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## The Description of the Naiads of *Orthetrum*, *Trithemis* and *Sympetrum* (Odonata: Libellulidae) from Sindh Province

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**Abstract:** The naiads or nymphs of three genera namely *Orthetrum*, *Trithemis* and *Sympetrum* collected from the various locations of the Sindh Province of Pakistan are described in detail with illustrations.

**Key words:** Naiads, nymphs, *Orthetrum*, *Trithemis*, *Sympetrum*, libellulidae, odonata, description

### INTRODUCTION

The odonate naiads or nymphs are aquatic and powerful predators of Protozoa, fish fry, annelids, small tadpoles, Oligochaeta, water-fleas, fresh water shrimps, small crustacea, larvae of mayflies, water-beetles, chironomids, mosquitoes and bugs. They in turn are preyed upon by other predators, such as water-beetles, bugs, fishes, frogs, spiders, ducks, herons, coots and water-rails. So they are helpful in protection and conservation of environment.

Many scientists worked on the taxonomy of odonate naiads from China<sup>[1]</sup>, Indo-Pak subcontinent<sup>[2]</sup>, Great Britain<sup>[3,4]</sup>, North America<sup>[5]</sup>, Utah<sup>[6]</sup>, Siberia<sup>[7]</sup>, Bangladesh<sup>[8]</sup>, Europe<sup>[9]</sup> and South Africa<sup>[10,11]</sup>. A few workers from Pakistan have also described these naiads with the help of already published descriptions<sup>[12-19]</sup>.

The present paper comprises the taxonomic work with illustrations of the naiads belonging to three genera collected from Shikarpur, Hyderabad, Thatta, Sukkur and Tharparker districts of the Sindh Province of Pakistan.

The body is profusely covered with long hair *Orthetrum* sp. (Fig. 1).

**Head:** Quadrangular, its hind angles broadly rounded and hind margin between them slightly concave, with its anterior margin bearing long hair between and below the antennae. Eyes small, raised and fronto-lateral in position, with their posterior margins concave. Antennae setaceous, hairy, with base of scape darker in colour. Labium with its hinge reaching between pro-coxae; median lobe crenulated, triangular, with its apex pointed and armed with single short spinule at each depression; movable hooks of lateral lobes short, thicker at base, straight but decurving at finely pointed tips; teeth on lateral lobes 8, wider than high and armed with 1-3 sizes of

spinules; lateral setae 6-8; mental setae 3-4, with two medial fields of short spiniform setae converging upwards.

**Thorax:** Prothorax broader than posterior margin of head, with its anterior lobe greatly sunk having black setae-like spines on it. Wing-pads almost parallel. Legs stout; pro and meso-legs almost of equal length.

**Abdomen:** Elongate and narrowing posteriorly; dorsal hooks stout, present on segments 4-8 and not carinated; lateral spines very short, straight and equal in length; caudal appendages straight, long and hairy; epiproct slightly shorter than paraprocts and not carinated dorsally; cerci reaching half the length of paraprocts.

**Remarks:** This species has close resemblance with *Acisoma panorpoides panorpoides*, from which it can be distinguished by the following points. The antennae are setaceous. The median lobe of labium is crenulated. The eyes are greatly raised. The abdomen is tapering. The dorsal hooks and lateral spines are present, which in *A. panorpoides panorpoides* are absent. Needham<sup>[1]</sup> interrogated the absence of dorsal hooks, whereas Gardner<sup>[4]</sup> reckoned them 4. Our specimens have 4-5 dorsal hooks.

**Material examined:** Total 62, collected from the following localities: Shikarpur 21, 28-08-87; Kotri (Hyderabad) 20, 4-9-87; Sonda (Thatta) 21, 3-9-87.

The naiads of *Trithemis* sp. are short, smooth and pale brownish in colour (Fig. 2).

**Head:** Flat, two times wider than long (including eyes), its hind angles greatly rounded and hind margin between them concave. Eyes rounded from outside, almost of

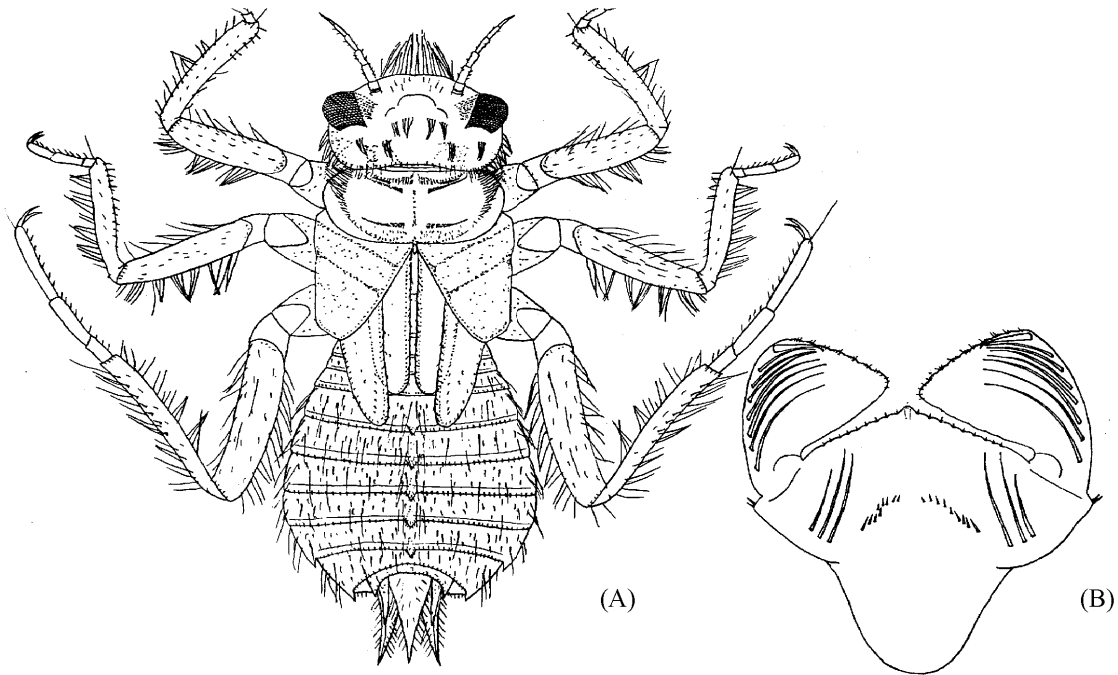


Fig. 1: Naiad of *Orthetrum* sp. (A) and its labium (B)

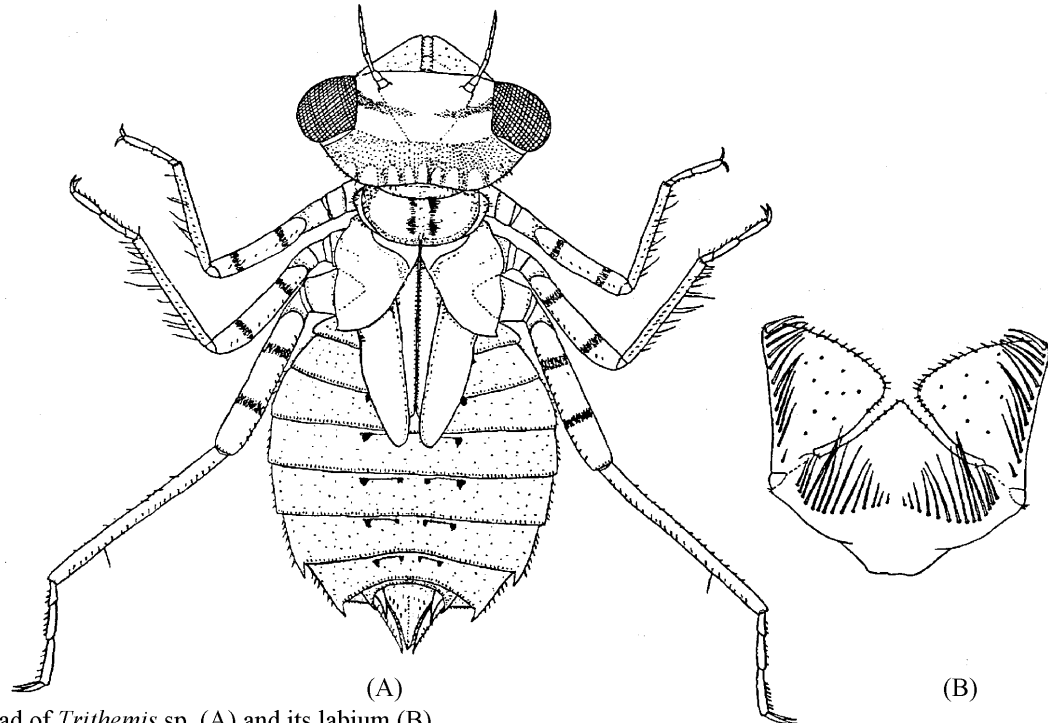


Fig. 2: Naiad of *Trithemis* sp. (A) and its labium (B)

equal length and width (when measured from the middle) and more lateral in position. Antennae filiform, third segment longest of all segments. Labium with its hinge reaching between meso-coxae; median lobe smooth, triangular, bordered with few single spinules; movable

hooks of lateral lobes slender, incurving and hardly as long as lateral setae; teeth on lateral lobes greatly obsolete, armed with single spinules; venter of lateral lobes with blackish spots; lateral setae 10-11; mental setae 14-15.

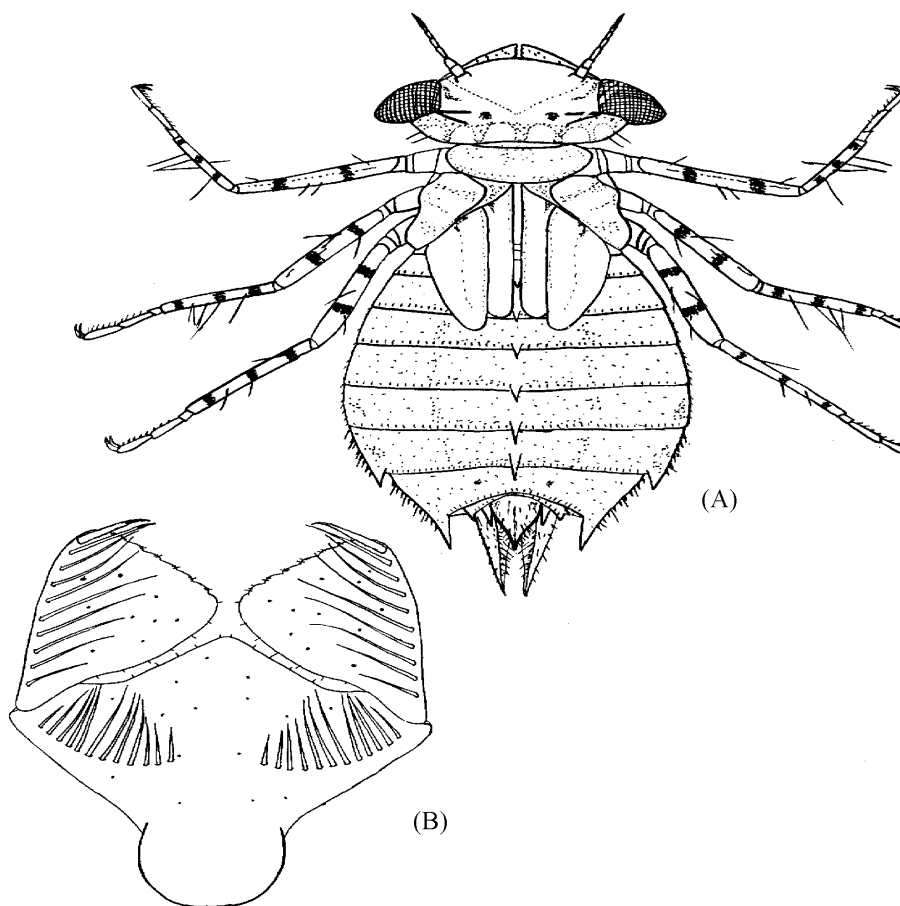


Fig. 3: Naiad of *Sympetrum* sp. (A) and its labium (B)

**Thorax:** Prothorax slightly narrower than hind margin of head, with mid-dorsal blackish spots rather obsolete and its anterior lobe sunk. Wing-pads parallel. Legs thin and slender, containing two faint brown annuli on femora; fore and middle tibiae more hairy.

**Abdomen:** Somewhat circular in form, longer than wide having two basal, subdorsal black spots on each side of segments 4-9; dorsal hooks absent; lateral spines short, equal in size, externally fringed with hair, almost equal to one-third of mid-dorsal lengths of their respective segment, of 8th straight and of 9th incurving; caudal appendages short, slightly hairy, decurved at tips and slightly longer than the total mid-dorsal length of segments 9 and 10; epiproct slightly shorter than paraprocts and not carinated dorsally; cerci naked, outcurving and reaching up to half the length of paraprocts.

**Remarks:** The specimens of this species completely resemble with the published description of Needham<sup>[1]</sup>

except the following points. The lateral setae of the labium are 10-11 instead of 10 and mental setae 14-15 instead of 14. The lateral spines present on abdominal segments are almost equal to one-third of mid-dorsal lengths of their respective segments.

It can be distinguished from its closely related *Crocothemis* sp. by the length of its body (from head to tip of caudal appendages) which is 16 mm, while it is 20 mm in the latter.

**Material examined:** Total 312, collected from the following localities; Rohri (Sukkur) 3, 27-8-1987; Shikarpur 51, 28-8-1987; Kotri (Hyderabad) 45, 4-9-1987; Tando Muhammad Khan (Hyderabad) 32, 2-9-1987; Sindhri (Therparker) 79, 31-8-1987; Sonda (Thatta) 102, 3-9-87.

The naiads of *Sympetrum* sp. are protectively coloured with brown (Fig. 3).

**Head:** More than two times wider than long (including eyes), its hind angles rounded, with hind margin between them concave. Eyes slightly pointed on inner sides,

bulging laterally and with two diverging black streaks running back from posterior side of each eye; 2 short, robust spines encircled with hair present just near the ends of upper streaks. Antennae filiform, sixth segment with a black apical ring. Labium with its hinge reaching the bases of meta-coxae and marked with brownish spots ventrally; median lobe smooth, triangular, slightly rounded at apex, with its anterior sides slightly concave and bordered with single spinules; movable hooks of lateral lobes slender, straight with decurved tips and hardly as long as lateral setae; teeth on lateral lobes 9, armed with spinules; lateral setae 9; mental setae 12.

**Thorax:** Prothorax narrower than hind margin of head. Wing-pads parallel. Legs slender, femora and tibiae marked with two or three faint annuli.

**Abdomen:** Somewhat elongate, ending bluntly; dorsal hooks spine-like, present on segments 3-8; lateral spines unequal, straight and externally fringed with short and long hair, that of 9th reaching half the length of paraprocts; caudal appendages straight, pointed and covered with hair, epiproct much shorter than paraprocts and carinated dorsally, cerci naked and very short.

**Remarks:** The representatives of this species deviate from the published description of Needham<sup>[1]</sup> in the following points. The lateral setae are 9 instead of 10-15 and premental setae are 12 instead of 13-16.

The specimens can easily be identified from others by the epiproct which is much shorter than the paraprocts and by the presence of spine-like dorsal hooks on abdominal segments 3-8.

**Material examined:** Total 12, collected from Shikarpur, 28-8-1987.

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