

SHORT COMMUNICATION

**THE LARVA OF *APANISAGRION LAIS*
(BRAUER *IN SELYS*)
(ZYGOPTERA: COENAGRIONIDAE)**

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The larva is described and illustrated, based on material from Mexico. It is characterized by having 5+2 or 5+3 premental setae, 7 palpal setae, abdomen granular, caudal lamellae apically widened, female gonapophyses exceeding sternite 10, and male cerci sharply pointed.

INTRODUCTION

The New World genus *Apanisagrion* Kennedy comprises only one species known to date, *A. lais* (Brauer *in Selys*, 1876), ranging from USA (Arizona) to Honduras in Central America (WESTFALL & MAY, 1996). In Mexico it is widely distributed along an altitudinal gradient of approximately 1500 m (580 m a.s.l. at La Unión, Puebla state [GÓMEZ-ANAYA & NOVELO-GUTIÉRREZ, 1993] to 2050 m at Tuzanapa, Hidalgo state [NOVELO-GUTIÉRREZ & PEÑA-OLMEDO, 1991]). Although the larva of *A. lais* was previously keyed by WESTFALL & MAY (1996) I formally describe it for the first time in this paper.

APANISAGRION LAIS (BRAUER *in SELYS*, 1876)

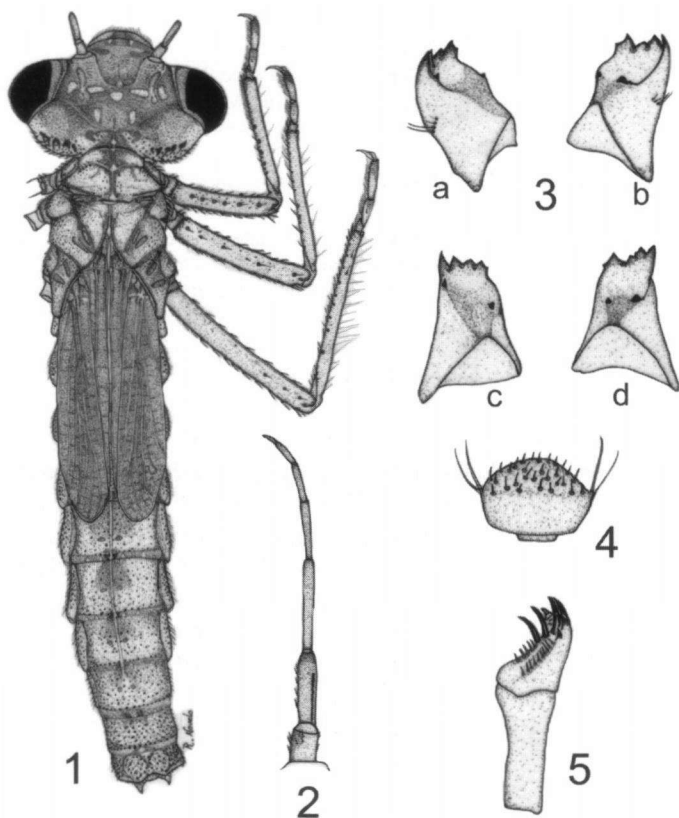
Figures 1-10

Material. – 2 exuviae (♂, reared), 6 F0 larvae (3 ♂, 3 ♀), 1 F1? (♀), 7 medium age larvae (4 ♂, 3 ♀). MEXICO: Veracruz: Municipality of Xico, Xico Viejo (19°25.920 N, 97°0.844 W, stream 1800 m), 27-VII-1997, R. Arce leg. (2 ♂). Municipality of Coatepec, Coatepec, Río Ahuacatlán at Los Tecajetes (19°28.356 N, 96°59.071 W, stream 1315 m), 20-III-1999, R. Novelo leg. (5 ♂, 2 ♀); at Colony Los Pinos (19°27.791 N, 96°58.310 W, stream 1227 m), 18-VII-2001, J.A. Gómez, R. Novelo

leg. (1 ♂). Michoacán: Municipality of Uruapan, El Sabino (19°24.684 N, 102°1.015 W, 1601 m), 15-V-2002, R. Novelo leg (2 ♀); Municipality of Chinicuila, La Nuez, El Colorín (ravine) (18°39.540 N, 103°24.057 W, 1050 m), 17-V-2002, R. Novelo, J.A. Gómez leg. (1 ♀); El Tejón (18°43.753 N, 103°14.101 W, 1315 m), 19-II-2005, R. Novelo, J.A. Gómez leg. (1 ♂). Chiapas: Municipality of Angel Albino Corzo, Reserve "El Triunfo" (15°39.510 N, 92°48.049 W, 1979 m), 14-V-2005, R. Novelo leg. (2 ♀). All deposited at Colección Entomológica del Instituto de Ecología, A.C., Xalapa (IEXA).

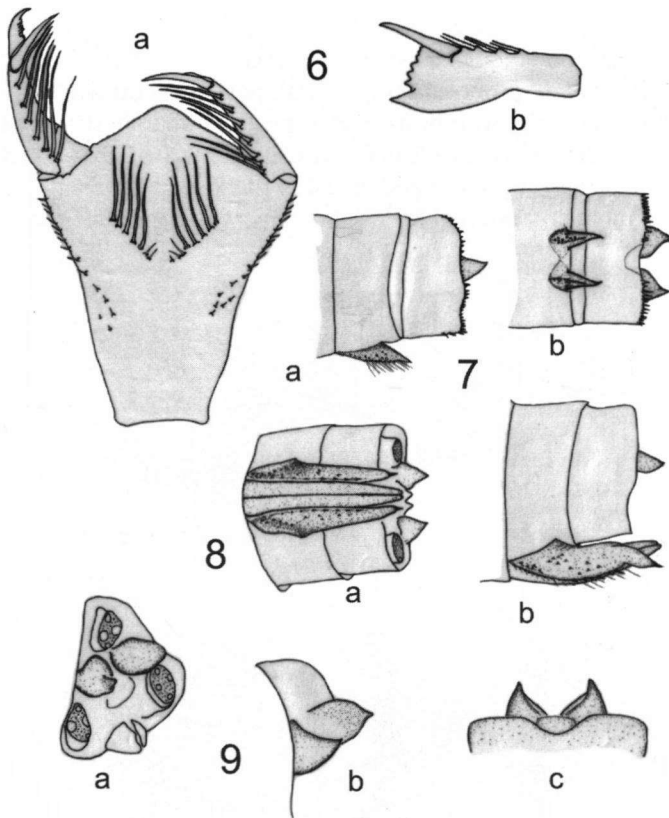
DESCRIPTION: Exuviae and larvae yellowish to light brown (alcohol specimens); larva stocky with broad head; abdomen short and robust, appearing granular on dorsal and ventral surfaces; caudal lamella densely tracheate.

Head. – Brown with yellow spots, mainly on anteclypeus and vertex (Fig. 1), almost twice as broad as long and wider than thorax and abdomen, occipital



Figs 1-5. Larval morphology of *Apanisagrion lais*: (1) dorsal aspect of the F0 larva (male) (left legs, antennal flagellomeres and gills omitted); – (2) right antenna, dorsal view; – (3) mandibles: (a-b) ventrointernal view, – (c-d) internal view of right and left mandibles, respectively; – (4) ventral pad of hypopharynx; – (5) right maxilla, dorsal view.

margin widely concave, cephalic lobes rounded and covered with short, stout, stiff setae, remainder of head smooth; compound eyes prominent. Antennae 7-segmented (Fig. 2), the third segment the longest; relative length of antennomeres: 0.4, 0.8, 1.0, 0.6, 0.4, 0.3, 0.2; scape mostly creamy pale, pedicel light brown with a longitudinal, external, narrow, dark brown stripe (Fig. 2), remainder of antennomeres light brown; apex of flagellomeres 3-6 with long, white, delicate setae arranged in circle. Labrum mostly pale, with a large, central, brown, triangular spot, setose on apical margin. Mandibles (Fig. 3) with molar teeth but lacking molar crest, with following formula (*sensu* WATSON, 1956): L 1+2 3 4 5 0 a b, R 1+2 3 4 5 y a. Ventral pad of hypopharynx subrectangular (Fig. 4), anterior margin widely convex with numerous long, white setae and anterolateral corners



Figs 6-9. Details of the morphology of the larva of *Apanisagrion lais*: (6) labium: (a) prementum, dorsal view, - (b) detail of the left labial palp, frontal view; - (7) male gonapophyses: (a) lateral view, - (b) ventral view; - (8) female gonapophyses: (a) lateral view, - (b) ventral view; - (9) male cerci: (a) laterocaudal view, - (b) dorsolateral view, - (c) dorsal view.

with two long, stiff, light brown seta directed anteriorly. Maxilla: galeolacinia (Fig. 5) with six teeth, the three dorsal teeth long and moderately incurved, the ventroapical tooth the largest, the remaining two ventral teeth the smallest, the most internal one a mere spine, a row of stiff setae preceding both ventral and dorsal teeth; maxillary palp incurved, ending in a robust, obtuse spine, with some stiff, long setae on its external surface. Labium (Fig. 6): prementum-postmentum articulation reaching basal half of mesosternum; maximum width 0.8 its length (Fig. 6a), lateral margins smooth and moderately divergent on basal half, then strongly divergent at apical half with a row of 10-11 spiniform setae; premental setae 5+2 on the left side and 5+3 on the right side; ligula prominent, triangular, its border finely serrulate; labial palp (Figs 6a, b) with 7 long and stout setae, its apical lobe divided into a squarely truncated dorsal branch composed of 4 small teeth of which the dorsal one is obtuse and with minute denticles (Fig. 6b), and a ventral branch with a well-developed end hook; internal margin of palp finely serrated; movable hook long and sharply pointed.

T h o r a x. — Tan; pronotum trapezoidal, posterolateral angles moderately angular with a row of short robust setae, its posterior margin straight at middle. Anterior and posterior wing pads reaching 0.20 and 0.30 of abdominal segment 5, respectively. Legs pale, basal and apical borders of all segments, and dorsal carinae on femora and external carinae on tibiae with a narrow brown line (Fig.

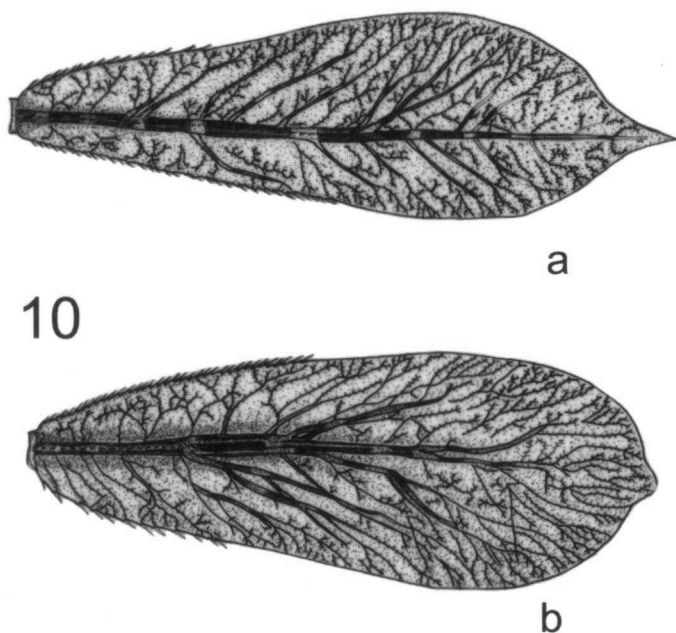


Fig. 10. Caudal lamellae: (a) left paraproct, external view, — (b) epiproct, left lateral view.

1); basal tarsomere, dorsal (external) surface of middle tarsomere and apical half of distal tarsomere brown, remainder pale. Femora and tibiae covered with spiniform setae mainly on dorsal (external) and ventral (internal) borders; tibiae with numerous tridentate setae on apicointernal surfaces; ventral surface of tarsi with a double row of stiff setae, claws simple with a pulvilliform empodium.

A b d o m e n. — Cylindric (Fig. 1), light brown, with narrow, pale, middorsal line on segments 3-7, gradually narrowing rearward, with a granular aspect on dorsal and ventral surfaces; lateral margin of segments 1-7 slightly convex, straight on 8-10, on 1-8 with a row of short, spiniform setae; posterior margin of segments 1-9 smooth, with a row of spiniform setae on 10. Male gonapophyses sharply pointed (Fig. 7), tips very slightly incurved in ventral view, reaching basal 0.30 of sternite 10, with a row of 9-10 small spiniform setae intermingled with long, white, delicate setae. Female gonapophyses exceeding posterior margin of sternite 10 (Fig. 8), lateral valvae sharply pointed with a ventral row of 4-6 robust spines on the middle third that increase in size and robustness posteriorly, basal third with 8-9 minute spiniform setae, apical third smooth. Male cerci globular basally, sharply pointed as in Figures 7 and 9; female cerci as in Figure 8. Caudal lamellae (epiproct and paraproct) membranous (Fig. 10), profusely tracheate, widening gradually from base to apex reaching maximum width at basal 0.65 of their length, nodus absent; apex of paraproct (Fig. 10a) ending in a short tip which represents 0.10 of its total length, dorsal series of spiniform setae reaching basal 0.25, ventral series reaching basal 0.45, lateroexternal carina extending along basal 0.53 of the length of paraproct with numerous spiniform setae. Epiproct (Fig. 10b) widely rounded at apex, tip short and obtuse, dorsal series of spiniform setae reaching basal 0.45, ventral series reaching basal 0.30, lateral carinae extending along basal 0.55 the length of epiproct.

M e a s u r e m e n t s (in mm; average in square brackets). — Only F0 larvae: Total length (excluding caudal appendages) 10.8-14.1, [12] (N = 6); abdomen 7.0-9.6, [7.8] (N = 6); maximum width of head 3.2-3.4, [3.3] (N = 6); hind femur (dorsal) 2.7-3.1, [2.9] (N = 6); epiproct 3.2-5.7, [4.5] (N = 5); paraproct 3.7-5.6, [4.8].

REMARKS. — *Apanisagrion lais* inhabits small bogs or swampy areas formed alongside streams, usually in more or less shaded conditions. It is also commonly found in eutrophized seepages. Larvae are associated to the emergent grasses or roots of herbaceous vegetation at the edge of these water bodies.

DISCUSSION

WESTFALL & MAY (1996) mentioned that the larvae of *Apanisagrion* “somewhat resemble those of *Telebasis* because of their unusually broad lateral gills”. These authors also stated differences with *Telebasis* based upon the number of premental setae, 5 in *Apanisagrion* and 3 or fewer in *Telebasis*. Perhaps at first glance larvae of both genera could resemble each other, but a closer inspection reveals many differences (those of *Telebasis* in parentheses): the abdomen of

Apanisagrion lais appears densely granular, a condition resembling more that of an *Ichnura* (mostly smooth with some hair-like setae and sparse spiniform setae); lateral margins of abdominal segments 1-8 have a row of spiniform setae (lack spiniform setae); left mandible with formula L 1+2 3 4 5 0 a b (L 1+2 3 4 5 y a b); premental setae 5+2 or 5+3 (1-3); palpal setae 7 (6); the squarely truncate dorsal branch of apical lobe of palp is composed of 4 well differentiated small teeth (Fig. 6b) (dorsal branch just finely denticulated); male cerci sharply pointed (rounded); female gonapophyses clearly exceeding posterior margin of sternite 10 (slightly surpassing it); caudal lamellae lacking nodus (with nodus), not dotted (dotted).

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