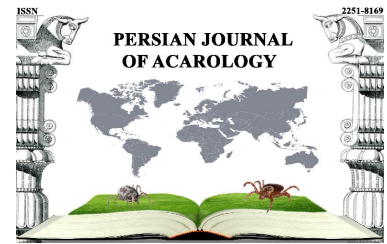




*Persian J. Acarol.*, 2019, Vol. 8, No. 4, pp. 327–332.  
<http://dx.doi.org/10.22073/pja.v8i4.51528>  
Journal homepage: <http://www.biotaxa.org/pja>



<http://zoobank.org/urn:lsid:zoobank.org:pub:DA464569-434E-491A-B97D-EB72B848BE33>

## Article

### First report of subfamily Africasinae (Hydrachnidia: Athienemanniidae) from Western Palearctic based on the description of a new species

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#### ABSTRACT

A new species of the genus *Africasia* (Hydrachnidia: Athienemanniidae), *A. iranica* sp. nov., is described and illustrated based on females and males collected from a spring in Khuzestan province, Iran. This is the first report of the family Athienemanniidae from Iran.

**KEY WORDS:** Acari; *Africasia iranica* sp. nov.; Iran; new report; Trombidiformes; water mites.

**PAPER INFO.:** Received: 8 May 2019, Accepted: 23 June 2019, Published: 15 October 2019

## INTRODUCTION

Africasinae K. Viets is a small subfamily in the Athienemanniidae, comprising only one genus, *Africasia* K. Viets. This genus has an Afrotropical and Oriental distribution with 15 known species (Cook 1967, 2001, K.O. Viets 1987, Smit *et al.* 2010, Pešić and Gerecke 2014, Pešić and Smit 2016, Savatentalinton and Smit 2017). Species were recorded from the following biogeographical regions: Oriental region, 12 species: *A. cataphracta* (Haliík, 1930) [Malaysia], *A. insulana* (K. Viets, 1935) [Indonesia], *A. pinguipalpis* Cook, 1967, *A. rucira* Cook, 1967, *A. navina* Cook, 1967, *A. ruksa* Cook, 1967, *A. subterranea* Cook, 1967, *A. mahadensis* Cook, 1967 [all from India], *A. vietnamica* Pešić & Gerecke, 2014 [Vietnam], *A. acuticoxalis* Smit & Pešić, 2014 [Malaysia], *A. purpurea* Pešić & Smit, 2016 [Laos], and *A. rotunda* Savatentalinton & Smit, 2017 [Thailand and India]; Ethiopian region, three species: *A. obscuripora*, (K. Viets, 1959) [South Africa], *A. radiata* Cook, 1966 [Liberia], and *A. comorosensis* Smit & Pešić, 2010 [Comoros].

The identification at species level in this genus is based primarily on the following characters: 1) color pattern of the dorsal shield; 2) presence or absence of areas of radiating lines on the inner surface of the dorsal shield; 3) development of a central ridge on dorsal shield; 4) shape of the lateral edge of the ventral shield; 5) presence of a ridge on each side of Cx-IV posterior to the insertions of IV-leg; 6) width of Cx-IV; 7) number of swimming setae and proportions of leg segments (Cook 1967, 1974).

In this paper, we describe a new species of this genus from the southwest of Iran. This is the first report of the subfamily Africasinae from the Western Palearctic, and the first report of the family Athienemanniidae from Iran.

**How to cite:** Etemadi, I. & Asadi, M. (2019) First report of subfamily Africasinae (Hydrachnidia: Athienemanniidae) from Western Palearctic based on the description of a new species. *Persian Journal of Acarology*, 8(4): 327–332.

## MATERIAL AND METHODS

Water mites were collected by hand netting, sorted on the spot from the living material and preserved in Koenike's fluid (Cook 1974). All measurements are given in micrometres ( $\mu\text{m}$ ). The drawings were made using a drawing tube attached to an Olympus® Research Microscope. Figures were cleaned and edited with Corel draw x7 2015. The following abbreviations are used: Cx-I = first coxae; dL = dorsal length; H = height; I-L-4-6 = fourth-sixth segments of first leg; L = length; P-1– P-5 = palp segments 1-5; W = width. Holotype (SBUK-AH201f) of the new species is deposited in the collection of the Acarology Laboratory of Shahid Bahonar University of Kerman, Iran (SBUK); paratypes (RMNH.ACA.P.67133–5) are deposited in Naturalis Biodiversity Center, Leiden (RMNH), The Netherlands.

## SYSTEMATICS

### Family Athienemanniidae K. Viets

### Genus *Africasia* K. Viets

### *Africasia iranica* sp. nov. (Figs. 1–7)

<http://zoobank.org/urn:lsid:zoobank.org:act:4722E5FE-C7F1-47A1-BAEE-EBFF13CE40ED>

**Type material** – Holotype female, 8 female paratypes and 2 male paratypes, dissected and slide mounted, **Iran**: Khuzestan Province, Bishe Bozan (Fig. 8 A, B) 27° 26' 44" N, 56° 18' 18" E, 25 January 2016, leg. I. Etemadi.

### *Diagnosis*

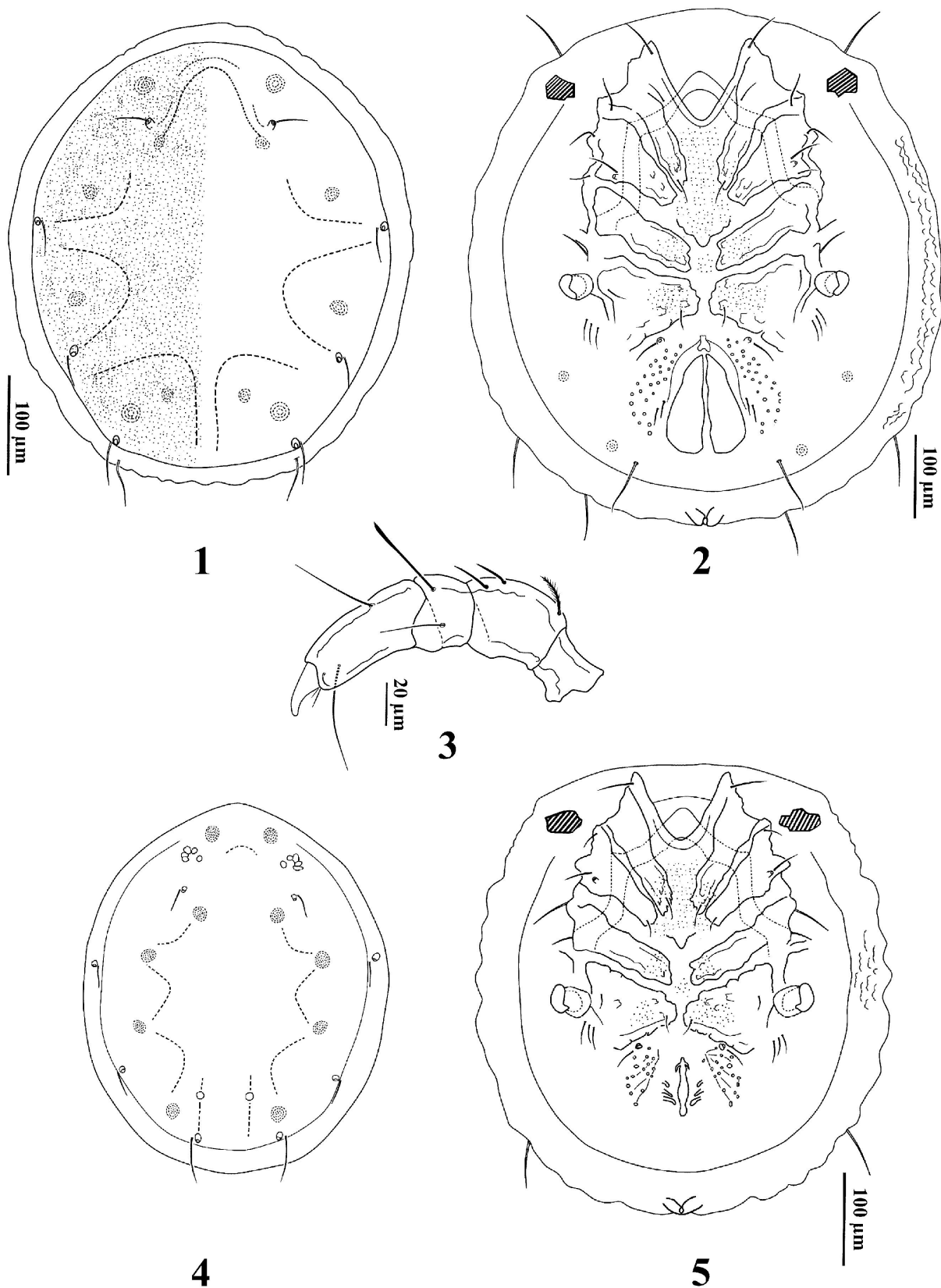
Idiosoma color yellow. Dorsal shield with radiating lines on the surface on the inner side, central area without distinct color patches. One pair of glandularia is located in the dorsal furrow. Outer margin of ventral shield undulating; Cx-IV with developed ridges extending anteriorly and posteriorly associated with IV-L insertions. Legs with few swimming setae IV-L-3: 1, IV-L-4: 3, IV-L-5: 2.

### *Description*

**FEMALE (holotype, Figs. 1–2, 6–7)** – Dorsal and ventral shield present, dorsal shield L/W 472/420, with radiating lines on inner surface (Figs. 1, 6). The color of the dorsal shield uniform light yellow, without distinct color patches. Pigment of lateral eyes well-developed. Ventral shield L/W 592/563 in width, having undulating lateral edges. Tips of the Cx-I not extending beyond frontal idiosoma margin. Cx-IV with short ridges extending anteriorly and posteriorly from the insertion of fourth legs. Cx-IV with a distinct medial margin a little longer than medial margin of third coxae. Maximum W of the Cx-IV 290. Palp segments rotated, P3 with an anteromedial seta and a stiff lateral seta, P4 medially with a long seta (Fig. 3); palp total L 176; dL/H, dL/H ratio: P-1, 25/23, 1.08; P-2, 52/46, 1.13; P-3, 29/40, 0.7; P-4, 62/37, 1.67; P-5, 17/15, 1.13; L ratio P-2/P-4, 0.83. Legs. L of distal segments: I- Leg 3-6: 43, 57, 74, 81, IV Leg L, 12, 13, 14, swimming setae numbers: IV- Leg 3: 1, IV- Leg 4: 3, IV- Leg 5: 2; IV- Leg 6 without swimming setae. Gonopore L 124, W 84, genital field width 171, 29 pairs of acetabula on a very weak acetabular plate.

**MALE (Figs. 4–5)** – Dorsal shield L/W 384/342. Integument of dorsal shield similar to female (Fig. 4). The color of the dorsal shield uniform light yellow without color patches (similar to female). Ventral shield (Fig. 5) L/W 435/388, with wavy edges. Cx-IV similar to female with a short ridges extending anteriorly and posteriorly from the insertion of fourth legs. 17 pairs of

acetabula on triangular indistinct genital plates on each side of the gonopore. Structure of the fourth legs similar to the female.



**Figures 1–5.** *Africasia iranica* sp. nov. – 1. Dorsum of idiosoma (female); 2. Venter of idiosoma (female); 3. Palp (female); 4. Dorsum of idiosoma (male); 5. Venter of idiosoma (male).



**Figures 6–7.** Photographs of *Africasia iranica* sp. nov. (female) – 6. Dorsal plate; 7. Ventral plate.



**Figure 8.** Photographs of sampling sites of *Africasia iranica* sp. nov. (A, B).

### *Etymology*

This species is named after the country (Iran) where it has been collected.

### Remarks

*Africasia iranica* resembles *A. radiata* Cook, 1966 and *A. mahadensis* Cook, 1967 in having similar radiating lines on the surface of dorsal shield and undulating lateral edge of ventral shield. The latter two species differ in having a color pattern on the dorsal shield consisting of a central purplish patch (see Cook 1967). Furthermore, one of the dorsal pair of glandularia is located in the dorsal furrow. This character is not found in other *Africasia* species.

### ACKNOWLEDGEMENTS

This work has been financially supported by the foundation Pro Acarologia Basiliensis (PAB, Basel). The authors wish to thank PAB for the support of this work. We are also very thankful to Prof. Reinhard Gerecke, Prof. Vladimir Pešić and Dr. Harry Smit for their comments on the manuscript. The first author wishes to thank Mr. Sayed Mosayeb Mahdavi for his help in editing the figures.

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## نخستین گزارش زیرخانواده (Hydrachnidia: Athienemanniidae) Afrasiinae از غرب پالئارکتیک بر اساس توصیف گونه‌ای جدید

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### چکیده

گونه جدیدی از کنه‌های آبی جنس (*Afrasia* (Hydrachnidia: Athienemanniidae) با نام علمی *A. iranica* sp. nov. بر اساس جنس نر و ماده توصیف شده است که از رودخانه‌ای از استان خوزستان در ایران جمع آوری شد. این نخستین گزارش خانواده *Athienemanniidae* از ایران است.

**واژگان کلیدی:** زیررده کنه‌ها؛ گونه جدید *Afrasia iranica*؛ ایران؛ گزارش جدید؛ Trombidiformes؛ کنه‌های آبی.

**اطلاعات مقاله:** تاریخ دریافت: ۱۳۹۸/۲/۱۸، تاریخ پذیرش: ۱۳۹۸/۴/۲، تاریخ چاپ: ۱۳۹۸/۷/۲۳