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ROVE BEETLES OF THE GENERA *AGARICOCHARA*, *BRACHIDA*, AND *ENCEPHALUS* (COLEOPTERA, STAPHYLINIDAE, ALEOCHARINAE) OF UKRAINE

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Rove Beetles of the Genera *Agaricochara*, *Brachida*, and *Encephalus* (Coleoptera, Staphylinidae, Aleocharinae) of Ukraine. Glotov S. V. — Three genera, *Agaricochara* Kraatz, 1856, *Brachida* Mulsant et Rey, 1871, and *Encephalus* Stephens, 1832 represented in Ukrainian fauna by one species each are reviewed. Detailed diagnoses and descriptions, peculiarities of biology and geographical distribution are given for each species and genera. New synonymy is established: *Brachida exigua* (Heer, 1839) = *Brachida kraatzii* Hochhuth, 1872 syn. n.

Key words: rove beetles Coleoptera, Staphylinidae, Aleocharinae, *Agaricochara*, *Brachida*, *Encephalus*, Ukraine.

Жуки-стафилиниды родов *Agaricochara*, *Brachida* и *Encephalus* (Coleoptera, Staphylinidae, Aleocharinae) фауны Украины. Глотов С. В. — Дан обзор трёх родов, *Agaricochara* Kraatz, 1856, *Brachida* Mulsant et Rey, 1871 и *Encephalus* Stephens, 1832, представленных в фауне Украины единственным видом каждый. Даны детальные диагнозы и морфологические описания, указаны особенности биологии и географического распространения для всех рассматриваемых родов и видов. Установлена новая синонимия: *Brachida exigua* (Heer, 1839) = *Brachida kraatzii* Hochhuth, 1872 syn. n.

Ключевые слова: жуки-стафилиниды, Coleoptera, Staphylinidae, Aleocharinae, *Agaricochara*, *Brachida*, *Encephalus*, Украина.

Introduction

The genera *Agaricochara* Kraatz, 1856, *Brachida* Mulsant et Rey, 1871 and *Encephalus* Stephens, 1832, included into the subtribe Gyrophaenina (subfamily Aleocharinae, tribe Homalotini) were studied.

The subtribe Gyrophaenina possesses the following diagnostic characters: tarsi 4–4–5, widely separated mid coxae, blunt or slightly rounded process of mesothorax, thick and short maxillar palps, 2-segmented labial palps; oval, short, shiny body; punctation on head and pronotum clear or absent (Lohse, 1974; Shilov, 1977). A few members of these genera inhabit mosses, litter, and fungi (Ganglbauer, 1895; Horion, 1967). Information on the findings of these genera in Ukraine was provided by Hochhuth (1872), Jacobson (1909–1910), Roubal (1930), Medvedev, Skliar (1974), Petrenko (1974, 2009), Shilov (1977), Bogdanov (1985), Mateleshko (2007), Glotov, Savchenko (in press). This report summarizes all available information about the representatives of the genera *Agaricochara*, *Brachida* and *Encephalus* in Ukrainian fauna. Detailed diagnoses, peculiarities of biology and distribution of all the genera and species are given. A new synonymy is established: *Brachida exigua* (Heer, 1839) = *Brachida kraatzii* Hochhuth, 1872 syn. n.

Material and methods

The material is deposited in the following collections and was examined through the kindness of their curators: Donetsk National University, Donetsk, Ukraine, V. V. Martynov (DNU); I. I. Schmalhausen Institute of Zoology, NAS of Ukraine, Kiev, A. A. Petrenko (SIZK); the State Museum of Natural History, Lviv, V. B. Rizun and T. P. Yanitskij (SMNH); the Zoological Museum, Copenhagen, Natural History Museum of Denmark, A. Yu. Solodovnikov (ZMUC); private collections of S. V. Glotov, Lugansk, Ukraine (CGL),

A. V. Gontarenko, Odessa, Ukraine (CGo), A. Yu. Mateleshko, Uzhgorod, Ukraine (CMT), J. Pedersen, Copenhagen, Denmark (CJP).

Current taxonomic status of the species, spellings of the authors' names, dates of publication of the genera and species names follow Smetana (2004). Mass material from Europe (material from SIZK, SMNH, ZMUC, and from the private collections of J. Pedersen) was used for comparison with the specimens from Ukraine.

The collecting localities with their coordinates are as follows: **Chernihiv Region:** Bobrovitskiy District, Baranitsa Village (50°49'59.61" N, 31°23'41.37" E); **Donetsk Region:** Volodarsky District, Reserve "Kamyani Mohyly" (47°18'14.95" N, 37°5'2.77" E); **Odessa Region:** Belayevka District, Altestovo Village (46°37'51.87" N, 30°32'57.59" E); **Sumy Region:** Lebedinsky District, Reserve "Mikhajlovskaya tselina" (50°44'23.81" N, 34°11'23.58" E); **Transcarpathian Region:** Uzhgorodskiy District, Dubki Hole, (48°67'07.71" N, 22°36'43.15" E).

Administrative localization and geographic coordinates of localities are taken from "Google Earth" (<http://earth.google.com>).

Key to known genera of subtribe Gyrophaenina occurring in Ukraine

Таблица для определения родов подтрибы Гурофаенина, встречающихся в Украине

1. Body short, oval or conspicuously widened. Pronotum almost as long as elytra. Abdomen wide, with strongly curved lateral margins. 2
- Body elongate, slender, abdomen slightly widened. Pronotum conspicuously shorter than elytra. Abdomen slender, rarely slightly widened. 3
2. Whole body bare or very sparsely setulose, shining. Eyes small, strongly protruding anteriorly. Head sharply, straight narrowed posterior to eyes. Anterior angles of pronotum acutely produced and downcurved ventrally, posterior margins acute. Scutellum wide and short. Abdomen wide oval. Body length 1.8–2.2 mm. *Encephalus* Stephens, 1832. One species, *E. complicans* Stephens, 1832, in Ukraine.
- Body densely and short light setose, laterally with long dark setae. Eyes round, slightly convex. Head gradually narrowed towards its base posterior of eyes. Mesonotum convex, anterior and posterior corners rounded. Elytra wide and short. Abdomen conspicuously widened, with strongly curved lateral margins. Body length 2–2.5 mm *Brachida* Mulsant et Rey, 1871. One species, *B. exigua* (Heer, 1839), in Ukraine.
3. Head sharply and strongly narrowed posterior of eyes. Eye strongly convex. Body slender. Pronotum slightly convex. Abdomen slender. Body length 0.8–2.5 mm. *Gyrophaena* Mannerheim, 1830. At least 20 species in Ukraine.
- Head weakly and gradually narrowed posterior of eyes. Eye very slightly convex. Body wide. Pronotum strongly convex. Abdomen widened. Body length 1–1.5 mm. *Agaricochara* Kraatz, 1856. One species, *A. latissima* (Stephens, 1832), in Ukraine.

Review of genera and species

Genus *Agaricochara* Kraatz, 1856

Some authors considered it a subgenus of *Gyrophaena* (Ganglbauer, 1895; Johansen, 1914; Seevers, 1951; Lohse et al., 1974), now it has a full generic status in the subtribe Gyrophaenina (Wüsthoff, 1937; Benick, 1952; Palm, 1968; Ashe, 1984; Smetana, 2004).

A. latissima (Stephens, 1832)

Material. No specimens from Ukraine are found in CMT.

Description. Body length 1–1.5 mm. Head black, sometimes dark brown, pronotum brown or light brown. Elytra pale brown, with tinted posterior corners. Abdomen black or dark brown, posterior margin of each tergite pale. Antenna: I–III segments light brown, IV–XI dark brown. Legs and palp dark brown. Entire body uniformly covered with reticulate microsculpture and moderately densely covered with short light bristles. Head strongly transverse, posterior angles rounded, gradually narrowed behind the eyes. Eye bulged, large; temple distinctly shorter than eye. Antenna short, I–II segments elongated, each next segment slightly shorter, and of almost uniformly width; III segment elongate, much narrower and shorter than the previous two; IV segment small and round; V–IX segments slightly transverse or square; XI short, rounded, with slightly pointed apex, as wide as previous one. Pronotum transverse, with greatest width at its centre, 1.5 times as wide as long; anterior disc angles rounded and slightly bent downwards; posterior disc angles slightly expressed and rounded. Elytra moderately long, distinctly longer than pronotum, closed posterior part slightly wider than anterior. Abdomen broad, posterior part grad-

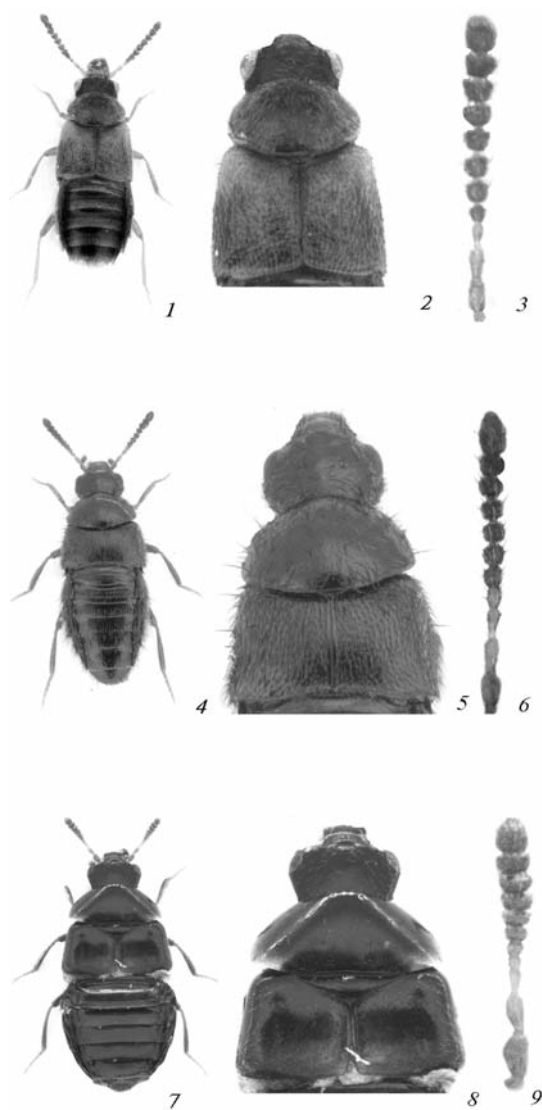


Fig. 1. *Agaricochara latissima* (1–3), *Brachida exigua* (4–6), *Encephalus complicans* (7–9): habitus (1, 4, 7); anterior portion of body (2, 5, 8); antenna (3, 6, 9).

Рис 1. *Agaricochara latissima* (1–3), *Brachida exigua* (4–6), *Encephalus complicans* (7–9): общий вид тела (1, 4, 7); передняя часть тела (голова, переднеспинка и надкрылья); антенны (3, 6, 9).

ually tapered and rounded. Male: posterior margin of tergite 8 with 2 long, sharp, mesally arcuate spines on each side with 2 short, sharp teeth in the centre.

Comments. Description is based on material collected in Denmark, Germany and Poland.

Bionomics. Beetles inhabit timber fungi. Rare and scanty in all parts of the area.

Distribution. Europe: Austria, Belgium, Bosnia and Herzegovina, Britain, Croatia, Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Luxembourg, Norway, Poland, Romania, Russia (European Territory: Centre), Slovakia, Spain, Switzerland, the Netherlands, Sweden; Asia: Cyprus. (Smetana, 2004). In Ukraine, known from the Carpathian region (Mateleshko, 2007).

Genus *Brachida* Mulsant et Rey, 1871

Rather large genus, represented in all zoogeographical regions of the world. Over 100 species in the world fauna (Newton et al., 2005), 13 species in the Palearctic Region (Smetana, 2004).

B. exigua (Heer, 1839)

Homalota notha Erichson, 1839: 126. — *Gyrophaena pilosa* C. Hampe, 1850: 348. — *Encephalus kraatzii* Hochhuth, 1872: 111, syn. n.

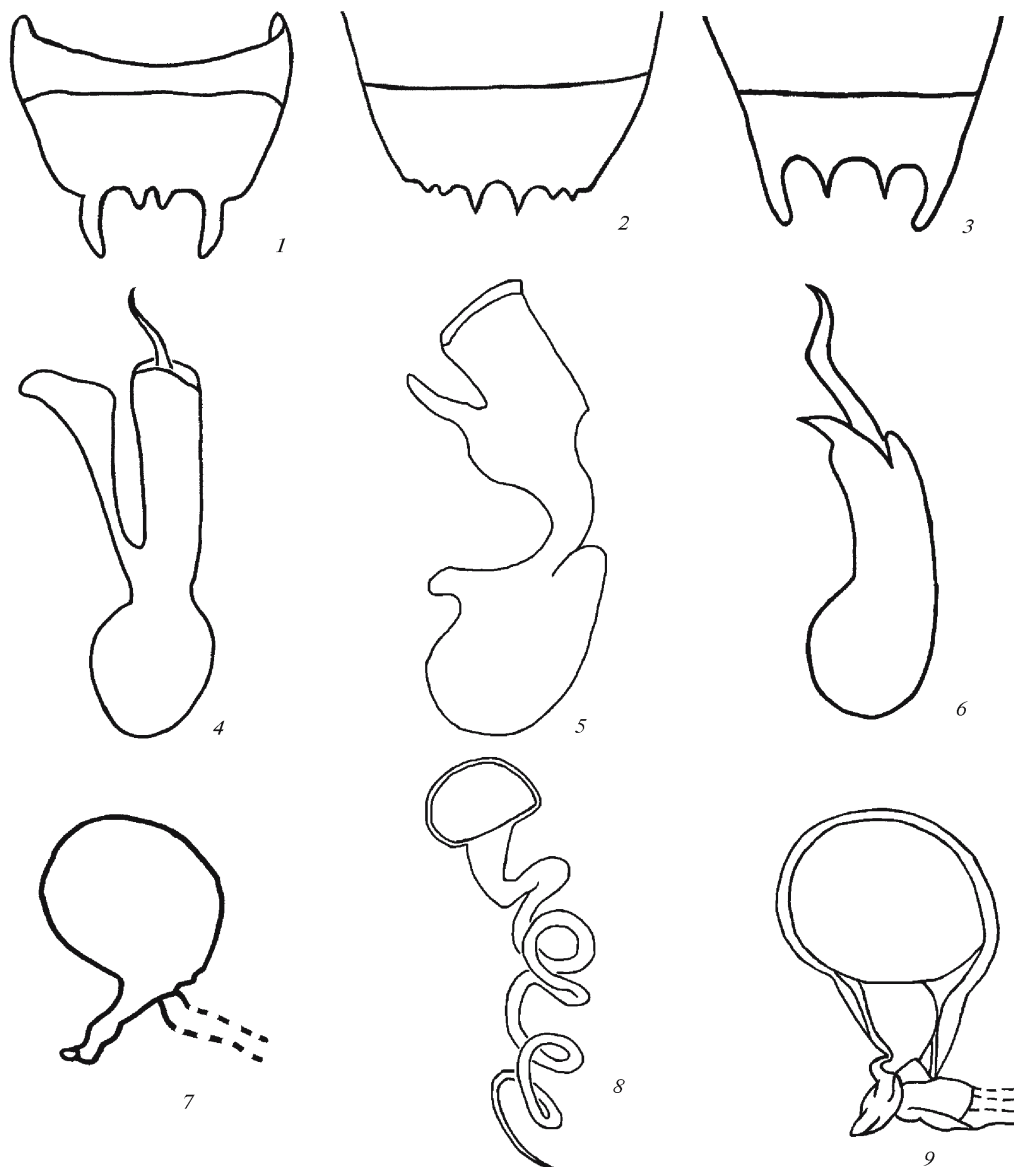


Fig. 2. *Agaricochara latissima* (1, 4, 7), *Brachida exigua* (2, 6, 8), *Encephalus complicans* (3, 6, 9): 8th abdominal tergite of male (1, 2, 3); aedeagus (4, 5, 6); spermatheca (7, 8, 9) (2-3 — redrawn from Wüsthoff, 1937; 4, 6 — redrawn from Seevers, 1951; 7 — redrawn from Ashe, 1984; 9 — redrawn from Gamarra, 1986).

Рис 2. *Agaricochara latissima* (1, 4, 7), *Brachida exigua* (2, 6, 8), *Encephalus complicans* (3, 6, 9): 8-й тергит самца (1, 2, 3); эдеагус (4, 5, 6); сперматека (7, 8, 9) (2-3 — по Wüsthoff, 1937; 4, 6 — по: Seevers, 1951; 7 — по: Ashe, 1984; 9 — по: Gamarra, 1986).

Material examined. **Type.** Holotype ♀ *Encephalus kraatzii*: “/ *Encephalus* Kr., *Kraatzii* H.[ochhuth], K.[iev] [white labels] / Holotypus *Brachida kraatzii* Hochhuth W. Schilov des. [1]976 [red label] / *Brachida exigua* (Heer, 1839) det. S. Glotov 2010 [white labels]” (SIZK). **Non-type. Donetsk Region:** Volodarsky District, Reserve “Kamyani Mohyly”, 22.06.2006, 5 ex., E. Savchenko (DNU, CGL); 14–22.09.2008, 1 ex., E. Savchenko (DNU, CGL); **Odessa Region:** Belayevka District, Altestovo Village, 16.10.2004, 1 ex., 24.10.2004, 1 ex. (A. Gontarenko) (CGo); **Sumy Region:** Lebedinsky District, Reserve “Mikhailovskaya Tselina”, in the wet turf, 08.08.1971, 20 ex., A. Petrenko (SIZK, CGL); **Transcarpathian Region:** Uzhgorodskiy District, Dubki Hole, 29.09.2002, 1 ex., A. Mateleshko (CMT).

Description. Body length 2–2.5 mm. Head black, pronotum black or brown, elytra black, sometimes dark brown. Abdomen black, sometimes I–IV tergites brown; antenna: I–IV segments light brown, V–XI dark brown, maxillary palpi dark brown, legs light brown. Entire body with even microsculpture and moderately densely covered with short light bristles, each side of the body bear longer and dark bristles. Head strongly transverse, rounded, slightly convex, with moderately dense small punctuation; posterior angles strongly rounded, gradually narrowed behind the eyes. Eyes bulging, large; temples slightly shorter or the same length. Antenna short, I–III segments elongated, each successive segment slightly shorter and narrower than the previous, IV round and slightly thickened, V–IX transverse, slightly wider than previous segment, X strongly transverse, XI large, rounded, with slightly pointed apex. Pronotum strongly transverse, with moderately dense small punctuation, widest at its centre, twice as wide as long; pronotal disc evenly convex, anterior and posterior angles strongly rounded. Elytra short, with moderately dense small punctuation; width twice greater than length, slightly wider and considerably longer than pronotum. Male: posteromesal corner of elytron with small shining tubercle. Abdomen broad, shining, with fine and sparse punctuation, smoothly tapered and rounded posteriorly. Posterior margin of tergite 8 with 2 short, sharp teeth in centre.

Comments. The original description of *Encephalus kraatzii* Hochhuth, 1872 was based on a single female from Kyiv originally compared with *Encephalus complicans*. However, its diagnostic characters, the colouration of body parts, antenna length, width and shape of the pronotum and abdomen; the punctuation of the body and density of bristles, clearly show that it belongs rather to the genus *Brachida* than to *Encephalus*. Subsequently, it was excluded from the genus *Encephalus* and transferred to *Brachida* by Shilov (1977), who suggested the following differences of the *B. kraatzii* from *B. exigua*: the whole body black, shiny, mouth parts and legs yellow-brown, legs darkened to the base, in males seam corners of each elytra with a small tubercle in *B. exigua*, whereas *B. kraatzii* has black head and last abdominal tergites, brown pronotum, light elytra and two anterior visible abdominal tergites; he also indicated that *B. kraatzii* differs from *B. exigua* by the colourations of elytra and two anterior abdominal tergites, wider body, the elytra with a less clearly defined punctuation and more mild punctuation of abdominal tergites. However, study of all available specimens of *B. exigua* and their comparison with the holotype of *B. kraatzii*, shows that they are clearly conspecific, identical both in external characters and in the shape and structure of the spermathecae. I therefore synonymize *B. kraatzii* with *B. exigua*.

Bionomics. The species inhabit the xerophytic steppe areas on the edges of forests, forest litter, mosses, and fungi in decaying organic residues of plant origin. The beetles are active from July to November, sometimes seen in winter during a thaw. Rare in all parts of its distribution area.

Distribution. Europe: Austria, Belgium, Bosnia and Herzegovina, Britain, Germany, Hungary, Spain, Italy, Netherlands, Poland, Russia (central area), Romania, Slovakia, Slovenia, Ukraine, France, Croatia, Czech Republic, Switzerland (Smetana, 2004; Tsurikov, 2009). In Ukraine, is known from the Crimea (Shilov, 1977), Volyn (Jakobson, 1909–1910), Donetsk (Glotov, Savchenko, in press), Carpathians (Roubal, 1930; Bogdanov, 1985; Mateleshko, 2007), Kiev (Jakobson, 1909–1910) and Sumy (Petrenko, 1974; 2009) Regions.

Genus *Encephalus* Stephens, 1832

11 species in the Palearctics (Smetana, 2004).

***E. complicans* Stephens, 1832**

Material examined. **Chernihiv Region:** Bobrovitskiy District, Baranitsa Village, 4.04.2009, 2 ex. (A. Gontarenko) (CGo).

Description. Body length 1.8–2.5 mm. Body black, elytra and posterior margins of abdominal tergites often red-brown; antenna, palp and legs dark brown. Body almost bare with very sparse, short hairs, and even distinct reticulate microsculpture. Head transverse, greatest width at the centre, gradually narrowed behind the eyes, with regularly thin small punctation. Eyes moderately large, convex, at length slightly shorter than temples. Antenna short, notably thickened to the top, I segment clearly thicker and longer, II–III much thinner and shorter, II–IV round, much smaller the following, V–X transverse, each successive segment slightly bigger and wider than previous one, XI short, round, slightly tapered toward the top. Pronotum transverse, more than 2.5 times as wide as long, convex, flattened at the base, anterior corners acute-angled and lowered down, posterior corners slightly rounded. Scutellum very wide and short. Elytra short and broad, width equal to or slightly wider than pronotum, along seam shorter than the width at the back edge. Abdomen short and broad, with strongly curved lateral edges, posterior part of abdomen gently tapered, weakly or hardly sharpened. Male: posterior edge of tergite 8 with two long, thin, sharp, straight, slightly curved inward spines on each side; with 2 short acute teeth at the centre.

Bionomics. The species inhabits forest litter and decaying plant debris, mosses and fungi. In Ukraine, it was found in the nests of the wood mouse (*Sylvaemus uralensis*) (Medvedev, Skljjar, 1974). Rare in all parts of the area.

Distribution. Europe: Austria, Belgium, Britain, Germany, Hungary, Denmark, Ireland, Italy, Latvia, Luxembourg, Netherlands, Norway, Poland, Russia: Northern Territory, Romania, Slovakia, Ukraine, Finland, France, Czech Republic, Switzerland, Sweden (Horion, 1967; Smetana, 2004). In Ukraine, known from Donetsk (Medvedev, Skljjar, 1974) and Ivano-Frankivsk (Roubal, 1930) Regions.

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Ashe J. S. Generic revision of the subtribe Gyrophaenina (Coleoptera: Staphylinidae: Aleocharinae) with a review of the described subgenera and major features of evolution // *Quaestiones Entomologicae*. — 1984. — **20**, N 3. — P. 129–349.

Benick L. Pilzkäfer und Käferpilze: Ökologische und statistische Untersuchungen // *Acta Zoologica Fennica*. — 1952. — **70**. — S. 1–250.

Bogdanov Yu. A. Fauna i ekologiya stafilinid Zakarpatja : Avtoreferat diss. ... kand. biol. nauk. — Kyiv, 1985. — 23 p. — Russian : *Богданов Ю. А.* Фауна и экология стафилинид Закарпаття.

Gamarrá P. *Encephalus complicans* Kirby, género y especie nuevos para la Península Ibérica. — *Eos*, 1986. — P. 91–94.

Ganglbauer L. Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des französischen und italienischen Alpengebietes. 2. Familienreihe Staphylinidea. Theil I. Staphylinidae, Pselaphidae. — Wien : Carl Gerold's Sohn, 1895. — 881 S.

Glotov S. V., Savchenko K. Yu. Staphylinidae (Coleoptera, Staphylinidae) of the reserve “Kamennye Mogily” // *Izvestija kharkovskogo entomologicheskogo obshchestva*. — in press. — Russian : *Глотов С. В., Савченко Е. Ю.* Стафилиниды (Coleoptera, Staphylinidae) заповедника «Каменные Могилы».

- Hochhuth J. H.* Enumeration der in den russischen Gouvernements Kiew und Volhynien bisher aufgefundenen Käfer // Bulletin de la Societe Imperiale des Naturalistes de Moscou. — 1872. — **44**, N 3–4. — S. 85–177.
- Horion A.* Faunistik der mitteleuropäischen Käfer. Staphylinidae. 3. Habrocerinae bis Aleocharinae (ohne Athetae). — Überlingen-Bodensee : P. C. W. Schmidt, 1967. — **11**. — 419 S.
- Jakobson G. G.* 35 tribe Aleocharina // Beetles of Russia and Western Europe. — St. Petersburg : A. F. Devrien, 1909–1910. — [Pt. 7–8.] — P. 556–569. — Russian : *Якобсон Г. Г.* 35 триба Aleocharina // Жуки России и Западной Европы.
- Johansen J. P.* Danmarks rovbiller eller Billefam. Staphylinidae's danske Slaegter og Arter. — København : Bianco Lunos Bogtrykkeri. — 1914. — 660 p.
- Lohse G. A.* Gattung Gyrophaena Mannh. 130 / Eds *H. Freude, K. W. Harde, G. A. Lohse* // Die Käfer Mitteleuropas. — Krefeld : Goecke et Evers Verlag, 1974. — Bd 5. — S. 27–33.
- Mateleshko A. Yu.* Faunistic records of the Staphylinidae (Coleoptera) from Transcarpathia // Naukovyy visnik Uzhorodskogo universitetu. Ser. Biologiya. — 2007. — **17**. — P. 127–130. — Ukrainian : *Матешко А. Ю.* Фауністичні знахідки стафілінід (Coleoptera, Staphylinidae) із Закарпаття.
- Medvedev S. I., Skljár V. E.* Beetles (Coleoptera) from nests of small mammals of the Donezk Region // Entomologicheskoe obozrenie. — 1974. — **53**, N 3. — P. 561–571. — Russian : *Медведев С. И., Скляр В. Е.* Жуки (Coleoptera) из гнезд мелких млекопитающих Донецкой области.
- Newton A. F., Chacyn C. G., Chandler D. S.* Checklist of the Staphylinidae (Coleoptera) of Colombia // Biota Colombiana. — 2005. — **6**, N 1. — P. 1–72.
- Palm T.* Skallbaggar. Coleoptera. Kortvingar: fam Staphylinidae. Underfam. Aleocharinae (Deinopsis-Trichomicra). 5 // Svensk Insektfauna. — 1968. — **51**. — P. 1–112.
- Petrenko A. A.* The rove beetles or staphylinids (Coleoptera, Staphylinidae) of the Middle Dnieper Territory (ecological and faunistic characterization : Avtoreferat diss. ... kand. biol. nauk. — Kiev, 1974. — 25 p. — Russian : *Петренко А. А.* Коротконадкрылые жуки, или стафилиниды (Coleoptera, Staphylinidae) Среднего Приднепровья (эколого-фаунистическая характеристика).
- Petrenko A. A.* Staphylinidae of the «Mikhajlivska Tsilyna»: Ecologo-faunistic review // Vestnik zoologii. Supplement N 22. — 2009. — P. 56–65. — Ukrainian : *Петренко А. А.* Стафіліни (Coleoptera, Staphylinidae) «Михайлівської цілини»: еколого-фауністичний огляд.
- Roubal J.* Katalog Coleopter (brouků) Slovenska a Podkarpatska. — Praha, 1930. — Т. 1. — 527 s.
- Seevers, C. H.* A revision of the North American and European staphylinid beetles of the subtribe Gyrophaenae (Aleocharinae, Bolitocharini) // Fieldiana : Zoology. — 1951. — **32**, N 10. — P. 657–762.
- Shilov V. F.* The staphylinid-beetles of genera *Brachida* Muls. et Rey и *Encephalus* Westw. (Coleoptera, Staphylinidae, Aleocharinae) from the European part of the USSR / Novyye i maloizvestnyye vidy-nasekomykh v evropeyskoy chasti SSSR. — Leningrad. — 1977. — P. 17–18. — Russian : *Шилов В. Ф.* Жуки-стафилиниды родов *Brachida* Muls. et Rey и *Encephalus* Westw. (Coleoptera, Staphylinidae, Aleocharinae) в Европейской части СССР // Новые и малоизвестные виды насекомых европейской части СССР.
- Smetana A.* Subtribe Gyrophaenina Kraatz, 1856 // Löbl I., Smetana A. Catalogue of Palearctic Coleoptera. Vol. 2. — Stenstrup : Apollo Books, 2004. — S. 441–447.
- Tsurikov M. N.* The beetles of Lipetsk oblast. — Voronezh : Izdatel'sko-poligraficheskij centr Voronezhskogo gosudarstvennogo universiteta. — 2009. — 332 p. — Russian : *Цуриков М. Н.* Жуки Липецкой области.
- Wüsthoff W.* Beitrag zur Kenntnis der europäischen Arten der Gattung Gyrophaena // Decheniana (Bonn). — 1937. — **95**. — S. 137–146.