

# Acarologia

A quarterly journal of acarology, since 1959  
Publishing on all aspects of the Acari

All information:

<http://www1.montpellier.inra.fr/CBGP/acarologia/>  
[acarologia-contact@supagro.fr](mailto:acarologia-contact@supagro.fr)



**Acarologia is proudly non-profit,  
with no page charges and free open access**

Please help us maintain this system by  
**encouraging your institutes to subscribe to the print version of the journal**  
and by sending us your high quality research on the Acari.

Subscriptions: Year 2022 (Volume 61): 450 €

<http://www1.montpellier.inra.fr/CBGP/acarologia/subscribe.php>

Previous volumes (2010-2020): 250 € / year (4 issues)

Acarologia, CBGP, CS 30016, 34988 MONTFERRIER-sur-LEZ Cedex, France

ISSN 0044-586X (print), ISSN 2107-7207 (electronic)

The digitalization of Acarologia papers prior to 2000 was supported by Agropolis Fondation under the reference ID 1500-024 through the « Investissements d'avenir » programme (Labex Agro: ANR-10-LABX-0001-01)



**Acarologia** is under **free license** and distributed under the terms of the Creative Commons-BY.

# Notes on tenuipalpid mites associated with *Quercus pubescens* in southern Italy

Marcello De Giosa <sup>a,b</sup>, Enrico De Lillo <sup>a</sup>, Ronald Ochoa <sup>c</sup>

<sup>a</sup> Department of Soil, Plant and Food Sciences (Di.S.S.P.A.), University of Bari Aldo Moro, via Amendola, 165/a, Bari, 70126, Italy.

<sup>b</sup> World Biodiversity Association Onlus cò Museo Civico di Storia Naturale, Lungadige Porta Vittoria, 9, 37129 Verona, Italy.

<sup>c</sup> Systematic Entomology Laboratory, United States Department of Agriculture, Agricultural Research Service, Beltsville, Maryland, 20705, USA.

## Short note

### ABSTRACT

During a survey of the flat mites (Tenuipalpidae) on forest trees and agricultural crops in five different sites of the Apulian territories (Southern Italy) in 2019, *Brevipalpus recki* (Livschitz & Mitrofanov) and *Cenopalpus longirostris* (Livschitz and Mitrofanov) were collected on *Quercus pubescens* (Willdenow) (Fagaceae). The authors give an account of the new record of *C. longirostris*, which was not listed in the previous Italian fauna, and of the finding of *B. recki* in southern Italy, since it was only mentioned from the northern region of the country so far. In addition, the paper lists *Q. pubescens* as a new host plant for *C. longirostris*.

**Keywords** flat mites; new record; survey; Fagaceae

Mites of the family Tenuipalpidae Berlese are specialized plant feeders and the genera *Aegyptobia* (Sayed), *Brevipalpus* (Donnadieu), *Cenopalpus* (Pritchard & Baker) and *Tenuipalpus* (Donnadieu) include 80% of the total number of valid species around the world (Castro *et al.* 2020). The world-wide economic importance of flat mites has been increasing due to the rapid spread of major invasive species and to the association of some of them with the transmission of plant pathogens, mainly viruses (de Lillo *et al.* 2021). Despite their economic significance, the geographic distribution and host associations of the Tenuipalpidae are largely incomplete. Several species of the genus *Brevipalpus* and *Cenopalpus* have been described on oaks (*Quercus* spp.: Fagaceae) around the world: *Cenopalpus abaii* Khosrowshahi & Arbabi, *C. lanceolatisetae* Attiah, *C. meyeri* Khosrowshahi, *C. quercusi* Khanjani *et al.*, *Brevipalpus albus* De Leon, *B. alni* De Leon, *B. arizonicae* Baker & Tuttle, *B. encinarius* De Leon, *B. glomeratus* Pritchard & Baker, *B. insinuates* De Leon, *B. linki* Baker, *B. mitrofanovi* Pegazzano, *B. moreliensis* Baker & Tuttle, *B. oaxacensis* De Leon, *B. ogmus* Pritchard & Baker, *B. pseudopini* (Baker & Tuttle), *B. quercicolus* De Leon, *B. querensis* Baker & Tuttle, *B. recki* Livschitz & Mitrofanov and *B. rugosus* De Leon (Baker 1949; Pritchard and Baker 1952, 1958; De Leon 1960, 1961; Livshitz and Mitrofanov 1967; Thewke and Enns 1970; Pegazzano 1975; Meyer and Gerson 1980; Baker and Tuttle 1987; Hatzinikolis and Emmanouel 1987; Papaioannou-Souliotis *et al.* 1994; Khosrowshahi and Arbabi 1997; Sağlam and Çobanoğlu 2010; Khanjani *et al.* 2012; Ardali *et al.* 2014). Despite the above-mentioned list of species recorded on oaks, only two species *B. mitrofanovi* and *B. recki* have been found in Italy (Bernini *et al.* 1995). The aim of this study was to improve knowledge about tenuipalpid species found on *Quercus* species in Italy, updating Pegazzano (1975). Based on the current study, *C. longirostris* (Figure 1) is a newly recorded species from Italy and *B. recki* is spread also in the south of Italy.

Received 02 August 2021  
Accepted 10 December 2021  
Published 07 January 2022

Corresponding author  
Marcello De Giosa   
marcello.degiosa.uniba@gmail.com

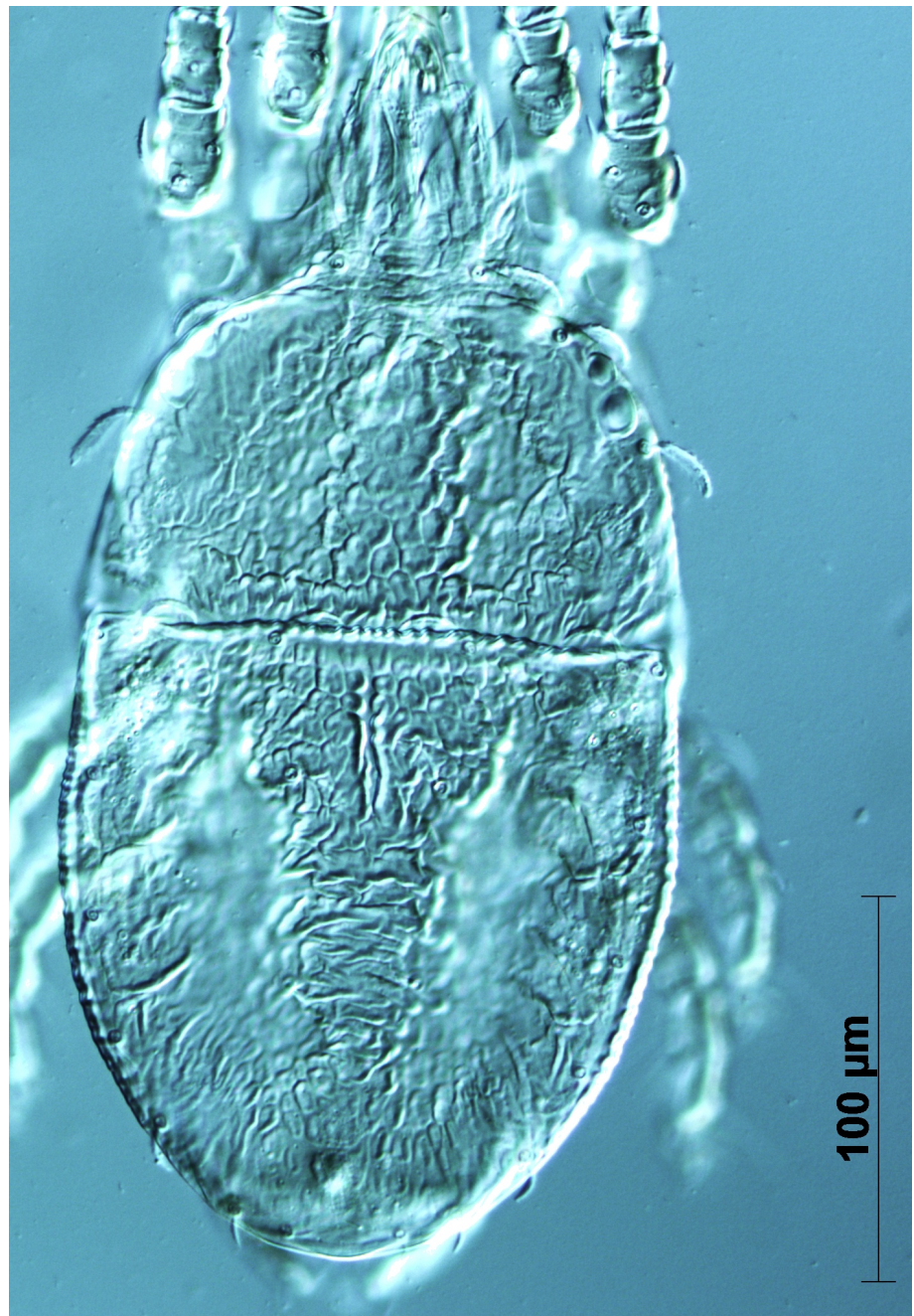
Academic editor  
Navia, Denise

[https://doi.org/  
10.24349/tayr-ir00](https://doi.org/10.24349/tayr-ir00)

ISSN 0044-586X (print)  
ISSN 2107-7207 (electronic)

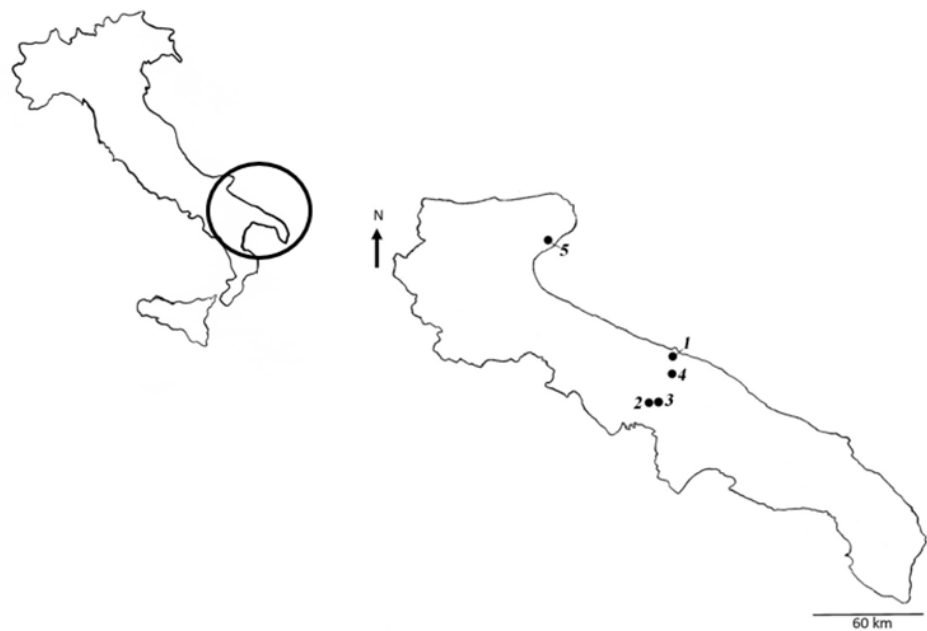
 Copyright  
De Giosa M. *et al.*

Distributed under  
Creative Commons CC-BY 4.0



**Figure 1** Light micrograph (DIC) of *Cenopalpus longirostris*, adult female.

Leaves and twigs of twenty plants belonging to the genus *Quercus* (*Q. coccifera* L., *Q. ilex* Lour., *Q. pubescens* Will., *Q. robur* L., *Q. sp.* and *Q. suber* L.) (Table 1) were sampled between September and October 2019 in five locations of the Apulia District (Southern Italy): Bari (crop area), Mercadante Forest (Alta Murgia National Park – crop and natural areas), Cassano delle Murge (natural area), Bitetto (natural area) and Mattinata (natural area) (Figure 2). Plant samples were kept in polyethylene bags containing a paper towel, stored in a refrigerator (at about +4°C) and analyzed using Olympus SZH10 stereomicroscope at the Department of Soil, Plant and Food Sciences (DiSSPA), University of Bari Aldo Moro. Mites were slide-mounted in Hoyer's mounting medium (Walter and Krantz 2009) and dried in an oven (40-50 °C)



**Figure 2** Map of Apulian District showing the locations inspected for *Brevipalpus recki* and *Cenopalpus longirostris*. **Negative sites:** 1 (Bari), 3 (Cassano delle Murge - Alta Murgia National Park) and 5 (Mattinata). **Positive sites:** 2 (Mercadante Forest - Alta Murgia National Park) and 4 (Bitetto).

for one week. Mites were identified based on the original descriptions and illustrations by Livschitz and Mitrofanov (1967); the identification of the plant hosts follows Fiori (1969). The specimens were studied using Differential Interference Contrast (DIC) and Phase Contrast microscopy. Voucher specimens were deposited in the Entomological and Zoological Section, Department of Soil, Plant and Food Sciences (DiSSPA), University of Bari Aldo Moro, Italy (UNIBA); two slides of *C. longirostris* (1 deutonymph and 1 ♀) are deposited also in the United States National Insect and Mite Collection Smithsonian Institution, located at the Systematic Entomology Laboratory (SEL), USDA, Beltsville, Maryland, USA (USNM).

*Brevipalpus recki* and *C. longirostris* have been previously recorded on various host plant families: *B. recki* on Asteraceae (*Inula vulgaris* Trevis.), Fagaceae (*Q. alba* L., *Q. cerris* L., *Q. ithaburensis* Decne., *Quercus* sp.) and Rosaceae (*Cerasus avium* (L.) Moench, *Rubus* sp.); *C. longirostris* was reported on Fagaceae (*Quercus* sp.) (Papaioannou-Souliotis *et al.* 1994) and Rosaceae (*Pyrus communis* L.) (Livschitz and Mitrofanov 1967). However, *B. recki* and *C. longirostris* were collected together on *Q. pubescens* in three out of twenty samples inspected from the Mercadante Forest (Alta Murgia National Park) and Bitetto, located in southern Italy. Previously 27 species of flat mites were listed for Italy (De Giosa *et al.* 2021) and with the finding of *C. longirostris*, the total number of tenuipalpid mites in Italy increased to 28 species.

## Acknowledgements

The authors thank Dr. Gregory Evans (APHIS-USDA) and Andrew Ulsamer (SEL-USDA) for the revision and helpful suggestions. To Debra Creel (SEL-USDA) for their help and support with references and materials. To the Department of Soil, Plant and Food Sciences, University of Bari Aldo Moro; Smithsonian, National Museum Natural History; National Agricultural Library (NAL-USDA), and SEL-USDA for support and assistance with specimens, references and equipment. The mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation

**Table 1** Species belonging to the *Quercus* genus, collected in five Apulian territories.

Sample's number	Locality	Coordinates	Host species
1	Bari	41° 06'35.0''N	<i>Quercus ilex</i>
		16° 52'55.0''E	
		41°06'39.0''N	<i>Quercus sp.</i>
		16°52'57.0''E	
		41°06'43.0''N	
2	Mercadante Forest (Alta Murgia National Park)	16°52'55.0''E	<i>Quercus pubescens</i>
		41°6'43.0''N	
		16°52'55.0''E	<i>Quercus suber</i>
		41°01'30.0''N	
		16°23'57.0''E	
3	Cassano delle Murge (Alta Murgia National Park)	40°53'06.0''N	<i>Quercus ilex</i>
		16°39'11.0''E	
		40°53'15.0''N	<i>Quercus robur</i>
		16°41'25.0''E	
		41°01'30.0''N	
4	Bitetto	16°23'57.0''E	<i>Quercus pubescens</i>
		40°52'26.0''N	
		16°41'50.0''E	<i>Quercus robur</i>
		41°02'26.0''N	
		16°41'40.0''E	
5	Mattinata	41°02'53.0''N	<i>Quercus sp.</i>
		16°42'36.0''E	
		41°02'27.0''N	<i>Quercus pubescens</i>
		16°44'12.0''E	
		41°43'01.0''N	
		16°04'36.0''E	<i>Quercus ilex</i>

or endorsement by the USDA; USDA is an equal opportunity provider and employer. Research supported in part by University of Bari Aldo Moro (Global thesis).

## References

- Ardali M.-R., Hadizadeh A., Sharif M.-M., Khanjani M., Attiah H.-H. 2014. Tenuipalpid mites from Northern Iran and description of the male of *Cenopalpus rubusi* Khanjani 2012. *Acarologia*, 54(4): 453-462. <https://doi.org/10.1051/acarologia/20142140>
- Baker E.-W. 1949. The genus *Brevipalpus* (Acarina: *Pseudoleptidae*). *The American Midland Naturalist*, 42(2): 350-402. <https://doi.org/10.2307/2422013>
- Baker E.-W., Tuttle D.-M. 1987. The false spider mites of Mexico. United States Department of Agriculture, Agricultural Research Service, Technical Bulletin, 1706: 1-237.
- Bernini F., Castagnoli M., Nannelli R. 1995. Arachnida, Acari. In: Minelli A., Ruffo S., La Posta S. (eds.), Checklist delle specie della fauna italiana, 24. Edizione Calderini, Bologna, pp. 1-131.
- Castro E.B., Mesa N.C., Feres R.J.F., Moraes de G.J., Ochoa R., Beard J.J., Demite P.R. 2020. A newly available database of an important family of phytophagous mites: Tenuipapidae Database. *Zootaxa*, 4868(4): 577-583. <https://doi.org/10.11646/zootaxa.4868.4.7>
- De Giosa M., Bassini-Silva R., de Lillo E., McDonald E.M., Ochoa R. 2021. Italian Acarine species intercepted in the United States. *International Journal of Acarology*, 47(8): 689-694. <https://doi.org/10.1080/01647954.2021.1990407>
- De Leon D. 1960. The genus *Brevipalpus* in Mexico, Part I (Acarina: Tenuipalpidae). *Florida Entomologist*, 43(4): 175-187. <https://doi.org/10.2307/3492784>
- De Leon D. 1961. The genus *Brevipalpus* in Mexico, Part II (Acarina: Tenuipalpidae). *Florida Entomologist*, 44(1): 41-52. <https://doi.org/10.2307/3492547>
- de Lillo E., Freitas-Astúa J., Kitajima E.W., Ramos-González P.L., Simoni S., Tassi A.D., Valenzano D. 2021. Phytophagous mites transmitting plant viruses: update and perspectives. *Entomologia generalis*, 41(5): 439-462. <https://doi.org/10.1127/entomologia/2021/1283>
- Fiori A. 1969. Nuova flora analitica d'Italia. Edagricole, Vol 1.

- Hatzinikolis E.-N., Emmanouel N.-G. 1987. A revision of genus *Cenopalpus* in Greece (Acarina: Tenuipalpidae). *Entomologia Hellenica*, 5(1): 13-26. <https://doi.org/10.12681/eh.13943>
- Khanjani M., Khanjani M., Saboori A., Seeman O.-D. 2012. The false spider mites of the genera *Cenopalpus* Pritchard & Baker (Acari:Tenuipalpidae) from Iran. *Zootaxa*, 3433: 1-59. <https://doi.org/10.11646/zootaxa.3433.1.1>
- Khosrowshahi M., Arbabi M. 1997. The Tenuipalpidae (Acari) of Iran with introduction of new species for the world fauna and Iran. Ministry of Agriculture, Agriculture research, Education and Extension Organization Plant Pests and Diseases Research Institute, Tehran, 1-19.
- Livschitz I.-Z., Mitrofanov V.-I. 1967. Materials to the cognition of the Acariformes: Tenuipalpidae fauna. *Proceedings Nikitsky Botanic Garden* 39: 1-72 [in Russian].
- Meyer M.-K.-P., Gerson U. 1980. Some false spider mites (Prostigmata: Tenuipalpidae) from Israel. *Israel J. Ent.*, 15: 67-81.
- Papaioannou-Souliotis P., Ragusa di Chiara S., Tsolakis C. 1994. Phytophagous mites and their predators observed on cultivated plants in Greece during 1975-1990. *Annals Institute Phytopathological Benaki*, 35-87.
- Pegazzano F. 1975. Due acari Tenuipalpidi infeudati al gen. *Quercus*: *Tauripalpus recki* (Livsh and Mitrof.) nuovo per l'Italia e *Tauripalpoidea mitorfanovi* gen. nov., sp. nov. *Redia*, 56: 543-553.
- Pritchard A.E., Baker E.-W. 1952. The false spider mites of California (Acarina: *Phytoptipalpidae*). *University of California Publications in Entomology*, 9(1): 1-94.
- Pritchard A.E., Baker E.W. 1958. The false spider mites (Acarina: Tenuipalpidae). *University of California Publications in Entomology*, 14(3): 175-274.
- Sağlam H.D., Çobanoğlu S. 2010. Determination of Tenuipalpidae (Acari: Prostigmata) species in parks and ornamental plants of Ankara, Turkey. *Turkish Journal of Entomology*, 34(1): 37-52.
- Thewke S.E., Enns W.-R. 1970. The spider-mite complex (Acarina: Tetranychoidae) in Missouri. *University of Missouri, Missouri Agricultural Experimental Station, Contribution No. 5969, and No. 7294, Entomology Research Division, USDA*, pp. 1-106.
- Walter D.E., Krantz G.-W. 2009. Collection, rearing, and preparing specimens. In: Krantz, G.W. & Walter, D.E. (Eds.), *A Manual of Acarology, Third Edition*. Texas Tech University Press, Lubbock, Texas, pp. 83-96.