

# Description of Last Instar Naiads of *Rhyothemis variegata variegata* (Linnaeus) and *Pantala flavescens* (Fabricius) [Libellulidae: Odonata]

RIAZ HUSSAIN AND MUHAMMAD RIAZ†

Pest Warning and Quality Control of Pesticides, Burewala and †Vehari, Pakistan

## ABSTRACT

The naiads or nymphs of *Rhyothemis variegata variegata* (Linnaeus) and *Pantala flavescens* (Fabricius) are described in detail with illustrations.

**Key Words:** Naiads/nymphs; Descriptions; Taxonomy; Libellulidae; Odonata

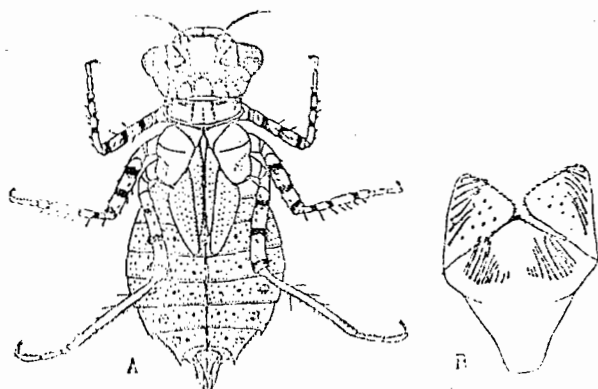
## INTRODUCTION

The nymphs or naiads of *Rhyothemis variegata variegata* (Linnaeus) and *Pantala flavescens* (Fabricius) are aquatic, predacious and in turn fall a prey to other predators such as fishes and birds. Numerous reports are available on the taxonomy of these insects from other countries (Needham, 1930; Needham & Westfall, 1955; Gardner, 1960; Musser, 1962; Begum *et al.*, 1982). This paper presents the taxonomy of these naiads collected from Sindh, Pakistan.

The samples collected from different localities of Sindh were brought to the Department of Agricultural Entomology, University of Agriculture, Faisalabad. They were identified and the taxonomic characteristics recorded with the help of keys and published description (Needham, 1930; Musser, 1962).

### I. *Rhyothemis variegata variegata* (Linnaeus)

**Fig. 1.** Naiad of *Rhyothemis variegata variegata* (A) and its labium (B)



The naiads are thickset, short to large, smooth and patterned with brown colour.

**Head.** Large, roughly quadrangular, wider than long (including eyes), its hind angles obtusely rounded and hind margin between them concave. Eyes normal, more prominent laterally, with their posterior margin concave and a large dark brown spot along inner side of each eye. Antennae filiform in early instars but setaceous in full-grown naiads, third segment longer than fourth, with light brown colouration on its basal half. Labium with its hinge reaching between pro-coxae; median lobe smooth, greatly triangular and beset with a row of spinules increasing in length towards front point; movable hooks thicker at base, shorter than lateral setae and incurving in early instars but straight in full-grown naiads; teeth on lateral lobes 11 margined with spinules of three sizes in early instars while obsolete and marked with single spinules in full-grown naiads; venter of lateral lobes with blackish spots; lateral setae 6 or 10; mental setae 11-13.

**Thorax.** Prothorax almost equal to the hind margin of head, with its middle lobe carinated. Wing-pads parallel, with black subdorsal spots, rather obsolete. Legs thin, femora and tibiae encircled with three annuli, but obsolete on hind tibiae, while in full-grown naiads these are absent; tarsal segments apically marked with brown.

**Abdomen.** Circular in form in early instars, but longer than wide in later instars, patterned with a lateral irregular row of large, indistinct, dark brown, spots on segments 4-9, two rows of subdorsal small, rounded, black spots on each side of segments 5-10 and 9th having only two such spots in lower row; dorsal hooks present on segments 2-9 or 3-9, while just a mark of dorsal hook on 10th in full-grown naiads; those of 5-9 laterally flattened, ridge-like with the point projecting on succeeding segments while on 2-4 more or less raised;

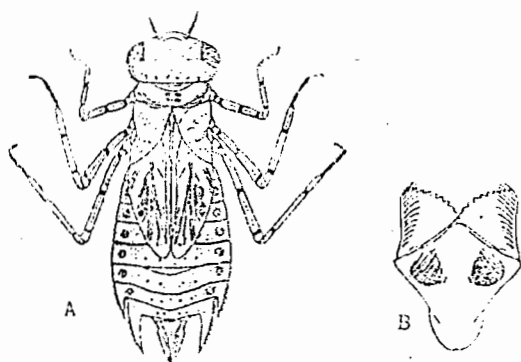
lateral spines short, straight, externally fringed with hair, that of 9 extending almost upto the end of segment 10, caudal appendages provided with hair; epiproct slightly shorter than paraprocts and carinated dorsally; paraprocts decurving at tips; cerci less than half the length of paraprocts.

**Remarks.** The representatives of this species closely tally with the published description of Needham (1930). They have a close resemblance with *Brachythemis contaminata* (Fabricius) from which they can be distinguished by the somewhat flat eyes which are more prominent laterally and by the four black spots on 10th abdominal segment.

**Material examined.** Total 10, Shikarpur 6, 28-8-87; Sonda (Thatta) 4, 3-9-87.

## II. *Pantala flavescens* (Fabricius)

Fig. 2. Naiad of *Pantala flavescens* (A) and its labium (B)



The naiads of this species are larger, smooth and beautifully patterned with brown.

**Head.** Large, wider than long (including eyes), hind angles rounded and posterior margin between them straight. Eyes broadly rounded, more lateral in position, slightly longer than wide (when measured from middle), with their posterior inner corners slightly pointed. Antennae setaceous, third segment longest of all segments. Labium with its hinge reaching between meso-coxae; median lobe smooth, without spinules at its anterior border, greatly triangular but rounded at apex, with sides slightly concave; movable hooks of lateral lobes straight, much shorter than lateral setae; teeth 10, spinulose, higher than wide on appposable margins of lateral lobes; lateral setae 12-14; mental setae 18.

**Thorax.** Prothorax almost equal to hind margin of head. Wing-pads parallel, extending upto the anterior margin of abdominal segment 7, with many veins and cells marked with brown. Legs long and slender; femora with

3 and tibiae with 2 round, brown markings at distal and proximal ends, with one brown annulus encircling the area between them; tarsal segments of pro-legs pale while of meso and meta-legs dark brown.

**Abdomen.** Elongate, slightly wider from middle, dorsally rounded, ending very bluntly; with minute pointed dorsal hooks on segments 2-4, a minute broad triangular hook on 10; a pair of subdorsal black spots on each side of segments 4-9 and two black spots on segment 10, one dorsally irregular brown blotch to each lateral side of segments 2-8; lateral spines very long, externally fringed with short and long hair, both longer than mid-dorsal lengths of their respective segments, that of 9th incurving, longer than that of 8th which is straight and reaching near the tip of caudal appendages; caudal appendages hairy, very long and upcurving except epiproct; epiproct a little longer than paraprocts and carinated dorsally; cerci longer than half the length of paraprocts; tips of caudal appendages and lateral spines sharp and black.

**Remarks.** The representatives of this species deviate from the published description of Needham (1930) and Musser (1962) in the following points. The mental setae are 18, in which the 8th (counting from outside) is the longest instead of 6th. Only the lateral spines of segment 9 are a little incurving. The dorsal hooks are present on abdominal segments 2-4 instead of 1-4. The naiads are very similar to those of *Tramea basilaris burmeisteri* Kirby, from which they can be distinguished by the greater length of the epiproct, teeth on lateral lobes which are higher than wide and the shorter movable hooks which in *Tramea* sp. are nearly as long as lateral setae.

**Material examined.** Total 2, from Sonda (Thatta), 3-9-87.

## REFERENCES

- Begum, A., M.A. Bashir and B.R. Biswas, 1982. Life history and external egg and larval morphology of *Brachythemis contaminata* (Fabricius) (Anisoptera: Libellulidae). *Odonatologica*, 11: 89-98.
- Gardner, A.E., 1960. *A Key to the Larvae of the British Odonata*. The new naturalist dragonflies, pp: 190-225. Collins St. James London.
- Musser, R.J., 1962. Dragonfly nymphs of Utah (Odonata : Anisoptera). *University of Utah Biol. Ser.*, 12 (6).
- Needham, J.G., 1930. *A Manual of Dragonflies of China*. Fan. Mem. Inst. Biol. Peiping, China.
- Needham, J.G. and M.J. Westfall Jr., 1955. *A Manual of Dragonflies of North America (Anisoptera)*. University of California Press. Berkeley.

(Received 03 May 1999; Accepted 20 June 1999)