

New genus and species of subfamily Trinodinae (Coleoptera, Polyphaga, Dermestidae) from Lowermost Eocene French amber

Новый род и вид подсемейства Trinodinae (Coleoptera, Polyphaga, Dermestidae) из нижнеэоценового французского янтаря

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In the paper six new species of the genus *Oisenodes* **gen. nov.** (Dermestidae, Trinodinae, Trinodini) are described: *O. azari* **sp. nov.**, *O. clavatus* **sp. nov.**, *O. gallicus* **sp. nov.**, *O. metepisternalis* **sp. nov.**, *O. oisensis* **sp. nov.** and *O. transversus* **sp. nov.** A new tribe Trinoparvini Hava, **trib. nov.** is established for the recent genus *Trinoparvus* Háva, 2004. Short review of known fossil records of the mentioned subfamily Trinodinae is given.

В статье описываются шесть новых видов рода *Oisenodes* **gen. nov.** (Dermestidae, Trinodinae, Trinodini): *O. azari* **sp. nov.**, *O. clavatus* **sp. nov.**, *O. gallicus* **sp. nov.**, *O. metepisternalis* **sp. nov.**, *O. oisensis* **sp. nov.** и *O. transversus* **sp. nov.** Устанавливается новая триба Trinoparvini Hava, **trib. nov.** для рецентного рода *Trinoparvus* Háva, 2004. Дается краткий обзор ископаемых находок жуков подсемейства Trinodinae.

Key words: Lowermost Eocene French amber, taxonomy, Coleoptera, Dermestidae, Trinodinae, new tribe, new genus, new species

Ключевые слова: нижнеэоценовый французский янтарь, систематика, жесткокрылые, кожееды, Coleoptera, Dermestidae, Trinodinae, новая триба, новый род, новые виды

INTRODUCTION

The paper is the eighth contribution to the knowledge on fauna of Coleoptera from Lowermost Eocene French amber collected in Oise falls (Batelka et al., 2006; Bílý & Kirejtshuk, 2007; Kirejtshuk & Nel, 2008, 2009; Moseyko et al., 2010, in press; Kirejtshuk et al., 2010, in press; Nabozhenko et al., 2010, in press), which is devoted to the families remained unknown from this resource and poorly known in fossils at all. The family Dermestidae was provided with

a short necessary review of data on systematics of fossil record and historical development by Kirejtshuk et al. (2009). More detailed information on representation of this coleopterous family in the fossil record can be got in the catalogue by Ponomarenko & Kirejtshuk (2008). This subfamily is known in fossils from Baltic amber (genus *Trinodes* Dejean, 1821; Larsson, 1978; Spahr, 1981; Háva, 2003; Háva & Prokop, 2004, 2006; Háva et al., 2006, 2008) and Lebanese amber (Kirejtshuk et al., 2009). Among inclusions

of the Lowermost Eocene French amber about a hundred specimens of Dermestidae and, among them, more than 30 specimens of the subfamily Trinodini were recently found and all of them belong to the genera or one genus, apparently rather related to those represented in the recent fauna.

MATERIAL AND METHODS

Many specimens recovered among inclusions from Lowermost Eocene French amber are deposited in the Laboratoire de Paléontologie, Muséum National d'Histoire Naturelle, Paris (MNHN). Ordinary optic equipment was used for the examination, in particular, a stereomicroscope Olympus SCX9 and an inverted microscope Olympus CK 40 in MNHN, and also the stereomicroscope microscope Leica MZ 16.0 in the St. Petersburg institute. All holotypes and most paratypes of the new species deposited in MNHN, part of paratypes of *Oisenodes gallicus* **sp. nov.** and *O. metepisternalis* **sp. nov.** are deposited in the Zoological institute of the Russian Academy of Sciences (St. Petersburg) and one paratype of *O. gallicus* **sp. nov.** in the **Entomologické oddělení (Národní museum, Prague)**.

Type strata. Lowermost Eocene, in amber, *circa* 53 Myr, Sparnacian, level MP7 of the mammal fauna of Dormaal.

Type locality. Farm Le Quesnoy, Chevrrière, region of Creil, Oise department (north of France).

RESULTS

Order COLEOPTERA

Family DERMESTIDAE

Subfamily Trinodinae Casey, 1900

This subfamily can be diagnosed by the (sub) erect, long and stout hairs on dorsum, 11-segmented antennae with 1–6-segmented club, pronotum with paralaral striae, prohypomera without depressions for reception of antennal club, prosternum somewhat projecting anteriorly.

Tribe **Trinodini** Casey, 1900

Type genus: *Trinodes* Dejean, 1821

Oisenodes gen. nov.

Type species: *Oisenodes gallicus* **sp. nov.**

Etymology. The name of this new genus is formed from the name of locality with amber deposits and generic root 'nodes' of the type genus of the subfamily. Gender: masculine.

Description. Adult males. Body elongated oval, strongly convex dorsally and moderately convex ventrally; dorsum diffusely punctured, with long and stout hairs, frequently of two types: longer and thicker suberect ones and others shorter, thinner and subrecumbent; thoracic and abdominal underside with comparatively sparse and moderately long recumbent hairs; length 1.3–1.7 mm. Head oval and strongly declined, with very large and coarsely faceted eyes, labrum exposed, antennae eleven-segmented with three-segmented antennal club; median ocellus on head present. Pronotum with convex anterior and posterior bi-sinuate edges, paralaral carinae distinct. Elytra with separately rounded apices and usually leaving apex of pygidium not covered. Prosternal process rather wide and widely rounded at apex. Posterior edge of metaventricle between coxae almost straight. Distance between metacoxae moderately separated. Tarsomeres one-four very narrowly lobed to simple. The posterior wing as in Fig. 19 and 20.

Adult females. External characters are corresponding with those in males.

Diagnosis. The new genus similar to the genera *Trinodes* Dejean, 1821, *Apsectus* LeConte, 1854 and *Evorinea* Beal, 1961, but differs from them in the comparatively widely separated pro- and mesocoxae, and also truncate posterior edge of the metaventricle between metacoxae. Besides, the characters given in the key below can be used for the diagnostics of the new genus.

Key to genera of the subfamily Trinodinae

- 1a. Antennae ten-segmented; body form very small, subcircular; median lobe of male genitalia not separated from parameres (tribe Trinoparvini Háva, **trib. nov.**) (recent)
 **Trinoparvus** Háva, 2004
- 1b. Antennae nine- or eleven-segmented; median lobe of male genitalia separated from parameres 2
- 2(1)a. Antennae filiform (tribe Thylodriadini Mroczkowski, 1954) (recent) 3
- 2(1)b. Antennae with antennal club 4
- 3(2)a. Antennae nine-segmented (recent)
 **Thylotrias** Motschulsky, 1839
- 3(2)b. Antennae eleven-segmented (recent)
 **Trichodryas** Lawrence & Slipinski, 2005
- 4(2)a. Body elongate 5
- 4(2)b. Body oval 7
- 5(4)a. Body form very elongate and strongly convex; antennal club three-segmented (tribe Cretonodini Kirejtshuk & Azar in Kirejtshuk et al., 2009) (Lebanese amber)
 **Cretonodes** Kirejtshuk & Azar in Kirejtshuk et al., 2009
- 5(4)b. Body form slightly elongate; antennal club four-six-segmented (tribe Trichelodini Peacock, 1978) (recent) 6
- 6(5)a. Procoxae strongly projecting, without plates; anterior mesoventral process very short and acute (recent)
 **Hexanodes** Blair, 1941
- 6(5)b. Procoxae not strongly projecting, with well developed plates; anterior mesoventral process long and narrowly rounded (recent)
 **Trichelodes** Carter, 1935
- 7(4)a. Antennal club one- or two-segmented in male, two-segmented in female; posterior margin of metasternum without small median emargination (recent and Baltic amber)
 **Evorinea** Beal, 1961
- 7(4)b. Antennal club three-segmented 8
- 8(7)a. First abdominal ventrite usually with two short oblique lines; posterior edge of metasternum between coxae with small median emargination (recent and Baltic amber)
 **Trinodes** Dejean, 1821
- 8(7)b. First abdominal ventrite usually without two short oblique lines 9
- 9(8)a. Prosternal process complete, comparatively wide and fitting into cavity at anterior edge of mesoventrite; posterior edge of metasternum between coxae subtruncate and without small median emargination (Lowermost French amber) **Oisenodes gen. nov.**
- 9(8)b. Prosternal process incomplete, truncate or emarginate apically and abutting anterior mesoventral process; posterior edge of metasternum between coxae with small median emargination (recent)
 **Apsectus** LeConte, 1854

Notes. Tribe Trinoparvini **trib. nov.** (type genus: *Trinoparvus* Háva, 2004 recent), except the diagnostic features mentioned in the above diagnosis, is characterised by the very small body (1.1–1.2 mm) and three-segmented antennal club. The name of the tribe has been already mentioned at various web-sites.

Key to the Oisenodes species

- 1a. Ultimate antennomere at most slightly longer than two previous ones combined; integument more smoothed and more finely punctured, and comparatively less pubescent . . . 2
- 1b. Ultimate antennomere 1.5–2.0 times as long as two previous ones combined; integument more coarsely sculptured and punctured, and also comparatively more pubescent 4
- 2(1)a. Metepisterna strongly widened posteriorly; prosternal process with more convex posterior edge (Figs 6, 21–23)
 **O. clavatus sp. nov.**
- 2(1)b. Metepisterna subparallel-sided or slightly widened posteriorly; prosternal process with only slightly convex posterior edge 3
- 3(2)a. Head slightly narrower than pronotum; antennae not longer than head width; distance between procoxae more than width of femora; pronotal base about twice as great as its apex (Figs 14, 24) **O. oisensis sp. nov.**
- 3(2)b. Head moderately narrower than pronotum; antennae somewhat longer than head width; distance between procoxae less than width of femora; pronotal base markedly less than twice as great as its apex (Figs 7, 9, 13, 15, 29–30) **O. transversus sp. nov.**
- 4(1)a. Posterior edge of pronotum about four times as great as lateral ones; prosternal process with shallowly emarginated posterior edge; metepisterna subparallel-sided (Figs 3–5, 19) **O. azari sp. nov.**
- 4(1)b. Posterior edge of pronotum about three times as great as lateral ones; prosternal process with more or less convex posterior edge; metepisterna more or less widened at posterior edge 5

5(4)a. Metepisterna about four times as long as wide; ultimate antennomere more than 1.5 times as long as two previous ones combined; pronotum somewhat less than 2.5 times as wide as long (Figs 1–2, 17–18)

. ***O. gallicus* sp. nov.**

5(4)b. Metepisterna about three times as long as wide; ultimate antennomere not more than 1.5 times as long as two previous ones combined; pronotum about 2.5 times as wide as long (Figs 8, 10–12, 16, 25–28)

. ***O. metepisternalis* sp. nov.**

Notes on bionomy. Recent species of *Trinodes* seem to have the bionomy more or less similar to that in extant species of the new genus under consideration. Their adults and larvae live amongst webs of tube- and sheet-web building spiders beneath loose dry bark on old trees, mainly of oak *Quercus*, where they feed on the dead remains of insects and spider exuviae. Adults of recent species have been also found on blossom and foliage.

DESCRIPTIONS OF SPECIES

***Oisenodes gallicus* sp. nov.**

(Figs 1–2, 17–18)

Material examined. Holotype 'PA 2307' (MNHN), probable male with slightly exposed anal sclerite; the complete specimen is included in a small irregular amber parallelepiped with some small gas vesicles and "milky cover" along pubescent integument; the inclusion is put in a circular reservoir with Canada Balsam" fixed on a microscope glass.

Paratype 'PA 160', probable female with moderately rounded hypopygidium; the complete specimen is included near the surface of one facet of the subcylindrical bar with visible underside faced to the surface and surrounded by many gas vesicles, particularly at head and prosternum; dorsum invisible, because many of not transparent gas vesicles are located behind the beetle; the bar has 17 mm of length and 4–7 mm of cross-section in different places and includes also many crashes and gas vesicles of

different size.

Paratype 'PA 135', probable male with widely rounded hypopygidium; the complete specimen is included in a small irregular amber parallelepiped with some small gas vesicles and "milky cover" along pubescent integument; the inclusion is put in a circular reservoir with Canada Balsam" fixed on a microscope glass.

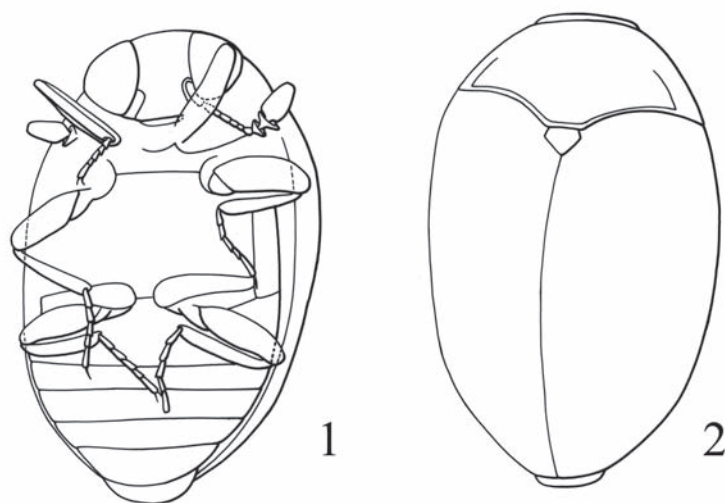
Paratype 'PA 15552'; the complete specimen is included in a small subcylindrical amber bar with some small gas vesicles and "milky cover" along pubescent integument, and also with some very small pieces of organic matter and irregular crack along body plane; the amber bar with beetle is glued on a microscope glass by epoxy and on this glass another bar with Diptera inclusion is glued at another side of this microscope glass.

Paratypes 'PA 12256', male and female; the complete two specimens are included in a irregular bar forming a trapezium in cross section; specimen visible clearly but with optic aberration; the bar has clear consistence, 9 mm of length, width of widest plan 7 mm and 2 mm of narrowest plane; with very small complete Nematocera and some pieces of organic matter and cracks.

Paratype 'PA 12222', female with moderately rounded hypopygidium and partly exposed ovipositor; the complete specimen is included in a somewhat irregular bar forming a trapezium in cross section; specimen visible dorsoventrally; the bar has clear consistence, 7 mm of length, width of widest plan 6 mm and 2 mm of narrowest plane; with some pieces of organic matter.

Paratypes 'PA 438', male and female; the complete two specimens are included in a irregular bar with forming a semicircle in cross section; specimen visible at one cross side (underside) and approached to facets along length (dorsum); the bar has clear consistence, 8–10 mm of length, width of plane 6 mm; with a mummy of Nematocera and some pieces of organic matter.

Etymology. The name of the new species is derived from the ancient name of the country of origin of the inclusion.



Figs 1–2. *Oisenodes gallicus* **sp. nov.**, holotype 'PA 2307'. Body, ventral view (1) and dorsal (2) view. Length 1.3 mm

Diagnosis. This new species is very similar to *O. metepisternalis* **sp. nov.** and clearly differs from the latter only in the somewhat longer pronotum and shape metepisterna. Its antennal club has the ultimate antennomere somewhat longer than that in *O. metepisternalis* **sp. nov.** *Oisenodes gallicus* **sp. nov.**, in contrast to *O. metepisternalis* **sp. nov.**, has the lateral sides of pronotum more arcuate and also has somewhat less raised and less conspicuous pubescence of integument. *Oisenodes gallicus* **sp. nov.** differs also from:

– *O. azari* **sp. nov.** in the shape and proportion pronotum, comparatively smaller head with smaller eyes, somewhat longer hairs (setae) on the dorsum and denser and more conspicuous hairs on underside, coarser puncturation and microsculpture of integument;

– *O. clavatus* **sp. nov.** in the shape and proportion of antennomeres in its club, somewhat longer hairs (setae) on the dorsum and denser and more conspicuous hairs on underside, coarser puncturation and microsculpture;

– *O. oisensis* **sp. nov.** in the somewhat smaller head, shape of pronotum, markedly more robust and much less convex body, and also in the longer ultimate antennomere, less raised and less conspicuous pubescence of underside;

– *O. transvesus* **sp. nov.** in the widely separated procoxae, somewhat shorter antennae with much longer ultimate antennomere, somewhat smoothed microsculpture of integument with distinct puncturation, more raised pubescence and markedly narrower metepisterna.

Description. Length 1.3, width 0.7, height apparently about 0.4 mm. Elongate oval, strongly convex dorsally and moderately convex ventrally; subunicolourous dark brown to blackish; appendages brownish; dorsum with long and stout yellow, brown, yellow greyish or greyish hairs (colouration depending on lighting) of two types: longer ones nearly 1.5 times as long as ultimate antennomere and more than twice as long as femora wide, thicker and erect; others somewhat shorter than ultimate antennomere, thinner and subrecumbent; thoracic underside with comparatively sparse and rather long recumbent hairs, but somewhat shorter than the shorter ones on dorsum; abdominal ventrites with slightly conspicuous recumbent hairs about half as long as those on thoracic underside.

Head and pronotum with distinct dense punctures, apparently slightly larger than eye facets in diameter, interspaces between them somewhat narrower than a puncture diameter and smoothed. Elytra with larger and sparser punctures and completely

smooth interspaces with distance between punctures as great as a puncture diameter. Metaventricle and abdominal ventrites with extremely sparse and extremely small distinct punctures, interspaces between them more or less smoothed, but distally punctures becoming larger.

Head oval and strongly declined (hypognathous) and slightly exposed dorsally, much narrower than pronotum, with very large, vertical and coarsely faceted eyes, somewhat convex and frons strongly turned ventrally. Labrum well exposed, short and transverse. Antennae slightly shorter than head wide, apparently eleven-segmented with three-segmented club composing almost one-third of total antennal length, scape apparently rather small and elongate, ultimate antennomere about one and two-third as long as two preceding antennomeres combined; antennomeres covered with sparse, rather short and very stout hairs. Pronotum somewhat narrower than combined elytral base, more than twice as wide as long, strongly vaulted at disk and rather steeply sloping at sides; its anterior edge gently convex and posterior one distinctly bordered and bi-sinuate, sides looking nearly like continuation of anterior edge, about one-third as great as posterior edge, paralateral carinae distinct. Scutellum transverse and subpentagonal, somewhat wider than long. Elytra about one and one-third as long as wide combined, longest at suture and arcuate in posterior along sides, rather convex along the middle and steeply sloping and somewhat declined on ventral sides (from below visible lateral sides which wider than distance between lateral edges), with weak shoulders, adsutural lines not visible. Pygidium with widely subtruncate apex.

Most part of head underside, prosternum and mesoventrite not visible because of declination of head and pubescence with "milky cover". Mouthparts not visible. Procoxae apparently moderately large; distinctly transverse, slightly projecting downwards and comparatively widely separated; prosternal process wide and widely

rounded at apex. Mesocoxae apparently transversely oval, slightly projecting and very widely separated. Ratio between pro-, meso- and metacoxae about as following: 1.0:2.3:0.8. Metaventricle rather medially convex, posterior edge between coxae arcuately shallowly excised. Distance between metacoxae markedly greater than antennal club wide. Metepisterna moderately wide and subparallel-sided at most length, but widened at posterior end. Metacoxae more or less strictly transverse (apparently not oblique), with moderately raised and externally rather approaching to sides. First abdominal ventrite about as long as 2nd–4th ventrites combined and each of the latter comparable in length; hypopygidium somewhat longer than previous ventrite. Epipleura rather narrow and elevated laterally.

Legs well developed, moderately narrow and long, diffusely covered with comparatively short and stout setae. Tibiae rather compressed and scarcely widened apically, about four sevenths as long as antenna and about a half as wide as antennal club. Femora of usual shape and moderately compressed, 2.0–2.5 times as wide as tibiae. Tarsi moderately long, about as long as tibiae (although anterior ones somewhat shorter than the rest ones), tarsomeres one–four very narrowly lobed to simple, comparable in length, ultimate tarsomere somewhat longer; claws simple, narrow and not long, about one third as long as ultimate tarsomere.

Variations. Length 1.3–1.7, width 0.7–0.9 mm. The paratype 'PA 135' is darker than the holotype (body nearly unicolourous blackish), although because of 'milky cover' the underside of it can not be seen clearly. Most specimens examined have as dorsal as ventral integument masked by pubescence with 'milky' cover, although the the paratype 'PA 160' demonstrates comparatively clear metaventricle and abdominal ventrites. Finally the paratypes 'PA 438' look like more slender and more narrowing elytral apices, although this impression could be a sequence of optic aberration.

***Oisenodes azari* sp. nov.**
(Figs 3–5, 19)

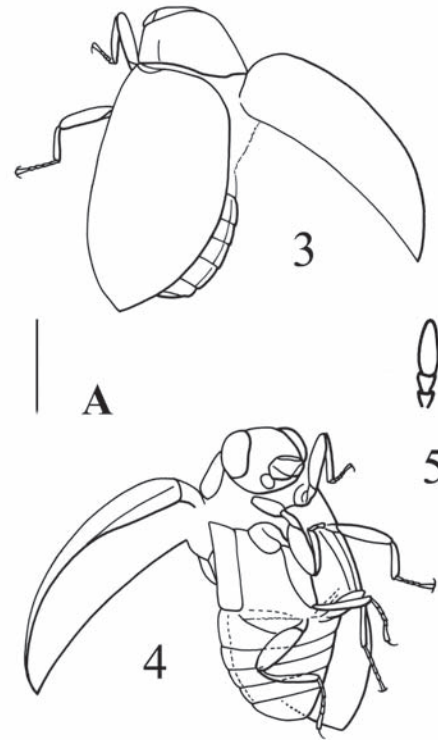
Material examined. *Holotype* 'PA 2501' (MNHN), probable female with moderately rounded hypopygidium; the nearly complete specimen with open left elytron and exposed unfolded posterior wings, but with missing antennae is included in a small irregular clear amber parallelepiped. The inclusion is put in a circular reservoir with Canada Balsam" fixed on a microscope glass.

Paratype 'PA 1581', probable female with moderately rounded hypopygidium; the complete specimen is included in a irregular bar forming a semicircle in cross section with a flat plane along whole length; specimen well visible laterally; the bar has clear consistence, 8–10 mm of length, width of longitudinal plan 6 mm.

Etymology. The new species is named for Dany Azar who prepared many specimens in amber for this study.

Diagnosis. The new species under consideration is very distinct among the congeners due to its emarginate posterior edge of prosternal process. This new species differs from *O. gallicus* sp. nov. and *O. metepisternalis* sp. nov. mostly in the shape and proportion pronotum, comparatively larger head with larger eyes, somewhat shorter hairs (setae) on the dorsum and sparse and less conspicuous hairs on underside, much finer puncturation and more smoothed integument. It differs from *O. oisensis* sp. nov. in the much longer ultimate antennomere, narrower metepisterna, very smoothed integument with distinct puncturation and less raised pubescence. Besides, *O. azari* sp. nov. differs from *O. transversus* sp. nov. in the much longer ultimate antennomere, narrower metepisterna, smoothed integument with distinct punctures and less raised pubescence, and also from *O. clavatus* sp. nov. in the shape and proportion of antennomeres in its club, comparatively larger head with somewhat larger eyes.

Notes. Taking into consideration a great similarity of the new species with the type



Figs 3–5. *Oisenodes azari* sp. nov., holotype 'PA 2501'. Body, length 1.3 mm, ventral (3) and dorsal view (3) and antennal club, lateral view (5). Scale bar: 0.1 mm (5).

species of the genus, the most characters shared by both are omitted in the description below.

Description. Length 1.3, width apparently 0.7 mm. Elongate oval, strongly convex dorsally and ventrally; subunicolourous reddish; dorsum with long and stout yellowish to reddish hairs of two types: longer ones nearly 1.5 times as long as femora wide, thicker and erect; shorter ones somewhat thinner and about as long as femora wide; thoracic underside with very sparse, thin, moderately long and very slightly conspicuous recumbent hairs, but much shorter than the shorter ones on dorsum; abdominal ventrites with slightly conspicuous recumbent hairs less than half as long as those on thoracic underside. Dorsum with distinct

and very sparse punctures, about as large as eye facets in diameter, interspaces between them four–five times as great as a puncture diameter and smoothed. Metaventricle and ventrites with very small and sparse punctures, much smaller than facets in diameter, interspaces between them rather great and smooth.

Pronotum somewhat narrower than combined elytral base, much more than twice as wide as long, its anterior edge subrectilinear and posterior one markedly less twice as wide as anterior one distinctly bordered and bi-sinuate, sides nearly straight and rather short (about one quarters of posterior edge), paralaral carinae distinct. Elytra about one and one third as long as wide combined. Pygidium with widely subtruncate apex. Prosternal process wide and widely emarginate at apex. Ratio between pro-, meso- and metacoxae about as following: 1.0:2.0:0.8. Metepisterna moderately wide and subparallel-sided, about four times as long as wide. First abdominal ventrite about as long as 2nd and 3rd ventrites combined; hypopygidium about 1.5 times as long as previous ventrite. Femora of usual shape and moderately compressed, 2.0–2.5 times as wide as tibiae.

Variation. Paratype with body length 1.3 and height 0.6 mm; brownish, with somewhat coarser puncturation and more conspicuous pubescence on underside. Antennae apparently shorter than head wide, eleven-segmented with three-segmented club composing almost one third of total antennal length, ultimate antennomere about one and one third as long as two preceding antennomeres combined.

***Oisenodes clavatus* sp. nov.**

(Figs 6, 21–23)

Material examined. *Holotype* ‘PA 8813’ (MNHN), probable female with moderately rounded hypopygidium; the complete specimen with visible laterally and ventrally is included in a flattened irregular amber piece with many pieces of dark organic

matter, some small cracks and some small gas vesicles.

Paratype ‘PA 1842, 1/3’, probable male with widely rounded hypopygidium; the complete specimen is included in a irregular bar with two subparallel flat planes along whole length; specimen visible mostly laterally and ventrally and approached to the bar facets at one of ends; the bar has clear consistence, 10–13 mm of length, width of widest plan 10 mm; at the specimen there is a crack along body plane and a crack in sagital plane at posterior edge.

Paratype ‘PA 164, 2/3’; the complete specimen is included in a irregular bar with two subparallel flat planes along whole length; specimen with partly exposed posterior wing visible laterally and disposed between the flat planes; the bar has different layers and some cracks, 8–9 mm of length, width of widest plan 9 mm; at ventral side of posterior part of body there is a gas vesicle.

Etymology. The name of the new species refers to the structure of its peculiar antennal club.

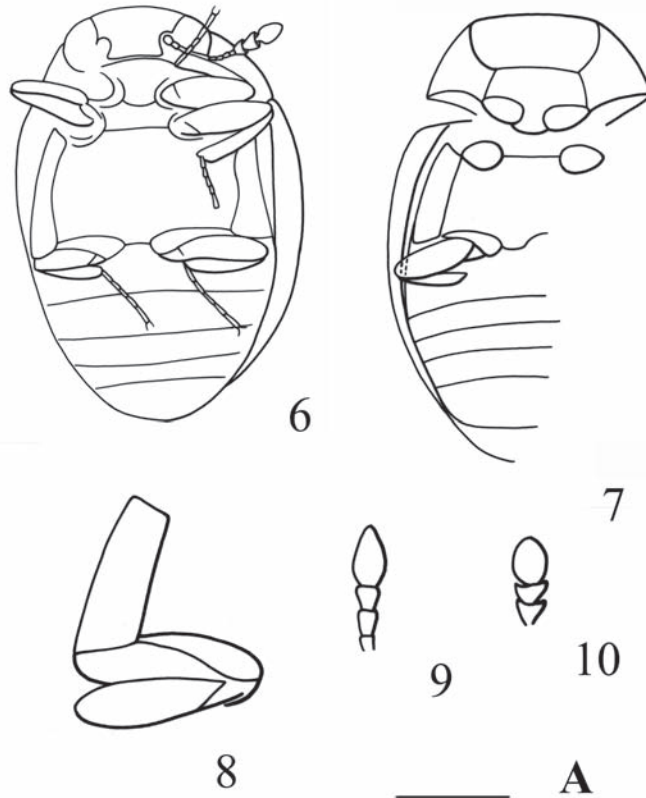
Diagnosis. This new species differs from all congeners in the shape of metepisterna, and also from:

– *O. gallicus* **sp. nov.** and *O. metepisternalis* **sp. nov.** in the shape and proportion of antennomeres in its club, somewhat shorter hairs (setae) on the dorsum and sparse and less conspicuous hairs on underside, much finer puncturation and smoothed sculpture, and from the latter also in the shape and width of the metepisterna;

– *O. azari* **sp. nov.** in the shape and proportion of antennomeres in its club, comparatively smaller head with somewhat smaller eyes, convex posterior edge of prosternal process;

– *O. oisensis* **sp. nov.** in the metepisterna strongly widened posteriorly; more convex apex of prosternal process, smoothed integument with coarser puncturation and more raised pubescence;

– *O. transversus* **sp. nov.** in the shape of antennomeres 9 and 10, more convex apex of prosternal process, shape of metepisterna,



Figs 6–10. *Oisenodes* gen. nov. **6**, *O. clavatus* sp. nov., holotype 'PA 8813', length 1.2 mm; **7**, *O. transversus* sp. nov., holotype 'PA 6520', length 1.5 mm; **8**, *O. metepisternalis* sp. nov., paratype 'PA 382'; **9**, *O. transversus* sp. nov., holotype 'PA 6520'; **10**, *O. metepisternalis* sp. nov., paratype 'PA 12377'. Body, ventral view (6, 7), metacoxa and metepisternum, ventral view (8), antennal club, lateral (9) and ventral view (10). Scale bar: 0.1 mm (8–10).

smoothed integument with coarser puncturation and more raised pubescence.

Notes. Taking into consideration a great similarity of this new species to the type species of the genus, the most characters shared by both are omitted in the below description.

Description. Length 1.2, width 0.8, height about 0.5 mm. Elongate oval, strongly convex dorsally and ventrally; subunicolourous dark brown to blackish; appendages brownish; dorsum with long and stout brownish greyish or greyish hairs (depending on lighting) of two types: longer ones more than 3 times as long as ultimate antennomere and about twice as long as femora wide, thicker and erect; shorter ones somewhat thinner; thoracic underside with very sparse, long and very slightly conspicuous recumbent hairs, but much shorter than the shorter ones on dorsum; abdominal ventrites with

slightly conspicuous recumbent hairs less than half as long as those on thoracic underside. Dorsum with distinct dense punctures, about half as large as eye facets in diameter, interspaces between them 3–5 times as great as a puncture diameter and rather smoothed. Metaventrite and ventrites with clear very small punctures, interspaces between them very sparse and smooth.

Antennae slightly shorter than head wide, eleven-segmented with three-segmented club composing almost three eighths of total antennal length, scape apparently rather small and elongate oval, ultimate antennomere slightly shorter than two preceding antennomeres combined; antennomeres covered with sparse, rather short and very stout hairs. Pronotum somewhat narrower than combined elytral base, more than twice as wide as long; its anterior edge gently convex and posterior one somewhat less

than twice as great as anterior one, distinctly bordered and bi-sinuate, sides about one third as great as posterior edge, paralateral carinae distinct. Elytra about one and one fifths as long as wide combined. Prosternal process wide and widely rounded at apex. Ratio between pro-, meso- and metacoxae about as following: 1.0:2.3:0.8. Distance between metacoxae markedly greater than antennal club wide. Metepisterna moderately wide and rather widened at posterior edge, nearly three times as long as wide at posterior edge. Femora of usual shape and moderately compressed, 2.0–2.5 times as wide as tibiae.

Variations. Paratype '164' with body length 1.5 mm. Some variability is observed in pubescence.

***Oisenodes metepisternalis* sp. nov.**

(Figs 8, 10–12, 16, 25–28)

Material examined. Holotype 'PA 336 2/7' (MNHN); probable female with moderately rounded hypopygium; the complete specimen with partly exposed both posterior wings is included in a sub-parallel-sided irregular bar of clear consistence forming a semicircle in cross section with one flat plane along the whole length with "milky cover" along pubescent integument (although the dorsum partly clear); length of bar 12–15 mm and width of longitudinal plane 8 mm.

Paratype 'PA 382'; the nearly complete specimen with partly exposed right posterior wing and with missing right anterior and intermediate legs is included in a small sub-parallel-sided irregular bar forming a semicircle in cross section with one flat plane along the whole length with many gas vesicles of different sizes and "milky cover" along pubescent integument (particularly a abdominal apex); length of bar 9.0 mm and width of longitudinal plane 6 mm.

Paratypes 'PA 12377', male with exposed anal sclerite; the complete specimen is included in a irregular and partly polished forming a triangle in flat view; the bar has

many layers making difficult to observe the specimen clearly (mostly ventrally), 9 mm of length, width of widest plan 7 mm and 2 mm of narrowest plane; with two complete Nematocera of different species and some pieces of organic matter.

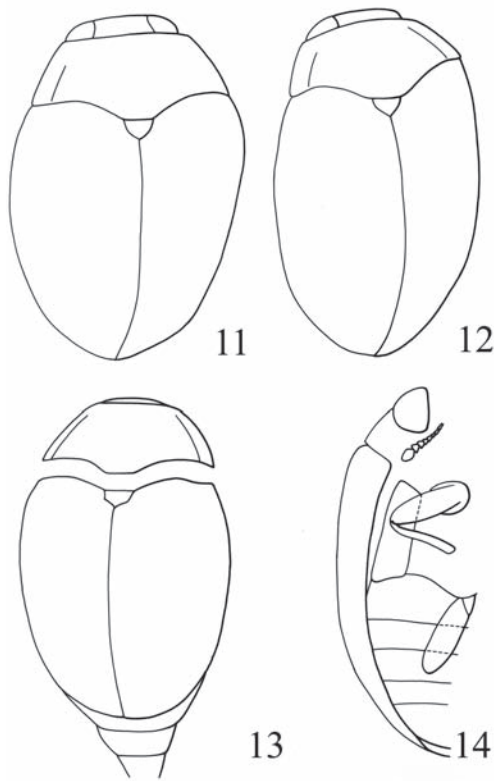
Paratype 'PA 2262' male with exposed penis trunk and parameres; the complete specimen is included in a small irregular clear amber parallelepiped. The inclusion is put in a circular reservoir with Canada Balsam fixed on a microscope glass.

Etymology. The name of the new species refers to the structure of its metepisterna.

Diagnosis. This new species is very similar to *O. gallicus* sp. nov. and clearly differs from the latter only in the somewhat shorter pronotum and shape metepisterna. The antennal club of the new species under consideration includes the ultimate antennomere somewhat shorter than that in *O. gallicus* sp. nov. Besides, *O. metepisternalis* sp. nov. has the lateral sides of the pronotum nearly rectilinear (not arcuate) and also more raised and more conspicuous pubescence of integument making the study of the body surface very complicated.

Notes. Taking into consideration a great similarity of this new species to the type species of the genus, the most characters shared by both are omitted in the below description.

Description. Length 1.3, width 0.8, height 0.6 mm. Elongate oval, strongly convex dorsally and ventrally; subunicolourous dark brown to blackish; appendages brownish; dorsum with long and stout brownish greyish or greyish hairs (depending on lighting) of two types: longer ones nearly 1.5 times as long as ultimate antennomere and about as long as femora wide, thicker and erect; shorter ones different from the longer ones only in length; underside with rather dense, long and strongly conspicuous recumbent hairs, but much shorter than the shorter ones on dorsum. Puncturation and sculpture of integument masked by pubescence, 'milky' cover and many gas vesicles. Antennae slightly shorter than head wide,



Figs 11–14. *Oisenodes* gen. nov. **11, 12,** *Oisenodes metepisternalis* sp. nov., holotype 'PA 336', length 1.3 mm (11), paratype 'PA 382', length 1.4 mm (12); **13,** *O. transversus* sp. nov., holotype 'PA 6520', length 1.5 mm; **14,** *O. oisensis* sp. nov., holotype 'PA 1387', length 1.6 mm. Body, dorsal (11–13) and ventral (14) view.

eleven-segmented with three-segmented club, ultimate antennomere about one and one third as long as two preceding antennomeres combined; Pronotum slightly narrower than combined elytral base, about three times as wide as long; its anterior edge slightly convex and posterior one distinctly bordered and bi-sinuate, paralateral carinae distinct. Scutellum is clear and looking like transverse and subtriangular rather than subpentagonal, somewhat wider than long. Elytra about one and one third as long as wide combined. Ratio between pro-, meso- and metacoxae about as following: 1.0:2.3:0.8. Metepisterna comparatively wide and widened posteriorly and abot

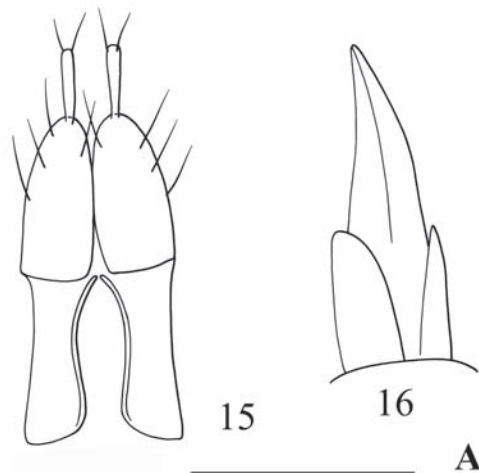
three times as long as wide. First abdominal ventrite about twice as long as 2nd ventrite, 3rd and 4th ventrites somewhat shorter than the latter; hypopygidium somewhat longer than 2nd ventrite.

Variations. Length 1.2–1.4 mm. The paratype 'PA 382' has the slightly arcuate pronotal sides and longer elytra. The paratype 'PA 2262' shows the aedeagus with very narrow apex of penis trunk and also short and wide parameres. The surface of its pronotal base and elytra demonstrating clear punctures nearly as great as facets, interspaces between them 2–3 puncture diameters and rather smoothed.

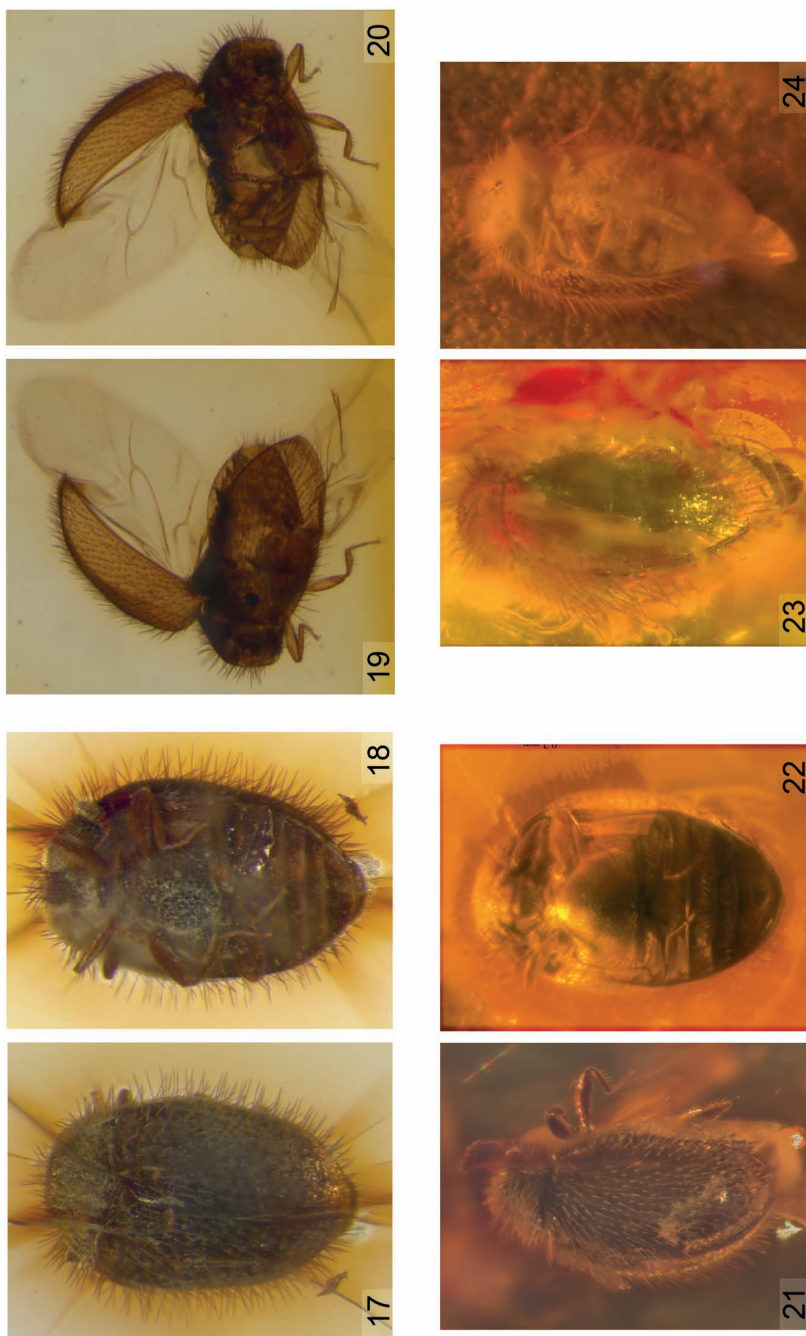
***Oisenodes oisensis* sp. nov.**

(Figs 14, 24, 29–30)

Material examined. Holotype 'PA 1387' (MNHN), probable male; the nearly complete specimen with missing left posterior leg and with strong 'milky' cover along underside is included in a small sub-parallel-sided bar of clear consistence with one flat plane along the whole length and semicircular in cross-section; the beetle is visible mostly ventrally because its dorsum is rath-

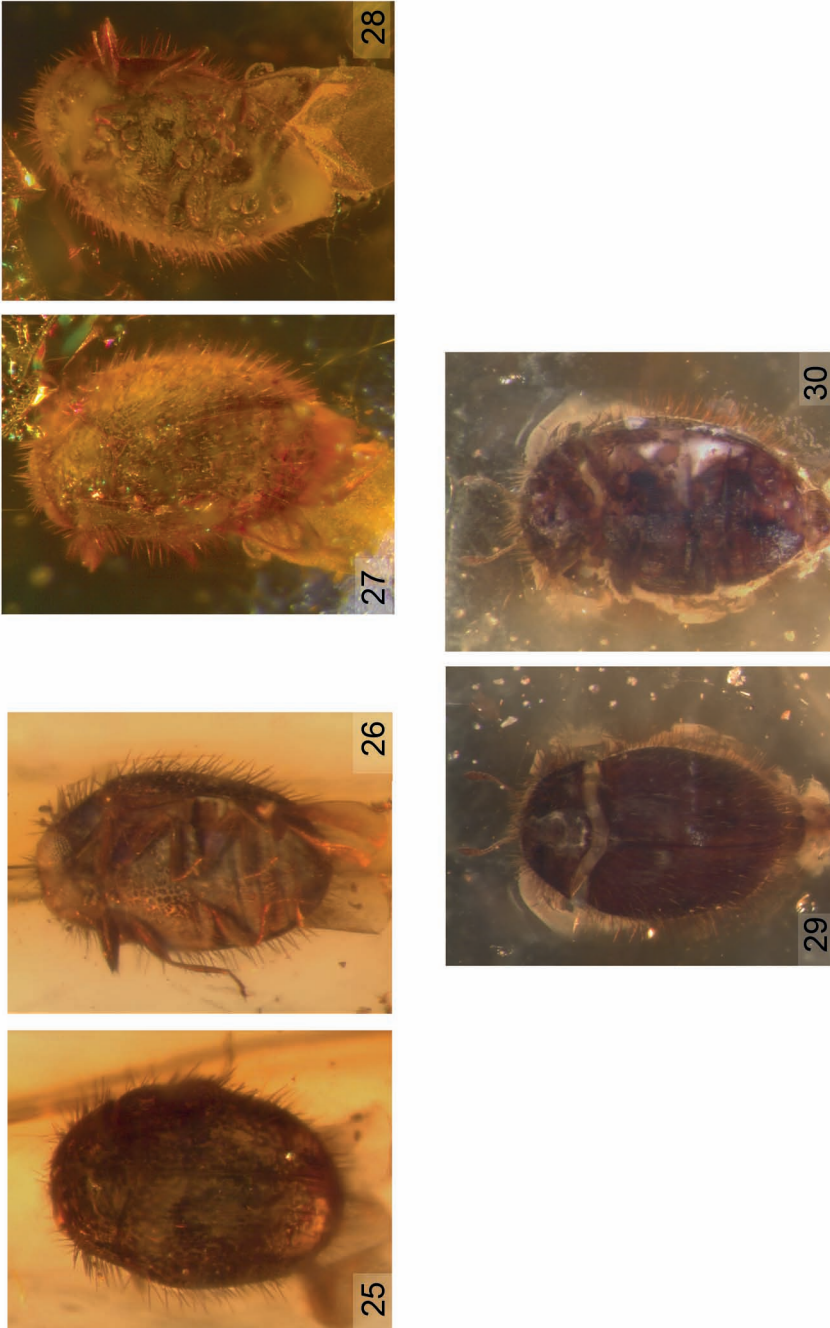


Figs 15–16. *Oisenodes* gen. nov. **15,** *O. transversus* sp. nov., holotype 'PA 6520'; **16,** *O. metepisternalis* sp. nov., holotype 'PA 2262'. Ovipositor (15) and aedeagus (16), ventral view. Scale bar: 0.1 mm.



Figs 17–20. *Oisenodes* gen. nov. **17, 18.** *Oisenodes gallicus* sp. nov., holotype 'PA 2307', length 1.3 mm; **19, 20.** *Oisenodes azari* sp. nov., holotype 'PA 2501', length 1.3 mm. Body, ventral (17, 19) and dorsal (18, 20) view.

Figs 21–24. *Oisenodes* gen. nov. **21–23. *Oisenodes clavatus* sp. nov., paratype 'PA 164', length 1.5 mm (21), holotype 'PA 8813', length 1.2 mm (22), paratype 'PA 1842', length 1.3 mm (23); **24.** *O. oisensis* sp. nov., holotype 'PA 1387', length 1.6 mm. Body, dorsolateral (21, 23), ventral (22) and ventrolateral (24) view.**



Figs 25–28. *Oisenodes metepisternalis* sp. nov., holotype 'PA 336', length 1.3 mm (25, 26); paratype 'PA 382', length 1.4 mm (27, 28). Body, dorsal (25), ventral (26), dorsolateral (27) and ventrolateral (28) view.

Figs 29–30. *Oisenodes transversus* sp. nov., holotype 'PA 6520', length 1.5 mm. Body, dorsal (29) and ventral (30) view.

er closely approached to the unpolished surface of bar; the amber bar with length 8 mm and width of longitudinal plane 7 mm.

Etymology. The name of the new species refers to the name of locality, where the specimens were collected.

Diagnosis. This new species is about as pubescent as *O. gallicus* **sp. nov.** and *O. metepisternalis* **sp. nov.**, but clearly differs from both mostly in the more slender and much more convex body, and also in the shorter ultimate antennomere. At the same time *O. oisensis* **sp. nov.** has short lateral sides of pronotum somewhat like those in *O. azari* **sp. nov.**, although it differs from the latter in the much shorter ultimate antennomere, wider metepisterna, not smoothed integument with coarser puncturation and more raised pubescence. Finally, the new species under consideration is distinct from *O. transversus* **sp. nov.** in the somewhat more slender and convex body as well as in the shape of pronotum as well as from *O. clavatus* **sp. nov.** in the metepisterna subparallel-sided, only slightly apex of prosternal process, not smoothed integument with finer puncturation and less raised pubescence.

Notes. Taking into consideration a great similarity of this new species to the type species of the genus, the most characters shared by both are omitted in the below description.

Description. Length 1.6, width 0.6, height about 0.7 mm. Elongate oval, strongly convex dorsally and ventrally; subunicolourous brownish; appendages rather yellowish; dorsum with long and stout yellowish hairs of two types: longer ones markedly more than twice as long as femora wide, thicker and erect; shorter ones intermixed on each dorsal sclerite; thoracic underside with moderately dense, long and very slightly conspicuous recumbent hairs, but much shorter than the shorter ones on dorsum; abdominal ventrites with rather conspicuous and fine recumbent hairs less than half as long as those on thoracic underside. Integument masked with 'milky' cover, although apparently rather coarse and sparse puncturation vis-

ible on elytra and also comparatively dense and coarse puncturation on the middle of metaventrite. Antennae rather shorter than head wide, eleven-segmented with three-segmented club composing about three eighths of total antennal length, ultimate antennomere only slightly longer than two preceding antennomeres combined. Pronotum much narrower than combined elytral base, more than twice as wide as long; its anterior edge slightly convex, posterior one less than twice as greater as posterior one, sides about one quarters as great as posterior edge and nearly rectilinear. Elytra about one and one third as long as wide combined. Metepisterna comparatively wide and subparallel-sided, about 3 times as long as wide. First abdominal ventrite about as long as 2nd and 3rd ventrites combined and each of the latter and 4th ventrite comparable in length; hypopygidium somewhat longer than previous ventrite, moderately rounded at apex. Femora of usual shape and moderately compressed, 2.5–3.0 times as wide as tibiae.

***Oisenodes transversus* sp. nov.**

(Figs 7, 9, 13, 15)

Material examined. Holotype 'PA 6520' (MNHN), female with exposed ovipositor; the specimen with missing right protibia and protarsus, right mesotibia and mesotarsus, left posterior leg, and also with broken and partly removed left part of thorax and abdomen in included in very small amber piece put between two glass cover for microscopy.

Etymology. The name of the new species refers to its transverse pronotum.

Diagnosis. The new species is distinct among the congeners due to more narrowly separated procoxae. Nevertheless, it is rather similar to *O. oisensis* **sp. nov.**, differing from the latter only in the somewhat more robust and apparently not so strongly convex body as well as in the shape of pronotum. Besides, it differs also from:

– *O. azari* **sp. nov.** in the much shorter

ultimate antennomere, shape of pronotum, wider metepisterna, not smoothed integument with coarser puncturation and more raised pubescence.

– *O. clavatus* **sp. nov.** in the shape of antennomeres nine and ten, less convex apex of prosternal process, shape of metepisterna, not smoothed integument with coarser puncturation and more raised pubescence;

– *O. gallicus* **sp. nov.** and *O. metepisternalis* **sp. nov.** in the longer antennae with shorter ultimate antennomere, coarser microsculpture of integument with indistinct puncturation, less raised pubescence, and from the second also in the narrower metepisterna.

Notes. Taking into consideration a great similarity of this new species to the type species of the genus, the most characters shared by both are omitted in the below description.

Description. Length 1.5, width 0.7 mm. Elongate oval, strongly convex dorsally and ventrally; subunicolourous dark brown; appendages reddish; dorsum with long and stout yellowish hairs of two types: longer ones about twice as long as femora wide, thicker and erect; shorter ones intermixed on each dorsal sclerite; underside with dense, long and very slightly conspicuous recumbent hairs, but much shorter than the shorter ones on dorsum. Integument showing rather comparatively coarse microsculpture to alutination on each sclerites and indistinct puncturation, although on abdominal ventrites traces of coarse and shallow indistinct punctures with interspaces somewhat greater than puncture diameter visible. Antennae somewhat longer than head wide, eleven-segmented with three-segmented club composing about three eighths of total antennal length, ultimate antennomere only slightly longer than two preceding antennomeres combined. Pronotum slightly narrower than combined elytral base, much more than twice as wide as long; its anterior edge slightly convex, sides nearly somewhat arcuately narrowing anteriorly, bi-sinuate posterior edge with distinct border and

about three times as great as lateral ones. Elytra about one and one fifths as long as wide combined. Metepisterna moderately wide and subparallel-sided, about 3.5 times as long as wide. First abdominal ventrite about as long as 2nd and 3rd ventrites combined, the each of latter and 4th ventrite comparable in length; hypopygidium somewhat longer than previous ventrite, widely rounded at apex. Femora of usual shape and moderately compressed, 2.5–3.0 times as wide as tibiae.

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