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A new genus and two new species of
micropterous *Mezirinae* from Sabah
(Heteroptera, Aradidae)

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Abstract

From the Oriental, Australian and Pacific region, ten genera of *Mezirinae* are known to date, which comprise species sharing the character of micropterous or brachypterous hemelytra. A new genus, *Smetanacoris* **gen.nov.** is erected for two new species, *apanius* **sp.nov.** and *sabahnus* **sp.nov.** from Sabah, Malaysia, which could not be placed in any of the known genera. *Smetanacoris* can be separated from all Old-world *Mezirinae* by the unique character of a dorsally expanded evaporative area of the metathoracic scent gland.

Key words: *Heteroptera*, *Aradidae*, *Mezirinae*, micropterous, Oriental region, new genus, new species.

Zusammenfassung

Aus der Heteropteren-Unterfamilie *Mezirinae* werden eine neue Gattung, *Smetanacoris* **gen.nov.**, mit zwei neuen

Arten, *apanius* sp.nov. und *sabahnus* sp.nov., von Sabah in Malaysia beschrieben.

Introduction

Through the kindness of Dr.A.SMETANA (Ottawa), I received a small lot of *Aradidae* which he collected in Sabah, comprising many interesting taxa. As a first result of the study of this material, a new genus and two new species of *Mezirinae* are described. I am sincerely grateful to my friend A.SMETANA for this gift.

All measurements given have been taken with a micro-millimeter eyepiece with a scale of 25 units = 1 mm.

Smetanacoris gen.nov.

Micropterous. Body short, relatively thick with deep depressions and distinct elevations, the latter with coarse tubercles which bear erect hairs. Appendages with dense granulation and curled hairs.

Head as long as or shorter as width across eyes; clypeus short, rounded, slightly produced beyond antenniferous tubercles, with a prominent smooth tubercle dorsally. Genae reduced, not longer than clypeus. Antenniferous tubercles stout with blunt apices, granulate dorso-laterally. Eyes oval, deeply set into sides of head. Postocular portion of head granulate, strongly converging posteriorly to constricted collar. Antennae thick, about 1.7 to 2.0 x as long as width of head; antennal segment I thickest, II shortest, III longest, segment IV enlarged apically with blunt apex. Rostrum as long as head, arising from a slit-like atrium. Rostral groove deep with strongly elevated lateral borders, open posteriorly.

Thorax. Pronotum more than twice as wide as long, collar distinct, dorsally expanded into 2(1+1) elevated longitudinal ridges. Disk with a deep smooth pentagonal median depression which is flanked by rounded elevations anteriorly and by transverse ones posteriorly, each of them delimited laterally by elevated granulate ridges. Anterolateral portions of pronotum rounded, coarsely irregularly sculptured. Posterolateral margins straight, con-

verging towards base. Pronotum is separated from metanotum only by a transverse sulcus, which is not always distinct.

Mesonotum shorter than pronotum. Scutellum present as a discrete sclerite, two times as wide as long, depressed at base and strongly elevated at rounded posterior margin. Disc medially with an elevated longitudinal ridge with coarse granulation, laterad smooth. Basal angles with 2(1+1) elevated triangular sclerites. Wing pads distinct, reaching about 1/2 of metanotum, with a granulate longitudinal ridge medially. Lateral margins delimited by the reflexed metapleura which anteriorly are overlapped by a large subrectangular structure which serves as evaporative area of the metathoracic scent glands. Mesonotum is separated from metanotum by a distinct sulcus.

Metanotum nearly as long as pronotum with 2(1+1) ovate lateral elevations which are connected by a thin rim anteromedially and bear coarse granules. It is fused with mediotergites (Mtg) I and II which form a median triangular plate extending posterolaterally. This plate is highest at apex and depressed along the nearly straight posterior margin.

Abdomen. Tergal disk flat, formed by fused Mtg III to VI, wider than long, lateral margins converging posteriorly, with an elevated median ridge which is highest on Mtg III, decreasing posteriorly. Dorsal external laterotergites (Dltg = connexivum) I to III fused, anteriorly reaching the reflexed and dorsally visible metapleura. Lateral margin of Dltg I to V nearly straight, converging posteriorly, those of Dltg VI and VII rounded. Posteroexterior angles (Pe-angles) of Dltg thickened or with distinct tubercles. Mtg VII depressed at base and raised posteriorly in both sexes; in female trapezoidal with 2(1+1) prominent tubercles.

Ventral side. Pro-, meso- and metasternum and sternites I to III fused. Prosternum medially elevated with an oval pit, its lateral borders granulate, converging anteriorly and rounded posteriorly. Meso- and metanotum flattened medially, with smooth transverse oval depressions. Pleura with irregular granulation. Metathoracic

scent gland canal first straight, then curved around middle acetabula and reflexed dorsally along the anterior margin of the conspicuous thickened evaporative area. Sternites IV to VII separated by deep sulci, their medial part smooth, laterad of the longitudinal sulcus after the first pair of glabrous areas (formula 2:2:1) rugose. Sternite VII in female split medially, surface granulate. Spiracle II obsolete, those of sternites III to VII located on prominent elevations which are partly visible from above; spiracles VIII dorsolateral.

Male genital structures. Pygophore well exposed, elongate ovate. Paratergites VIII small. Parameres ?.

Legs. Stout with trochanters distinctly separated from femora, the femora incrassate without spines; tibiae slightly thickened, fore tibiae with a preapical comb. Tarsi with pseudopulvilli.

Etymology. Named in honor of my friend A. SMETANA, who collected the interesting material and generously offered it for my special collection.

Type species: *Smetanacoris apanius* sp. nov. A second species, *sabahnus* sp. nov., is also included in the genus.

Discussion. The reduction of hemelytra in various degrees to true apterism is a frequent phenomenon in tropical and subtropical *Aradidae*. It is correlated with stable ecological conditions, where the reduction or loss of hemelytra are compensated by the rich abundance of available food sources within short distances. Aptery is more frequent than microptery or brachyptery in Indo-australian *Mezirinae*.

From the Oriental region there are presently known six genera with micropterous or brachypterous alary development e.g. *Apaniocoris* KORMILEV, 1983, (1 sp., Sulawesi); *Artabanellus* MATSUDA & USINGER, 1957, (2 sp., New Guinea and Palau Isl.); *Axapisocoris* KORMILEV & HEISS, 1979, (2 sp., Sri Lanka); *Lophocoris* USINGER & MATSUDA, 1959, (1 sp., Sumatra); *Mastigocoris* MATSUDA & USINGER, 1957, (8 sp., Sri Lanka to Philippines); *Scironocoris* KORMILEV, 1957, (5 sp., two brach. from New Guinea and Malaya). Furthermore there are four genera known to occur in the Australian-Pacific region e.g. *Aspisocoris* KORMILEV, 1967, (1 sp., Australia); *Neophleobia* USINGER & MATSUDA, 1959,

(3 sp., Australia); *Phanocoris* USINGER & MATSUDA, 1959, (1 sp., Fidji); *Woodwardiessa* USINGER & MATSUDA, 1959, (1 sp., New Zealand). The presence of a dorsally reflexed metapleura with a dorsally extended evaporative area of the metathoracic scent gland is striking and unique among all Indoaustralian *Mezirinae*. Therefore the new genus stands apart from all micropterous genera. Similar development of evaporative areas - but which are barely visible from above - are known only of the apterous genera *Chlonocoris* (1 sp., Madagascar) and *Mystilocoris* (1 sp., South America), both *Mezirinae* and of the genera *Zimmermannia* and *Acanthaptera* but which are oriental *Carventinae* (cf. USINGER & MATSUDA 1959:211 and 342).

***Smetanacoris apanius* sp.nov.**

(Figs. 1a-c, 2a-d, l, m, 3b, 4b-f)

Male. Color dark brown to piceous, lighter brown are tibiae and tarsi.

Head. Length (measured from apex of clypeus to posterior margin of depressed neck)/width across eyes 15:20.5; clypeus very short, rounded apex only slightly produced over antenniferous tubercles (fig. 2 l, m), dorsally with a prominent shiny round tubercle. Antenniferous tubercles blunt with a few granules dorsally. Inner half of ovale eyes inserted into the head. Postocular portion of head granulate, forming a small rounded lobe, reaching 1/2 of eyes, strongly converging posteriorly. Vertex with a deep V-shaped sulcus delimiting the clypeus and longitudinal ridges.

Thorax. Pronotum length/width 16:35, with a ring-like collar, which runs dorsally into 2(1+1) longitudinally elevated ridges. Median pentagonal depression deep, laterad delimited by 2(1+1) rounded plates apically and by conical ridges at base, both ending in 4(2+2) elevated lateral ridges with setae-bearing granules. Lateral portion of pronotum irregularly rugose, a distinct tubercle is placed laterad of the anterior lateral pronotal ridge and a second one laterad of collar.

Mesonotum. Scutellum length/width 11:31, apically rounded. Elevated median ridge and apex granulate. Wing pads longer than scutellum, with a longitudinal granulate

ridge. Lateral margins converging anteriorly, separated from exposed dorsolateral part of metapleura by a suture. Visible dorsal portion of evaporative structure with greyish incrustation, surface rugose, microstructure as fig. 4e.

Metanotum. Length/width 15:47. Anterolateral rounded elevations keeled and granulate. Median triangular depression smooth, without a longitudinal ridge, lateral portion of fused Mtg I and II rugose.

Abdomen. Tergal disk with a humped longitudinal elevation at middle, laterad with well marked oval apodemal depressions (glabrous areas). Pe-angles of Dltg I, II, V to VII with a strong tubercle which is missing on Dltg III and IV. Mtg VII strongly elevated posteriorly with a small transverse ridge close to margin. Paratergites VIII forming small subtriangular lobes. Pygophore missing in only available male. Spiracle II obsolete, those of sternites III to VII ventral, placed on prominent tubercles, all but III visible from above. Spiracle VIII dorsolateral.

Female. Similar to male, but antennae relatively longer (twice as long as width of head), relative length of antennal segments I:II:III:IV as 11:6:15:13; head length/width 18:22.5. Lateral margins of Dltg I to VII bent upwards, elevated tubercles present on Dltg I to VII, but are smaller. Posterior transversal ridge of Mtg VII wider. Tergite VIII trapezoidal, with 2(1+1) prominent rounded tubercles on basal angles bearing the spiracles, and 2(1+1) deep oval depressions laterad of median line. Tergite IX triangular, incised at apex.

Measurements. Holotype ♂: Length 2.40 mm (without pygophore); width of abdomen across Dltg I 1.17 mm. Paratypes ♀♀: Length 2.42 and 3.00 mm; width of abdomen 1.125 and 1.375 mm.

Material examined. Holotype ♂, Borneo, Sabah, Mt.Kinabalu N.P.HQ. 1560-1600 m, 24.V.87 A.SMETANA; Paratypes, 1♀, Borneo, Sabah, Mt.Kinabalu N.P.Summit trail 1890 m (without date) A.SMETANA; 1♀, Borneo, Sabah, Mt.Kinabalu N.P.Por.H.S.area blw.Langanan Fall, 800 m, 12.V.87 A.SMETANA; all in coll. HEISS.

Etymology. *Apanios* = greek: uncommon.

Smetanacoris sabahnus sp.nov.

(Figs. 1d, 2e-k, 3a, 4a)

This species seems to occur sympatric with *S. apanius* sp.nov. on Mt.Kinabalu and is closely related to it sharing its essential characters, but is distinctive in others which are the following.

Male. Smaller, more slender. Head nearly as long as width across eyes (16.5:17), clypeus clearly produced over antenniferous tubercles. Antennae relatively longer, 1.94 times as long as width of head. Tubercles on anterolateral portion of pronotum very small, not prominent. All elevated thoracical ridges less granulate. Medial triangular plate of fused Mtg I and II with two deep depressions separated by a longitudinal flat elevation (which is missing in *apanius* sp.nov.); fig.1d. Prominent tubercles on Pe-angles of Dltg I, II, V to VII generally smaller, those of Dltg II, VI and VII being the biggest ones.

Pygophore obovate, apex rounded, visible portion transversely rugose. Dorsal opening bisinuate with a pyriform sclerite, which is flexibly attached at posterior margin and projects towards the anal cone (figs. 2g, h, 4a). Its function is yet unclear, the more as no parameres could be seen.

Measurements. Holotype ♂: Length 2,35 mm; width of abdomen across Dltg I 0.875 mm, across exposed metapleura 1.025 mm; relative length of antennal segments I:II:III:IV as 9:5:10:9; pronotum length/width 15:22; mesonotum 10:37 (across hemelytra), 10:39 (across evaporative pads); scutellum 10:25; metanotum 12:35.

Material examined. Holotype ♂, Borneo, Sabah, Tamis Hwy A1, 10 km NW Kinabalu N.P.Entr., 1100 m, 24.V.87 A. SMETANA, in coll. HEISS.

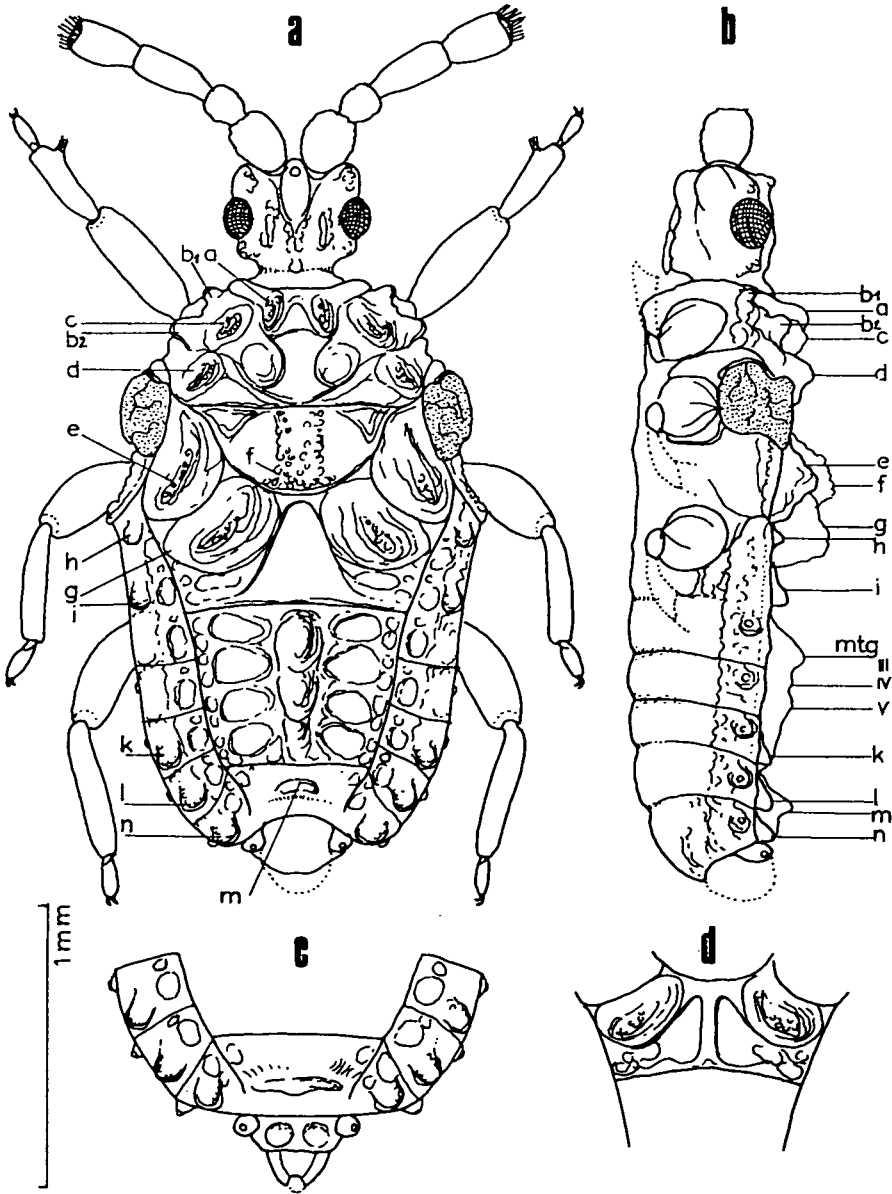
Etymology. Refers to the malaysian sultanate of Sabah where it has been collected.

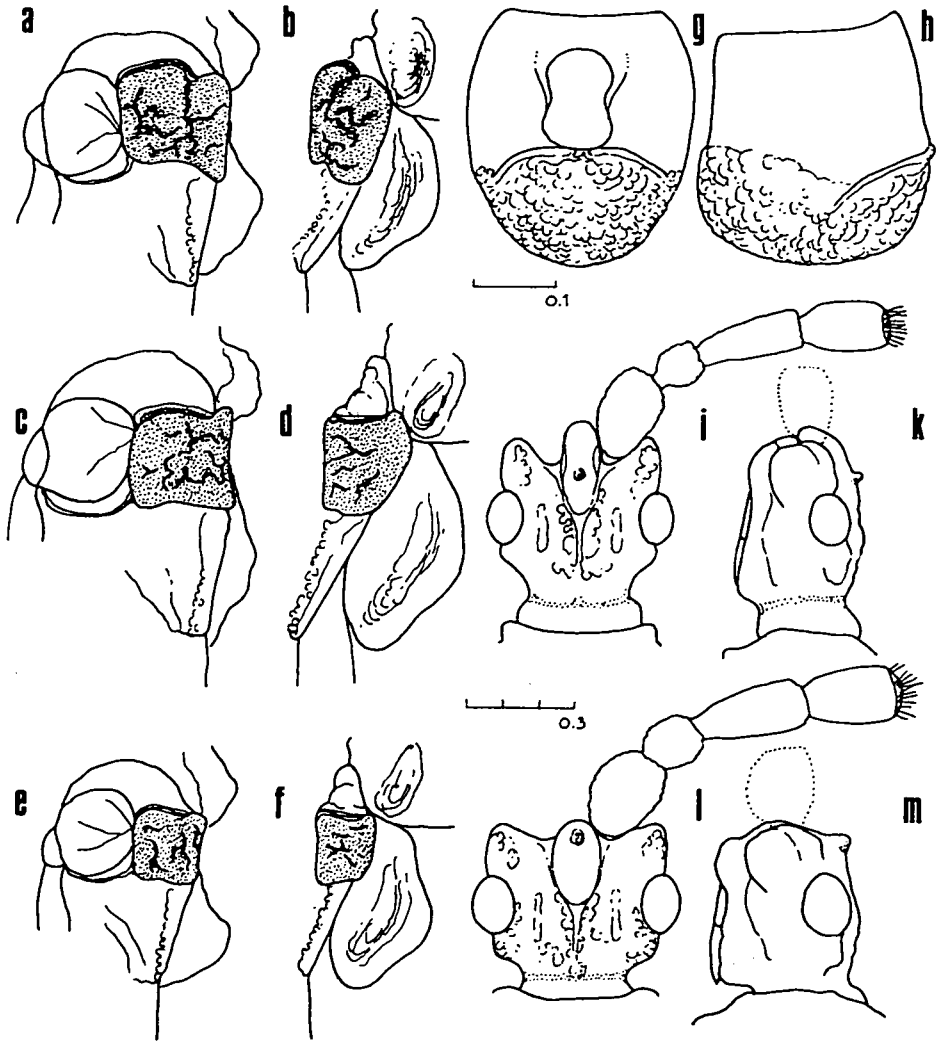
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Figures

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- Fig.1: a-c *Smetanacoris apanius* gen. et sp. nov.; a holotype ♂ dorsal; b dto. lateral view; c paratype ♀ terminal segments; d *Smetanacoris sabahnus* sp. nov., metanotum dorsal.
- Fig.2: a-d, l, m *Smetanacoris apanius* gen. et sp. nov.; e-k *Smetanacoris sabahnus* sp. nov. a holotype ♂ evaporative area lateral view; b dto. dorsal; c-d dto. of paratype ♀; e-f dto. of holotype ♂; g-h pygophore dorsal and lateral; j-k head of holotype ♂ dorsal and lateral; l-m head of holotype ♂ dorsal and lateral.
- Fig.3: a *Smetanacoris sabahnus* sp. nov., holotype ♂ dorsal; b *Smetanacoris apanius* sp. nov., paratype ♀ ventral view.
- Fig.4: a *Smetanacoris sabahnus* sp. nov. detail of pygophore; b-f *Smetanacoris apanius* sp. nov., b dorsal portion of evaporative area and wing pad; c detail of antennal segments II-III; d claw; e microstructure of evaporative area; f apex of rostrum.



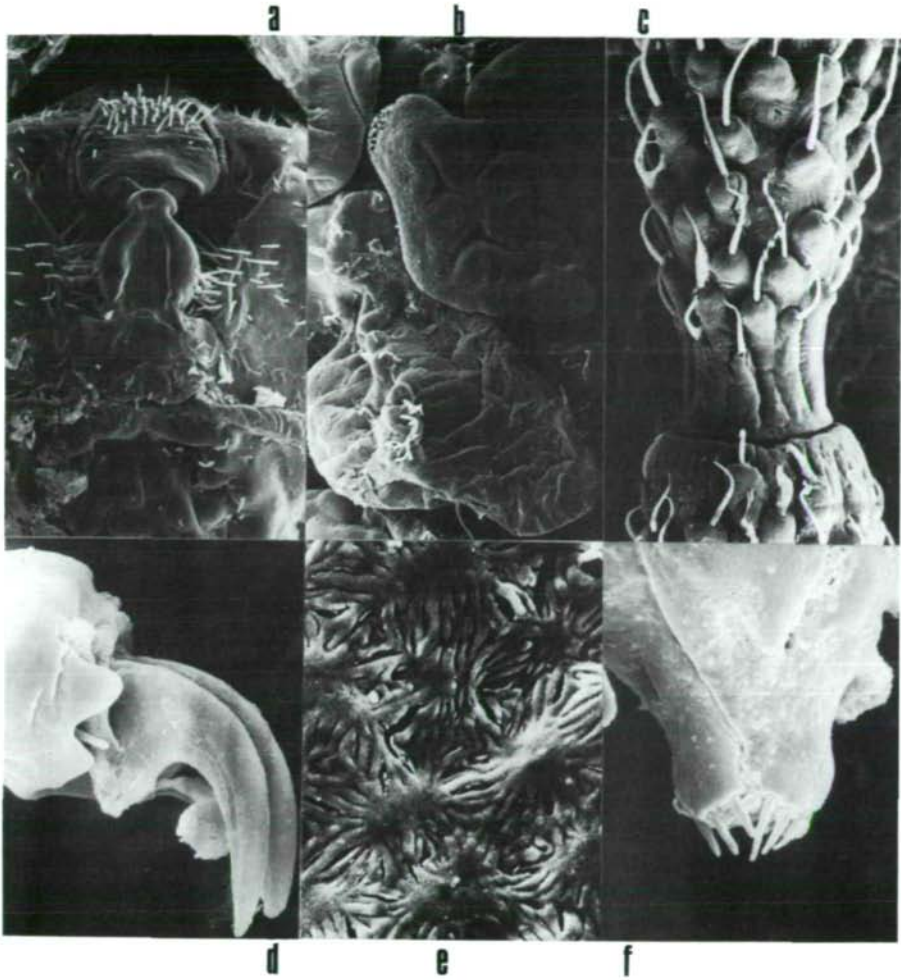




a



b



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Literaturbesprechung

Schweizerischer Bund für Naturschutz (Hsg.): Tagfalter und ihre Lebensräume. Arten - Gefährdung - Schutz.

516 Seiten, über 1000 Farbfotos, Format 21 x 29,7cm, gebunden mit Hochglanzumschlag. Erschienen 1987. Zu beziehen: Fotorotar AG, Druck und Verlag, Gewerbestraße 18, CH-8152 Egg.

Viele Tagfalter sind heute aus ihren angestammten Lebensräumen verschwunden oder teilweise so stark dezimiert, daß ihr Überleben fraglich erscheint. Dies trifft auch auf die Schweiz zu, wo eine Reihe von Arten bereits ausgestorben ist. In letzter Zeit sind große Anstrengungen unternommen worden, den Rückgang der Arten aufzuhalten. Naturschützern, vor allem aber den mit Naturschutz beauftragten Behörden fehlte indes ein Werk über Tagfalter, das die ökologischen Aspekte und die Kenntnisse der entsprechenden Lebensräume vermittelt.

Mit dem Ziel, diese Lücke zu schließen, haben sich

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