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### TAXONOMY OF THE KATYDIDS (ORTHOPTERA: TETTIGONIIDAE) FROM EAST ASIA AND ADJACENT ISLANDS. COMMUNICATION 2

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A new subgenus and five new species of the genus *Peracca* Griffini, 1897 (*Sumatracca* subgen. n., *P. kerinci* sp. n., *P. padangi* sp. n., *P. originalis* sp. n., *P. tiomani* sp. n., *P. lampungi* sp. n.) as well as a new species of the genus *Viriacca* Ingrisch, 1998 (*V. insularis* sp. n.) from the tribe Agraeciini (Conocephalinae) are described from Indonesia and Malaysia. The former genus *Odontoconus* Fritze et Carl, 1908 is included in the genus *Peracca* as one of its subgenera.

KEY WORDS: Orthoptera, Tettigoniidae, Conocephalinae, Agraeciini, new taxa, Indonesia, Malaysia.

# А. В. Горохов. Таксономия кузнечиков (Orthoptera: Tettigoniidae) из Восточной Азии и соседних островов. Сообщение 2 // Дальневосточный энтомолог. 2011. N 227. C. 1-12.

Из Индонезии и Малайзии описаны новый подрод и 5 новых видов рода *Peracca* Griffini, 1897 (*Sumatracca* **subgen n.,** *P. kerinci* **sp. n.,** *P. padangi* **sp. n.,** *P. originalis* **sp. n.,** *P. tiomani* **sp. n.,** *P. lampungi* **sp. n.**), а также новый вид рода *Viriacca* Ingrisch, 1998 (*V. insularis* **sp. n.**), принадлежащие трибе Agraeciini (Conocephalinae). Бывший род *Odontoconus* Fritze et Carl, 1908 включен в род *Peracca* как один из его подродов.

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#### INTRODUCTION

This communication is second one from the series of my works containing mainly the descriptions of new taxa of the Indo-Malayan Tettigoniidae. In the first communication the descriptions of some new taxa from the subfamilies Phaneropterinae and Meconematinae were published (Gorochov, 2011). The material studied are collected by Russian entomologists and deposited in the Zoological Institute of RAS, St. Petersburg.

### DESCRIPTIONS OF NEW TAXA

**Subfamily Conocephalinae** 

Tribe Agraeciini

#### Genus Peracca Griffini, 1897

NOTES. Genera Karnyus Griffini, 1908 (type species: Karnyus doriae Griffini, 1908) and Paracrodonta Karny, 1926 (type species: Paracrodonta subulicerca Karny, 1926) were synonymized with genus Peracca Griffini, 1897 (type species: Peracca conspiculithorax Griffini, 1897) by Ingrisch (1998). These species are closely related and must be included in the same subgenus (Peracca s. str.). In the above-mentioned book, Ingrisch also described a species which is distinctly different from all the other species of his genus Peracca (P. minuta Ingrisch, 1998). The difference between them are maybe more important than difference between Peracca s. str. and Odontoconus Fritze et Carl, 1908 considered a genus (Ingrisch, 1998). It seems to me that two latter taxa are more related to each other than to P. minuta, and it is reasonable to include Odontoconus in the genus Peracca as its subgenus and to describe a new subgenus of this genus for P. minuta and a new species described below.

### Key to subgenera of the genus Peracca

2

# *Peracca (Sumatracca) kerinci* Gorochov, sp. n. Figs 1, 2, 11–13

MATERIAL. Holotype – ♂, Indonesia: Central Sumatra, Jambi Prov., 35 km N of Sungaipenuh Town, environs of National park Kerinci-Seblat, Kerinci Mt., 1500-2000 m, on branch of small tree in primary forest, at night, 18-22.XI 1999, A. Gorochov.

DESCRIPTION. Male. Coloration of body light brown with black face (under both median ocellus and antennal cavities), upper part of clypeus, and mandibles, yellowish lower part of clypeus, other mouthparts, lateral borders of pronotum, small median spot on hind pronotal border, ventral part of thorax, veins and veinlets of tegmina, proximal half of femoral spines, and apical part of longest (medial) cercal process, brown anterior part of pronotal border, rest of hind part of this border, and tegminal membranes (excepting light brown mirror), as well as reddish brown abdominal sternites and numerous weakly distinct marks on distal abdominal tergites. Rostrum of head long, spine-like, with short dorsal tubercle (Figs 1, 2). Pronotum rather low, with almost flat hind lobe (Fig. 2) covering only half of tegminal stridulatory apparatus (Fig. 1). Tegmina approximately extending to 8th abdominal tergite; visible (exposed) half of their stridulatory apparatus as in Fig. 1; hind wings not exposed. Last abdominal tergite with short rounded hind median convexity; cerci similar to those of P. minuta, but with distinct rounded additional lobule situated in medial part of cercal base and directed more or less upwards (Figs 11, 12); genital plate with normal, long styles and with distinct round notch between them (Fig. 13); genitalia completely membranous.

FEMALE unknown.

Length (in mm). Body 26; pronotum 7.6; visible (from side) part of tegmina 11.7; hind femora 12.

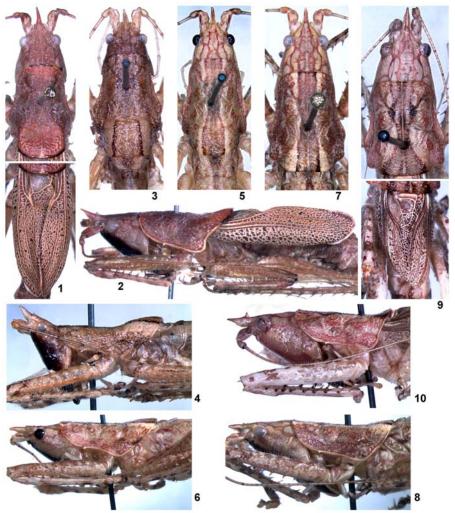
COMPARISON. The new species differs from *P. minuta* (North Sumatra) in the much longer rostrum of head having a distinct dorsal tubercle, lower male pronotum with the almost flat hind lobe, and presence of characteristic additional medial lobule in the basal part of male cerci.

ETYMOLOGY. The species name is noun and originates from Kerinci Mt.

### Peracca (Peracca) padangi Gorochov, sp. n.

Figs 3, 4, 14–16, 33

MATERIAL. Holotype –  $\sigma$ , Indonesia: Central Sumatra, 25-30 km E of Padang City, Pegunungan Range, botanical garden, ~700 m, area with traces of primary forest, 16-17.IV 2004, M. Berezin.



Figs 1–10. *Peracca* Griff., male. 1, 2-P. *kerinci* sp. n.; 3, 4-P. *padangi* sp. n.; 5, 6-P. *originalis* sp. n.; 7, 8-P. *tiomani* sp. n.; 9, 10-P. *lampungi* sp. n. Head with pronotum (upper photo), and tegmina with only pronotal apex (lower photo) from above (1, 9); head with pronotum and tegmina from side (2, 4, 6, 8) and from above (3, 5, 7); head with pronotum from side (10).

DESCRIPTION. Male. Coloration of body yellowish with grayish tinge, but face (under both median ocellus and antennal cavities) as well as upper part of clypeus dark brown, mandibles almost black, lower part of clypeus light brown, other mouthparts and rostrum of head vellowish, antennae vellowish with sparse small brown and light brown spots, pronotum with characteristic pattern from brown and dark brown marks (Figs 3, 4), pterothoracic sternites brown, legs with not large brown spots on femora and tibiae as well as with brownish spines and third tarsal segments, ventral part of both thorax and abdomen (excepting genital plate) as well as epiproct and cerci yellowish, other parts of abdomen with a pair of grayish brown longitudinal bands on lateral surfaces and slight darkish spots on dorsal surface. Rostrum of head more or less similar to that of P. kerinci (Figs 3, 4). Pronotum rather low, with elongate and weakly inflated hind lobe almost completely covering tegminal stridulatory apparatus (Figs 3, 4). Tegmina insignificantly exposed behind pronotum, extending to middle part of 1st abdominal tergite (Figs 3, 4); hind wings not exposed. Last abdominal tergite similar to that of P. kerinci, but with small hind median notch; cerci most similar to those of P. doriae, but their large proximal lobe with thinner (spine-like) distal part, their longest lobe with much narrower (if to see from above) proximal half and almost not bifurcate distal part (Figs 14, 15); genital plate with normal, but short styles and with almost straight hind edge between them (Fig. 16); genitalia with a pair of very small weak sclerites (Fig. 33).

FEMALE unknown.

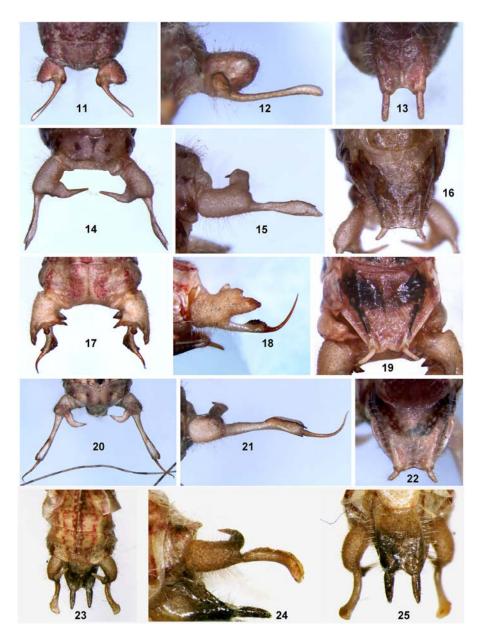
Length (in mm). Body 29; pronotum 8.3; visible (from side) part of tegmina 1.6; hind femora 15.

COMPARISON. The new species is most similar to *P. doriae* (Mentawei), but distinguished by the distinctly longer (spine-like) rostrum of head having a more distinct dorsal tubercle, longer hind lobe of male pronotum, much narrower border ribbon of this pronotum near base of hind pronotal lobe, shorter and articulate styles of male genital plate, and differences in structure of male cerci listed above.

# *Peracca (Peracca) originalis* Gorochov, sp. n. Figs 5, 6, 17–19, 26–28

MATERIAL. Holotype  $-\sigma$ , Malaysia: Malacca, Pahang State, Fraser's Hill near border with Selangor State, 17-18 km SW of Raub Town, 1000-1300 m, on branch of bush in primary forest, at night, 15-23.IV 2010, A. Gorochov, M. Berezin, E. Tkatsheva. Paratypes:  $1\sigma$ ,  $1\varphi$ , same data as in holotype, but  $\sigma$  collected as nymph of middle age (imago in IX 2010).

DESCRIPTION. Male (holotype). Coloration of body yellowish with blackish face (under both median ocellus and antennae), upper part of clypeus, mandibles, ventral part of distal half of hind femora (excepting their apical part and spines), and spinules on longest lobe of cerci, as well as with light brown and reddish pattern on dorsal part of both head and scapes, on pronotum (Figs 5, 6), on legs, and on abdomen



Figs 11–25. *Peracca* Griff., male. 11-13-P. *kerinci* sp. n.; 14-16-P. *padangi* sp. n.; 17-19-P. *originalis* sp. n.; 20-22-P. *tiomani* sp. n.; 23-25-P. *lampungi* sp. n. Abdominal apex without genital plate (11, 14, 17, 20) and with this plate (23) from above; left (12) and right (15, 18, 21, 24) cerci from inner (12) and outer (15, 18, 21, 24) sides; genital plate from below (13, 16, 19, 22, 25).

(abdominal tergites with lighter, reddish marks on dorsal part and with darker, almost brown spots on lateral parts; ventral part of abdomen with a pair of almost brown spots on last sternite and a pair of slightly larger similar spots on genital plate). Rostrum of head similar to that of *P. kerinci* and *P. padangi*, but with smaller dorsal tubercle (Figs 5, 6). Pronotum rather low, with moderately short and almost not inflated hind lobe completely covering tegminal stridulatory apparatus (Figs 5, 6). Both visible part of tegmina and last abdominal tergite similar to those of *P. padangi* (Figs 5, 6, 17); cerci characteristic, having 2 large proximal lobes (medial lobe directed medially, and hind lobe directed backwards) and 3 smaller proximal lobes (hind lobe situated between previous lobes, ventromedial lobe, and dorsal tubercle-like lobule situated near large medial lobe); sixth (longest) cercal lobe rather thin in proximal part, with middle part widened and having numerous small hook-like spinules, and with dorsal virga-like spine curved upwards (Figs 17, 18); genital plate with normal, but moderately long styles and with small angular notch between them (Fig. 19); genitalia with weak sclerites similar to those of *P. padangi*.

VARIATIONS. Cerci sometimes with somewhat larger both small hind lobe (situated between large medial lobe and large hind lobe) and dorsal tubercle-like lobule.

FEMALE. General appearance similar to that of male, but coloration of body more contrast (with more distinct dark spots on pronotum near its posterolateral corners, on dorsal part of hind femora, and on distal and ventroproximal parts of hind tibiae), pronotum with shorter hind lobe (Fig. 26), tegmina scale-like (reaching only middle part of metanotum) and with strongly reduced venation (Fig. 26), last abdominal tergite with deeper hind median notch, cerci simple (conical) and smaller, and genital plate almost triangular and with small hind median notch (Fig. 27); ovipositor as in Fig. 28.

Length (in mm). Body: 3 = 26-29, 9 = 30; pronotum: 3 = 7.1-7.6, 9 = 6.9; visible (from side) part of tegmina: 3 = 1.5-1.8, 9 = 1.2; hind femora: 3 = 13.6-14.2, 9 = 16; ovipositor 15

COMPARISON. The new species distinctly differs from all the other congeners in the more or less light sternites, moderately short hind pronotal lobe, male cerci with 6 lobes, longest (ventral) lobe of these cerci with the widened middle part and characteristic denticulate area on this part, distal part of this lobe with a thin and arcuate apical spine, and male genital plate with the moderately long, articulate styles and angular notch between them.

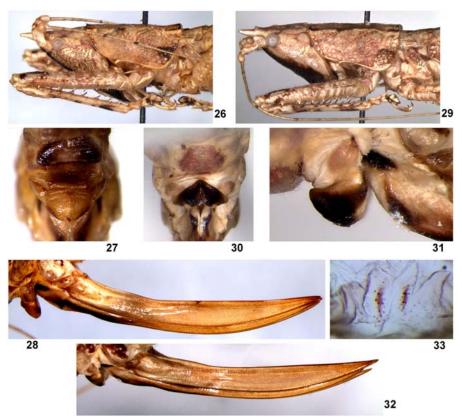
ETYMOLOGY. The species name originates from *originalis* (Latin) – original.

### Peracca (Peracca) tiomani Gorochov, sp. n.

Figs 7, 8, 20-22, 29-32

MATERIAL. Holotype  $-\sigma$ , Malaysia: Malacca, Pahang State, Tioman I. not far from Mersing (city in Johor State), eastern coast, environs of Juara Vill., on branch of bush in primary forest, at night, 6-14.IV 2010, A. Gorochov, M. Berezin, E. Tkatsheva. Paratypes:  $3 \sigma$ ,  $2 \circ$ , same data as in holotype.

DESCRIPTION. Male (holotype). Coloration of body similar to that of *P. originalis* (Figs 7, 8), but pterothoracic sternites brown (as in *P. padangi*), ventral part of hind tibiae almost completely dark brown, and all abdominal sternites completely light brown. Rostrum of head, pronotum and tegmina also similar to those of *P. originalis*, however hind pronotal lobe somewhat shorter (Figs 7, 8). Last abdominal tergite with hind median notch slightly larger than in *P. padangi* and *P. originalis*; cerci (Figs 20, 21) very similar to those of *P. subulicerca* and *P. sarawakensis*, but distinguished by smaller proximal lobe of cerci [longest cercal lobe (directed backwards) 3 times as long as proximal lobe (directed medially), but in *P. subulicerca*, longest cercal lobe only twice longer than proximal one] and absence of denticles on posteromedial edge of this lobe (in *P. sarawakensis*, proximal cercal lobe distinctly denticulate); genital plate with normal, but short styles and with short round notch between them (Fig. 22); genitalia similar to those of *P. padangi* and *P. originalis*.



Figs 26–33. *Peracca* Griff. 26–28 – *P. originalis* sp. n.; 29–32 – *P. tiomani* sp. n.; 33 – *P. padangi* sp. n. Head with pronotum and tegmina from side, female (26, 29); female genital plate from below (27, 30) and from side (31); ovipositor from side (28, 32); sclerites of male genitalia from above (33).

VARIATIONS. Body with slightly darker or slightly lighter marks; pronotum sometimes covering only most part of stridulatory apparatus (small distal part of this apparatus may be exposed).

FEMALE. General appearance as in male, but with some differences: one female with almost light brown (not yellowish) general coloration of body; pronotum with shorter hind lobe (Fig. 29); tegmina and last abdominal tergite similar to those of female of *P. originalis*; genital plate distinguished from that of this species by somewhat different shape (if to see from below) and characteristic transverse, angular and heavily sclerotized fold on its ventral surface (Fig. 30, 31); ovipositor as in Fig. 32.

Length (in mm). Body:  $30-34, \ 932-36$ ; pronotum:  $7-7.9, \ 96.4-7.6$ ; visible (from side) part of tegmina:  $1.9-2.3, \ 91.1-1.3$ ; hind femora:  $16-18, \ 916.5-20$ ; ovipositor 14.5-16.

COMPARISON. The new species is most similar to *P. subulicerca* (Java and, possibly, South Sumatra) and *P. sarawakensis* (Borneo) in the shape of male cerci, but distinguished from them by the above-mentioned characters of these cerci and (only from *P. subulicerca*) female genital plate with the lateral margins not bent dorsad [in *P. subulicerca*, these "margins bent dorsad" (Ingrisch, 1998: p. 94)]. From *P. padangi* and *P. doriae*, it differs in the presence of long, thin and curved spine at the apex of male cerci; from *P. conspiculothorax* (Malacca), in the longest lobe of male cerci lacking any bifurcation; and from *P. fulmeki* (Sumatra), in the knee of all legs not darkened, and all sternites not black.

# *Peracca (Odontoconus) lampungi* Gorochov, sp. n. Figs 9, 10, 23–25

MATERIAL. Holotype –  $\sigma$ , Indonesia: South Sumatra, Lampung Prov., National park Bukit Barisan Selatan, 20-30 km WWN of Kotaagung Town, environs of Sukaraja Vill., 05°30-31'S, 104°25-27'E, ~600 m, primary forest, at night, 14-18.IX 2009, A. Gorochov, M. Berezin, E. Tkatsheva.

DESCRIPTION. Male. Coloration of body yellowish with following marks: face of epicranium under rostrum rose with a pair of longitudinal yellowish stripes diverging towards mouthparts; dorsum of head with characteristic ornament from reddish brown lines (Fig. 9); clypeus and lower part of genae light brown; most part of mandibles dark brown; labrum reddish; pronotum with brownish ornament on disc (see Fig. 9) and small reddish marks on lateral lobes; legs with light brownish marks on femora, several small brown spots on fore and middle tibiae, dark brown femoral spines and very small marks on tarsi, and brown tibial spines (latter ones with yellowish areas in middle part; size of these areas rather diverse); tegmina with light brown some longitudinal veins and brown membranes along medial edge (Fig. 9); other parts of body with three longitudinal stripes on dorsum of hind half of abdomen (one brownish median stripe reaching base of epiproct and a pair of rose lateral stripes reaching apex of epiproct) and grayish both distal part of genital plate and

dorsomedial lobes of cerci. Head rostrum more or less similar to that of *P. kerinci* in shape, but with distinctly longer dorsal tubercle (Fig. 10). Pronotum low, with short and more or less flat hind lobe covering only small basal part of tegmina (stridulatory apparatus completely exposed; Figs 9, 10). Tegmina moderately shortened, extending to hind part of forth abdominal tergite; their stridulatory apparatus as in Fig. 9; hind wings not exposed. Last abdominal tergite similar to that of *P. kerinci*; cerci more or less similar to those of *Peracca* s. str. – with hook-like dorsomedial lobe directed partly forwards, and longest lobe directed more or less backwards and weakly curved downwards; latter lobe with widened distal part having small oblique groove at apex (Figs 23, 24); genital plate similar to that of *P. kerinci* (Fig. 25); genitalia completely membranous.

FEMALE unknown.

Length (in mm). Body 27.5; pronotum 7.5; visible (from side) part of tegmina 8; hind femora 17.

COMPARISON. The new species is similar to *P. spinipes* (Borneo) in the general shape of head rostrum, but distinguished by the straight dorsal edge of this rostrum and distinctly convex its ventral edge (see in profile) as well as much shorter tegmina (in *P. spinipes*, tegmina somewhat longer than hind femora). From the other species of *Odontoconus* (*P. robusta* from Malacca and *P. setosa* from Java), the new species differs in the distinctly longer head rostrum having practically acute (not rounded) apex, and much shorter tegmina.

### Viriacca insularis Gorochov, sp. n.

Figs 34-43

MATERIAL. Holotype  $-\sigma$ , Malaysia: Malacca, Pahang State, Tioman I. not far from Mersing (city in Johor State), eastern coast, environs of Juara Vill., on leave of bush in primary forest, at night, 6-14.IV 2010, A. Gorochov, M. Berezin, E. Tkatsheva. Paratypes:  $4\sigma$ , 4, same data as in holotype.

DESCRIPTION. Male (holotype). General appearance very similar to that of *V. viridis* Ingrisch, 1998. Coloration of body greenish yellow with small blackish marks on apical part of mandibles and on tarsi, dark brown large spot on medial part of tegmen (Fig. 34) and small spot on ventroapical part of hind tibiae, a few rose spots on abdominal dorsum, two small reddish spots on outer surface of middle tibiae (in proximal and apical parts), and brown distal part of all spines of legs. Head rostrum with rounded apex and without dorsal tubercle, but slightly longer than that of *V. viridis*. Pronotum as in Figs 34, 35. Tegmina short, extending to hind part of second abdominal tergite, with widely rounded apex; their stridulatory apparatus partly covered with pronotum (Figs 34, 35); hind wings not exposed. Legs with angular inner tubercle at apex of middle femora, a pair of spines at apex of hind femora, and strong inflation in tympanal region of fore tibiae (both tympanal apertures situated on dorsal surface of this inflation, but in majority of Conocephalinae, these apertures

situated on lateral surfaces). Last abdominal tergite with median lobe having median notch at apex (Fig. 37), however this lobe shorter and this notch distinctly smaller than in *V. viridis*; cerci and genital plate almost indistinguishable from those of latter species (Figs 37-40); each paraproct with rather small (but distinct) finger-like process directed downwards and slightly backwards (Fig. 39). Genitalia (Fig. 41) similar to those of *V. viridis*, but V-shaped median sclerite ( $\nu$ ) narrower and having longer median part, a pair of lateral lobules on hind part of membranous dorsal fold distinctly shorter and rounded at apex, medial edge of paired medial sclerotizations



Figs 34–43. *Viriacca insularis* sp. n. 34 – head with pronotum and tegmina from above, male; 35, 36 – same of male (35) and female (36) from side; 37–40 – abdominal apex of male from above (37), from below (38), from behind (39), and from side (40); 41 – sclerites of male genitalia from below; 42 – ovipositor from side; 43 – female genital plate from below. Abbreviations – see text of holotype description.

(*m*) denticulate, heavily sclerotized sclerite (*h*) characteristic in shape, and paired ventroapical membranous lobes (*ml*) having numerous very small denticles (in *V. viridis*, these denticles less numerous and larger).

VARIATIONS. Some males without rose spots on abdomen.

FEMALE. Coloration and structure of body similar to those of male, however distinguished by the following characters: pronotum with the hind lobe distinctly shorter and not inflate (Fig. 36); tegmina shorter, scale-like, extending to hind part of metanotum; their venation partly reduced (Fig. 36); tympanal region slightly less inflate; last abdominal tergite with deeper median notch at apex; cerci simple, conical, but with elongate thin apical part; genital structures similar to those of female of *V. viridis*, but genital plate with small apical notch (Fig. 43), and ovipositor as in Fig. 42.

Length (in mm). Body: 3 18-22, 9 22-24; pronotum: 3 5.9-6.3, 9 5.6-6; visible (from side) part of tegmina: 3 3.2-3.5, 9 1.3-1.5; hind femora: 3 12.5-14.5, 9 15-17; ovipositor 13-14.

COMPARISON. The new species differs from the close related *V. viridis* (continental part of Malacca) in the above-mentioned characters of male and female (especially in the structure of sclerites in male genitalia).

ETYMOLOGY. The species name originates from insularis (Latin) – insular.

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