

SYSTEMATIC NOTES ON SOME BARE AND SMOOTH *OTIORHYNCHUS*
SPECIES (COLEOPTERA: CURCULIONIDAE) FROM THE BALKAN
PENINSULA WITH DESCRIPTION OF TWO NEW SPECIES

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This study includes a description of new *Otiorhynchus* species from Galičica Mt., Macedonia and new synonymes, as well as a key for the group of bare and smooth species from the adjacent areas. Phylogenetic relations and the possible morphological differentiation of species with this phenotype on the Scardic, Pelagonian, Rhodopian and Pindic mountains are discussed.

KEY WORDS: *Otiorhynchus*, new species, Balkan Peninsula.

INTRODUCTION

Genus *Otiorhynchus* shows a great morphological diversity on the Balkan Peninsula mountains and for a long time ago serves as a good object for both taxonomic and systematic studies. Papers published by APFELBECK (1908, 1918, 1929, 1932), LONA (1936, 1943), SOLARI (1937, 1937a), ANGELOV (1968, 1976, 1979) and, recently, MESAROŠ (1990) gave the basis for the investigation of their evolutionary and zoogeographical divergence on the Scardic, Pelagonian, Pindic and Rhodopian mountains. Insular type of distribution and specific glacial history of the high altitude communities mostly resulted in the vicariant geographical distribution of the mountainous *Otiorhynchus* species (RADOVIĆ *et al.*, 1995). Their distribution is characterized by the closer phylogenetic affinities between species from the similar habitats on neighboring mountains than with those from the lower altitudes of the same mountain. In spite of the great morphological divergence of the genus *Otiorhynchus*, a relatively limited number of phenotypes were observed. Difficulties in discrimination of similar species with the same general phe-

notype frequently led to taxonomic and nomenclatural confusions. One of the most widely distributed phenotype of high altitude *Otiorynchus* species from the Balkan Peninsula is characterized by dark (black or dark brown) integument, bare body (without scales or erect bristles) and the punctuated surface of the body. A number of species (especially from Macedonia) share these characteristics. Apparently, they are specific adaptations for the microclimatic conditions in habitats of the open treeless areas above the timber line (MANI, 1967).

From the mountains of the central and southern Balkans several morphologically similar species were described. Some of them are recognizable with no doubt but with others there are a certain contradictions (MAZUR, 1993). For example, *O. (s.str.) macedonicus* Reitter 1913, recorded from the Nidže, Jakupica, Bistra, Šar-planina and Visitor Mts., is a well-defined species with prominent local morphological differentiation (LONA, 1943). Morphologically very similar but phylogenetically distant species is *O. (s.str.) regliae* Reitter 1913, distributed on mountains in the central part of the Balkan Peninsula. SOLARI (1937) described an interesting species, *O. (Arammichnus) anomalus* (= *bistrae* Angelov 1979, syn. nov.), with distinctive phylogenetic position. The shape of the hind tibia of this species is very specific, with extremely broadened exterior margin that was not recorded previously in other *Arammichnus*-like species from the region.

A great controversy exists about the taxonomic status of the peculiar population from the Rila Mt. Some authors regarded this population as a distinct species (REITTER 1912; SOLARI 1937), named *O. (Arammichnus) hospitus* Reitter 1912, but others treated it as a subspecies of either *O. (Arammichnus) kruperi* Stierlin 1887 (APFELBECK, 1929), *O. (s.str.) lithantracius* Boheman, 1843 (ANGELOV, 1976) or even *O. (Dorymerus) denigrator* Boheman 1843 (ANGELOV, 1979). Despite the lack evidence, it seems most probably that *O. hospitus* is a good species. *O. kruperi* from the Pindic mountains and *O. (Dorymerus) armipes* Apfelbeck 1908 (= *iskrae* Angelov 1979, syn. nov.) from the Scardic mountains are closely related, and they probably intergrade and hybridize on the Nidže mountain. *O. kruperi* shows certain degree of local morphological differentiation, that resulted in description of some subspecies (*O. kruperi angulipes* Apfelbeck 1920 from the Korax Mt. in Greece and *O. kruperi tomoricensis* Lona from the Tomor Mt. in Albania). Our preliminary examinations of the specimens of *O. dorymeroides* Solari 1937 from the Kataphigi Mt. - Greece (kindly sent by L. MAGNANO), suggests that it is most probably also a subspecies of *O. kruperi*. On the Scardic mountains, sympatrically with *O. armipes*, we could find a morphologically similar but considerably larger species *O. (Dorymerus) shardaghensis* Apfelbeck 1908 (a local race of this species was described from the Bistra mountain, *O. shardaghensis arammichnoides* Solari 1937a). The fact that no relatives of this species have been recorded by now could suggest its relict origin. Two species from Bulgaria and Serbia, *O. (s.str.) lithantracius* and *O. (Dorymerus) denigrator* respectively, are not clearly distinguishable and it seems most probably that they are conspecific. *O. (Dorymerus) joakimoffi* Apfelbeck 1932

from the Pirin Mt. is another representative of bare and punctuated species from the Balkan Peninsula. SOLARI (1937, 1937a) pointed out its similarities with both *O. armipes* and *O. denigrator* from the central and eastern Balkan mountains, but without commenting their relationships. All facts considered, we could state that *O. joakimoffi* is a good species of uncertain origin - probably a locally differentiated population of *O. lithantracius* (= *denigrator*).

It seems that all of the controversies about the relations between the mentioned species arose from unclarified relations between the subgenera of *Otiorhynchus*. All previous studies and classification notes started from recognising the existence of the subgenus *Arammichnus*, characterized by a broadened external margin of the fore tibia in both sexes, and the subgenus *Dorymerus*, characterized by the limb or a teeth on the both fore and hind femora. However, these characteristics are not clearly plesiomorphic with monophyletic origin, a fact that leaves the phylogenetic classification of the genus *Otiorhynchus* problematic and unclear.

During our investigations of the high mountain *Otiorhynchus* fauna in Macedonia, we found some population on the Galičica mountain that could not be identify as any previously known species from the region. After a careful examination of these specimens and the comparisons with the type-series from the Zemaljski muzej in Sarajevo and Zoological Department of Hungarian Natural History Museum in Budapest, we established the two new species, herein described.

*Otiorhynchus fodori** sp. nov.

DESCRIPTION

The integument is black, smooth and shiny. The pronotum is smooth, but elytrae are with conspicuous microreticulation. The legs and the antennae are dark brown or reddish. The head is strongly punctuated, the punctures are well marked, somewhat merged with each other. The rostrum is longer than wide, flat, with weak γ marked medial carina. The top of the rostrum is deeply triangularly excised. The eyes are located on the lateral sides of the head, flattened; the distance between the eyes is wider than the distance between the antennal pits, so the rostrum is narrowed anteriorly. The antennal pits are semi-opened, not reaching the frontal edge of the eyes. The pediculus is elongated, longer than the flagellum. The segments of the flagellum are compressed, but not so robust. The first and the second segments of the flagellum are elongated; the second segment is a little bit longer than first, the third segment is longer than wide and all others are rounded. The clavus is elongated, more than twice as long as wide. The pronotum is slightly longer than wide, wider in the anterior half, densely but superficially punctuated. The surface of the pronotum between the punctures is

* Dedicated to Dr J. FODOR, hungarian entomologist

smooth, very shiny and without any microreticulation or pubescence. The sides of the pronotum are more rudely punctuated than the disk but without any granulation. The elytrae of females are oval, regularly rounded both anteriorly and posteriorly, while the elytrae of males are elongated and with almost parallel sides. The striae are conspicuous but the punctures in the striae are only superficial, well isolated from each other. The intervals between the striae are much wider than punctures in the striae, flattened, irregularly punctuated in 2 or 3 rows and with dense micro reticulation; without any granulation. The punctures on the intervals are much weaker than punctures in the striae. The surface of the elytrae is almost naked, with microscopic individually arranged setae situated only laterally and strongly appressed to the integument. The legs are short but not very strong. The exterior edge of the fore tibia at the top is broadened at both sexes (Fig. 6a, 7a). The internal edge of the hind tibia of males is twisted inwards with flattened surface on the top (Fig. 1a). The interior tooth on the top of the hind tibia is with two limbs. The femora simple, unarmed but some male specimens have a granulae like traces on the inner edge (Fig. 5a). The anal sclerite of the males is densely but superficially punctuated. The punctures are transversely merged with each other so that the surface between punctures is elevated in conspicuous but not clearly marked transverse wrinkles. The sclerite on the posterior part is slightly impressed and covered with dense, yellowish short setae. The anal sclerite of the females has no significant signs.

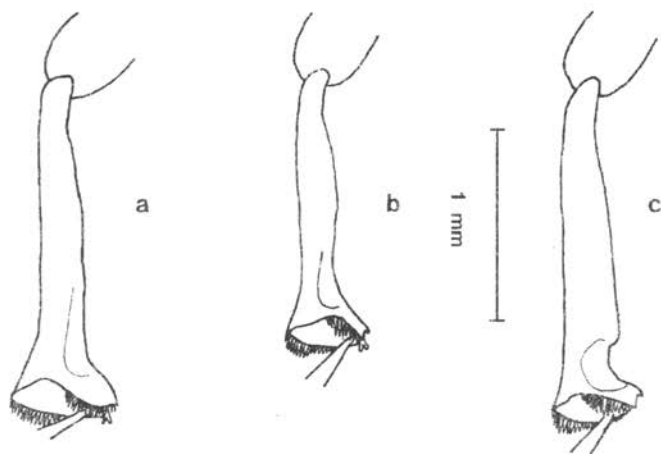


Fig. 1. Hind tibia of males: a) *O. fodori*, b) *O. anomalus* and c) *O. brevicornis* Boh. (ex. specimen from the museum Budapest).

BODY SIZE

Male Length: 7.0-7.3 mm; Width: 3.0-3.5 mm

Female Length: 6.6-7.3 mm; Width: 3.5-3.8 mm

GENITALIA

The male genitalia is with parallel sides; the apex of the aedeagus is elongated, regularly rounded and clearly curved in profile (Fig. 2a, 2b). The spiculum ventrale is broadened, anteriorly narrowed; the margo posterioris is weakly truncated and covered with long, yellowish setae (Fig. 2c). The spermatheca is with conspicuously elongated ductus spermatecus and tuberculus glandulus (Fig. 2d).

MATERIAL

Holotype: ♂ – 8.-11. VII 1936, Asan Đuro, Ohrid, Macedonia, leg. J. Fodor;

Allotype: ♀ – 20. VI 1989, Galičica Mt., 2000 m, Macedonia, leg. Mesaroš;

Paratypes: 1♂ – 8-11. VII 1936, Asan Đuro, Ohrid, Macedonia, leg. J. Fodor;
7♂4♀ – 20. VI 1989, Galičica Mt., 2000 m, Macedonia, leg. Mesaroš;

Holotype, allotype and two paratypes are deposited in Museum of natural history in Budapest. The rest of paratypes are in the collection of the author.

DISTRIBUTION AND ECOLOGY

This species inhabits the open areas above the forest line from about 1500 m to 2000 m a.s.l. on the Galičica mountain in Macedonia. Ecology is unknown. All specimens were collected under the stones in June and July when the snow is thawed but the ground is still wet. They are probably nocturnal animals.

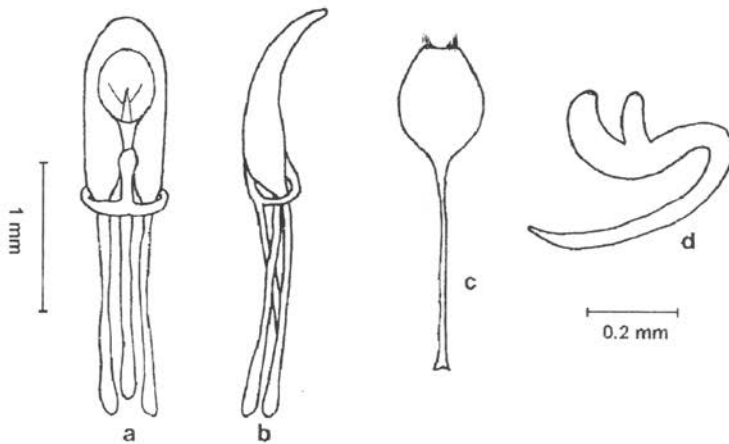


Fig. 2. Genitalia of the *O. fodori* sp. nov. Aedeagus in frontal (a) and lateral (b) view; lamina dorsalis (c) and spermatheca. (d)

SYSTEMATIC NOTES

This species shows close morphological relation to *Otiiorhynchus anomalus* Solari described from the specimens collected by ing. J. MASCHINGG at Baba mountain (Pelister) (SOLARI, 1937). Solari noticed that specimen of *O. anomalus* can easily be distinguished from other similar species (like *O. hospitus* or *O. kruperi*) considering the structure of the fore tibia of females. However, he did not give a detailed discussion about its relations with the other species that inhabit the adjacent mountains. This problem nowadays seems more complicated regarding the discovery of two new species on the Galičica mountain. Now we know on seven phenetically very similar species that inhabit the mountains in southern Macedonia and five of them are found on the Galičica mountain (Fig. 3). The identification key for these species is given. All of them show great morphological and ecological similarities but, till now, there is no consistent explanation of their phylogeny. From the current evidence, we can infer that *O. fodori* nova spec. is closely related to *O. anomalus*. These two species share a lot of characteristics in common, like the structure of the fore tibia of females (Figs. 6 and 7) and hind tibia of males (Fig. 1), the sculpture of the pronotum and elytrae etc. Similar structure of males hind tibia can be noticed in species from the *Tecutinus* (according Reitter) group of the subgenus *Arammichnus* (Fig. 1c), but only *O. fodori* and *O. anomalus* (Fig. 2a and 2b) have the two limbed interior teeth on the top of the hind tibia. These similarities in the structures of the male hind tibia is most probably the result of polyphyly. The main differences between *O. fodori* and *O. anomalus* are found in the shape of the rostrum; the rostrum of *O. anomalus* is broad and short while the rostrum of *O. fodori* is longer than wide. The fore tibiae of *O. fodori* are broadened in both sexes while only in females of *O. anomalus*. The structure of the aedeagus also shows some significant differences (Figs. 2a and 8a) and *O. fodori* is considerably larger than *O. anomalus*. According to previous facts it could be established that *O. fodori* is a good species closely related to *O. anomalus*.

Otiiorhynchus problematicus sp. nov.

DESCRIPTION

The integument is black, bare and shiny. the legs are very dark brown, almost black. The pronotum and the elytrae are with very superficial micro reticulation. The head is sparsely punctuated; the punctures are well impressed but not merged with each other. The surface between the punctures is smooth and shiny. The rostrum is elongated, clearly longer than wide, longer than the head. The top of the rostrum is strongly grooved with delicate but sharp medial carina. The groove of the rostrum is depunctuated and between the antennal pits is transversely elevated. The anterior incision of the rostrum reaches to-

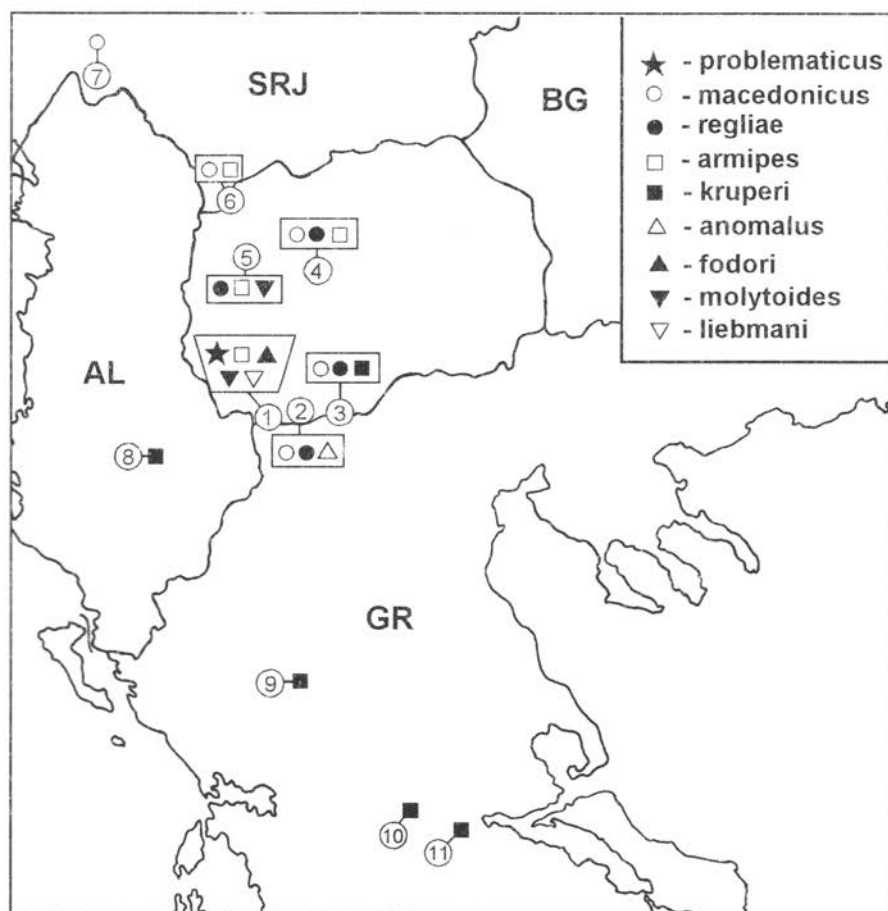


Figure 3. Distribution of some bared and smooth *Otiiorhynchus* species on the Scardic, Pelagonian and Pindic mountains. 1) Galičica Mt.; 2) Baba Mt. (Pelister); 3) Nidže Mt. (Kajmakčalan). 4) Jakupica Mt.; 5) Bistra Mt.; 6) Šar-planina Mt.; 7) Visitor Mt.; 8) Tomor Mt.; 9) Tzoumerka Mt.; 10) Korax Mt.; 11) Giona Mt.

wards this transverse carina. The antennal pits are narrowed and almost completely closed. The eyes are not completely flattened, weakly disturbing the lateral sides of the head. The antennae are robust. The first and the second segment of the flagellum are almost equal length and nearly twice longer than wide. All other segments of the flagellum are rounded or even transverse, covered with long yellowish bristles. The clavus is shortened and broadened. The pronotum is broadened, almost as wide as long, wider in the middle, regularly narrowed both anteriorly and posteriorly. The disk of the pronotum is sparsely punctuated. The punctures are well marked but superficial; the surface between the

punctures is smooth and shiny with only a weak micro reticulation. Lateral sides of the pronotum are covered with completely flattened granule and with sparse microscopic setae. The elytra of females is oval while elongated in males. The striae are composed of well impressed, deep but separate punctures. The intervals are flattened, with one or two rows of very superficial punctures and clearly visible micro reticulation. The microscopic and pale setae are well impressed to the surface of the elytrae and clearly visible only at their sides. There is no granulation or other pubescence on the elytrae. The legs are short and thin. The exterior margin of the fore tibiae on the top is broadened only in females (Fig. 6b, 7b). At both sexes all femora have a tiny granula like spine (Fig. 5b). The segments of the tarsi are shortened; the second segment is triangular but as wide as long or a little bit wider. The anal sclerite of male is strongly punctuated. These punctures are well marked, separated from each other. Toward the posterior part of the sclerite the punctures are slighter and denser. The posterior top of the sclerite is well and broadly impressed. This impression is covered with long, almost erected, pale bristles. The female's anal sclerite has no significant signs.

BODY SIZE

<i>Male</i>	Length 5.8-6.2 mm;	Width 2.4-2.7 mm
<i>Female</i>	Length 6.0-7.0 mm;	Width 2.8-3.1 mm

GENITALIA

Male genitalia is with diverge sides; the apex of the aedeagus is almost perpendicularly truncated (Fig. 4a, 4b). The spiculum ventrale has a long manubrium and with clearly truncated margo posterioris covered with long cirri (Fig. 4c). The spermatheca is with well developed and elongated ductus spermatecus and tuberculum glandulus (Fig. 4d).

MATERIAL

Holotype: ♂ – 20. VI 1989. Galičica, Macedonia, 2000 m, leg. Mesaroš;

Allotype: ♀ – 20. VI 1987. Galičica, Macedonia, 1700 m leg. Mesaroš;

Paratypes: 1♂ 3♀ – 8-11. VII 1936. Asan Đuro, Ohrid, Macedonia leg. J. Fodor; 5♂ 1♀ 20. VI 1989. Galičica, Macedonia, 2000 m, leg. Mesaroš; 1♀ 20. VI 1987. Galičica, Macedonia, 2000 m, leg. Mesaroš. Holotype, allotype and two paratypes are deposited in Museum of natural history in Budapest. The rest of the paratypes are in the collection of the author.

DISTRIBUTION AND ECOLOGY

This species inhabits the open areas of the Galičica mountain in Macedonia between 1500 m and 2000 m a.s.l. They are probably nocturnal animal. Ecology unknown. All specimens were collected under stones.

SYSTEMATIC NOTES

The general habitus and the sculpture of the body of *O. problematicus* n.sp., which is characterized by black, smooth and punctuated elytrae without scales, granules or pubescence, is undoubtedly dominant phenotype of the high altitude *Otiorhynchus* species on the Pelagonian mountains. These species show a great level of allopatry so we can propose a polyphyletic origin of this phenotype. Morphological characteristics do not offer the adequate evidence for the division of this group of species into the set of monophyletic lines. *Otiorhynchus problematicus* is especially interesting in this respect, for some of its features place this taxon closer to some clearly unrelated species. Regarding to the characteristic microreticulation of the body and the shape of the female fore tibia, this species seems to be closely related to *O. kruperi* which is distributed along the mountains in Greece (and with local populations on the Nidže-Kajmakčalan which we temporarily signed as *O. prope kruperi*; Fig. 3). On the other hand,

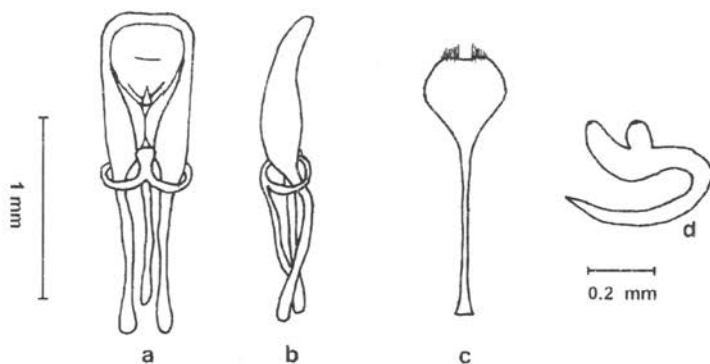


Figure 4. Genitalia of the *O. problematicus* nova spec. Aedeagus in frontal (a); lateral view (b); lamina dorsalis (c) and spermatheca (d).

characteristic punctuation of the striae and the sculpture of the pronotum place it closer to *O. shardaghensis*, while the shape of the fore tibia of the males relates it to *O. armipes*. The aedeagus apex is very similar with *O. macedonicus* or even with *O. hospitus* (Figs. 4 and 8). The frame of the rostrum separate *O. problematicus* from all mentioned species and relates it to *O. (Dorymerus) wernerianus* or even *O. (Dorymerus) rambouseki*, but there are no other characters which could prove closer affinities with them. Anyway, the populations from the Galičica have a set of stable morphologic characteristics which separate them

from other similar species that inhabit the same and/or adjacent areas. It could be established that *O. problematicus* is a good species with undefined (maybe hybrid) origin that we can not explain from the present knowledge.

Key to species

Black or dark brown integument; disk of the pronotum punctuated; elytrae smooth, shiny, bare, without scales or pubescence, or with only microscopic pubescence; intervals punctuated with or without weak microreticulation.

1. Femora without teeth or spines (Fig. 5a, c) or with only weakly marked granulae (Fig. 5b). 2
 - Femora with well developed teeth or spines (Fig. 5b, d, e, f). 5
2. Top of the females tibiae at the external edge are broadened (Fig. 6). 3
 - Top of the females tibiae at the external edge are not broadened. 4
3. Rostrum is shortened, square shaped; eyes flattened; sides of the pronotum are rudely punctuated, wrinkled; top of the fore tibiae at the internal edge are broadened only in females (Figs. 6c and 7c); intervals of the elytrae are rudely punctuated with only weak microreticulation; aedeagus - Fig. 8a, spermatheca - Fig. 9a; length: 5.0-5.7 mm. (Baba Mt.)
 - *O. anomalus* Solari (= *bistrae* Angelov syn. nov.)
 - Rostrum elongated, longer than wide; eyes weakly prominent; sides of the pronotum delicately punctuated; top of the fore tibiae at the external edge are broadened in both sexes (Figs. 6a and 7a); intervals with obvious microreticulation, delicately punctuated; femur - Fig. 5a; aedeagus - Fig. 2a, b spermatheca - Fig. 1d; length: 6.6-7.5 mm; (Galičica Mt.)
 - *O. fodori* sp. nov.
4. Rostrum shortened; intervals with one, more or less regular row of punctures and with delicate micro reticulation; legs and antennae reddish; femur - Fig. 5c; aedeagus - Fig. 8c; spermatheca - Fig. 9c; length: 3.8-4.5 mm; (Baba, Nidže-Kajmakčalan, Bistra and Golešnica Mts.). *O. regliae* Reitter
 - Rostrum weakly elongated; intervals with irregular delicate punctuation and distinct micro reticulation; legs and antennae dark brown or black; aedeagus - Fig. 8b; spermatheca - Fig. 9b; length: 5.4-5.8 mm; (Golešnica, Jakupica. Šar, Nidže-Kajmakčalan and Baba Mts.) *O. macedonicus* Reitter

5. Teeth on the fore femora are complex with two or more granulae under the top (Fig. 5f); intervals granulated and with rows of semi erected bristles; body red or dark brown; fore tibia - Figs. 6e and 7e; aedeagus - Fig. 8e; spermatheca - Fig. 9e; length: 5.5-6.8 mm; (Galičica Mt., Ohrid). *O. liebmani* Lona
- Teeth on the fore femora simple (Fig. 5b, 5d, 5e); intervals without granulae or projecting bristles; integument black, sometimes the top of the tibiae reddish. 6
6. Rostrum shortened, broad. 7
- Rostrum elongated, clearly longer than wide. 8
7. Eyes flattened; sides of the pronotum covered with tiny granulae; fore tibiae broadened in both sexes; intervals weakly punctuated with visible micro reticulation; length: 4.6-6.7 mm; (Nidže Mt. - Kajmakčalan).
- *O. prope kruperi* Stierlin
- Eyes weakly prominent; sides of the pronotum with rude sculpture (if there are any signs of granulation there are always a numerous big punctures); fore tibiae of males are not broadened (Fig. 7d); intervals strongly punctuated without microreticulation, shiny; femur - Fig. 5d; aedeagus - Fig. 8d; length: 5.5-7.2 mm; (Šar-planina, Korab, Bistra, Galičica and Jakupica Mts.).....
- *O. armipes* Apfelbeck (= *iskrae* Angelov syn. nov.)
8. Eyes strongly prominent; sides of the pronotum rudely granulated, granulae are big and flattened, extend to the disk of the pronotum, clearly visible punctures are only around the medial line of the pronotum; femora with big teeth (Fig. 5e); fore tibia - Fig. 6d; spermatheca* - Fig. 9d; length: 8.8-9.5 mm; (Galičica and Bistra Mts.) *O. molytoides* Reitter
- Femora with tiny, delicate spine (Fig. 5b); eyes weakly prominent; sides of the pronotum with granulation but disk of the pronotum is completely punctuated. fore tibia - Figs. 6b and 7b; aedeagus - Fig. 4a, b; spermatheca - Fig. 4d; (Galičica Mt.) *O. problematicus* sp. nov.

* The all examined populations of *O. molytoides* from the Galičica and the Bistra Mts. consisted exclusively of female individuals.

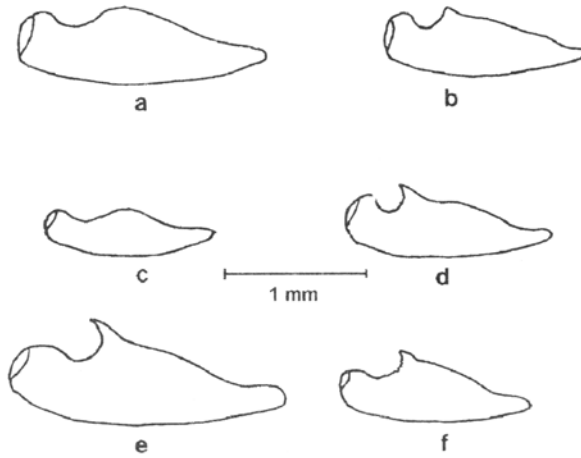


Figure 5. Fore femora of: a) *O. fodori*, b) *O. problematicus*, c) *O. regliae*, d) *O. armipes*, e) *O. molytoides* f) *O. liebmani*.

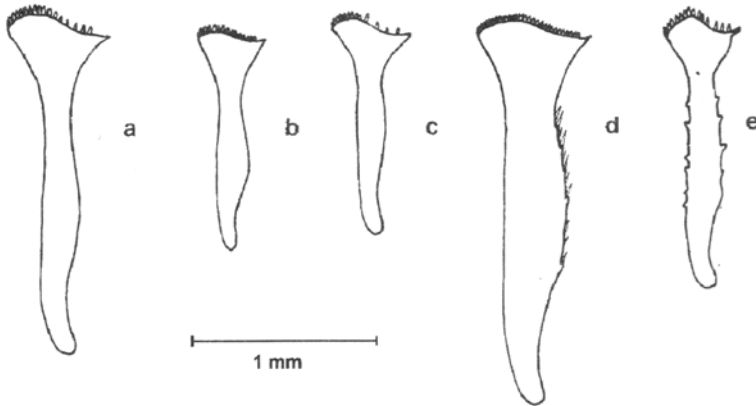


Figure 6. Fore tibiae of females: a) *O. fodori*, b) *O. problematicus*, c) *O. anomalus*, d) *O. molytoides* e) *O. liebmani*.

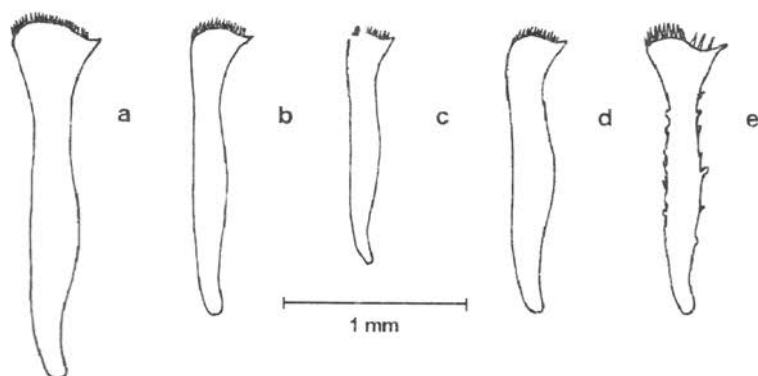


Figure 7. Fore tibiae of males: a) *O. fodori*, b) *O. problematicus*, c) *O. anomalus*, d) *O. armipes* e) *O. liebmani*.

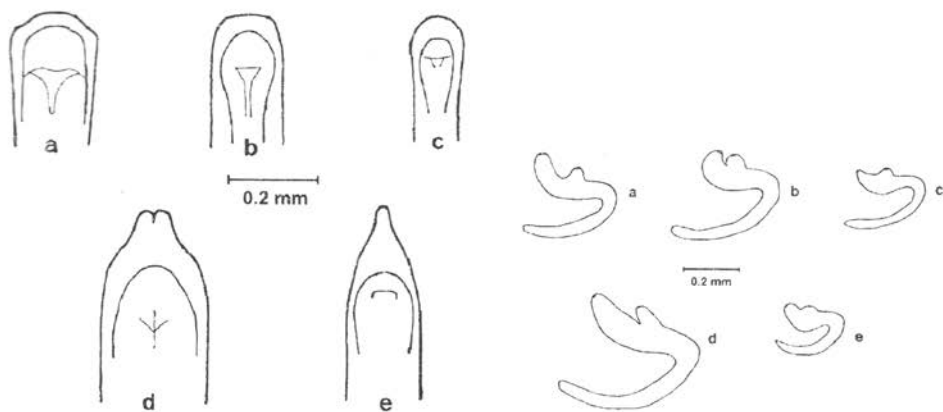


Figure 8. Aedeagus apex of: a) *O. anomalus* (Baba - Pelister), b) *O. macedonicus* (Jakupica), c) *O. regliae* (Baba - Pelister), d) *O. armipes* (Šara-planina Mt. - ex. paratypus from Museum Budapest) e) *O. liebmani* (Galičica),

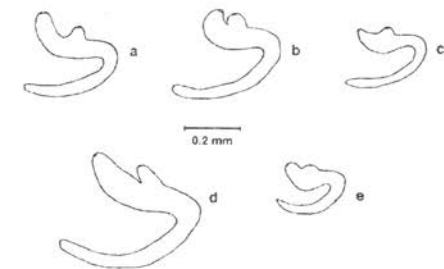


Figure 9. Spermatheca of: a) *O. anomallus* (Baba - Pelister), b) *O. macedonicus* (Jakupica), c) *O. regliae* (Baba - Pelister), d) *O. molytoides* (Galičica) e) *O. liebmani* (Galičica)

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НАПОМЕНЕ О СИСТЕМАТИЦИ НЕКИХ ГОЛИХ И СЈАЈНИХ ВРСТА РОДА *OTIORHYNCHUS* СА БАЛКАНСКОГ ПОЛУОСТРВА СА ОПИСОМ ДВЕ НОВЕ ВРСТЕ ИЗ МАКЕДОНИЈЕ

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И з в о д

Род *Otiorhynchus* (Coleoptera: Curculionidae) у Југославији показује висок таксономски диверзитет (APFELBECK, 1928; LONA, 1932; KOVAČEVIĆ, 1971) тако да је до сада са овог подручја познато преко 200 врста распрострањених у широком спектру животних заједница. Са израженим ендемизмом и богатством врста свакако се истичу заједнице отвореног типа изнад горње шумске границе (APFELBECK, 1896; RADOVIĆ *et al.*, 1995).

У овом раду су описане две нове врсте рода *Otiorhynchus* из Македоније из високопланинског подручја планине Галичица (*O. fodori* и *O. problematicus*) и дата је табела за идентификацију девет врста овог рода (који се карактеришу сличним фенотипом израженим са глатким и мање више голим хитином) са подручја шарских, родонских и пиндских планина. Овај фенотип је на подручју Балканског полуострва присутан код већег броја врста у оквиру којих се може препознати неколико филогенетских линија, што упућује на његово несумњиво полифилетско порекло.

Врста *O. fodori* показује блиску сродност са врстом *O. anomalus* са Пелистера са којом представља посебну филогенетску линију. Код врсте *O. problematicus* филогенетски односи са врстама из околних подручја нису у потпуности јасни. Морфолошки ова врста носи карактеристике већег броја филогенетски удаљених врста што упућује на њено могуће, хибридно порекло.

Овако сложено распрострањење већег броја филогенетских линија и њихова концентрација на подручју планине Галичица, где се мешају врсте са шарским (и пелагонијским), родопским и пиндским типом распрострањења, указује на сложenu морфотектонску и палеоклиматолошку историју овог подручја.

У раду је извршена синонимизација две врсте (*O. bistrae* Angelov = *O. anomalus* Solari и *O. iskrae* Angelov = *O. armipes* Apfelbeck).

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