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RESEARCH ARTICLE

Candravastra talina (Heteroptera: Pentatomidae: Halyini), a new genus and species from Myanmar

Candravastra talina (Heteroptera: Pentatomidae: Halyini) – новый род и вид из Мьянмы

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Abstract. The article provides a detailed illustrated description of a new genus and species of the tribe Halyini (Heteroptera: Pentatomidae: Pentatominae) from Myanmar. The description is based on external morphological characters and the structure of the male and female terminalia, including the completely inflated aedeagus. A detailed comparison of the new genus with the closely related genera *Halys* Fabricius, 1803 and *Neohalys* Ahmad et Perveen, 1982 is given, as well as a key for these three genera.

Резюме. В статье приведено подробное иллюстрированное описание нового вида и рода трибы Halyini (Heteroptera: Pentatomidae: Pentatominae) из Мьянмы. Описание основано на признаках внешней морфологии и строения терминалий самца и самки, включая полностью раздутый эдеагус. Приведено детальное сравнение нового рода с ближайшими к нему родами *Halys* Fabricius, 1803 и *Neohalys* Ahmad et Perveen, 1982, а также дан ключ для этих трех родов.

Key words: taxonomy, description, male and female terminalia, completely inflated aedeagus, Myanmar, Heteroptera, Pentatomidae, Halyini, new genus, new species

Ключевые слова: систематика, описание, терминалии самцов и самок, полностью раздутый эдеагус, Мьянма, Heteroptera, Pentatomidae, Halyini, новый род, новый вид

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Introduction

The pentatomid tribe Halyini is a relatively large taxon, comprising 91 genera and 430 species, distributed almost exclusively in the Old World. According to Rider et al. (2018), the tribe has been used as a dumping ground for numerous genera. To some extent, this remains true today, and the tribe requires significant clarification of the classification. I found specimens that undoubtedly belong to a new genus and species closely related to *Halys* Fabricius, 1803, the type genus of the tribe, and to *Neohalys* Ahmad et Perveen, 1982 (the statement by Memon et al., 2011 about the close relationship of these genera with *Salixocoris* Ahmad et Abbasi, 1974 is erroneous; see below). Therefore, the assignment of the new genus and species to Halyini is undeniable. This article is devoted to describing these new taxa.

The species of the genera *Halys* and *Neohalys* exhibit high variability. Gapon (2023) provided a comprehensive redescription of the male and female terminalia of *Neohalys serricollis* (Westwood, 1837) and the two most widespread and common

Halys species, *H. sulcatus* (Thunberg, 1783) and *H. magnus* Chopra, 1974, and examined in detail the variability of their characters. A comparison of the new genus and species with *Halys* and *Neohalys* is based on the data from the latter article, as well as on the redescriptions by Salini (2019). Only the most stable characters with taxonomic significance are used for the comparison.

Material and methods

For the methods and terminology used in this article, see Gapon (2023). The holotype and the paratypes of the new species are deposited at the Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZISP).

Taxonomy

Family **Pentatomidae** Leach, 1815

Subfamily **Pentatominae** Leach, 1815

Tribe **Halyini** Amyot et Serville, 1843

Genus ***Candravastra* gen. nov.**

Type species: *Candravastra talina* **sp. nov.**

Diagnosis. The new genus can be distinguished from all other genera by the following most basic characters (a more detailed comparison is given below): head longer than pronotum; each lateral margin of head with denticle; juga single-lobed, equal to or slightly shorter than clypeus, gradually tapering anteriorly, with subacute apex; antennae five-segmented, antennal segments uniformly cylindrical, segments II, III and IV subequal in length; labium long; middle of head and anterior part of pronotum without wide light stripe; lateral angles of pronotum not strongly protruding beyond lateral margins of coria; anterior tibiae not dilated; posteroventral margin of pygophore without hook-like processes, with low trapezoidal projection in middle and semicircular depressions on its sides; dorsolateral infolding of pygophore not differentiated into outer and inner areas, with a pair of sharp raised denticles; hypophysis of paramere small, trihedral in cross-section, with very narrow lamellar anterior margin; apical lobes of conjunctiva directed posteriorly, diverging, curved before apices, not branched; and posterior parts of gynatrial basal sclerites very long.

Comparison. According to a key by Memon et al. (2011), the descriptions by Distant (1921), Ghauri (1988) and Zheng & Liu (1987), the new genus differs from all Central and South Asian genera of Halyini (*Ameridalpa* Ghauri, 1982, *Apodiphus* Spinola, 1837, *Asyla* Walker, 1867, *Cahara* Ghauri, 1887, *Carenoplistus* Jakovlev, 1882, *Dalpada* Amyot et Serville, 1843, *Dendrites* Kirkaldy, 1909, *Erthesina* Spinola, 1837, *Eupaleopada* Ghauri, 1982, *Faizuda* Ghauri, 1988, *Iskenderia* Kiritshenko, 1963, *Izharocoris* Afzal et Ahmad, 1981, *Jugalpada* Ghauri, 1975, *Lodosocoris* Ahmad et Afzal, 1986, *Meridalpa* Ghauri, 1982, *Meridindia* Ghauri, 1982, *Mustha* Amyot et Serville, 1843, *Neolodosocoris* Memon et Ahmad, 2002, *Neonevisanus* Distant, 1918, *Nevisanus* Distant, 1893, *Orthoschizops* Spinola, 1852, *Ouscha* Distant, 1921, *Paranevisanus* Distant, 1908, *Salixocoris* Ahmad et Abbasi, 1974, *Saontarana* Distant, 1918, *Sarju* Ghauri, 1977, *Sinometis* Zheng et Liu, 1987, *Tachengia* China, 1925, and *Tipulparra* Ghauri, 1980) in the following combination of characters: body pale ochraceous, with smooth colour pattern; head longer than pronotum; juga single-lobed, equal to or slightly shorter than clypeus, gradually tapering anteriorly, with subacute apex; antennae five-segmented, antennal segments uniformly cylindrical, segments II, III and IV (sub)equal in length; labium long, reaching of abdominal ventrite VII; middle of head and anterior part of pronotum without wide light stripe; lateral angles of pronotum not strongly protruding beyond lateral margins of coria; anterior tibiae not dilated; scutellum without distinct basal angular spots; posteroventral margin of of pygophore sinuate, without hook-like processes; and spermathecal capsule with three processes.

The new genus is most closely related to the genera *Halys* Fabricius, 1803 and *Neohalys* Ahmad et Perveen, 1982*, based on the characters of the external structure and the male and female terminalia.

* A computer phylogenetic analysis of the South and Central Asian genera of Halyini by Memon et al. (2011) showed the close relationship of *Halys* and *Neohalys* with *Salixocoris* Ahmad et Abbasi, 1974 in "many characters, such as the color of the pronotum and scutellum, and the male pygophore." However, it is difficult to agree with this conclusion. Even though there is some external similarity,

Candravastra **gen. nov.** can be distinguished from *Halys* and *Neohalys* by having a smaller and relatively broader body [length of body 12.60–12.70 in males, 13.60 in female *vs.* 13.10–13.70, 15.20–16.10 in *N. serricollis* (Westwood, 1837) (14.1–18.1 mm, according to Ahmad & Perveen, 1982) and 16.30–19.89, 17.4–20.23 in *Halys*, according to my data (17.20–21.47, 19.27–21.80, according to Salini, 2019); ratio of body length to pronotum width 2.03–2.07 in males, 1.97 in female *vs.* 2.11–2.18, 2.20–2.24 in *N. serricollis*, 2.14–2.24, 2.16–2.29 in *Halys*, according to my data], lighter body ground colour with less pronounced pattern of dark stripes and spots, smaller punctures throughout body, being very sparse in middle of abdomen [*vs.* dense in both genera, see figs 2 and 14 in Gapon, 2023], each lateral margin of head with denticle [*vs.* without denticle in *Neohalys*, see fig. 14 in Gapon, 2023], and much more sharply concave lateral margin of pronotum [except *H. mudigerensis* Salini, 2019, from which it differs, among other characters, by the shorter lateral angles of pronotum], being smooth in posterior part [*vs.* crenulate in both genera].

Pygophore of the new genus (for comparison, see figs 3, 10 [*Halys*], and 15 [*Neohalys*] in Gapon, 2023) narrower at base, more flattened dorsoventrally, almost without punctation on ventral and lateral walls [*vs.* densely punctate in *Neohalys* and *Halys*]; with low trapezoidal projection in middle of posteroventral margin (not on ventral wall of posteromedian depression) and semicircular depressions on its sides [*vs.* absent in *Neohalys* and *Halys*], ventral wall of posteromedian depression without tubercle, entirely membranous [*vs.* with tubercle, more or less sclerotised in *Halys*; tubercle absent only in *H. shaista* Ghauri, 1988]; swellings of posterolateral angles of pygophore long in caudal view [*vs.* short in *Halys*], without large punctures on caudal surfaces [*vs.* with such punctures in *Neohalys*], with ventral ends smoothly and strongly tapering [*vs.* width uniform in *Halys*], dorsal ends wide, having sclerotised areas dorsally [*vs.* narrower, without such areas in *Halys*], with low longitudinal, highly sclerotised carina on medial surfaces [*vs.* with rather large denticle in *Neohalys*, smooth in *Halys*], medial walls of swellings oblique [*vs.* vertical in *Neohalys* and *Halys*]; lateral parts of posteroventral margin of pygophore thin in caudal view, oblique in ventral view [*vs.* thick in caudal view, rectangular in ventral view in *Halys*, except for *H. shaista* Ghauri, 1988, according to the photos by Salini (2019)]; posterodorsal margin of pygophore smooth in middle [*vs.* slightly convex in *Neohalys*, with medial notch and tubercles on its sides in *Halys*, possibly except for *H. shaista* (this character is not clearly visible in the illustrations and is not mentioned by Ghauri, 1988 and Salini, 2019)], without notches at lateral ends [*vs.* with notches in *Halys*]; margins of ventrolateral infoldings without denticles [*vs.* with denticles in *Neohalys* and *H. mudigerensis*]; dorsolateral infolding not clearly differentiated into median and lateral parts [*vs.* with such differentiation in *Halys*], laterally not differentiated into oblique outer and deeply concave inner areas [*vs.* with such differentiation in *H. sulcatus* (Thunberg, 1783) sensu Gapon, 2023, *H. magnus* Chopra, 1974, and *H. brocchus* Gapon, 2023; state of this character unknown for *H. mudigerensis* and *H. shaista*], ventral ends of sclerotised areas along genital opening short [*vs.* long in *Neohalys*; such areas absent in *Halys*], sharp denticles at these ends raised, directed ventrocaudally [*vs.* adpressed, directed ventrolaterally in *Neohalys*, and absent in *Halys*], carina ventral to each of these denticles narrow in caudal view, looking like wide low denticle with apex sloping medially in dorsal view [*vs.* thicker in caudal view, looking like rather large conical denticle in dorsal view in *Neohalys*, and absent in *Halys*]; ventral margin of genital opening rectangularly rounded [*vs.* broadly round in *Neohalys*]; ventral wall of pygophore without a pair of small membranous fenestrae near middle of posterodorsal margin, with rather large transverse desclerotised area near dorsal end of each swelling [*vs.* with such fenestrae in *Halys*, with thin desclerotised areas in *Neohalys* and *Halys*].

Hypophysis of paramere (for comparison, see figs 4, 5, 10 [*Halys*], and 16 [*Neohalys*] in Gapon, 2023) small [*vs.* large in *Halys*], trihedral in

Salixocoris differs significantly from these two genera in the structure of the pygophore, parameres, and aedeagus. It appears to be more closely related to African species of the genus *Halys*, which are currently considered to be incertae sedis (Salini, 2019; Gapon, 2023) and, most likely, should be assigned to a separate genus (the genus *Salixocoris* will be discussed in a separate study).

cross-section, with very narrow lamellar anterior margin [*vs.* flattened laterally, without lamellar margins in *Neohalys*, and with broad lamellar anterior and dorsal margins in *Halys*]; medial surface of hypophysis concave [*vs.* flat in *Halys*, convex in *Neohalys*]; denticle on anterolateral margin of hypophysis located very close to its apex [*vs.* more or less distant from apex in *Halys*, except for *H. mudigerensis* and *H. brocchus*; see fig. 10 in Gapon, 2023]; medial margin of dorsal wall of paramere corpus shaped as carina extending into anterior margin of hypophysis [*vs.* not continued on hypophysis in *Neohalys*]; lateral margin of dorsal wall also as narrow carina [*vs.* rounded in *Neohalys* and *Halys*]; basal plate large [*vs.* small in *Neohalys*].

Theca of aedeagus (for comparison, see figs 8, 9 [*Halys*], and 17 [*Neohalys*] in Gapon, 2023) wide [*vs.* narrower in *Neohalys*]; anterior branches of ventrolateral lobes short, not curved medially [*vs.* long, curved medially in *Halys*], posterior tubercles conical, small [*vs.* rounded, rather large in *Neohalys*]; apex of conjunctiva at base of ventral wall with median tubercle [*vs.* without tubercle in *Neohalys*]; apical lobes directed posteriorly, diverging, curved before apices, not branched [*vs.* directed dorsally, straight, having two branches in *Halys*, and parallel, not curved in *Neohalys*]; sclerotised bands on dorsal wall of conjunctiva almost parallel [*vs.* converging basally in *Halys*]; apical processes of ventral lobe together forming tube-like structure [*vs.* spoon-shaped structure in *Halys*]; vesica not protruding beyond margins of apical processes [*vs.* clearly protruding in *Halys*].

In female terminalia (for comparison, see figs 11–13 [*Halys*], and 18, 19 [*Neohalys*] in Gapon, 2023), ventral surfaces of gonocoxites I uniformly weakly convex [*vs.* with transverse roof-shaped convexities in *Neohalys*]; median plate relatively long, with tubercles on anterolateral corners [*vs.* short, without tubercles in *Neohalys*]; arcus as long as wide [*vs.* 11.15–1.93 times as long as wide in *Halys*, 1.00–1.18 times as long as wide in *Neohalys*]; vestiges of gonapophyses I present [*vs.* absent in *Neohalys*]; anterior parts of basal sclerites wide, protruding medially and especially laterally beyond ring sclerites, with long anterolateral angles [*vs.* narrow in *Neohalys* and *H. shaista*, not protruding or weakly protruding beyond ring sclerites, with short or very short anterolateral angles in *Neohalys* and *Halys*], medial margins of basal sclerites straight anteriorly [*vs.* convex in *Halys*], posterior parts of basal sclerites very long [*vs.* shorter in *Neohalys*, very short in *Halys*]; middle part of spermathecal duct long, extending from anterior margin of ventrite VII to middle of ventrite III [*vs.* short, at most, reaching middle of ventrite IV in *Neohalys*], posterior end of mediodistal part of duct straight, not elongate, only barely entering proximal part of duct [*vs.* strongly elongate, sharply curved, deeply extending into proximal part of duct in *Halys*, and slightly elongate, straight or slightly curved, not deeply entering proximal part of duct in *Neohalys*], external distal part of duct long [*vs.* short in *Neohalys*].

Fig. 1. Habitus of *Candravastra talina* **gen.** et **sp. nov.**, holotype (male), in dorsal view.

The new genus and species must also be compared with the species incertae sedis, which formally remain in the genus *Halys*. Two species were described very superficially by Distant (1893,

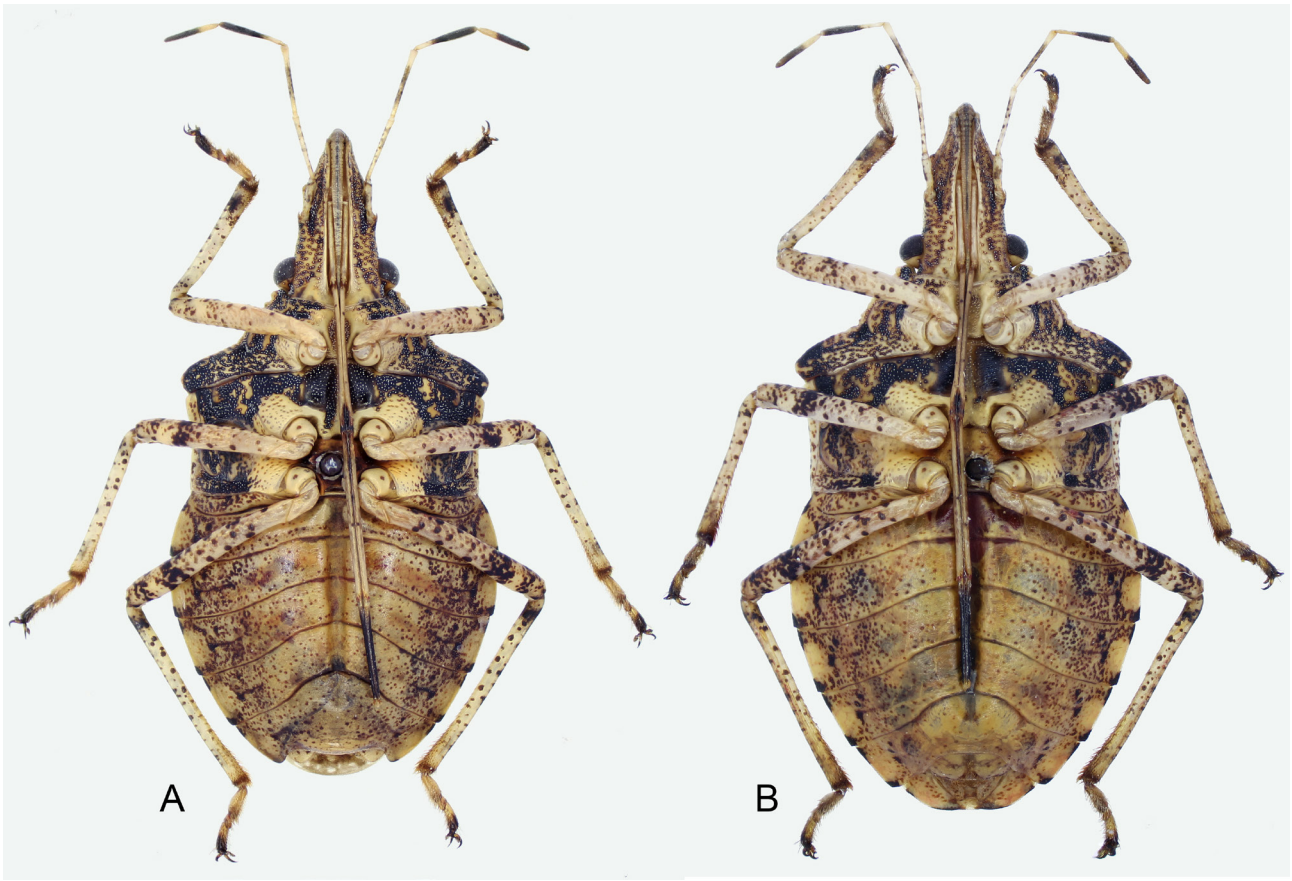

Fig. 2. Habitus of *Candravastra talina* **gen.** et **sp. nov.** in ventral view. **A**, holotype, male; **B**, paratype, female.

1921). These species were never redescribed in detail, and there are no reliable subsequent records of them. Ghauri (1988) examined the types of these species kept in the British Museum and concluded that they do not belong to the genus *Halys*, but did not place them in any other genera.

Halys neelgiriensis Distant, 1893 was described from India (the Nilgiri Mountains in the Western Ghats) based on coloration and some structural characters given to distinguish it from *H. dentatus* (Fabricius, 1775) [syn. of *H. sulcatus* (Thunberg, 1783)]. According to the description (Distant, 1893) (here and throughout, the character formulations are kept as they appeared in the original publications), this species can be distinguished from *Candravastra talina* **gen.** et **sp. nov.** by larger body (20 mm); head much broader, especially at apex, having lateral margins more strongly toothed; apical third of scutellum much more elongate and narrow; second segment of antennae much shorter than third; body thickly punctured with brassy black; head, anterior area and lateral angles of pronotum metallic green; antennae black, with segments very narrowly ochraceous at base; connexivum ochraceous, broadly greenish black at incisures; ventrally, lateral margins of head and sternum broadly metallic green; etc.

Halys rugosus Distant, 1921 was described from Laos almost exclusively based on the characters of coloration and punctation. According to the description (Distant, 1921), it differs from the new genus and species in the following characters: body larger (16–18 mm), above thickly and very coarsely punctate; first antennal segment dark, sometimes almost black, second segment a little shorter than third, fourth or fifth segments; pronotum coarsely punctate, its lateral margins shortly dentate, lateral angles shortly and broadly prominent and their apices broadly, distinctly upturned; scutellum coarsely blackly punctate, with lateral angle and apical area distinctly paler but coarsely punctate; membrane dark bronzy-brown;

body beneath ochraceous; mesosternum with two contiguous, central, shining black spots; abdomen with segmental margins and subapical spot black, lateral margins black with large ochraceous segmental spots; rostrum reaching third abdominal segment.

Halys persa Bergroth, 1919 does not belong to the genus *Halys*. It clearly differs from the new species and genus in the external characters and the terminalia. This species will be redescribed in a separate article.

Etymology. The generic name is a feminine noun composed of the Sanskrit words चन्द्र (candrá), "light-coloured" and वस्त्र (vástra), "clothes".

Candravastra talina sp. nov.

(Figs 1–3, 4A, 5–10)

Holotype. **Myanmar**, *Mandalay Prov*., Popa Mt., 20°55′01.0″N 95°11′40.9″E, 3–4.XI.2019, at light, D.A. Gapon leg., male (ZISP).

Paratypes. Same data as for holotype, 1 male, 1 female (ZISP).

Description. *Coloration and punctation*. Body (Figs 1, 2) stramineous, covered with brown punctures (with tiny white adpressed scales inside) forming dark brown pattern in places where they coalescing: two narrow stripes on sides of posterior half of clypeus, four stripes on frons and vertex, areas around ocelli and posterior to compound eyes on head; spots posterior to eyes and near medial margins of calli on anterior part of pronotum, a narrow median stripe and four wider ones, radiating on sides of posterior part of pronotum (outer of them interrupted in posterior part); four short longitudinal spots at extreme base of scutellum and two arcuate stripes anterior to its postfrenal part; three blurred oblique stripes on corium, located at equal distances from each other; stripes along anterior and posterior margins of connexival segments.

Punctures on head small, dense; in anterior part of pronotum, they slightly larger and less dense; in posterior part of pronotum, even larger, less dense; on scutellum, mainly as in posterior part of pronotum, but slightly less dense, almost absent on basal corners and in middle of basal margin, more sparse in postfrenal part; each basal corner of scutellum with a small, deep, black depression; punctures on corium laterally more sparse, as in apical part of scutellum, becoming denser medially; punctures on connexium small, in middle of each segment sparse, of same colour as surface of connexium. Membrane transparent, with dark brown veins, a large fumous spot at base and figured fumous spots inside cells.

Head ventrally (Figs 2, 3B) with dark brown to black longitudinal stripe running from anterior margin of eye and extending beyond antenniferous tubercle, a spot ventral to it, and a spot posterior and ventral to eye. Labium yellowish, with last segment dark brown, except for its extreme base. Venter of thorax (Fig. 2) intensely dark brown to black, with stramineous callous areas, except for wide light areas near coxal cavities, covered with sparse light brown punctation. Punctures on abdominal venter very shallow, rather small, sparse in middle part and denser in lateral parts, forming wide blurred brown stripe on each side; each ventrite with small dark brown spot on anterior and posterior corners and near spiracle.

Three basal antennal segments yellowish; first two segments with small brown spots, third segment with wide brown ring in middle; fourth and fifth segments dark brown, with wide yellowish ring at each base. Each coxa with one brown spot. Trochanters uniformly coloured. Femora and tibiae with randomly scattered small and large brown spots merging into semirings on ventral side of middle and hind femora subapically (proximal semiring wider than distal one), large dark brown areas before apices of fore tibiae on all of their surfaces (largest spots on lateral surfaces), on lateral surfaces of all tibiae basally, on lateral surfaces of middle and hind tibiae subapically. Tarsi yellow; base of each second segment light brown; distal part of third segment (from its distal half to distal third) and very narrow ring at its base dark brown; claws black, basally yellowish.

Structure. *Head* (Fig. 3) elongate, subtriangular, 1.38–1.40 times as long as wide. Clypeus of more or less uniform width, slightly longer than juga. Lateral margins of head anterior to eyes slightly converging, at level of 0.7 of head length forming one blunt denticle on each side, and then sharply triangularly converging. Each jugum with a small oblique convex area approximately in middle of clypeus. Compound eyes rather small, globose, prominent. Ocelli closer to anterior margin of pronotum than to eyes. Antenniferous tubercles

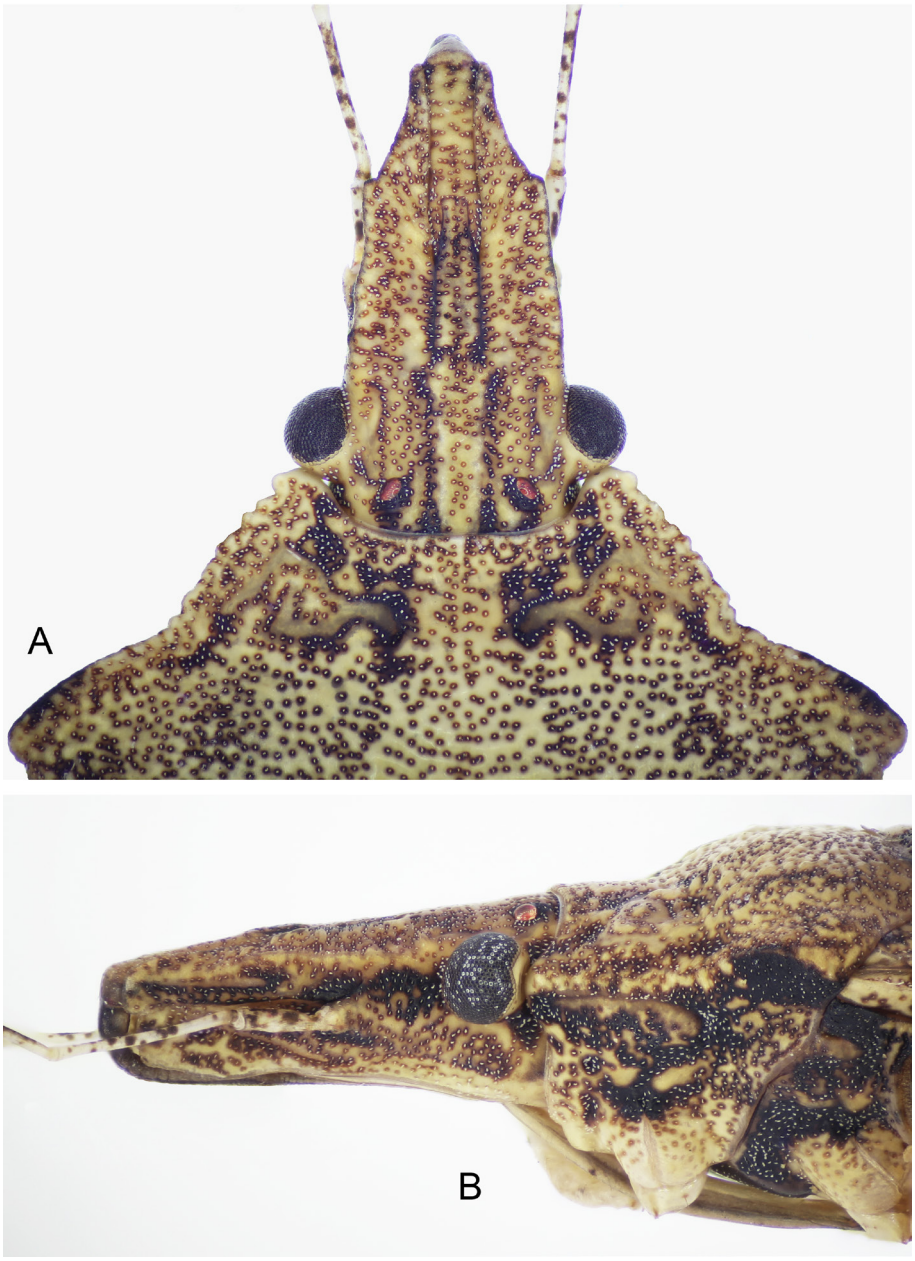

Fig. 3. Head and anterior part of pronotum of *Candravastra talina* **gen.** et **sp. nov.**, male paratype. **A**, dorsal view; **B**, lateral view.

visible dorsally, each with a small sharp denticle. Antennae thin, with ratio of segments lengths: I < < V < IV < III ≤ II. Bucculae extending from anterior ends of juga to near base of head, rather broad on anterior part, with rectangularly rounded anteroventral angle, in remaining part very narrow, with straight ventral margin. Labium thin, not quite reaching middle of abdominal ventrite VII; base of its segment I arising remotely from apex of head, its posterior end not protruding beyond posterior ends of bucculae; segment II arcuate, reaching anterior margins of middle coxae; segment III extending beyond anterior margin of abdominal ventrite V.

Thorax (Fig. 3). Anterolateral margins of pronotum straight, crenulate on anterior part, straight and smooth on posterior part, together forming obtuse angle, so that overall lateral margin looking rather deeply concave; anterior margin deeply trapezoidally concave; posterolateral and posterior margins straight. Lateral angles of pronotum acutely rounded, barely protruding beyond lateral margin of coria; anterior angles acutely rounded; posterior angles obtusely rounded. Calli distinct, flat, rather wide. Posterior part of pronotum more convex than anterior part, elevated. Scutellum 1.15–1.21 times as long as wide, extending slightly beyond posteromedial angle of corium; frena about 0.6 times as long as scutellum, with lateral margins very slightly convex near base, straight in apical part; postfrenal portion of scutellum narrowly parabolic; base of scutellum slightly convex. Lateral margins of coria straight along anterior part, converging posteriorly, slightly convex behind middle; apices acutely rounded. Membrane barely protruding beyond apex of abdomen. Prosternum with wide groove; mesosternum flat, with a very low narrowly rounded carina; metasternum flat, without groove or carina. Peritreme of external scent efferent system (Fig. 4A) shaped as rather short and narrow grooved process slightly widening laterally, with lateral

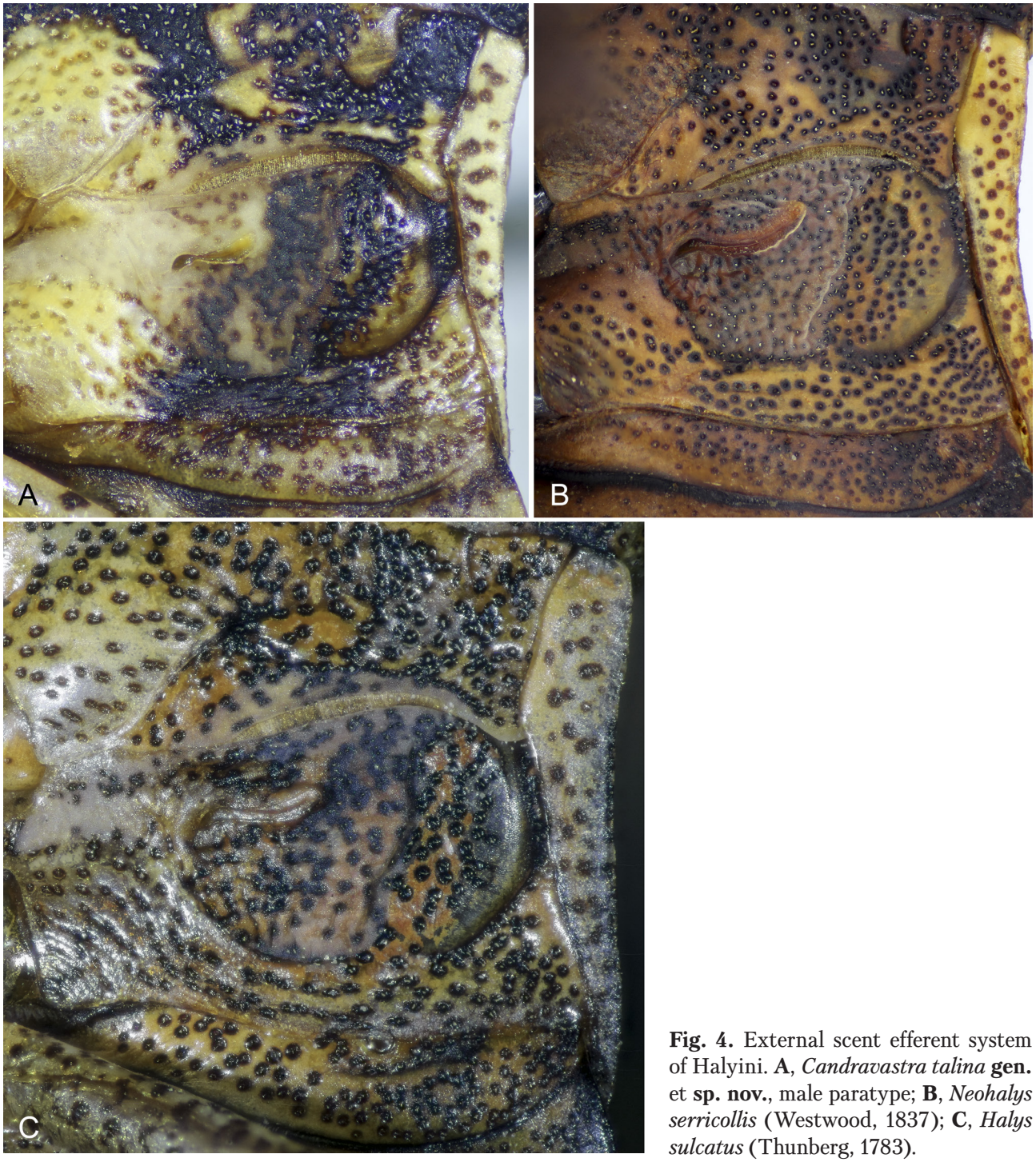

Fig. 4. External scent efferent system of Halyini. **A**, *Candravastra talina* **gen.** et **sp. nov.**, male paratype; **B**, *Neohalys serricollis* (Westwood, 1837); **C**, *Halys sulcatus* (Thunberg, 1783).

end raised, pointed, and curved anteriorly; ostiolar opening rather large; evaporatorium occupying approximately two-thirds of metapleuron width, far not reaching its lateral margin; metapleural part trapezoidal, wider than long, with wrinkled surface and beveled wavy, slightly raised lateral margin; mesopleural part very thin.

Abdomen barely wider than pronotum. Connexivum broad, completely exposed. Posterior angles of segments slightly projecting, without tubercles or denticles. Venter of abdomen with deep median groove extending from its base to base of ventrite VII. Two trichobothria located behind each spiracle.

Pygophore (Fig. 5) 1.2 times as wide as long, rather flattened dorsoventrally. Its lateral walls diverging caudally rather sharply, rounded at base. Ventral wall in distal part with wide posteromedian depression, basal margin of which forming wide, rather low, flattened trapezoidal projection. Rather shallow, rounded concavities located just lateral to it. Ventral wall of posteromedian depression horizontal, quite long, membranous, without tubercle. Posterolateral angles of pygophore rounded, not projecting laterally, slightly prominent caudally, with swellings, dorsal ends of which in caudal view wide, broadly rounded, each with sclerotised triangular area dorsally and longitudinal low carina on medial surface; ventral ends sharply and strongly tapering, passing into lateral parts of posteroventral margin of pygophore; caudal surfaces of these swellings convex, medial surfaces sloping, not vertical. Lateral parts of posteroventral margin of pygophore located obliquely to sagittal plane of pygophore, narrow in caudal view, sharply descending towards posteromedian depression of ventral wall of pygophore in ventral view. Median part of posteroventral margin very shallowly concave, having very small median notch, and looking like continuation of ventrolateral infoldings, not connected with lateral parts of posteroventral margin. Posterodorsal margin of pygophore located slightly below (anterior to) median part of ventral wall, smoothly and shallowly concave, without any notches and tubercles. Ventrolateral infoldings lamellar, sclerotised, rather wide and long, their margins trapezoidal, converging basally, their angles not pronounced, surfaces slightly concave. Dorsal and lateral infoldings not delimited from each other. United dorsolateral infolding wide laterally, narrow medially; its parts along genital opening strongly sclerotised, with more or less distinct outer margins and flat surfaces, separated by more weakly sclerotised median area; ventral ends

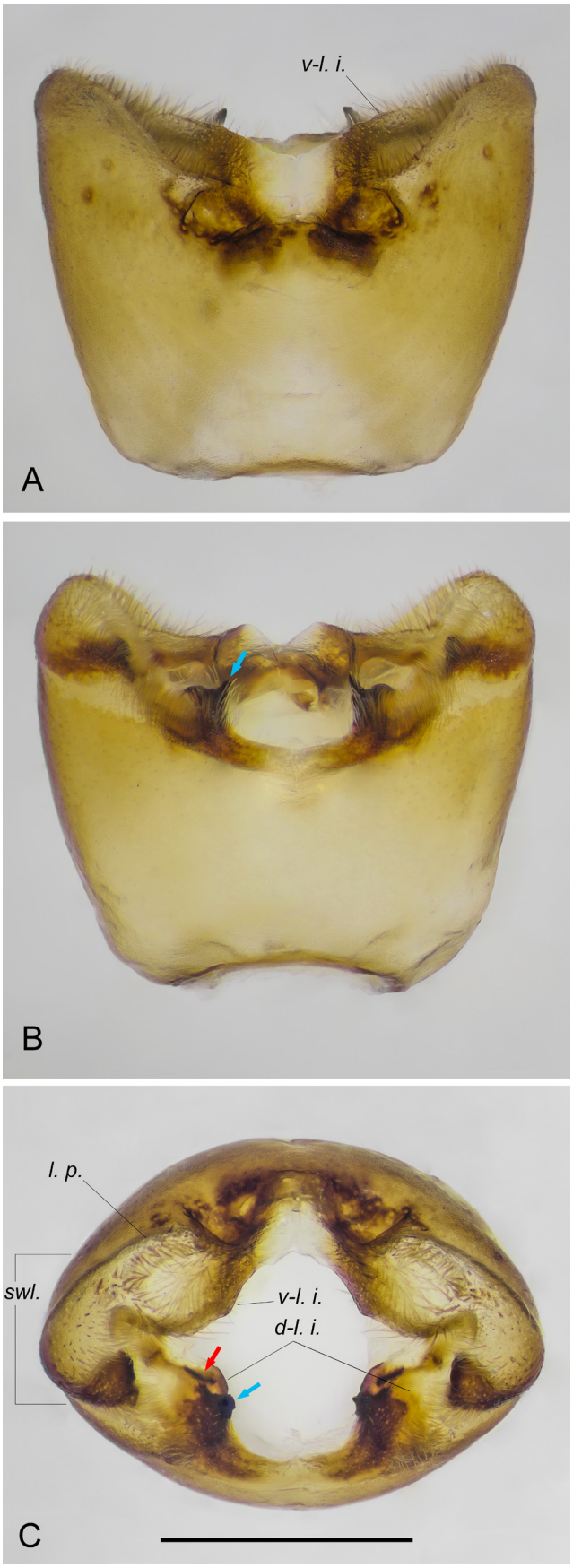

Fig. 5. Pygophore of *Candravastra talina* **gen.** et **sp. nov.**, paratype. **A**, ventral view; **B**, dorsal view; **C**, caudal view. Abbreviations: *d-l. i.* – united dorsolateral infolding; *l. p.* – lateral parts of posteroventral margin; *swl.* – swellings of posterolateral angles; *v-l. i.* – ventrolateral infoldings. Blue arrow indicates the denticle at the ventral end of dorsolateral infolding; red arrow shows the carina near the dorsal margin of paramere socket. Scale bar: 1.0 mm.

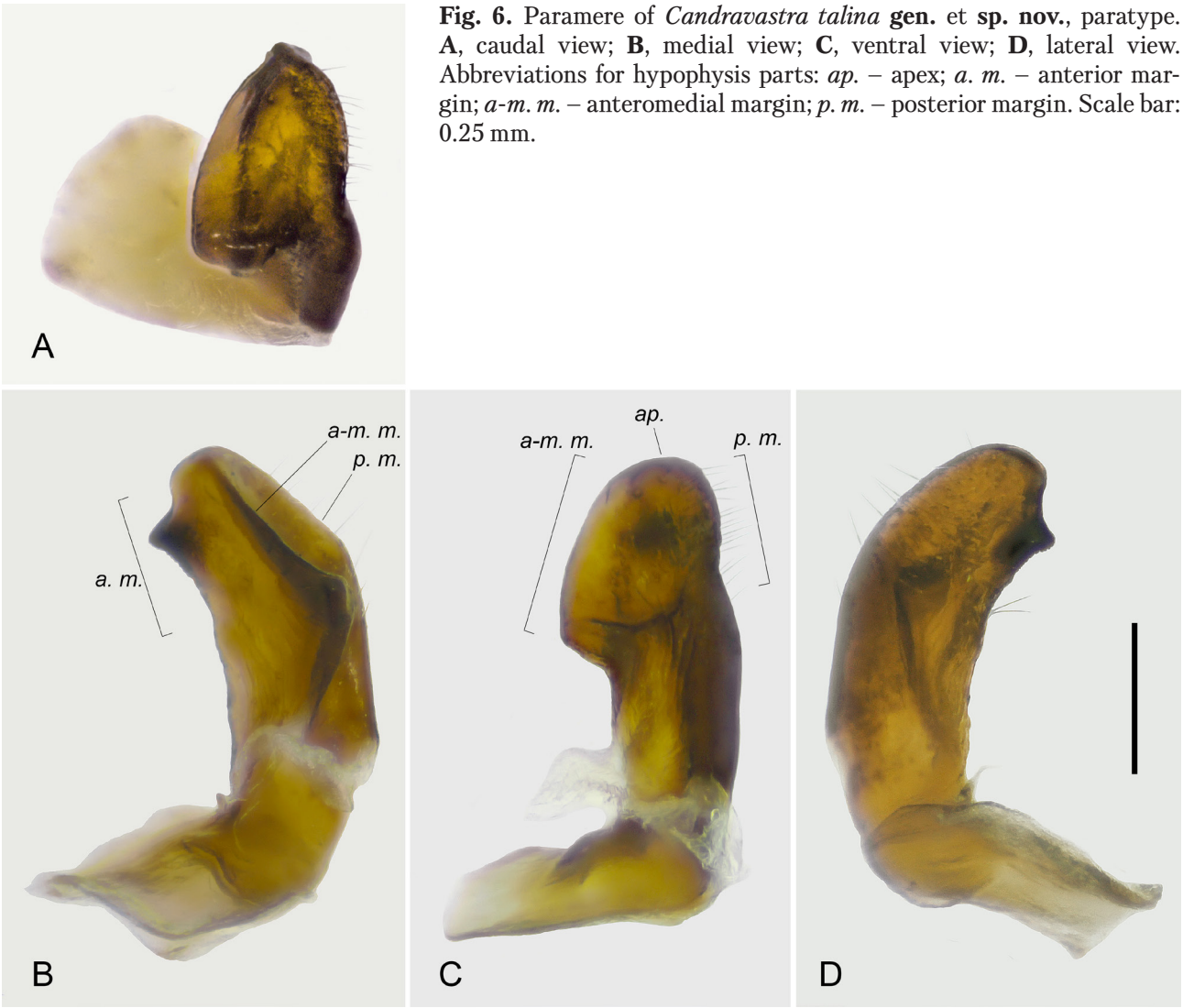

Fig. 6. Paramere of *Candravastra talina* **gen.** et **sp. nov.**, paratype. **A**, caudal view; **B**, medial view; **C**, ventral view; **D**, lateral view. Abbreviations for hypophysis parts: *ap.* – apex; *a. m.* – anterior margin; *a-m. m.* – anteromedial margin; *p. m.* – posterior margin. Scale bar: 0.25 mm.

of these parts rather short, each bearing a long sharp strongly sclerotised denticle directed caudally and slightly medially. Small strongly sclerotised transverse carina situated ventral to this denticle near margin of paramere socket, looking in dorsal view like wide short denticle with rounded apex directed slightly medially. Lateral parts of dorsolateral infolding normally sclerotised, smooth, slightly concave. Inner margin of dorsolateral infolding slightly raised along its entire width, visible in dorsal view. Dorsolateral walls of pygophore near each swelling with rather large transverse weakly sclerotised area widening medially; dorsal wall without a pair of desclerotised fenestrae near middle of posterodorsal margin. Genital opening large, transverse, broadly rectangularly rounded in dorsal part. Pygophore with only single punctures in distal part of its ventral wall and on lateral areas of basal margin of its depression. Lateral parts of posteroventral margin of pygophore covered with relatively short, raised setae; swellings of posterolateral angles of pygophore laterally covered with shorter semierect setae; ventral surfaces and margins of ventrolateral infoldings, medial surfaces of swellings, posterodorsal margin and inner margins of dorsolateral infolding covered with longer and denser setae, being especially dense in lateral parts of posterodorsal margin. Distal part of dorsal wall of pygophore covered with very short, sparse, adpressed setae.

Paramere (Fig. 6). Basal plate quite large, narrowed ventrally, rectangular at dorsal end. Corpus of paramere rather short, moderately wide, trihedral in cross-section, strongly flattened later-

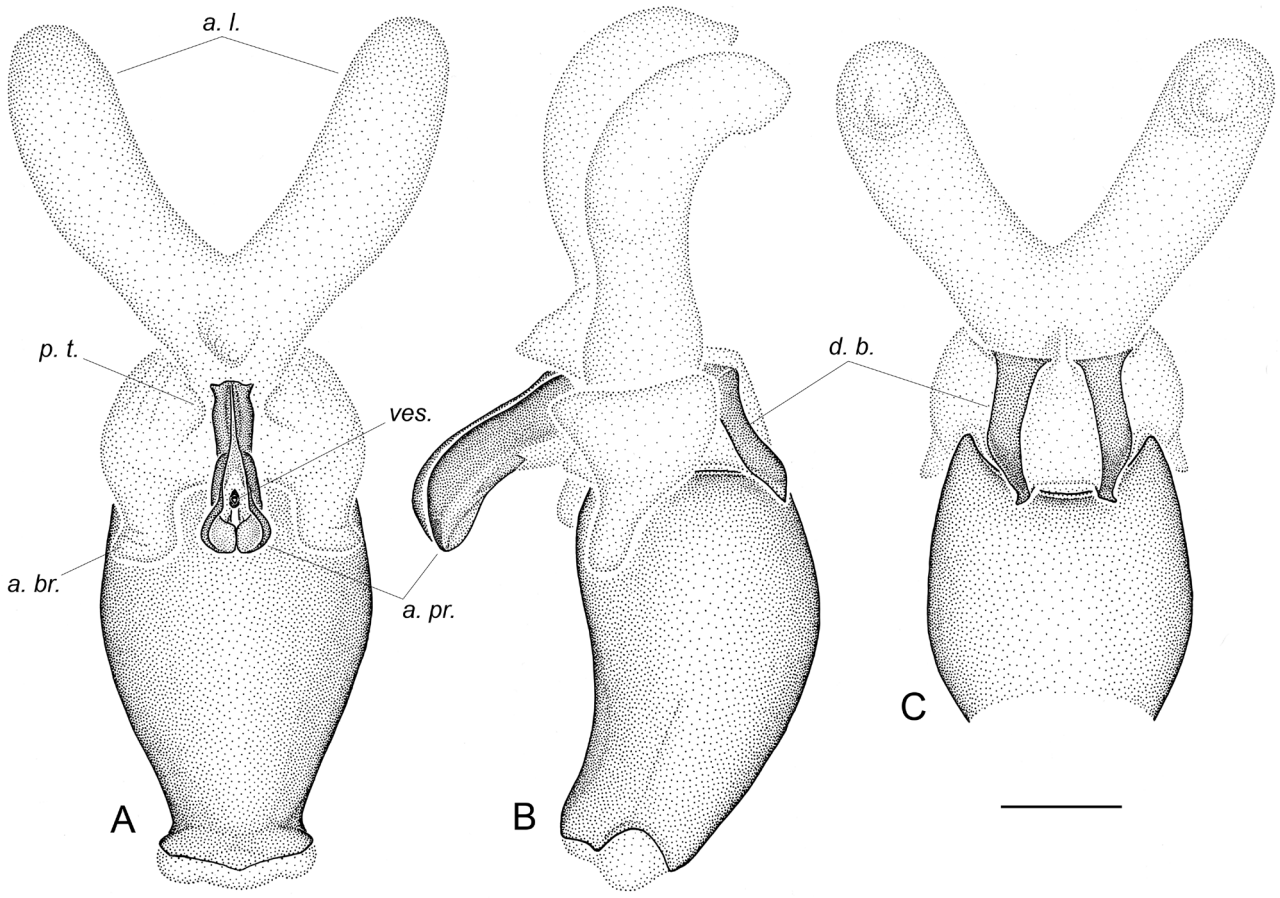

Fig. 7. Completely inflated aedeagus (without phallobase) of *Candravastra talina* **gen.** et **sp. nov.**, paratype. **A**, ventral view; **B**, lateral view; **D**, dorsal view. Abbreviations: *a. br.* – anterior branches of conjunctival ventrolateral lobes; *a. l.* – conjunctival apical lobes; *a. pr.* – apical processes of conjunctival ventral lobe; *d. b.* – sclerotised bands on conjunctival dorsal wall; *p. t.* – posterior tubercles of conjunctival ventrolateral lobes; *ves.* – vesica. Scale bar: 0.25 mm.

ally, with almost parallel dorsal and ventral margins. Medial wall concave; dorsal wall widening distally, bearing several long adpressed setae at base and, in distal part at lateral margin, several raised setae with converging apices. Medial margin of dorsal wall looking like thin carina. Sensory tubercle absent. Hypophysis short, trihedral in cross-section, located at obtuse angle to longitudinal axis of paramere corpus. Lateral wall of hypophysis representing continuation of lateral wall of paramere corpus; anterior margin elongated into short plate passing into low long carina on medial margin of dorsal wall of corpus. Anterior and posterior margins of hypophysis converging; apex of hypophysis smoothly rounded in medial view, obtusely rounded in lateral view. Medial surface basally quite strongly concave. Anterior margin of lateral wall of hypophysis anterior to apex with a small conical, highly sclerotised denticle, ventral and lateral surfaces of which covered with microstriation. Lateral wall of hypophysis and its posterior margin covered with short raised setae, medial surface with sparse, very short setae.

Aedeagus (Fig. 7). Phallobase as in *Halys* and *Neohalys*.

Theca quite wide, in ventral view sharply widening from base, reaching greatest width approximately in middle, with almost parallel lateral walls in distal part; ventral wall concave at base, slightly convex distally; dorsal wall sharply convex proximally, almost straight distally.

Conjunctiva rather small. Ventrolateral lobes small, triangular, swollen, each with a small conical posterior tubercle near base of median penal

Fig. 8. External female terminalia of *Candravastra talina* **gen.** et **sp. nov.**, paratype, in ventral view.

plates; in anterior part (facing base of aedeagus), lobe with rather short, narrow, almost rectangular branch adjacent to wall of theca, with lateroapical angle slightly elongate and directed laterally. Apex of conjunctiva short, wide, with wide conical median tubercle at base of ventral wall. Apical lobes paired, rather long and wide, of uniform width throughout, directed posteriorly along axis of aedeagus, diverging, curved dorsally in apical part, not branched, with narrowly rounded apices. Dorsal wall of conjunctiva with two almost parallel, rather strongly sclerotised bands close to each other, proximal ends of which triangular, slightly curved laterally, connected by short fold of conjunctival wall, slightly overlapping apical margin of theca. Ventral lobe narrow, rather long, directed ventrally and slightly towards base of aedeagus. Median penal plates in posteroventral view completely fused with lateral walls almost parallel, converging at extreme base and slightly diverging in extreme distal part. Apical processes of ventral lobe long, groove-shaped, together forming tube-like structure, with posterior margins more divergent than in *Neohalys* but less than in *Halys*; anterior margins slightly spaced at base, converging and contiguous distally; apical margins slightly convex, thickened, not curved laterally, without notches. Membranous tubercle at base of vesica absent. Vesica very thin, short, curved throughout, with apex directed ventrally, not protruding beyond posterior margins of apical processes.

External female terminalia. Gonocoxites I (Fig. 8) slightly wider than long, with posterior margins slightly concave laterally and slightly convex, nearly straight medially, along entire width bordered by narrow membranous plate being wider laterally, with straight margin; medial margins straight; lateral margins short, slightly convex; anteromedial angles rectangularly rounded; posteromedial angles oblique, broadly rounded; ventral surfaces weakly, uniformly convex, with distinct oblique depressions on posteromedial corners and barely noticeable ones along lateral parts of posterior margin, narrowly darkened along posterior margins, with short strong setae directed posteriorly, located along posterior and medial margins. Median plate (fused gonocoxites II) without longitudinal suture, broadly trapezoidal, short, with ven-

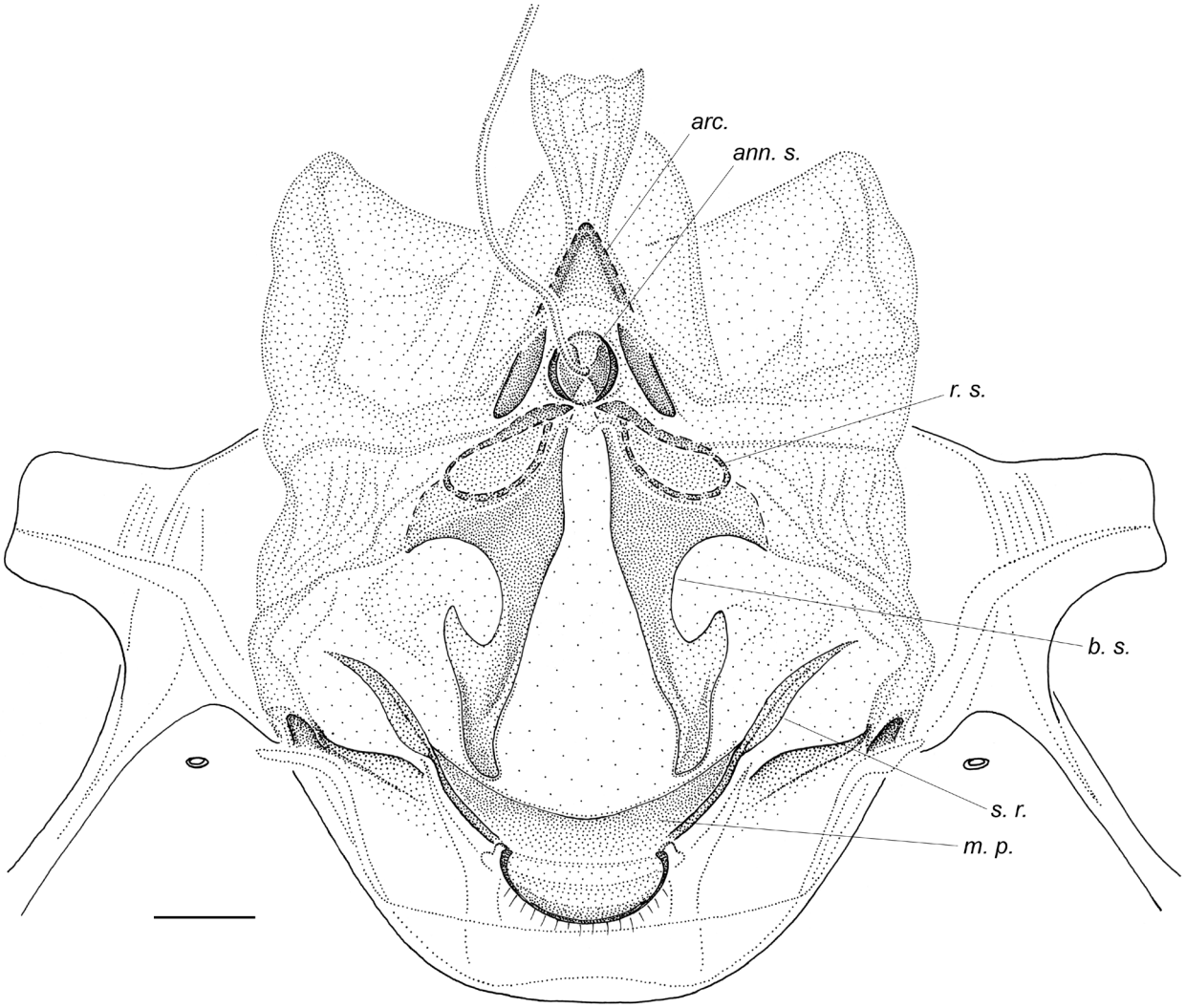

Fig. 9. Gynatrium of *Candravastra talina* **gen.** et **sp. nov.**, paratype, in dorsal view. Abbreviations: *ann. s.* – annular sclerite; *arc.* – arcus; *b. s.* – basal sclerites; *m. p.* – median plate (fused gonocoxites II); *r. s.* – ring sclerites; *s. r.* – second rami. Scale bar: 0.25 mm.

tral surface having paired convexities separated by median depression, densely covered with short, strong setae; its posterior margin straight; anterior margin comparatively deeply and broadly concave; anterolateral angles acutely rounded. Paratergites IX with almost flat ventral surfaces, weak depressions only near middle of medial margin, covered with short setae directed posteriorly, with lateral margins straight anteriorly and slightly convex posteriorly, straight medial margins, and acutely rounded posterior angles barely protruding beyond posterior margin of proctiger. Paratergites VIII relatively short, 1.4 times as wide as long, fused with small trapezoidal median sclerite, their common posterior margin convex laterally, slightly concave medially. Second rami rather long, extending obliquely anterolaterally from anterolateral angles of median plate, slightly protruding beyond anterolateral angles of paratergites IX. Triangulum large, with broadly rounded posterior margin having small median notch, weakly sclerotised on anterior part, with large membranous area along entire posterior margin. Vestiges of fused gonapophyses I appearing as wide, rather long membranous fold lying under triangulum, with slightly convex posterior margin having small median notch and rounded posterolateral angles.

Gynatrium. Gynatrial sac (Fig. 9) wide, located in anterior part of gynatrium, anterior to lateral apodemes of gonocoxites I, with two broad, short,

slightly flattened dorsoventrally triangular lateral pouches directed anteriorly and laterally, and with longer and more voluminous triangular median pouch. Dorsal wall of gynatrial sac with deep transverse fold near its posterior margin; lateral ends of this fold sharply bent anteriorly, reaching apices of lateral pouches; in middle, this fold sharply curved anteriorly and connected with dorsal margins of arcus. Arcus large, as long as wide, conical in anterior part; its posterior arms straight, narrowly lamellar, broadly diverging, with straight lateral margins and acutely rounded posterior ends. Annular sclerite located between posterior arms of arcus; in dorsal view, annular sclerite small, almost round; in ventral view, it looking like short papilla with rounded apex bearing opening of spermathecal duct, with sclerotised lateral walls and narrow membranous areas on anterior and posterior walls. Common oviduct opening into gynatrial sac at base of median pouch anterior to apex of arcus. Posterior margin of gynatrial sac broadly triangularly concave, extending from anterior ends of paratergites IX to posterior ends of arcus. Posterior wall of gynatrial sac forming transverse fold being especially deep in middle. Ring sclerites located on ventral surface of this fold large, transverse, tapering medially and laterally, with rather narrow margin. Basal sclerites very large, arranged horizontally on dorsal wall of gynatrium in its posterior part. Anterior margins of basal sclerites sharply curved dorsally, lying in fold of posterior wall of gynatrial sac and fused with anterior margins of ring sclerites. In anterior part, basal sclerites wider than ring sclerites, strongly sclerotised, narrowing posteriorly, with anterior margins broadly arcuate, converging anteriorly in dorsal view; their anteromedial angles pointed, almost contiguous; anterolateral angles long, broadly pointed, directed posteriorly and laterally; medial margins ante-

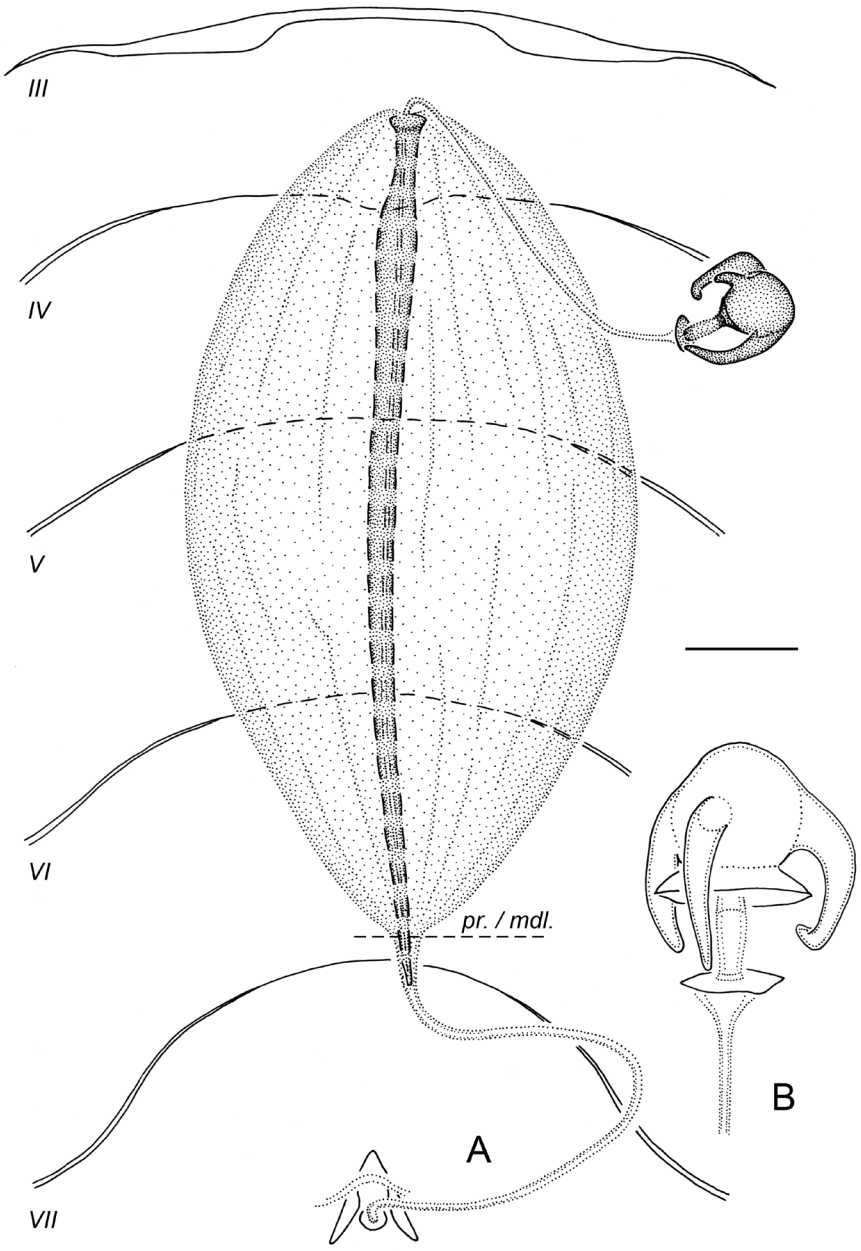

Fig. 10. Parts of the female genitalia of *Candravastra talina* **gen.** et **sp. nov.**, paratype. **A**, spermatheca in dorsal view; **B**, magnified spermathecal capsule and pump. Abbreviations: *pr. / mdl.* – boundary between the proximal and middle parts of spermathecal duct; *III–VII* – respective abdominal ventrites. Scale bars: 0.50 mm (A) and 0.25 mm (B).

riorly almost straight and parallel; lateral margins deeply concave. Posterior parts of basal sclerites long, almost reaching anterior margin of median plate, sharply and strongly tapering posterior to middle, then expanded and shaped as pike pole: each lateral margin with wide long, slightly sclerotised triangular projection directed anterolaterally, extreme posterior ends of sclerites triangular, pointed, slightly curved medially; medial margins significantly divergent, almost straight anteriorly and concave posteriorly. Extreme posterior ends of basal sclerites representing flaps adpressed to dorsal wall of gynatrium.

Completely straightened proximal part of spermathecal duct (Fig. 10) extending beyond posterior margin of ventrite V, not quite reaching its middle, having uniform width, only slightly widened at extreme distal end. Middle part of duct extending from anterior margin of ventrite VII to middle of ventrite III. Medioproximal part of duct wide, gradually widening from base and gradually tapering towards apex. Posterior end of mediodistal part very narrow, slightly extending into widened proximal part of duct, then very gradually widening, with almost parallel walls in middle, then slightly narrowing, and slightly widening at extreme anterior end. External distal part of duct slightly sclerotised, very thin, rather long, 0.43 times as long as mediodistal part of duct. Pump quite large, its proximal flange smaller than distal one. Capsule rather small, slightly transversely ellipsoidal, with three long processes curved apically, almost reaching proximal flange of pump; one of them with a minute process at base.

Measurements (in mm). Males: body length 12.60–12.70; head length 3.53–3.55; head width 2.55; synthlipsis 1.50; ocular index 2.86; lengths of antennal segments I–V 0.65 : 1.40 : 1.38–1.40 : 1.28–1.35 : 1.20; pronotum length 2.60; pronotum width 6.10–6.15; abdomen length 6.60; scutellum length 4.45–4.50; scutellum width 3.75–3.90.

Female: body length 13.60; head length 3.63; head width 2.60; synthlipsis 1.65; ocular index 3.47; lengths of antennal segments I–V 0.65 : 1.43 : 1.40 : 1.30 : 1.15; pronotum length 2.85; pronotum width 6.80; abdomen length 7.40; scutellum length 4.95; scutellum width 4.10.

Distribution. Myanmar (Mandalay Province).

Etymology. The specific name is an adjective derived from the Sanskrit word तलिन (talina), "small".

Key to the genera *Halys*, *Neohalys* and *Candravastra* gen. nov.

1(2). Small, 12.60–13.60 mm, wider (body length / pronotum width 1.97–2.07), light-coloured, with less pronounced pattern of dark stripes and spots (Figs 1, 2). Pygophore almost without punctation on ventral and lateral walls; posteromedian depression of ventral wall with low trapezoidal projection on ventral margin and semicircular concavities on its sides (Fig. 5). Paramere hypophysis very short, trihedral in cross-section, with very narrow lamellar anterior margin (Fig. 6). Basal sclerites of gynatrium with long anterolateral angles and very long posterior parts (Fig. 9). Middle part of spermathecal duct long, extending from anterior margin of ventrite VII to middle of ventrite III; posterior end of mediodistal part of duct straight, not elongate, only barely entering proximal part of duct; external distal part of duct long (Fig. 10A) . . . . . ***Candravastra* gen. nov.**

2(1). Most often, much larger, 13.10–21.80 mm; less wide (body length / pronotum width 2.11–2.29), darker, with distinct pattern of dark stripes and spots (figs 2, 14 in Gapon, 2023). Pygophore densely punctate on ventral and lateral walls; depression of ventral wall without projection and concavities on ventral margin (figs 3, 10, 15 in Gapon, 2023). Paramere hypophysis very short, laterally flattened or large, trihedral in cross-section, with wide lamellar margins (figs 4, 5, 16 in Gapon, 2023). Basal sclerites of gynatrium with short anterolateral angles and posterior parts (figs 12, 19 in Gapon, 2023).

3(4). Lateral margins of head without denticles (fig. 14 in Gapon, 2023). In caudal view, swellings of posterolateral angles of pygophore long, tapering ventrally, lateral parts of posteroventral margin thin; dorsolateral infolding not clearly differentiated into median and lateral parts, with sharp adpressed denticles ventrally at each side near paramere socket, without denticles or serrations near posterodorsal margin of pygophore (fig. 15 in Gapon, 2023). Hypophysis of paramere small, flattened laterally, without lamellar margins (fig. 16 in Gapon, 2023). Ventral surfaces of gonocoxites I with distinct transverse roof-shaped convexities (fig. 17 in Gapon, 2023). Medial margins of gynatrial basal sclerites straight anteriorly (fig. 19 in Gapon, 2023). Middle part of spermathecal duct short,

extending from anterior margin of ventrite VII at most to middle of ventrite IV; posterior end of mediodistal part of duct straight or slightly curved, slightly elongate, slightly entering proximal part of duct; external distal part of duct short (fig. 19 in Gapon, 2023). ..... ***Neohalys***

4(3). Each lateral margin of head with a denticle (fig. 2 in Gapon, 2023). In caudal view, swellings of posterolateral angles of pygophore short, uniformly wide, lateral parts of posteroventral margin thick; dorsolateral infolding clearly differentiated into median and lateral parts, without denticles ventrally at each side near paramere socket, with denticles or serrations near posterodorsal margin of pygophore (figs 3, 10 in Gapon, 2023). Hypophysis of paramere more or less large, trihedral in cross-section, with wide lamellar anterior and dorsal margins (figs 4, 5, 10 in Gapon, 2023). Ventral surfaces of gonocoxites I uniformly weakly convex (figs 11, 13 in Gapon, 2023). Medial margins of gynatrial basal sclerites convex anteriorly (fig. 12 in Gapon, 2023). Middle part of spermathecal duct long, extending from anterior margin of ventrite VII at least to middle of ventrite III; posterior end of mediodistal part of duct strongly elongate, sharply curved, deeply extending into proximal part of duct; external distal part of duct long (fig. 12 in Gapon, 2023) ..... ***Halys***

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