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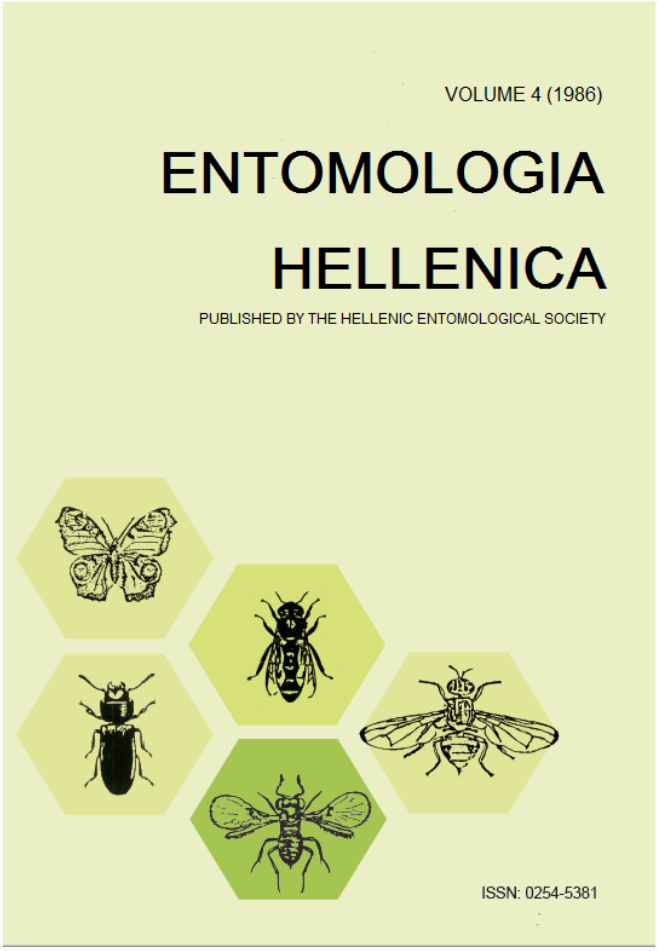


# Tenuipalpid mites (Acari: Tenuipalpidae) of Olea europaea with a key to Brevipalpus from the genus Olea

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# Tenuipalpid Mites (Acari: Tenuipalpidae) of *Olea europaea* with a Key to *Brevipalpus* from the Genus *Olea*[1]

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## ABSTRACT

This paper deals with the tenuipalpid mites which are associated with olive trees and an account is given of their distribution, hosts, and bio-ecology. A key is provided to the species of *Brevipalpus* occurring on the genus *Olea*.

## Introduction

The culture of olives is one of the most important and vital branches of agriculture in Greece. About 20% of the total cultivated area is devoted to the cultivation of olive trees and approximately 10% of the total farm income derives from it. A total of 13 tenuipalpid species have been found in various parts of the world on olive trees: 1) *Brevipalpus dosis* Chaudhri et al., 1974, from Pakistan, 2) *B. oleae* Baker, 1949, from Greece, Italy, Morocco, Portugal and Tunisia, 3) *B. olearius* Sayed, 1950, from Egypt, Crimea U.S.S.R., Greece, Italy, Libya and Turkey, 4) *B. phoenicis* (Geijkes, 1939) from California, U.S.A., 5) *Hystripalpus atalantae* Hatzinikolis, 1978, from Greece, 6) *H. chalkidicus* Hatzinikolis, 1985, from Greece, 7) *H. hellenicus* Hatzinikolis and Kolovos, 1985, from Greece, 8) *H. macedonicus* Hatzinikolis, 1983, from Greece, 9) *H. olivicola* Pegazzano and Castagnoli, 1972, from Greece and Italy, 10) *H. rotai* Castagnoli and Pegazzano, 1979, from Italy, 11) *Pentamerismus erythreus* (Ewing, 1917) from California, U.S.A., 12) *Raoiella macfarlanei* Pritchard and Baker, 1958, from Cyrenaica, and 13) *Tenuipalpus caudatus* (Dugès, 1834) from Sardinia, Italy. *Brevipalpus oleunus* Meyer, 1979, was also found on *Olea africana*, in S. Africa. The bioecology and feeding damage caused by tenuipalpid mites on olive trees is inadequately known. Some of the species prefer to live on the bark (Pegazzano and Castagnoli, 1972) whereas others occur on young shoots, buds, leaves, inflorescences and fruits (Hatzinikolis, 1982; Hatzinikolis and Kolovos, 1985). Recently, tenuipalpid mites were found more frequently and widely spread on olive trees in Greece. Because these mites attack all the parts of the tree they can produce considerable damage and are of great economic importance.

Because of the difficulty to separate the species of the genus *Brevipalpus*, a key to the species occurring worldwide on the genus *Olea* is provided.

## Remarks

*Brevipalpus* Donnadieu is a large, heterogeneous genus and because of the variation in the dorsal setal pattern a number of new genera were segregated from it. Mitrofanov (1973) segregated four new genera from *Brevipalpus* namely *Hystripalpus*, *Pritchardipalpus*, *Brachypalpus* and *Tauripalpus*. The genus *Hystripalpus* was separated from *Brevipalpus* by the presence of one more pair of dorsolateral setae on the dorsum, thus having six pairs of dorsolateral setae, whereas *Brevipalpus* has five pairs of dorsolateral setae. When taking the features of these genera into consideration it is clear that they are con-

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generic despite the difference in the number of the dorsolateral hysterosomal setae. Of the above mentioned species of *Brevipalpus* and *Hystripalpus* nine live on *Olea europea* and one on *O. africana*. These mites have six pairs of dorsolateral hysterosomal setae and six of these were classified under *Hystripalpus*, and four under *Brevipalpus*. Because we will give a key for the mites of the genus *Olea*, and in order to avoid confusion, it is a necessity to burden the genus *Brevipalpus* with a trinomial nomenclature. In this case, for the *Brevipalpus*, which has six pairs of dorsolateral setae, we propose the name of the subgenus *Hystripalpus*, and the genus *Brevipalpus*, which has five pairs of dorsolateral hysterosomal setae, we propose the name of the subgenus *Brevipalpus*. In *B. oleunus* the first dorsolateral hysterosomal setae are present and the sensory organs of tarsi I and II are slender and tapering. According to the definition of Pritchard and Baker (1958) this mite must be classified under *Cenopalpus*, but Meyer (1979) does not recognize *Cenopalpus* as a separate genus and she considers *Cenopalpus* a synonym of *Brevipalpus*. For the purpose of this study I treat *Cenopalpus* as a subgenus of *Brevipalpus*.

Illustrations of nymphae (dorsal view showing setae) to facilitate the separation of species of *Brevipalpus* on *Olea* are given (Fig. 1-Fig. 9).

## Key to the species of *Brevipalpus* based on females and nymphae

1. Hysterosoma with six pairs of dorsolateral setae. Tarsus II with a single sensory rod ..... 2
– Hysterosoma with five pairs of dorsolateral setae. Tarsus II with two sensory rods ..... *B. (B.) phoenicis*
2. Rostrum reaching distal end of femur I. Propodosoma medially and laterally with large and incomplete reticulations; body setae subspatulate ..... *B. (C.) oleunus*
– Rostrum reaching the distal end of genu I. Propodosoma with reticulation mediolaterally and anteriorly, absent in the middle; body setae lanceolate tapering ..... *B. (H.) dosis*
3. Rostrum reaching the middle of genu I. Propodosoma with reticulation mediolaterally, smooth mediodorsally; body setae broadly lanceolate. Nymphae with 1, 4, 6 dorsolateral setae long; 2, 3, 5 small... *B. (H.) olivicola*
– Rostrum reaching the distal part of genu I. Propodosoma with irregular coalesced areolae; body setae subclavate. Nymphae with 1, 2, 4, 6 dorsolateral setae long; 3, 5 small ..... *B. (H.) olearius*
4. Rostrum reaching the distal end of genu I ..... 5
– Rostrum reaching the end of tibia I. Propodosoma and hysterosoma with pores. Nymphae with 1, 4 dorsolateral setae long; 2, 3, 5, 6 small ..... *B. (H.) atalantae*
5. Propodosoma with reticulation, smooth mediodorsally; body setae lanceolate tapering. Nymphae with 4, 6 dorsolateral setae long; 1, 2, 3, 4 small ... *B. (H.) oleae*
– Propodosoma with reticulation and with areolae post-

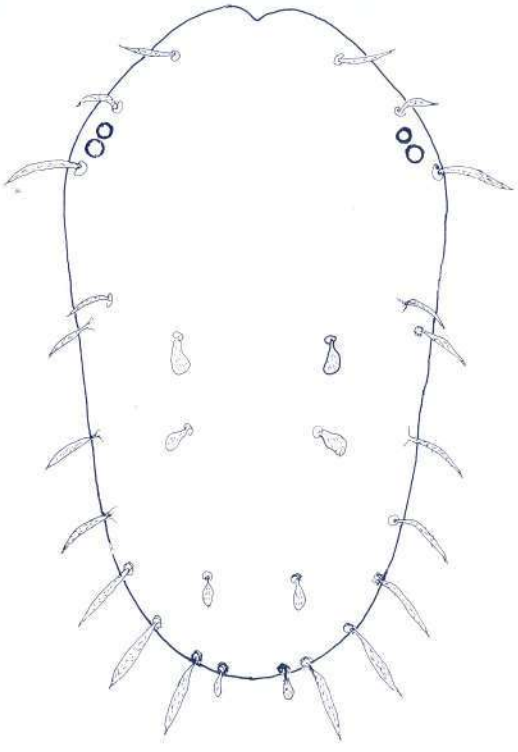

FIG. 1. *B. oleunus*, nympha, dorsal view showing setae.

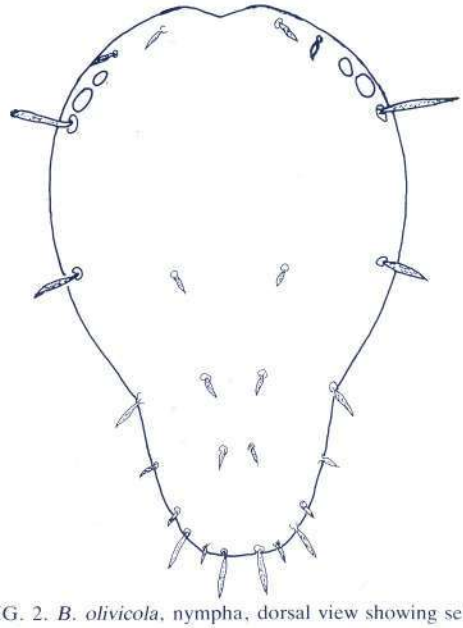

FIG. 2. *B. olivicola*, nympha, dorsal view showing setae.

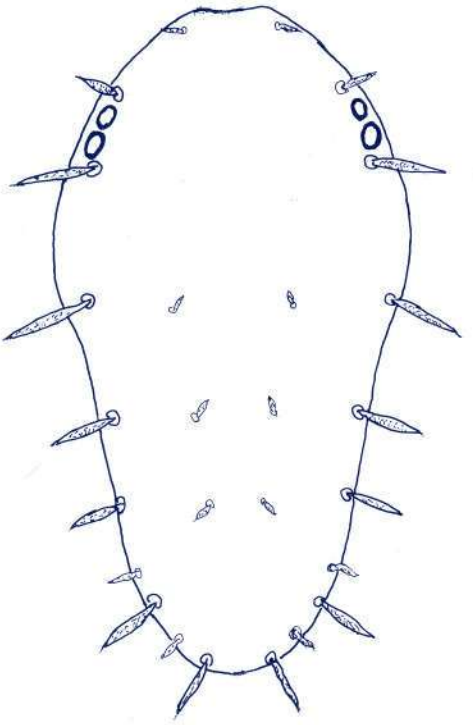

FIG. 3. *B. olearius*, nympha, dorsal view showing setae.

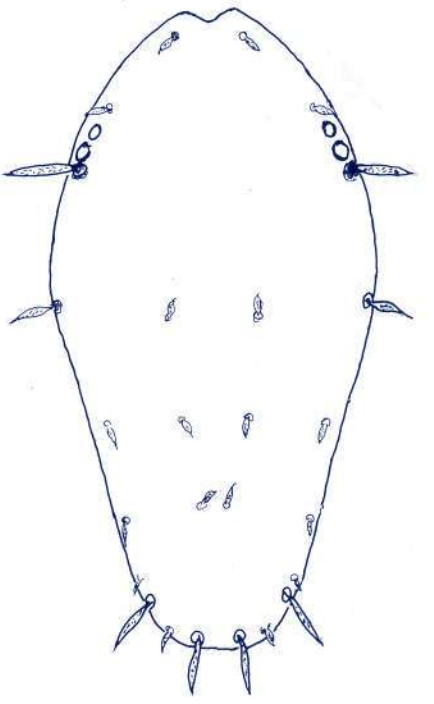

FIG. 5. *B. oleae*, nympha, dorsal view showing setae.

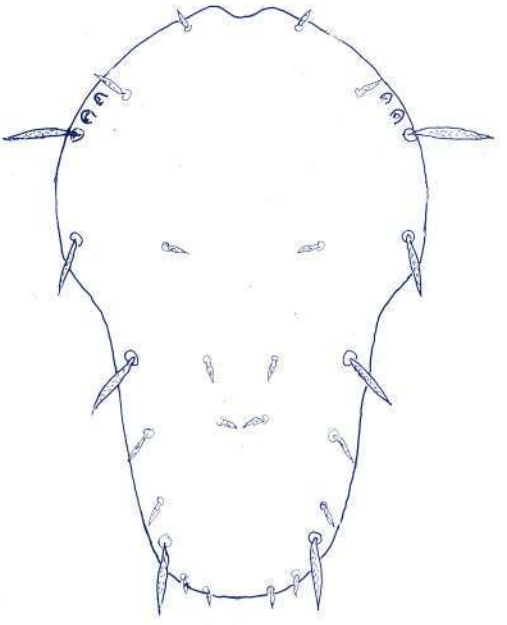

FIG. 4. *B. atalantae*, nympha, dorsal view showing setae.

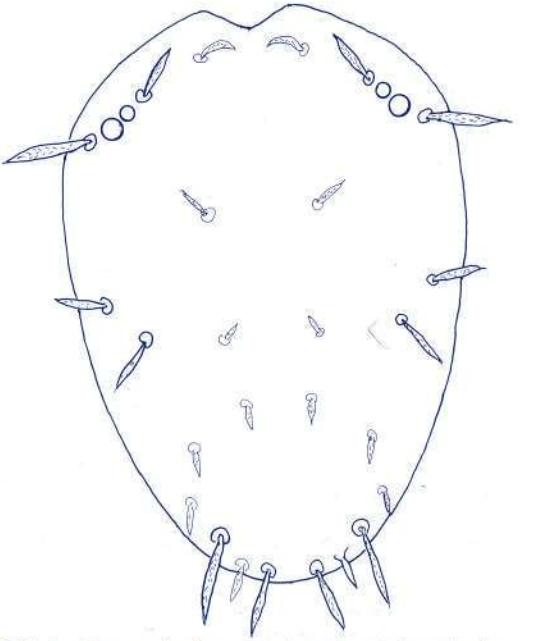

FIG. 6. *B. macedonicus*, nympha, dorsal view showing setae.

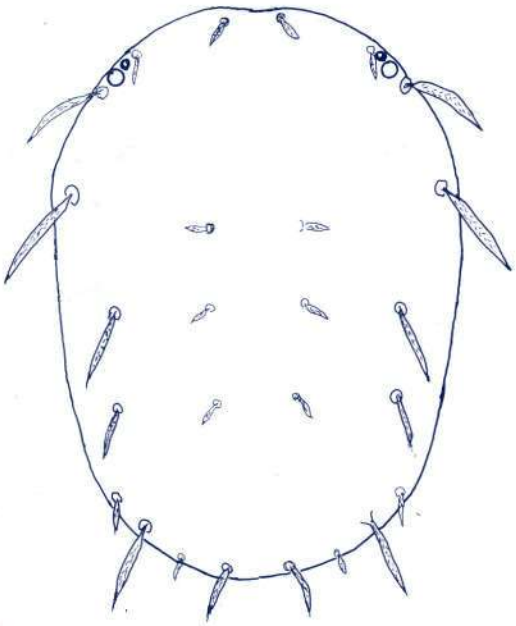

FIG. 7. *B. chalkidicus*, nympha, dorsal view showing setae.

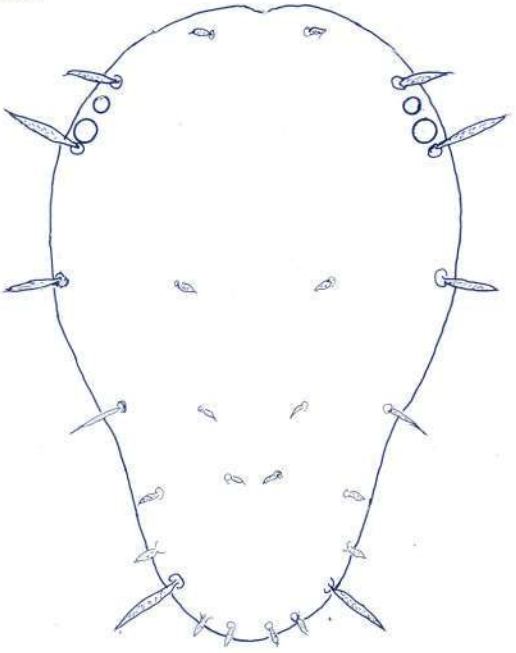

FIG. 8. *B. rotai*, nympha, dorsal view showing setae.

eriorly; body setae lanceolate. Nymphae with 1, 4, 6 dorsolateral setae long; 2, 3, 5 small
..... *B. (H.) macedonicus*

6. Hysterosoma with pores ..... 7
– Hysterosoma without pores. Propodosoma with similar reticulation. Nymphae with 1, 2, 4 dorsolateral setae long; 3, 6 of moderate length; 5 small

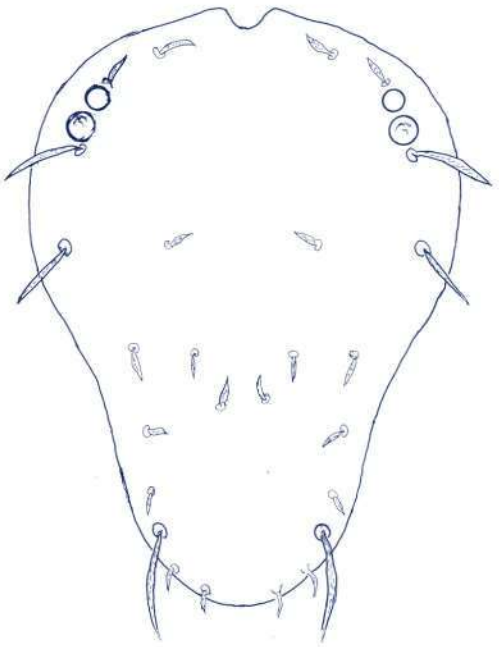

FIG. 9. *B. hellenicus*, nympha, dorsal view showing setae.

..... *B. (H.) chalkidicus*

7. Propodosoma with regular reticulations mediolaterally and anteriorly with large incomplete reticulations in the middle. Nymphae with 1, 4 dorsolateral setae long; 2, 3, 5, 6 small ..... *B, (H.) rotai*
– Propodosoma with different shapes and sizes of reticulations, in the middle with longitudinal striae. Nymphae with 4 dorsolateral setae long; 1, 2, 3, 5, 6 small
..... *B. (H.) hellenicus*

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KEY WORDS. Acari, Tenuipalpidae, *Brevipalpus*, *B. phoenicis*, *B. oleunus*, *B. dosis*, *B. olivicola*, *B. olearius*, *B. atalantae*, *B. oleae*, *B. macedonicus*, *B. chalkidicus*, *B. rotai*, *B. hellenicus*, *Olea europaea*

## Τ' Ακάρεα της Οικογένειας **Tenuipalpidae** στην *Olea europaea* και Ένα Κλειδί Διαχωρισμού για τ' Ακάρεα *Brevipalpus* του Γένους *Olea*

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### ΠΕΡΙΛΗΨΗ

Η εργασία αυτή περιλαμβάνει τ' ακάρεα της οικογένειας Tenuipalpidae που έχουν ανευρεθεί στα ελαιόδενδρα και δίνει πληροφορίες σχετικές με την εξάπλωση, ξενιστές και βιοοικολογία των. Επίσης παρουσιάζει ένα κλειδί διαχωρισμού για τα είδη *Brevipalpus*, που έχουν ξενιστή τα φυτά του γένους *Olea*.