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Brachysomus bohemicus sp. n. from the Czech Republic (Coleoptera: Curculionidae)

Brachysomus bohemicus sp. n. z České republiky (Coleoptera: Curculionidae)

Stanislav BENEDIKT

Částkova 10, CZ-326 00 Plzeň, Czech Republic; e-mail: sbenedikt@seznam.cz

Taxonomy, new species, distribution, Coleoptera, Curculionidae, Entiminae, Sciaphilini, *Brachysomus*, Bohemian Karst, Czech Republic

Abstract. *Brachysomus bohemicus* sp. n., belonging to the *Brachysomus subnudus* (Seidlitz, 1868) species-group, is described from the Bohemian Karst and its close surroundings (Czech Republic). The new species is distinguished from the most closely related species *Brachysomus subnudus*.

INTRODUCTION

Weevils of the genus *Brachysomus* Schoenherr, 1823 are tiny terricolous beetles that occur in detritus and low vegetation in steppe and forest habitats from lowlands to mountains. Knowledge about these weevils has increased very markedly in the last 20 years. While Dieckmann (1980) mentioned only about 30 species, recently more than 60 species are known. Most of the new species were described from the Carpathian Mts. and their surroundings, and from the Balkans (Košťál 1991a, 1991b, 1992; Benedikt 2001; Wanat & Mazur 2005; Yunakov 2006; Bialooki 2008). Species of this genus are distributed from Britain to Siberia, but most of them are limited to small areas as endemic species of the various geographical regions. All species are known in the bisexual forms since *Brachysomus echinatus* (Bonsdorff, 1785), previously regarded as the parthenogenetic species, was recently found in amphigonic populations on several localities in the Western Carpathian Mts. (Benedikt 2009).

The newly described species belongs to the *Brachysomus subnudus* (Seidlitz, 1868) species-group sensu Košťál (1991) characterized by Košťál as follows: "Antennal scrobes (laterally viewed) widened posteriadly, their ventral margins abruptly bent towards. Body brown, legs and antennae often light brown or reddish brown. Body outline oval to short oval. Whole body surface covered with pale or whitish scale-like setae which are arranged on the elytral interstices into single rows and project markedly, but their length rarely reaches the width of one interstice. Moreover, the interstices are sparsely covered with tiny applied scales. Most of rostrum is of the same width as at its base, eyes large, more or less distinctly projecting from the head outline. Pronotum broader than long, slightly strangulated in front, the maximum width between the middle and posterior third of its length. Elytral sides and apex broadly rounded. Legs moderately robust".

The species-group is distributed from the eastern Alps to the Western Carpathians. It includes only five known species: *B. subnudus* (Austria, Hungary, Slovakia), *B. dispar* Penecke, 1910 (the Czech Republic, Slovakia, Hungary, Poland, Ukraine), *B. rokosensis* Benedikt, 2001 (Slovakia), *B. styriacus* Formánek, 1905 (Slovenia, Italy, Austria) and *B. slovacicus* Košťál, 1991 (Slovakia). The distribution of the new species disjunct from these regions, limited to the small

area of the Bohemian Karst in the central Bohemia. The nearest localities for other members of the species-group are about 200 km to the southeast (*B. dispar*: Moravia centr.: Moravian Karst). The nearest localities for *B. subnudus*, the most closely related species, are more than 300 km in the same direction (Slovakia occ.: Považský Inovec Mts. and Strážovské vrchy Mts.).

The occurrence of specimens belonging to the new species in the area of the Bohemian Karst has been known for several years but all specimens have up to now been misidentified as *B. subnudus*. The oldest known specimen (male) was collected in the "Radotínské údolí" valley near Prague by J. Suchý in 1944 but remained unidentified until the 1990s. Unfortunately, the vestiture of this specimen was strongly abraded and the aedeagus damaged. Later this specimen was determined as *B. subnudus* (M. Košťál and S. Benedikt det.). The second oldest known specimen (also male) was collected near the Loděnice village by Hermann in 1978 and deposited in O. Vořišek's collection, also as *B. subnudus* (O. Vořišek det., S. Benedikt rev.). The third one (female) was found by J. Strejček in the periphery of Prague (Praha-Motol) in 2001 (S. Benedikt det. as *B. subnudus*). This locality doesn't belong to the Bohemian Karst but it is situated just at the border of this area. Its geological base is created by calcareous slates (Pouba 1949). Since Strejček's last finding I have tried hard to find more specimens to confirm the correctness of determination. I was successful only in 2007, when I discovered the numerous population of this species at the other locality near the village Srbsko in the centre of the Bohemian Karst. This large material finally enabled to recognize the new species. It differs from *B. subnudus* by the shape of the aedeagus and some other external morphological characters. The range of the new species apparently includes the whole region of Bohemian Karst and its geologically close surroundings, but its occurrence is probably only local, restricted to well-preserved xerothermic localities.

In the present paper, a new species is described. Some information about the biology of this species is given. The new species is compared with the most closely related species, *Brachysomus subnudus*.

MATERIAL AND METHODS

Specimens examined were measured in profile from anterior margin of eye to the apex of the elytra. Dissected male and female genitalia were mounted dry on the same card as the respective specimen.

The material is housed in the following collections (abbreviations in alphabetical order): cJF – J. Fremuth collection, Hradec Králové; cJK – J. Krátký collection, Hradec Králové; cJS – J. Strejček collection, Praha; cLK – L. Koloničný collection, Ostrava; cMM – M. Mantič collection, Ostrava; cMW – M. Wanat collection, Wrocław; cNMP – National Museum Praha; cOV – O. Vořišek collection, Kladno; cRB – R. Borovec collection, Sloupno; cSB – S. Benedikt collection, Plzeň; cSJ – J. Szypula collection, Wrocław.

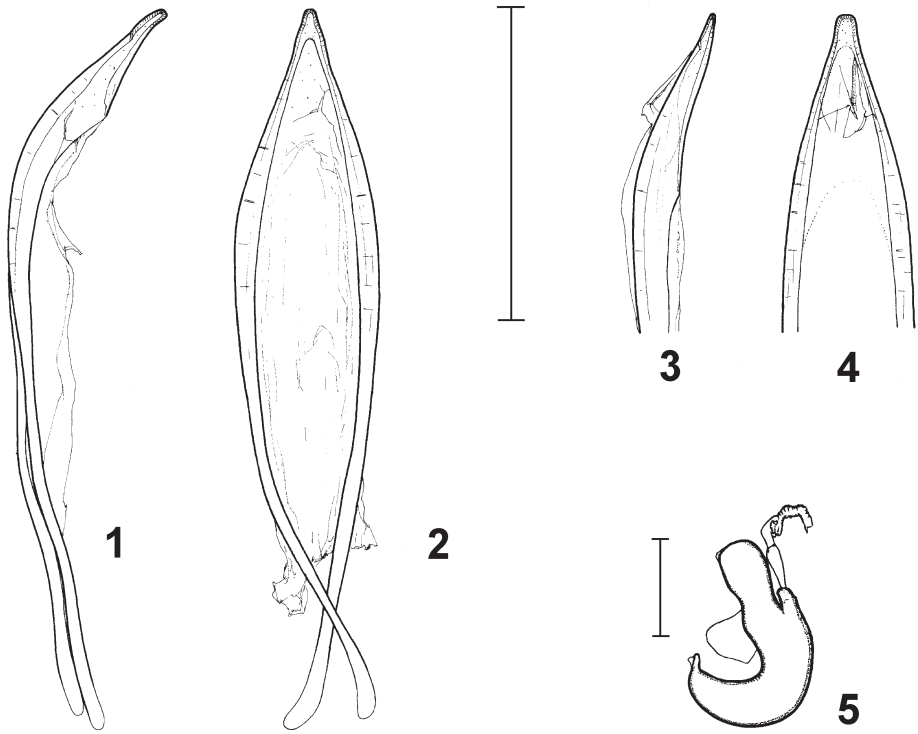
Codes of the mapping grid according Pruner & Míka (1996).

TAXONOMIC SECTION

Brachysomus bohemicus sp. n.

(Figs 1-2, 5-7)

Type material. Holotype, male: Bohemia centr., Srbsko env., Velká hora (6050), 10.vi.2007, S. Benedikt lgt. (cNMP). Paratypes: 4 ♀♀, the same data as holotype; 1 ♂, 10 ♀♀, the same locality as holotype, 23.vi.2007, S. Benedikt lgt.; 6 ♂♂, 15 ♀♀, the same locality as holotype, 10.vi.2008, S. Benedikt lgt.; 5 ♂♂, 25 ♀♀, the same locality as holotype, 10.vi.2008, J. Krátký lgt.; 1 ♂:



Figs 1-5. Genitalia. 1-2: *Brachysomus bohemicus* sp. n., holotype, aedeagus in lateral and dorsal view; 3-4: *Brachysomus subnudus* (Seidlitz) (Slovakia: Modrová), aedeagus in lateral and dorsal view. Scale 0.5 mm. 5: *Brachysomus bohemicus* sp. n., spermatheca. Scale 0.1 mm.
Obr. 1-5. Genitálie. 1-2: *Brachysomus bohemicus* sp. n., holotypus, aedeagus bočně a shora; 3-4: *Brachysomus subnudus* (Seidlitz) (Slovakia: Modrová), aedeagus bočně a shora. Měřítko 0,5 mm. 5: *Brachysomus bohemicus* sp. n., spermatéka. Měřítko 0,1 mm.

Bohemia centr., Praha, Radotín (6052), 13.vi.1944, J. Suchý lgt.; 1 ♂: Bohemia centr., Loděnice (6051), 26.vi.1978, J. Hermann lgt.; 1 ♀, Bohemia centr., Praha-Motol, Kalvárie (5951), vi.2001, J. Strejček lgt. Paratypes in cJF, cJK, cJS, cLK, cMM, cMW, cNMP, cOV, cRB, cSB, cSJ.

Description. Body length 2.2 mm (holotype), 2.0-2.3 mm (paratypes-males), 2.1-2.6 mm (paratypes-females).

Body unicolourous, light brown to brown, legs and antennae light brown. Whole body covered with light scales (vestiture mentioned below).

Rostrum 1.1 times as long as wide, widest at the base, basal part slightly tapered, margins in apical part nearly parallel. Dorsal surface of rostrum with shallow, posteriorly tapered longitudinal groove. Frons and rostrum the same height in lateral view, their outline flat. Eyes large, convex. Whole head sparsely and roughly punctate with white adherent or moderately projecting scales.

Antenna distinctly longer and more robust in males than in females. Scape moderately curved, apical third strongly enlarged, 2-3 times as broad as basal part. Antennomeres short,

antennomere 1 about 1.5 times as long as wide and about 1.5 as wide as the second one. Antennomere 2 slightly longer than wide, third and fourth antennomeres as long as wide, antennomeres 5 to 7 slightly transverse. Club oval, approximately of the same length as five distal antennomeres together in males and as four antennomeres in females. Scape and club covered with fine moderately raised projecting bristles, antennomeres of funicle with longer and more projecting bristles.

Pronotum transverse (length/width ratio 0.63-0.72), sides distinctly regularly convex, widest in the middle or slightly behind it. Pronotum slightly flatly vaulted in lateral view. Dorsal surface irregularly densely and coarsely to roughly punctate. Pronotum covered with white-yellowish and slightly projecting scales thickened anteriorly, scales on disc fine, sparse and rather hair-like.

Elytra oval, distinctly more slender in male (length/width ratio 1.5-1.6) than in female (length/width ratio 1.3-1.4), widest at midlength or slightly behind the middle. Intervals moderately vaulted, approximately as wide as interstices in anterior half of elytra and 1.5-2 times as wide as interstices in apical half, in general wider in female than in male, smooth, only with irregularly spaced, very fine indistinct punctures. Interstices coarsely punctured. Each interval covered with sparse tiny and short adherent white-yellowish scales and 1-2 irregular rows of projecting thinner scales directed backwardly and distinctly thickened anteriorly. Projecting scales longer and more erect in females, but always much shorter than intervals, approximately as long as half of intervals' width.

Legs short and robust, more slender in females than in males. Femora toothless, protibia on inner margin slightly bisinuate. Whole legs sparsely covered with short adherent or slightly projecting white-yellowish hair-like scales. Claws very small, connate at the base.

Abdomen sparsely covered with whitish tiny scales. Last abdominal ventrite in males with shallow impression, posterior margin of last abdominal ventrite in males regularly rounded.

Genitalia. Aedeagus wide in dorsal view, middle third only slightly convex, apical third triangularly tapered, apex pointed, distinct. Aedeagus distinctly curved in lateral view, apex short, feebly bent, nearly beak-shaped (Figs 1-2). Spermatheca with short and sharp cornu, indistinct ramus and strong and long nodulus (Fig. 5).

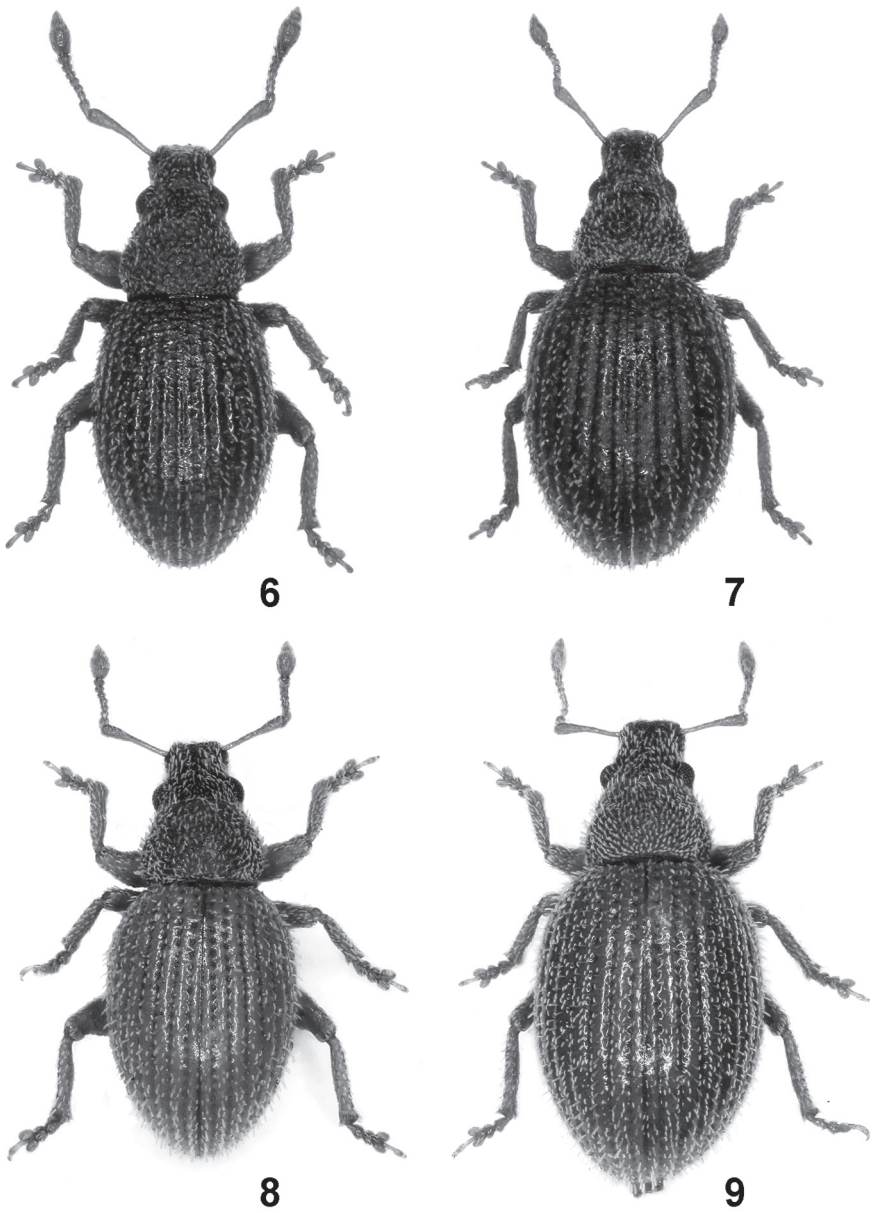
Variability. All variable characters (body length and colour, shape of pronotum and elytra) mentioned above.

Etymology. The specific name is derived from the name of the historical land of the Czech Republic – Bohemia, where all known localities of the new species are situated.

Biology. The specimens from the locality Velká hora near Srbsko were found by sifting in south-facing slope on limestone with the occurrence of rich xerothermic vegetation (*Quercus pubescens*, *Cornus mas*, *Cyanus triumfettii*, *Anemone sylvestris*, *Dictamnus albus* etc.).

Distribution. Czech Republic, Bohemian Karst and its close surroundings (Fig. 10).

Differential diagnosis. *Brachysomus bohemicus* sp. n. is very similar and closely related to *B. subnudus* (Figs 8-9). The differential characters are as follows: body colour of *B. subnudus* is lighter on average. Antenna of *B. subnudus* is distinctly shorter and less robust in male. Elytra are wider, more rounded, length/width ratio is 1.4-1.5 in males (1.5-1.6 in *B. bohemicus*) and 1.2-1.3 in females (1.3-1.4 in *B. bohemicus*). Projecting scales on elytra longer, more erect, nearly as long as interval width, especially in females (approximately as long as half of intervals width in *B. bohemicus*), only feebly thickened apicad (distinctly thickened



Figs 6-9. *Brachysomus bohemicus* sp. n., habitus: 6 – male, holotype, 7 – female, paratype; *Brachysomus subnudus* (Seidlitz), habitus: 8 – male, 9 – female (Slovakia: Modrová). Scale 1.0 mm.
Obr. 6-9. *Brachysomus bohemicus* sp. n., habitus: 6 – samec, holotypus, 7 – samice, allotypus; *Brachysomus subnudus* (Seidlitz), habitus: 8 – samec, 9 – samice (Slovakia: Modrová). Měřítko 1,0 mm.

in *B. bohemicus*). Last abdominal ventrite in males without impression, its posterior margin more or less emarginate (with shallow impression and regularly rounded in *B. bohemicus*). Aedeagus slightly convex in the middle third and then concavely tapered at apex, less curved in lateral view, apex moderately bent upwards in lateral view (Figs 3-4) (different shape in *B. bohemicus*, see Figs 1-2).

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SOUHRN

V práci je popsán nový druh nosatce z rodu *Brachysomus* Schoenherr, 1823 – *B. bohemicus* sp. n. z okruhu druhu *B. subnudus* (Seidlitz, 1868) a uvedeny rozdíly v morfologii a tvaru aedeagu, kterými se od tohoto druhu odlišuje. Druhy patřící do okruhu druhu *B. subnudus* charakterizuje Košťál (1991b) takto: „Tělo hnědé, nohy a tykadla často světle hnědé nebo rezavě hnědé. Obrys těla oválný až krátce oválný. Celé tělo je pokryto světlými šupinkami nebo šupinkovitými sétami, které jsou ustaveny na mezirýžích krovek do jednoduchých řad a výrazně odstávají, ale jejich délka vzácně dosahuje šířku mezirýží. Navíc jsou mezirýží řídce pokryta drobnými šupinkami. Nosec je většinou stejně dlouhý jako jeho basální šířka, oči velké, více nebo méně vystupující z obrysu hlavy. Štít širší než dlouhý, mírně vpředu zúžený, největší šířka je mezi středem a zadní třetinou délky. Strany a konec krovek široce zaokrouhlené. Nohy poměrně robustní.“.

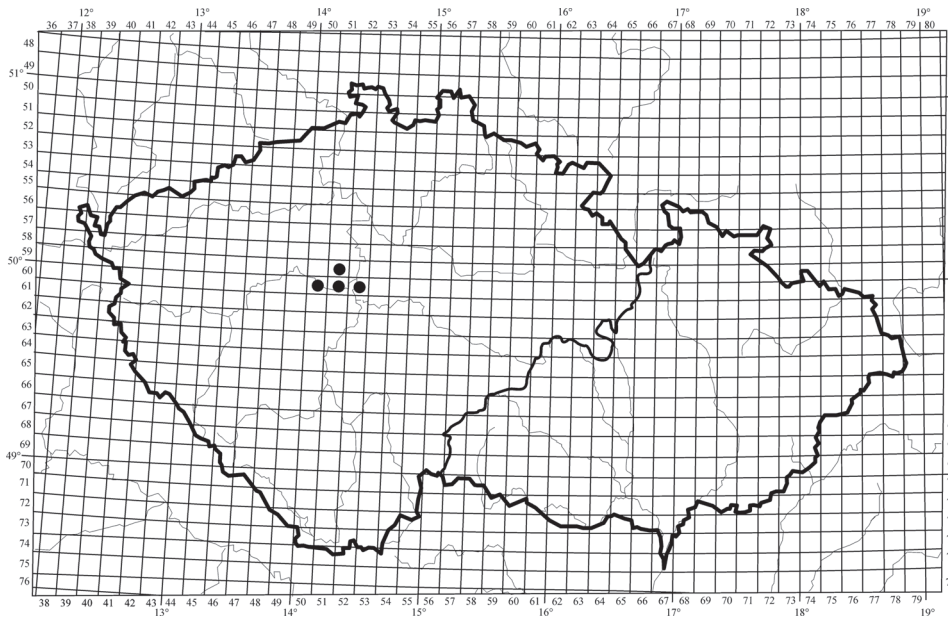


Fig. 10. Known localities for *Brachysomus bohemicus* sp. n. in the Czech Republic.
Obr. 10. Nálezy *Brachysomus bohemicus* sp. n. v České republice.

Druhová skupina *B. subnudus* je rozšířena od východních Alp po Západní Karpaty a zahrnuje známé druhy *B. subnudus* (Rakousko, Maďarsko, Slovensko), *B. dispar* Penecke, 1910 (Česká republika, Slovensko, Maďarsko, Polsko a Ukrajina), *B. rokosensis* Benedikt, 2001 (Slovensko), *B. styriacus* Formánek, 1905 (Itálie, Rakousko, Slovinsko) and *B. slovacicus* Košťál, 1991 (Slovensko). Nový druh *Brachysomus bohemicus* sp. n. (obr. 1-2, 5-7) je svým výskytem omezen zřejmě jen na oblast Českého krasu a geologicky blízké okolí (obr. 10), kde žije na nejzachovalejších xerotermních lokalitách lesostepního rázu. Jeho populace je velmi izolovaná od příbuzných druhů skupiny. Nejbližší lokality *B. dispar* se nacházejí asi 200 km na jihovýchod v Moravském krasu, lokality nejblíže příbuzného *B. subnudus* leží 300 km na jihovýchod na západním Slovensku (Považský Inovec a Strážovské vrchy).

Nosatec byl z území Českého krasu známý už poměrně dlouho ve třech exemplářích, které byly ale vesměs chybně identifikovány jako *B. subnudus*. Nejstarší z nich (samec), nalezený J. Suchým v Radotínském údolí, pochází z roku 1944. Druhý exemplář, také samce, sbíral J. Hermann v okolí Loděnice v roce 1978, třetí kus (samice) nalezl J. Strejček v roce 2001 na lesostepní lokalitě Kalvárie v pražském Motole. Tato lokalita sice nepatří do Českého krasu, ale nachází se na jeho okraji a geologicky je tvořena vápnitými břidlicemi (Pouba 1949). Po víceletém pátrání po dalších jedincích byl nový druh autorem nalezen teprve v letech 2007 a 2008 ve větším počtu exemplářů na nové lokalitě u Srbska v Českém krasu. Tato větší série umožnila spolehlivě rozeznat nový druh, který se od *B. subnudus* (obr. 8-9) liší jak vnější morfologií, tak i tvarem aedeagu.

Nový druh je v průměru tmavěji zbarvený, celkově užší, poměr délka/šířka krovek je 1,5-1,6 u samců a 1,3-1,4 u samic, zatímco u *B. subnudus* je tento index 1,4-1,5 u samců

resp. 1,2-1,3 u samic. Krovky jsou u nového druhu méně zaokrouhlené, především u samců. Odstávající séty na krovkách jsou mnohem kratší než je šířka mezirýží, u *B. subnudus* jsou téměř stejně dlouhé jako mezirýží, zvláště u samic. Séty jsou navíc na rozdíl od příbuzného *B. subnudus* ke konci výrazněji ztlustlé. Poslední ventrit samce má mírný plochý vtisk a jeho okraj je široce zaokrouhlený, u *B. subnudus* vtisk chybí a okraj je více či méně vykrojený. Samci nového druhu mají výrazně delší a robustnější tykadla než samci druhu *B. subnudus* (obr. 6 a 8). Výrazný je rozdíl ve tvaru aedeagu. Ten je u nového druhu (obr. 1-2) v dorsálním pohledu v prostřední třetině téměř jen mírně konvexní, v apikální třetině pak přímo trojúhelníkovitě zúžený s výrazným apexem. V laterálním pohledu je poměrně silně zakřivený, apex je od linie apikální třetiny zřetelně ohnutý dolů. U *B. subnudus* (obr. 3-4) je aedeagus v dorsálním pohledu v prostřední třetině konvexní, v apikální pak lehce konkávně zúžený. V laterálním pohledu je aedeagus jen mírně zakřivený, apex od linie apikální třetiny ohýbá neznatelně nahoru.

Na lokalitě Velká hora u Srbska byl brouk sbírán prosevem detritu v jižně orientované skalní lesostepi s bohatou xerotermní vegetací (*Quercus pubescens*, *Cornus mas*, *Cyanus triumfetti*, *Anemone sylvestris*, *Dictamnus albus* atd.).