

## DESCRIPTION OF A NEW SPECIES AND NEW RECORDS OF GENUS *TRIALEURODES* COCKERELL (HOMOPTERA: ALEYRODIDAE) FROM MEXICO

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ABSTRACT. A new species, *Trialeurodes oswaldoi*, found on the underside of leaves of *Acalypha schlumbergeri* Muell. Arg. collected in Mexico (Tepic, Nayarit), is described and illustrated based on morphological characteristics of the puparium. *T. tentaculatus* (Bemis) and *T. corollis* (Penny) are reported to Mexico (Baja California).

KEY WORDS: New species, *Trialeurodes*, taxonomy, Aleyrodidae.

RESUMEN. Se describe y se ilustra una especie nueva, *Trialeurodes oswaldoi*, tomando como base las características morfológicas de las cubiertas pupales. Los especímenes estudiados fueron encontrados en el envés de las hojas de *Acalypha schlumbergeri* Muell. Arg. en Tepic, Nayarit, México. *T. tentaculatus* (Bemis) y *T. corollis* (Penny) son reportados para Baja California, México.

PALABRAS CLAVE: Especie nueva, *Trialeurodes*, taxonomía, Aleyrodidae.

### INTRODUCTION

The genus *Trialeurodes* is worldwide in distribution with most species described from the New World (Mound and Halsey 1978). Fourteen species of the genus are known to occur in Mexico. Maskell (1896) described the first two species known from Mexico: *Aleyrodes erigerontis* (= *Trialeurodes abutiloneus* (Haldeman)) and *Aleyrodes nicotianae* (= *Trialeurodes vaporariorum* (Westwood)). Cockerell (1903) described *Aleyrodes* (*Trialeurodes*) *vitrinellus* (= *T. vitrinellus*). Baker (1937) reported *T. vitrinellus*, *T. vaporariorum* and described *T. varia*. Sampson & Drews (1941) described *T. mirissimus*. Russell (1948) described *T. coccolobae*, *T. oblongifoliae*, *T. tephrosiae*, reported *T. variabilis* from Mexico, and classified the North American species of *Trialeurodes* into the following six groups: *floridensis*, *variabilis*, *hutchingsi*, *vaporariorum*, *pergandei*, and *abutilonea*. Russell (1963)

listed *Trialeurodes floridensis* (Quaintance) from Mexico. Recently, Carapia *et al.* (2003) described *T. amealcensis* and *T. ipomoeae*, and Carapia (2006) described *T. quintanarroensis*, and *T. campecheanensis* from the Yucatan peninsula.

A new species of genus *Trialeurodes* belonging to the *pergandei* group has been discovered on the underside of leaves of *Acalypha schlumbergeri* (Euphorbiaceae) Muell. Arg. in Tepic, Nayarit, Mexico.

### MATERIAL AND METHODS

Whitefly puparia were collected in Tepic, Nayarit, Mexico on leaves of *Acalypha schlumbergeri* Muell. Arg. Between 2001-2004 (as part of a study of genus *Trialeurodes* from Mexico), preserved in 75 % alcohol, and later mounted on microscope slides using the following method (Martin, 1987).

1. Puparia specimens were placed in a vial containing a 30 % solution of potassium hydroxide (KOH) and warmed at about 70° C for 20-30 minutes.
2. Excess KOH was decanted and the puparia were rinsed in water for 15 minutes.
3. The specimens were transferred to chlorophenol (1 part of chloral hydrate and 1 part of phenol) to remove the waxy whitefly secretions.
4. Transfer specimens to acid fuchsin stain solution.
5. Rinse the specimens in glacial acetic acid.
6. Transfer specimens to clove oil.
7. Place the specimen in a drop of Canada Balsam on a clean microscope slide.
8. Label slide.
9. Place slide in drying oven for 4 weeks or more.

The holotype, paratypes and other specimens of the new species were mounted on microscope slides and examined using a Carl Zeiss microscope. Measurements were made with an eyepiece micrometer (1  $\mu\text{m}$  of maximum approximation). Photographs were taken with an integrated camera.

## RESULTS AND DISCUSSION

### *Trialeurodes oswaldoi* sp. nov. (figures 1-5)

**Puparium.** Body elongate oval, 0.8-0.9 mm long and 0.6-0.7 mm wide; cuticle pale with approximately 14 long translucent wax rods; layer wax on dorsal surface not evident; caudal end slightly curved forward.

**Dorsum.** With 13-15 pairs of papillae with thorn-like apices, slightly variable in shape and size, each associated with a dorsal pore; submedian pores and row of submarginal papillae absent; vasiform orifice elongate and notched posteriorly, with a well-defined rim along its anterior margin; two areas between the pockets and the anterior margin of the vasiform orifice swollen; posterior

margin of operculum rather broadly curved and extending posteriorly to the third pair of lobes of the lingula; longitudinal molting suture reaching margin, transverse molting suture curved posteriorly from its center and recurved anteriorly, terminating nearly opposite its midpoint; bases of the eighth abdominal setae almost medio-lateral to vasiform orifice.

Vasiform orifice, 54-59  $\mu\text{m}$  long and 45-48  $\mu\text{m}$  wide; Operculum, 35-37  $\mu\text{m}$  long and 35-39  $\mu\text{m}$  wide; Lingula, 40-51  $\mu\text{m}$  long and 12-13  $\mu\text{m}$  wide; subdorsal papillae, 16-25  $\mu\text{m}$  long and 12-16  $\mu\text{m}$  wide; 16-17 marginal crenulations in 100  $\mu\text{m}$ ; length from operculum to posterior margin of pu-

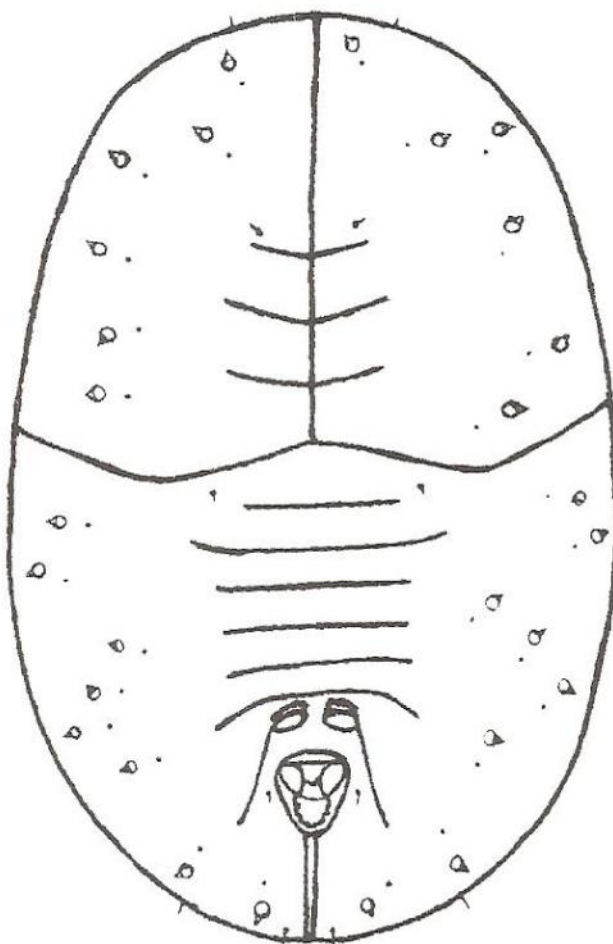


FIGURE 1. Dorsal aspect of puparium of *Trialeurodes oswaldoi* sp. nov.

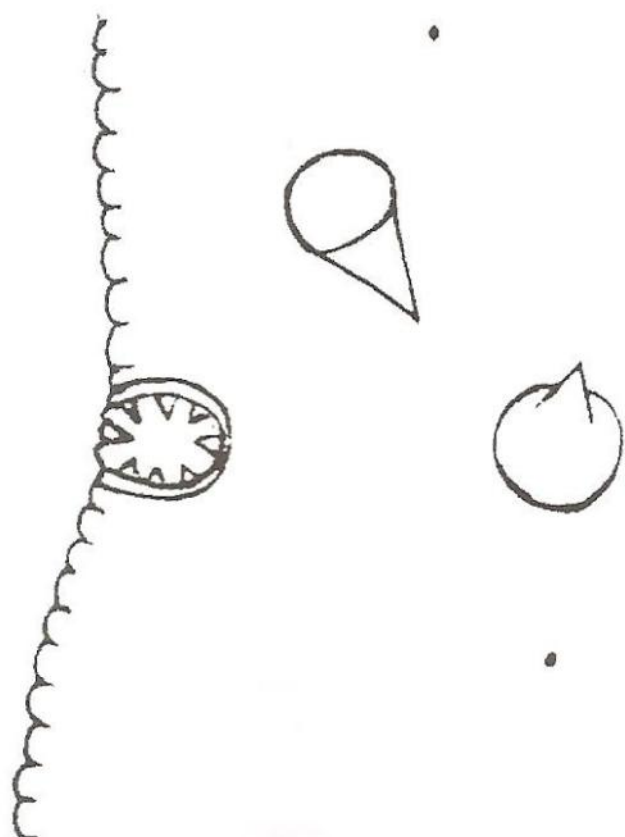


FIGURE 2. *Trialeurodes oswaldoi* sp. nov. submarginal area with detail of thoracic tracheal pore.

parium, 75-86  $\mu\text{m}$ ; median length from vasiform orifice to suture of seventh abdominal segment, 21-24  $\mu\text{m}$ .

**Venter.** Tracheal pore areas marked by pore-shaped designs on submarginal ridges, thoracic pores with around five crenulations; anterolateral area of cephalothorax with concentric lines. Inner basal area of middle legs with two spines one slightly smaller, about four poorly defined minute setae and one elongate slender seta.

**Chaetotaxy.** Anterior marginal, 4-5  $\mu\text{m}$ ; cephalic, 6-8  $\mu\text{m}$ ; first abdominal, 4-6  $\mu\text{m}$ ; eighth abdominal, 4-6  $\mu\text{m}$ ; caudal, 45-54  $\mu\text{m}$ ; posterior marginal, 5-6  $\mu\text{m}$ ; eighth ventral abdominal 30-50  $\mu\text{m}$ .

**Discussion.** *Trialeurodes oswaldoi* sp. nov. belongs to *pergandei* group as defined by Russell (1948) and can be distinguished from *T. vaporariorum*

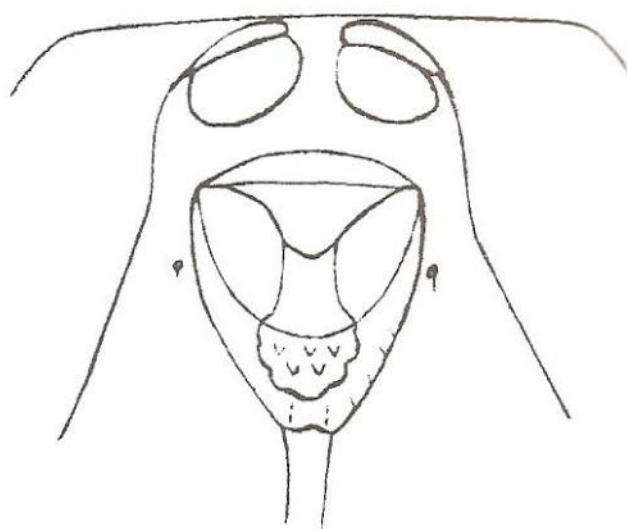


FIGURE 3. *Trialeurodes oswaldoi* sp. nov. vasiform orifice, abdominal pockets and swollen areas just posterior to pockets.

by the characteristic shape and distribution of the dorsal papillae, and the presence of a dorsal pore associated with each papilla, the well-defined rim along the anterior margin of the vasiform orifice, bases of the eighth abdominal setae almost medio-lateral to the vasiform orifice.

*Trialeurodes oswaldoi* sp. nov. was collected in April, August and December on the underside of leaves of *Acalypha schlumbergeri* (Euphorbiaceae). It is probably present throughout the year on this perennial shrub. Few specimens were found in each collection and the species is only known from this place (Tepic, Nayarit).

**Etymology.** *Trialeurodes oswaldoi* sp. nov. is named after Oswaldo Garcia Martinez, Profesor of Entomology, Universidad Autonoma Agraria "Antonio Narro", Saltillo, Coahuila, Mexico.

**Material examined.** Holotype puparium, Mexico (Tepic, Nayarit), on *Acalypha schlumbergeri*. 2-xii-2002, Carapia Ruiz V. E, deposited in the Insect National Collection (CNIN) Instituto de Biología, Universidad Nacional Autonoma de México, México D. F. Paratypes 15, same data as for holotype deposited in the author's personal collection (VECR), The Natural History Museum



FIGURE 4. *Trialeurodes oswaldoi* sp. nov. microphotograph of submarginal area.

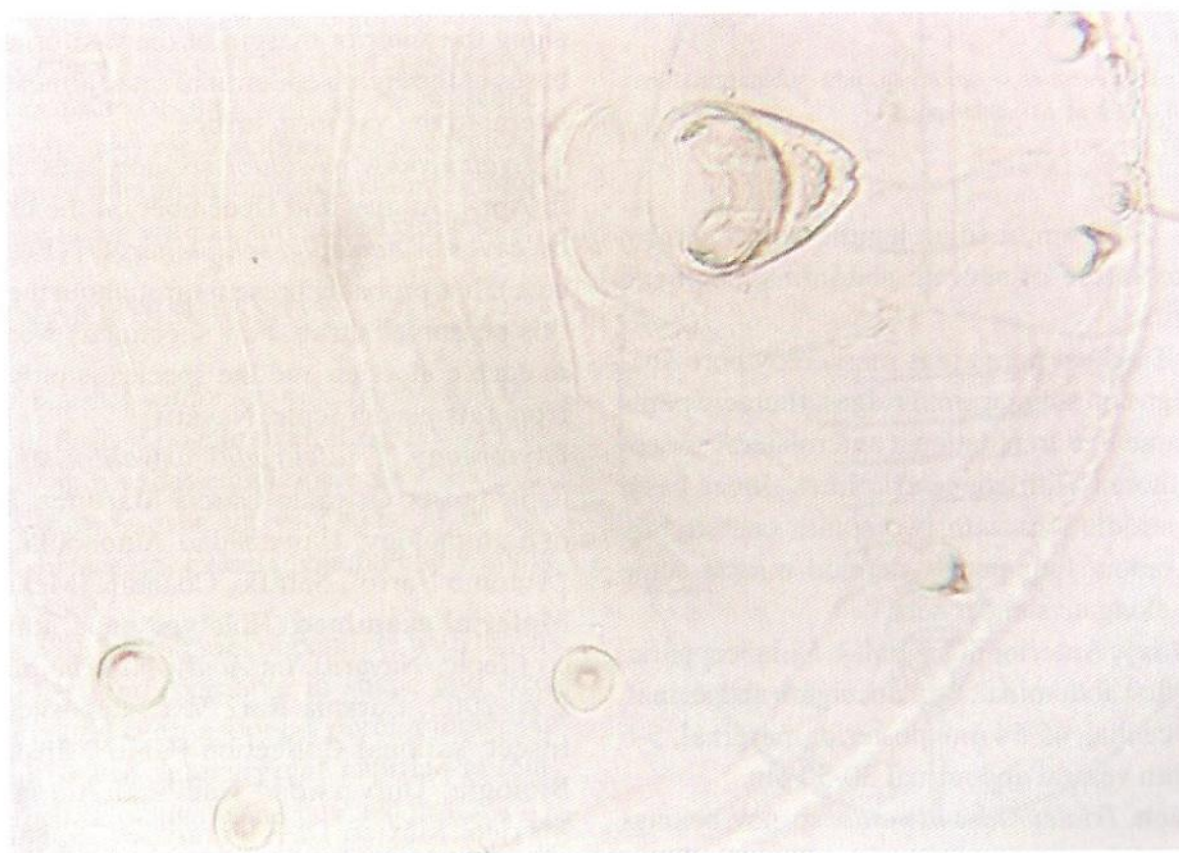


FIGURE 5. *Trialeurodes oswaldoi* sp. nov. . microphotograph of abdominal area.

(BMNH) London, England, and the United States Department of Agriculture, Beltsville, Maryland, USA (USNM).

**New records of *Trialeurodes* for Mexico.**

*T. tentaculatus* (Bemis) was collected on the underside of leaves of *Quercus agrifolia* 25 km south to Encenada, Baja California and *T. corollis* (Penny) on the underside of leaves of *Arctostaphylos* in Tecate, Baja California are reported to Mexico .

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