

The pupae of Spanish *Ochlerotatus* IV: *Ochlerotatus berlandi* Séguy (Diptera: Culicidae)

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Abstract

The pupa of *Ochlerotatus berlandi* Séguy is described and illustrated completely for the first time. A table provides the range and modal number of branches of each pupal seta.

Introduction

Ochlerotatus berlandi Séguy is distributed in the Occidental Mediterranean basin, with occurrence records in France, Italy, Portugal, Spain, Corsica, Sardinia, Greece and northern Africa. This species prefers deep tree holes and large bodies of water with basic pH. (Ramos, 1984; Rioux, 1958; Romi *et al.*, 1977; Sánchez-Covisa, 1985; Schaffner *et al.*, 2001)

The pupa of *Oc. berlandi* was briefly illustrated and included in a key by Clavero (1946). In the present paper, the pupa is completely described and illustrated for the first time (figures 1-3). The range and modal number of branches of each pupal seta are given in Table 1. Chaetotaxy and morphological descriptions follow Knight (1971) and Harbach & Knight (1980).

***Ochlerotatus berlandi* Séguy, 1921**

Cephalothorax (figure 1): Setae 1, 2,3,5,7,8,9-CT long; 4,6-CT short; 1-CT single, 2-CT usually double, 3-CT with 2 or 3 branches, 4-CT with 3-5 branches, 5-CT usually double; 6-CT usually with 3 branches; 7-CT double; 8-CT usually double; CT single.

Trumpet (figure 2): Strongly pigmented, index- 59-64; mode 6.4.

Metanotum (figure 3): Setae 10-12-CT long, 10-CT double, 11-CT single, 12-CT usually double.

Abdomen (figure 3): Seta 0-II-VIII minute, single; 1-I with 28-32 branches on basal third, 1-II-VII moderately long, 1-II usually double, 1-III with 3 or 4 branches, 1-IV with 4 branches, 1-V,VI usually double, 1-VII single or double. Seta 2-I-VII short, single. Seta 3-I-III,V-VII moderately long; 3-I,III,V-VII single, 3-II single or double; 3-IV moderately short, usually triple. Seta 4-I-III short, 4-IV-VII moderately long, 4-VIII long, 4-I double, 4-II usually with 5 or 6 branches, 4-III usually with 3 or 4 branches, 4-IV usually single, 4-V with 3-5 branches, 4-VI usually double, 4-VII,VIII single. Seta 5-I short, with 3 or 4 branches, 5-II-VII moderately long and single, 5-IV-VI extra long, single. Seta 6-I-VI long, single, 6-VII moderately long, double. Seta 7-I,II,VI,VII long, 7-III-V short; 7-I double, 7-II usually double, 7-III with 4 or 5 branches, 7-IV usually single, 7-V usually with 3 or 4 branches, 7-VI,VII single. Seta 8-III-VII short, 8-III usually with 5 branches, 8-IV with 2 or 3 branches, 8-V usually with 4 branches, 8-VI with 4 branches, 8-VII with 2 or 3 branches. Seta 9-I short, 9-II-VI minute, 9-VII,VIII moderately long, 9-I-VI single, 9-VII usually single, 9-VIII with 4 or -5 branches. Seta 10-III-VII long, 10-III,IV usually double, 10-V-VII single. Seta 11-III-VIII short, single. Seta 14-III-VIII minute, single.

Paddle (figure 3): Ovoid and with spicules on apical one-third; spicules of paddle margin long and sharp; midrib not reaching apex. Setae 1-Pa moderately short and usually single. Index - 2.1-2.2; mode 2.1.

The above description is based on the following material collected by the author in Casa de Campo, Madrid, Spain: 1 male reared from a larva captured on 24-05-2005 and 2 males reared from larvae captured on 25-05-2005. All pupae have associated adults.

Table 1. Branching of setae on pupae of *Ochlerotatus berlandi* (range with the mode in parenthesis)

| Cephalothorax | | Abdominal segment | | | | | | | | Paddle |
|---------------|---------|-------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Seta | CT | I | II | III | IV | V | VI | VII | VIII | Pa |
| 0 | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 1 | 1-2 (1) | 28-32 (32) | 1-3 (2) | 3-4 (3) | 3-4 (4) | 2-3 (2) | 1-2 (2) | 1-2 (1) | | 1-2 (1) |
| 2 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | |
| 3 | 2-3 (2) | 1 | 1-2 (1) | 1 | 3-4 (3) | 1 | 1 | 1 | | |
| 4 | 3-5 (3) | 2 | 5-6 (6) | 3-4 (4) | 1 | 3-5 (4) | 1-2 (2) | 1 | 1 | |
| 5 | 1-2 (2) | 3-4 (3) | 1 | 1-2 (1) | 1 | 1 | 1 | 1 | | |
| 6 | 2-3 (3) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | |
| 7 | 2 | 2 | 1-2 (2) | 4-5 (4) | 1-2 (1) | 3-4 (4) | 1 | 1 | | |
| 8 | 2-3 (2) | | | 4-5 (5) | 2-3 (3) | 3-4 (4) | 4 | 2-3 (2) | | |
| 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1-2 (1) | 4-5 (4) | |
| 10 | 2 | | | 2 | 2 | 1 | 1 | 1 | | |
| 11 | 1 | | | 1 | 1 | 1 | 1 | 1 | | |
| 12 | 2-3(2) | | | | | | | | | |
| 13 | | | | | | | | | | |
| 14 | | | | 1 | 1 | 1 | 1 | 1 | 1 | |

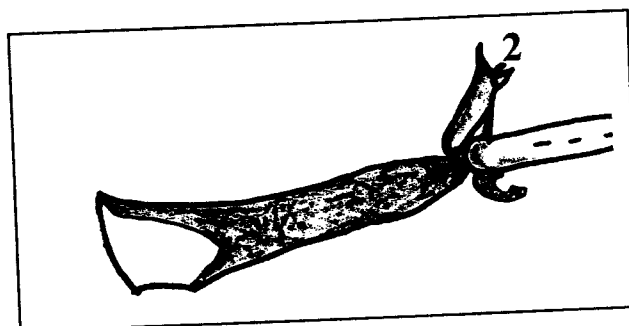
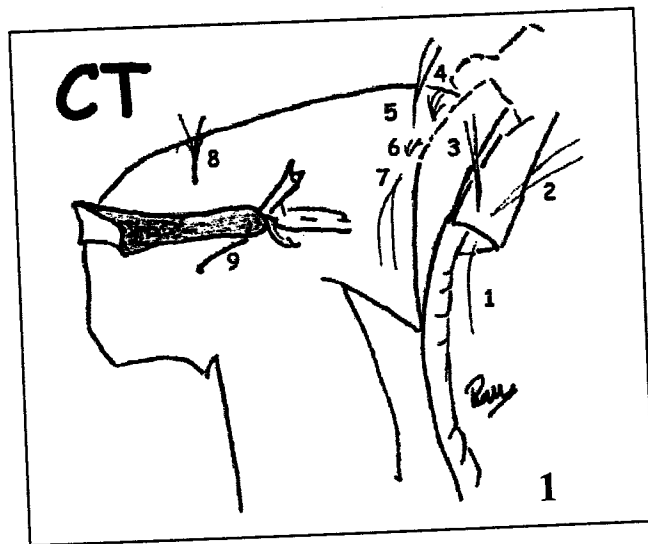
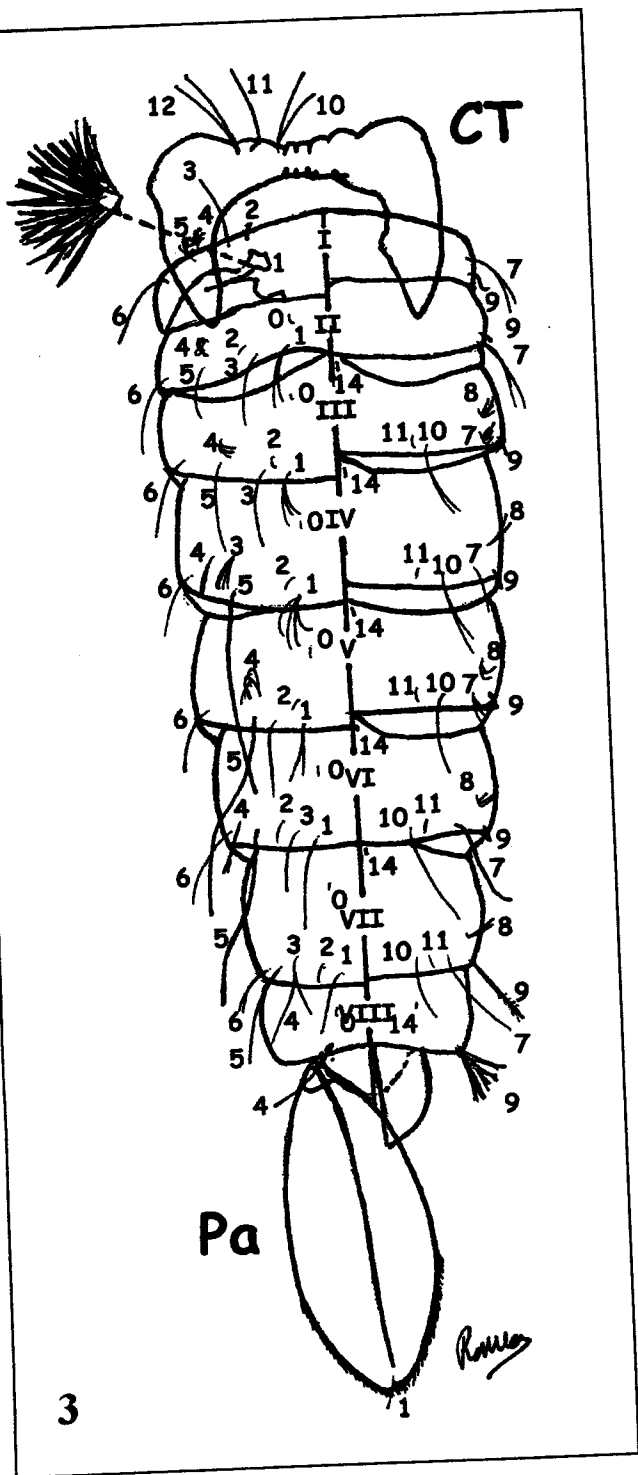
Specimens studied were collected from a tree hole in *Platanus occidentalis* L. at "Casa de campo", a large park located in the northwest of the city of Madrid. The larvae were associated with *Aedes (Finlaya) gilcolladoi*. *Ochlerotatus berlandi* is anthropophilic but is not known to vector pathogens that cause disease in humans.

Acknowledgement

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Figures 1-3: Pupa of *Ochlerotatus berlandi*. 1. Cephalothorax (CT). 2. Trumpet. 3. Metanotum, abdomen and paddle (Pa). I-VIII: abdominal segments.