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A new species of *Brevipalpus* Donnadieu (Acari: Tenuipalpidae) and key to the Egyptian species

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Abstract

A new species, *Brevipalpus noranae* **sp. nov.** (Acari: Tenuipalpidae) is described and illustrated from females collected on *Malus domestica* Borkh and *Citrus aurantium* L. A key to the species of the genus *Brevipalpus* present in Egypt is provided.

Key words: Acari, Tenuipalpidae, flat mite, *Brevipalpus noranae* **sp. nov.,** Egypt

Introduction

Mites of the genus *Brevipalpus* (Acariformes: Tenuipalpidae) are serious pests of crops, ornamental plants and timber trees worldwide (Jeppson *et al*. 1975; Meyer 1979; Evans *et al*. 1993). Despite the high diversity of these mites in Egyptian agro-ecosystems, the genus *Brevipalpus* has been poorly studied. In Egypt, several papers on mites of the family Tenuipalpidae were published by Sayed (1942, 1946, 1950), Attiah (1956), and Zaher (1984). Sayed (1942, 1946, 1950) and Attiah (1956) reported the following seven species, in the genus *Brevipalpus* from Egypt: *B. lanceolatisetae* Attiah, *B. geisenheyneri* Ruebsaamen, *B. obovatus* Donnadieu, *B. phoenicis* Geijskes, *B. californicus* (Banks), *B. olearius* Sayed, and *B. lewisi* McGregor. However, during the 1980s, Zaher (1984) recorded only six species, four of them belonging to the genus *Brevipalpus*, *B. obovatus*, *B. phoenicis*, *B. californicus*, and *B. olearius*, while the other two species were placed in the genus *Cenopalpus*, *C. lanceolatisetae* Attiah and *C. spinosus* (Donnadieu) (= *T. geisenheyneri* Ruebsaamen).

In this paper, we describe and illustrate a new species and provide an illustrated key to the recorded species in Egypt.

Material and methods

The survey was conducted in fruit orchards throughout all the provinces of Egypt. At each locality, sampling was carried out bi-weekly during August 2011 to September 2012. Samples were collected from plant foliage, fruit, buds and branches and individually bagged in tightly-closed plastic bags and transported the same day to the Fruit Acarology Department, Plant Protection Research Institute (PPRI), Agricultural Research center(ARC). The elevation and longitude/latitude were recorded for each locality using a hand-held Garmin Global Positioning Device (GPS). Mites were removed using a fine hair brush under dissection stereo-microscope, then preserved in 70% ethanol. Selected mites were cleared in Nesbitt solution for 10–12minutes. Subsequently, mites were mounted on micro-slides in Hoyer's medium, and later dried at 40 °C for one week (Zhang 2003). The terminology used in the key follows Linquist (1985) and Mesa *et al*. (2009). The measurements are given in micrometers (µm). The type material and voucher specimens were deposited as slide-mounted specimens in the mite collection of the Agriculture Research Center, Plant Protection Research Institute, Fruit Acarology Department, Dokki, Egypt (ARC-PPRI). Two female paratypes were deposited in the Museu de Zoologia, of Escola Superior de Agricultura

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Key to the Egyptian species of *Brevipalpus.*
Females

1. Hysterosoma with 6 pairs of dorso-lateral setae 2
- Hysterosoma with 7 pairs of dorso-lateral setae 3
2. Tarsus II with 1 solenidion . . . . . *B. obovatus* Donnadieu (Fig.3A)
- Tarsus II with 2 solenidia . . . . . *B. phoenicis* (Geijskes) (Fig.3B)
3. Tarsus II with 1 solenidion 4
- Tarsus II with 2 solenidia; propodosoma with irregular striae medio-dorsally, reticulated elements occur medio-laterally . . . . . *B. californicus* (Banks) (Fig. 4A)
4. Hysterosomal dorsum with large vase (urn) shaped pattern, with small v-shaped extension posteriorly . . . . . *B. noranae* **n. sp.**(Figs. 1 and 2)
- Hysterosomal dorsum without vase shape pattern 5
5. Rostrum elongate, extending to the distal end of genu I; reticulate pattern covers almost entire surface of propodosoma and hysterosoma. . . . . *B. olearius* Sayed (Fig.4B)
- Rostrum not elongate, extending to middle of femur I; propodosoma with reticulate pattern medio-laterally and irregular striae medio-dorsally . . . . . *B. lewisi* McGregor (Fig. 4C)

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References

Attiah, H. (1956) The genus *Brevipalpus* in Egypt. *Bulletin of the Entomological Society of Egypt*, 40, 433–448.

Baker, E.W. (1949) The genus *Brevipalpus* (Acarina: Pseudoleptidae). *The American Midland Naturalist*, 42 (2), 350–402. http://dx.doi.org/10.2307/2422013

Baker, E.W., Tuttle D.M. & Abbatiello, M.J. (1975) *The False Spider Mites of Northwestern and North Central Mexico (Acarina: Tenuipalpidae)*. The Smithsonian Institution Press, Washington, 32 pp. http://dx.doi.org/10.5479/si.00810282.194

Banks, N. (1904) Four new species of injurious mites. *Journal of the New York Entomological Society*, 12, 53–56.

Banks, N. (1912) New American mites. *Proceedings of the Entomological Society of Washington*, 14, 96–102.

Blanchard, E.E. (1940) Tres ácaros dañinos para los cultivos argentinos. *Revista de la Facultad de Agronomía de La Plata*, 24, 11–18.

Chaudhri, W.M. (1972) Description of five new species of *Tenuipalpus* (Acarina: Tenuipalpidae) from Pakistan. *Sind University Research Journal*, 6 (1), 17–29.

Donnadieu, A.L. (1875) Recherches pour servir a l'histoire des Tétranyques. *Thèses Faculté des Sciences de Lyon - Francea*, 1–131.

Evans, G.A., Cromroy, H.L. & Ochoa, R. (1993) The Tenuipalpidae of Honduras (Tenuipalpidae: Acari). *Florida Entomologist*, 76 (1), 126–155. http://dx.doi.org/10.2307/3496021

Geijskes, D.C. (1939) Beitäge zur kenntnis der europäischen spinnmilben (Acari:Tetranychoidea), mit bensonderer berücktigung der Niederländischen arten. *Mededeelingen van de Landbouwboogeschool - Wageningen*, 42, 1–68.

González, R.H. (1975) Revision of the *Brevipalpus phoenicis* "complex" with descriptions of new species from Chile and Thailand (Acarina: Tenuipalpidae). *Acarologia*, 17 (1), 81–91.

Jeppson, L.R., Keifer, H.H. & Baker, W.E. (1975) *Mites injurious to economic plants*. University of California Press, Berkeley, 614 pp.

Lindquist, E.E. (1985) Anatomy, phylogeny and systematics. *In*: Helle, W. & Sabelis, M.W. (Eds.), *Spider mites, the biology, natural enemies and control*. Elsevier, Amsterdam, 1A, pp. 272– 418.

McGregor, E.A. (1914) Four new tetranychids. *Annals of the Entomological Society of America,* 7, 354–365.

McGregor, E.A. (1949) Nearctic mites of the family Pseudoleptidae. *Memoir of the Southern California Academy of Sciences*, 3 (2), 1–45.

Mesa, N.C., Ochoa, R., Welbourn, W., Calvin Evans, G.A. & Moraes, G.J. (2009) A atalog of the Tenuipalpidae (Acari) of the world with a key to the genera. *Zootaxa,* 2098, 1–185.

Meyer, M.K.P.S. (1979) The Tenuipalpidae (Acari) of Africa with keys to the world fauna. *Entomology Memoir nr. 50, Department of Agricultural Technical Services, Republic of South Africa*, 135 pp.

Meyer, M.K.P.S. & Ryke, P.A.J. (1959) South Africa plant parasitic mites of the families Tenuipalpidae and Tuckerellidae (Acarina : Prostigmata). *Journal of Entomological Society of Africa*, 22 (2), 316–329.

Mitrofanov, V.I. (1973) Revision of the system of phytophagous mites of the subfamily Brevipalpinae (Trombidiformes, Tenuipalpidae). *Zoologichesky Zhurnal,* 52 (4), 507–511.

Pritchard, A.E. & Baker, E.W. (1951) The false spider mites (Acarina: Tenuipalpidae*). University of California Publications Entomology*, 9, 1–94.

Pritchard, A.E. & Baker, E.W. (1958) The false spider mites (Acarina: Tenuipalpidae*). University of California Publications Entomology*, 14, 175–274.

Sadana, G.L. & Gupta, B.K. (1983) Phytophagous mite fauna of Assan together with new records and new species. *Entomon*, 8 (1), 1–6.

Sayed, M.T. (1942) Contribution to the knowledge of Acarina of Egypt. II-The genus *Tenuipalpus* Donnadieu. *Bulletin Society of Fouad1er Entomology*, 26, 93–113.

Sayed, M.T. (1946) Description of *Tenuipalpus granati* nov. spec. And *Brevipalpus pyri* nov. spec. *Bulletin Society of. Fouad1er Entomology*, 30, 98–104.

Sayed, M.T. (1950) Description of a new genus and two new species of the family Tenuipalpidae. *Proceedings of the 8th International Congress of Entomology*, 1018–1021.

Tucker, M.A. (1926) Some South African Mites. Mainly Tetranychidae and Eriophyidae. *Union of South Africa Department of Agriculture, Division of Entomology, Memoir No. V, Pretoria*, 5, 3–15.

Womersley, H. (1940) Studies in Australian Acarina Tetranychidae and Trichadenidae. *Transactions of the Royal Society of South Australia*, 64 (2), 233–265.

Zaher, M.A. (1986) *Phytophagous mites in Egypt*. PL.480 Programme U.S.A. Project No. EG-ARS-30. Grant No. FG-EG, 228 pp.

Zhang, Z.Q. (2003) *Mites of Greenhouses: Identification, Biology and Control.* Centre of Agriculture and Biosciences International Publishing, Wallingford, United Kingdom, xii + 244 pp.