stathakis & Kapaxidi **n. sp.** is described and illustrated based on specimens collected on *Rubus* sp. A list of all species of the genus *Agistemus* is provided.

**Key words:** predatory mites, stigmaeid mites, *Agistemus*, Greece

### Introduction

The genus *Agistemus*, which is an anagram of *Stigmaeus*, was erected by Summers (1960) based on the type species *Caligonus terminalis* Quayle, 1912. Wood (1967) and Tseng (1982) suggested the genus *Agistemus* as a junior synonym of *Zetzellia* Oudemans, 1927, based on Gonzalez' (1965) observation that *Zetzellia mali* (Ewing) and *Agistemus striolatus* Gonzalez–Rodriguez went through similar ontogenetic changes in organization of dorsal plates from larva to adult and thus that *Agistemus* evolved from the *Zetzellia maori* group of species. Meyer (1969), however, suggested ontogenetic data could merely support that “*Zetzellia* is ancestral to *Agistemus*”. Hernandez and Feres (2005) described two species, *Zetzellia agistzellia* and *Zetzellia quasagistemas*, which have features of both *Agistemus* and *Zetzellia* present in different sexes. Their opinion is that the discovery of such species raises some problems concerning the genus concept and should be under review. In the present study we follow the redefinition of the genus *Agistemus* provided by Fan and Zhang (2005).

The genus *Agistemus* is one of the largest genera of the family Stigmaeidae containing 85 species till now (Table 1). The descriptions of two species, *Agistemus edulis* Gupta and *Agistemus albae* Roy, Gupta & Saha, are based only on adult males. In the description of *Agistemus prinia*, Gupta & Paul (1985), mentioned that there are four pairs of setae on the prodorsal shield, which indicates that this species probably does not belong to the genus *Agistemus* and needs to be redefined.

Species of this genus are known to prey on phytophagous mites such as Tetranychidae, Tenuipalpidae, and Eriophyidae and on eggs of white flies and scale insects (Hafez *et al.* 1983; Osman & Zaki 1986; Abou-Awad & Elsawi 1993; Momen 2001; Ferla & Moraes 2003).

The species recorded and described herein, *Agistemus duzgunesae* Koç, Çobanoğlu & Madanlar and *A. macrosetosus* Stathakis & Kapaxidi **n. sp.**, are the first members of *Agistemus* from Greece.

### Material and methods

Samples of wild and cultivated plants were collected from many localities of Greece. Mites were extracted using the Berlese-Tullgren method and stored in 70% ethanol. Permanent mounts were made using Hoyer's medium. A

setae; palptibia with a large claw, a robust accessory claw and two proximal setae; palpgenu with one smooth seta; palpfemur with two smooth and one barbed setae (Figure 41).

*Legs* (Figures 42–45). Length of legs: legI **290** 284 (270–290), legII **246** 238 (222–246), legIII **238** 236 (222–242), legIV **266** 260 (250–266). Counts of setae and solenidia on legs I–IV: coxae 2+1*elcp*, 1, 2, 2; trochanters 1, 1, 1, 1; femora 5, 4, 2, 2; genua 3+1*κ*, 1, 0, 0; tibiae 5+1*φp*, 5+1*φp*, 5+1*φp*, 5+1*φp*; tarsi 12+2*ω*, 9+2*ω*, 7+1*ω*, 7+1*ω*. Length of spines and solenidia:  $\kappa$ I **4** 4,  $\omega$ I **29** 26 (23–29),  $\omega$ I♂ **34** 34 (31–37),  $\omega$ II **26** 26 (25–27),  $\omega$ II♂ **32** 32 (28–34),  $\omega$ III **16** 16 (14–17),  $\omega$ IV **17** 18 (14–20).

**Type material.** Holotype female collected at Kaiafas Lake, Co. Elia, on *Rubus* sp. (Rosaceae), 11 June 2011. One female paratype collected at Kaiafas Lake, Co. Elia, on *Rubus* sp. (Rosaceae), 27 October 2012. The allotype male, four male and five female paratypes collected at Lefkochora, Co. Messinia, on *Rubus* sp. (Rosaceae), 17 March 2013.

The holotype female, allotype male, six female and five male paratypes are deposited in the Acari collection of Laboratory of Agricultural Zoology and Entomology, Agricultural University of Athens, Greece. One female paratype will be deposited in the Natural History Museum, London (NHM).

**Etymology.** The name of this new species is derived from its very long dorsal setae (*macro*=long + *setosus*).

**Remarks.** This new species has the same leg chaetotaxy as *Agistemus takagii* Ehara, *Agistemus longisetus* Gonzales-Rodriguez and *Agistemus riograndensis* Johann & Ferla. It resembles *A. takagii* in having the aggenital shield divided along its midline, with two subequal aggenital setae, but differs from it by having most dorsal setae longer and the ratio *vi/vi-vi* **4.8** 4.6 (4.4–5.0) instead of 1.1 in the latter. It resembles *A. longisetus* in having equal lengths of most dorsal setae and ratio *pob/eye* but it differs from it by having *vi/vi-vi* **4.8** 4.6 (4.4–5.0) instead of 2.6–2.7 in the latter. It also resembles *A. riograndensis* in having equal lengths of most dorsal setae and ratio *vi/vi-vi* but differs from it by having the aggenital shield divided along its midline instead of an entire horseshoe-shaped aggenital shield in *A. riograndensis*. Moreover, the postocular body of *A. riograndensis* is about twice as long as the eye in diameter, while in *A. macrosetosus* **n. sp.**, the postocular body is 3.4 times the diameter of eye.

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