

**Fig. 1.** Map of South Asia, illustrating localities for *Stenolophus (Egadroma) ovatulus* (a), *S. (E.) melniki* **sp. nov.** (b), and *S. (E.) ovchinnikovi* **sp. nov.** (c).



Figs 2–4. *Stenolophus* (subgenus *Egadroma*), general appearance: 2, *S*. (*E*.) *ovatulus* (Vietnam); 3, *S*. (*E*.) *melniki* **sp. nov.** (holotype); 4, *S*. (*E*.) *ovchinnikovi* **sp. nov.** (holotype).

Two new species of the subgenus *Egadroma* (genus *Stenolophus*) from South Asia, with redescription of *Stenolophus* (*Egadroma*) *ovatulus* (Bates, 1889) (Coleoptera: Carabidae)

Два новых вида подрода *Egadroma* (genus *Stenolophus*) из Южной Азии и переописание *Stenolophus* (*Egadroma*) *ovatulus* (Bates, 1889) (Coleoptera: Carabidae)

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Two new species of the subgenus *Egadroma* Motschulsky, 1855 of the genus *Stenolophus* Dejean, 1821 are described: *S. (Egadroma) melniki* **sp. nov.** from Thailand and *S. (Egadroma) ovchinnikovi* **sp. nov.** from Pakistan and India. *Stenolophus* (*E.*) *ovatulus* (Bates, 1889), **comb. nov.**, which was originally described within *Acupalpus* Latreille, 1829, is redescribed on the basis of material from China (Hainan and Fujiang provinces), Vietnam, Thailand, and Cambodia (first records from Thailand and Cambodia). The following new synonym is proposed: *Stenolophus* (*E.*) *ovatulus* (Bates, 1889) = *Egadroma fukiensis* Jedlička, 1953, **syn. nov.** 

Описаны два новых вида подрода *Egadroma* Motschulsky, 1855 рода *Stenolophus* Dejean, 1821: *S. (Egadroma) melniki* **sp. nov.** из Таиланда и *S. (E.) ovchinnikovi* **sp. nov.** из Пакистана и Индии. *Stenolophus (E.) ovatulus* (Bates, 1889), **comb. nov.**, первоначально описанный в роде *Acupalpus* Latreille, 1829, переописан на основании материала из Китая (Хайнань, Фуцзянь), Вьетнама, Таиланда и Камбоджи (для Таиланда и Камбоджи этот вид указывается впервые). Установлена следующая синонимия: *Stenolophus (E.) ovatulus* (Bates, 1889) = *Egadroma fukiensis* Jedlička, 1953, **syn. nov.** 

Key words: ground beetles, taxonomy, Cambodia, China, India, Pakistan, Thailand, Vietnam, new records, Coleoptera, Carabidae, Harpalini, *Stenolophus, Egadroma*, new synonymy, new species

**Ключевые слова**: жужелицы, таксономия, Вьетнам, Индия, Камбоджа, Китай, Пакистан, Таиланд, новые указания, Coleoptera, Carabidae, Harpalini, *Stenolophus, Egadroma*, новая синонимия, новые виды

#### **INTRODUCTION**

*Egadroma* Motschulsky, 1855 is a rather diverse taxon of small harpalines treated by most of the recent authors as a subgenus of the genus *Stenolophus* Dejean, 1821, though some consider *Egadroma* as a separate genus as originally described. The subgenus includes more than a hundred species (Lorenz, 2005; Facchini, 2012) predominantly distributed in the tropical areas of the Eastern Hemisphere, with most species (76) located in the Afrotropical Region (Facchini, 2012) and about 30 species known from southern Palaearctic, the Oriental Region, and Australia. Taxonomy and distribution of many species, particularly from the Oriental Region, are poorly known, a revision is needed. The present paper deals with the taxonomy of three species from South Asia (Fig. 1), somewhat similar to each other in general appearance, two of which, one from Pakistan and India and the other from Thailand, are described as new.

#### MATERIAL AND METHODS

The following abbreviations are used for the depositories of the specimens examined: IOZ, Institute of Zoology, Chinese Academy of Sciences, Beijing, China; ISEN, Institute of Systematics and Ecology of Animals, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia; MNHN, Muséum National d'Histoire Naturelle, Paris, France; NME, Naturkundemuseum Erfurt, Germany; NMP, National Museum Prague, Czech Republic; SIEE, reference collection of D.N. Fedorenko at A.N. Severtsov Institute of Ecology and Evolution. Russian Academy of Sciences, Moscow, Russia; ZIN, Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia; cDST, collection of A. Dostal, Vienna, Austria; cIKAB, collection of I.I. Kabak (St Petersburg); cKM, collection of R. Kmeco, Litovel, Czech Republic; cPCH, collection of A.V. Puchkov, Kiev, Ukraine; cWR, collection of D.W. Wrase, Berlin, Germany,

Measurements were taken as follows: body length, measured from the anterior margin of the clypeus to the elvtral apex; width of head, measured as the maximum linear distance across the head including the compound eyes (HWmax), and as the minimum linear distance across the neck constriction just behind the eves (HWmin); length of pronotum (PL), measured along its median line; length of elvtra (EL), measured from the basal border at scutellum to the apex of the sutural angle; maximum width of pronotum (PW) and of elytra (EW), both measured at their broadest point; length and width of metepisterna, measured along their inner and anterior margins, respectively.

### TAXONOMY

#### Order **COLEOPTERA**

### Family CARABIDAE

Tribe HARPALINI

Genus Stenolophus Dejean, 1821

Subgenus Egadroma Motschulsky, 1855

Stenolophus (Egadroma) ovatulus (Bates, 1889), comb. nov.

(Figs 2, 5, 6, 11, 12)

Acupalpus ovatulus Bates, 1889: 273. Type locality: "Saigon", Vietnam.

*Egadroma fukiensis* Jedlička, 1953: 142, **syn. nov.** Type locality: "Fukien [= Fujiang]: Shaowu", China.

*Type material.* Lectotype of *Acupalpus ovatulus* (present designation): male, labelled "Saigon", "*Acupalpus ovatulus* Bates" (MNHN). Paralectotypes: 1 male, labelled as lectotype (MNHN); 1 female, labelled "Saigon" (MNHN).

Paratypes of *Egadroma fukiensis*: 2 females, labelled "Fukien, Shaowu, Chine, 1937, Klapperich", "Cotype", "*Egadroma fukiensis* sp. n., det. Ing. Jedlička" (NMP).

Additional material. China. Hainan: 1 male, Tunchang, 11 June 1957, collector unknown (IOZ); many specimens (males and females), Hainan, March - Apr. 1980 (IOZ); 3 males, 1 female, Changjiang County, Bawang street, light trap, 19.11104°N, 109.08168°E, 145 m, 12 May 2007, night, H.B. Liang leg. (IOZ); 1 male, 1 female, Ledong, Jianfeng township, light trap, 18.69824°N, 108.78957°E, 70 m, 6 May 2007, night, H.B. Liang leg. (IOZ); 1 male, Ledong, Jianfengling township, on ground, 18.69804°N, 108.79277°E, 13 m, 19 March 2007, day, H.L. Shi & F. Yuan leg. (IOZ); 6 males, 9 females, Changiang, Shilu, reservoir, light trap, 19.25192°N, 109.08924°E, 132 m, 14 May 2007, H.B. Liang leg. (IOZ); 2 females, Danzhou, SC Tropical Agricaltural University, light trap, 19.50903°N, 109.51508°E, 140 m, 15 May 2007, H.B. Liang leg. (IOZ). Vietnam. Ho Chi Minh: 1 male, "Ba-Chieu, Pres de Saigon, A. Pavie, 1996" (MNHN); Quang Ninh: 1 male, Fong Wong Is., 24-25 March 1987, V. Janushev leg. (ZIN); Dongnai: 1 female, N Dongnai Prov., Nam Cat Tien Nature Park, at light HOL450, 11 June 2005, D. Fedorenko leg. "Exped. Russ.-Vietnamese Tropical Centre" (SIEE); Ba Ria - Vung Tau: 5 males, 6 females,

Binh Chau-Phuoc Buu Nature Reserve, ca 50 m, 10°32'N, 107°29'E, June 2007, A.V. Abramov leg. "Exped. Russ.-Vietnamese Tropical Centre" (ZIN). Thailand. Uthai Thani: 3 males, 6 females, 25 km NW Lan Sak, 110 m, Oct. 1989, W. Thielen leg. (cWR, ZIN); many specimens (males and females). 25 km NW Lan Sak. 65 km NW Uthai Thani, June 1990, W. Thielen leg. (NME, ZIN); Ta Phraua Prov.: 1 female, La Lu Nature Park. 122 m, 14°02'31''N, 102°34'4.6''E, at light, 15 May 2010, V. Zinchenko leg. (ISEN); 2 females, same data as preceding but 127 m, 14°02'32''N, 102°34′32′′E, 16 May 2010 (ISEN, ZIN). Cambodia. Battambang: 1 female, "Siam, Battambang, A. Pavie, 1886" (MNHN); Koh Khong: 1 female, 20 km SE of Koh Kong, Talai River, 11°34'N, 103°07'E, 50-300 m, 17 Oct.-15 Nov. 2011, Z. Linek leg. (cDST); 1 male, Cardamom Mts., Trapeang Rung, 5 m, 28 Jan.-4 Febr. 2010, S. Murzin leg. (cWR).

*Redescription*. Body wide, flattened (Fig. 2). Length 3.6–4.2 mm, width 1.7–2.0 mm.

Dark brown to almost black (in most specimens head slightly darker than pronotum and elytra), upperside moderately shining, not iridescent; pronotal margins along lateral furrows (in few specimens more widely) lighter, elytral interval 1 in apical half, elytral epipleurae in apical half, palpi, two basal antennomeres, and base of antennomere 3 brownish yellow; antennomeres 3–11 rather distinctly infuscate, dark brown or brown; legs brown or brownish yellow, femora usually more or less infuscate.

Microsculpture on head and pronotum fine, consisting of a mixture of isodiametric and slightly transverse meshes, on elytra meshes larger and more distinct, slightly transverse.

Head medium-sized (in male, HWmax/ PW = 0.67–0.69, HWmin/PW = 0.52– 0.54; in female, these indices 0.66–0.67 and 0.52–0.54), with large, hemispherical eyes (HWmax/HWmin = 1.29–1.30 in male and 1.25–1.28 in female); the latter ventrally almost reaching buccal fissure. Tempora short, slightly convex, abruptly descending to neck. Labrum almost straight anteriorly. Fronto-clypeal suture distinct, superficial. Frontal foveae small; clypeo-ocular lines reaching eyes, slightly deepened at clypeus. Left mandible acute at apex. Antennae densely pubescent from antennomere 3, comparatively short, surpassing pronotal basal edge by approximately one apical antennomere (in female slightly shorter than in male); antennomeres 5–7 about 0.5–0.9 times as long as wide.

Pronotum moderately convex, depressed basally, wide (PW/PL = 1.49 -1.59), nearly equally narrowed apicad and basad, widest at middle, rather evenly rounded at sides, each with a lateral setigerous pore approximately in apical quarter. Lateral furrows narrow (slightly narrower than antennomere 2 basally), not widened basad, disappearing at basal angles; apical and basal angles widely rounded. Apical margin very shallowly concave, bordered only laterally; basal margin straight or slightly emarginate medially, occasionally widely rounded, not bordered. Areas at basal angles distinctly depressed, usually fused with the very wide and very shallow basal foveae; area between basal foveae somewhat convex. Surface rather coarsely punctate along base, with finer punctures in median portion; impunctate in remaining portions. Basal edge glabrous.

Elytra moderately convex, slightly flattened medially, rather wide (EL/EW =1.36–1.45, EL/PL = 2.54–2.71, EW/PW = 1.19-1.27), widest at middle, very widely rounded at sides. Humeri prominent, rounded at apices. Subapical sinuations distinct but shallow, sutural angles slightly less than 90°, blunted at tips. Basal border slightly sinuate, forming a very obtuse, almost indistinct angle with lateral margin. Striae impunctate, almost superficial basally and slightly deepened apically; intervals largely flat, moderately convex before apex; all intervals apically approximately equal in width. Parascutellar striole long, with a basal setigerous pore. Interval 3 with one discal setigerous pore in apical fifth. Marginal elytral series consisting of 5 + 1 + 4 + 2 + 2setigerous pores.

Ventral surface glabrous, last abdominal sternite in both sexes rounded at apex, with two pairs of setigerous pores and with few very short and fine setae along apical margin.

Protibia in both sexes with three preapical spines on outer margin. Apical spurs of pro-, meso- and metatibia slender, finely and densely denticulate at margins (apical spur denticulate only in basal half). Metatarsus shorter than HWmax and longer than HWmin, with rather long and slender tarsomere 1 (as in Fig. 19). Tarsomere 5 with one pair of lateroventral setae. Pro- and mesotarsi in male weakly enlarged (as in Figs 17, 18); mesotarsomere 1 without adhesive vestiture ventrally.

Female genitalia (Figs 11, 12). Basal stylomere narrow, apical stylomere slender, moderately arcuate, with one very short and fine spine at external margin.

Median lobe of aedeagus (Figs 5, 6) arcuate in lateral aspect, with apical portion curved dorsad and with tip bent ventrad; sides rounded; terminal lamella in dorsal aspect slightly longer than wide, triangular, narrowly rounded at tip, with sides roundly converging. Internal sac with two large and short spines in basal and median portion.

Comparison. Stenolophus (Egadroma) ovatulus is recognised from the other immaculate Oriental species of Egadroma by having a wide pronotum and elytra and a distinct microsculpture on head, pronotum and elytra. In colouration and in presence of microsculpture on dorsum, this species somewhat reminds S. (E.) satoi Habu, 1973 described from the Ryukyu Islands, Japan, but is distinctly distinguished from the latter by the smaller body size (5.0–5.8 mm in S. satoi), the much wider body and the aedeagal median lobe with wider terminal lamella and with two spines in the internal sac (S. satoi has three spines).

*Distribution.* Southern China (Hainan and Fujiang provinces), Vietnam, Thailand, and Cambodia (Fig. 1a). First records from Thailand and Cambodia.

*Remarks*. This species has originally been described within the genus *Acupalpus* Latreille, 1829 based on the males from Saigon (Bates, 1889). Andrewes (1921) after examination of the type specimens noted that this taxon is not a representative of Acupalpus or Stenolophus, because "the hind tarsi have a shallow grove on the outer side. ... the fourth tarsal [segment] is only slightly emarginate, and the apex of the prosternal process is glabrous". According to Andrewes (l. c.), the species may be a member of a new genus, but "without more substantial characters" he preferred to leave the species provisionally within Acupalpus. In modern catalogues (for example, Lorenz, 2005) this species is also cited as a member of Acupalpus. Re-examination of the two male syntypes of Acupalpus ovatulus, one of which is designated here as a lectotype (see Type material), revealed that this species belongs to Egadroma and is conspecific with S. (Egadroma) fukiensis described by Jedlička (1953) from "Fukien: Shaowu". China. This species possesses all the distinctive features of Egadroma listed by Habu (1973) including the setae on the apex of the prosternal process (which can have broken off in some specimens). Thus we treat S. (Egadroma) fukiensis as a junior synonym of S. (Egadroma) ovatulus, comb. nov.

# *Stenolophus (Egadroma) melniki* sp. nov. (Figs 3, 7, 8, 13, 14, 17–19)

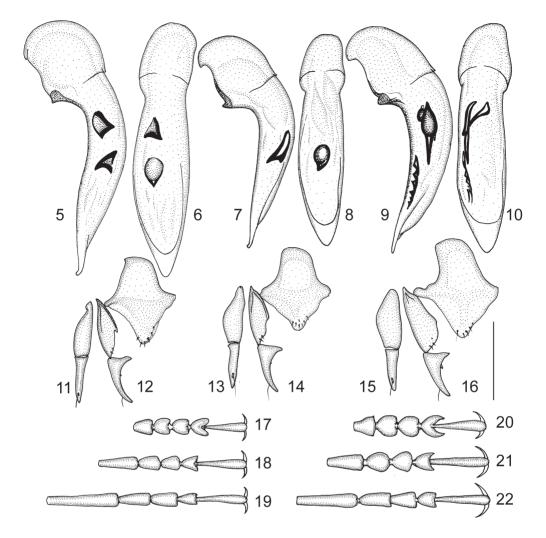
*Holotype*. Male, "N Thailand: Mae Hong Son Prov., env. Pai, 575–617 m, road on Mae Yen waterfall, 19°21′42′′N, 98°27′46′′E – 19°32′01′′N, 98°30′29′′E, 27.IV–9.V.2013, I. Melnik leg." (ZIN).

*Paratypes.* 9 males, 4 females, same data as holotype (ZIN, cIKAB, cWR); 1 male, "NW Thailand V-92 MAE HONG SON, HUAI SUA TAO leg. Strnad" (cWR).

*Description.* Body length 3.9–4.5 mm, width 1.2–1.9 mm (in holotype, 4.1 and 1.8 mm, respectively).

Morphological characters as described for *S*. (*E*.) *ovatulus* except as follows:

Body more slender (Fig. 3). Legs more or less unicolourous, femora not infuscate. Pronotum slightly narrower, widest in or just before middle, narrowed basad usu-



**Figs 5–22.** *Stenolophus* (subgenus *Egadroma*): **5, 6, 11, 12,** *S.* (*E.*) *ovatulus* (Thailand); **7, 8, 13, 14, 17–19**, *S.* (*E.*) *melniki* **sp. nov.** (7, 8, 17–19, holotype; 13, 14, paratype); **9, 10, 15, 16, 20–22**, *S.* (*E.*) *ovchinnikovi* **sp. nov.** (9, 10, 20–22, holotype; 15, 16, paratype). 5–10, median lobe of aedeagus; 11, 13, 15, stylus; 12, 14, 16, stylus and laterotergite; 17, 20, male protarsus; 18, 21, male mesotarsus; 19, 22, male metatarsus. Lateral view (5, 7, 9, 11, 13, 15), dorsal view (6, 8, 10, 17–22), ventral view (12, 14, 16). Scale bar: 0.5 mm.

ally more markedly than in *S*. (*E*.) *ovatulus*; disc less distinctly depressed basally, with slightly deeper and more distinctly delimited basal foveae; basal punctation slightly finer and sparser; lateral furrows prolonged to basal margin up to inner margins of basal foveae. Elytra noticeably narrower and longer. Pro-, meso- and metatarsi (Figs 17–19) similar to those in *S*. (*E*.) *ovatulus*.

Female genitalia (Figs 13, 14).

Median lobe of aedeagus (Figs 7, 8) bent ventrad behind basal bulb, in lateral aspect rounded along dorsal margin and almost straight along middle portion of ventral margin, with apical portion slightly directed dorsad and with tip bent ventrad; terminal lamella in dorsal aspect triangular, slightly wider than in *S. (E.) ovatulus*, approximately as long as wide, narrowly rounded at tip, with sides evenly and roundly converging. Internal sac with one wide and short spine in middle portion of median lobe.

Proportions: HWmax/PW = 0.67-0.69in male and 0.66-0.68 in female; HWmin/ PW = 0.50-0.54 in male and 0.50-0.55 in female; HWmax/HWmin = 1.26-1.35 in male and 1.24-1.34 in female; PW/PL = 1.47-1.54; EL/EW = 1.41-1.46, EL/PL = 2.56-2.76, EW/PW = 1.21-1.26.

Comparison. Stenolophus (Egadroma) melniki **sp. nov.** is rather similar to S. (E.) ovatulus in general appearance and male genitalia, but distinctly differs from the latter species in the more slender body with longer elytra, the unicolourous pale legs, the lateral furrows of pronotum prolonged to basal margin and in the more robust median lobe of the aedeagus with only one spine in the internal sac. Other distinctive features of the new species are listed in the description.

*Etymology*. This new species is named after our friend and colleague, the entomologist Igor Melnik (Moscow), who collected the type series.

*Distribution.* Known only from two localities (environments of Pai and Huai Sua Tao, Mae Hong Son Province) in northwestern Thailand (Fig. 1b).

# Stenolophus (Egadroma) ovchinnikovi sp. nov.

(Figs 4, 9, 10, 15, 16, 20-22)

*Holotype*. Male, "Pakistan, Jammu and Kashmir: Islamabad, SW from Garni, 1500 m, 5–15. VII.2003, V. Gurko & S. Ovchinnikov leg." (ZIN).

Paratypes. Pakistan. 2 females, same data as holotype (ZIN); 1 male, "Pakistan, Islamabad, 10.VII.2003, S. Ovchinnikov leg." (ZIN); 1 male, 1 female, "PAKISTAN, Islamabad, The National Forest Park, 12.VII.2003, S. Ovchinnikov leg.", "ex coll. S.V. Ovchinnikov. Donation to ZIN" (ZIN); 1 male, "Pakistan, Suleiman mnts, Zhob vall., 1700 m, 08.05" (cPCH). India. Uttarakhand: 1 male, "N. INDIA, Himalaya, U. P., Dehra Dun, New Forest, 20–30.VI.1981, 700m, leg. C. Holzschuh", "collection Naturkunde-museum Erfurt" (NME); 1 female, "N. INDIA (Uttaranchal), ca 13 km NW Nainital, Khairna bridge, 900 m (river banks, light trap), 13.–17.VII.2003, Z. Kejval & M. Trýzna" (cWR); *Punjab*: 1 male, 5 females, "1 / Indien, Punjab, 308 m, Hoshiarpur, Rormazara, N 31°11′5.7′´E 76°12′58.0′´, 6–9.07.2004, leg. M. Uhler" (cDST, cWR); *Madhya Pradesh*: 1 male, "INDIA (Madhya Pradesh, ca 60 km SW of Indore, Mandu env, ca 500 m, 22°20′N / 75°26′E, W slope of table land, 22.–24.VI.2006, Z. Kejval" (cWR); *Goa*: 4 males, 5 females, "INDIA-GOA state, Pallolem env, 25.V.2006, O. Šafránek leg." (cKM; cWR; ZIN).

*Description.* Body length 3.6–4.5 mm, width 1.6–2.0 mm (in holotype, 4.2 and 1.8 mm, respectively).

Morphological characters as described for *S*. (*E*.) *ovatulus* except as follows:

Body more slender (Fig. 4). Antennae in most specimens paler, antennomeres 3–11 only slightly infuscate. Pronotum slightly narrower, widest slightly before middle, narrowed basad usually more markedly than in *S.* (*E.*) ovatulus; lateral furrows prolonged to basal margin up to inner margins of basal foveae. Elytra narrower and longer, with deeper striae and more convex intervals; interval 3 without discal setigerous pore. Metatarsus slightly shorter, about as wide as HWmin, with distinctly shorter tarsomere 1 (Fig. 22). Pro- and mesotarsi in male more strongly widened (Figs 20, 22).

Female genitalia (Figs 15, 16) with larger basal stylomere and slightly wider apical stylomere.

Median lobe of aedeagus (Figs 9, 10) more robust than in *S*. (*E*.) ovatulus, arcuate in lateral aspect, with almost straight apical portion slightly directed dorsad; terminal lamella in dorsal aspect triangular, approximately as long as wide, narrowly rounded at tip. Internal sac with two large, slender spines in middle portion of median lobe and with a row of medium-sized spines on left side in apical portion of median lobe.

Proportions: HWmax/PW = 0.67-0.71in male and 0.65-0.72 in female; HWmin/PW = 0.52-0.56 in male and 0.52-0.57 in female; HWmax/HWmin = 1.26-1.30 in male and 1.23–1.27 in female; PW/PL = 1.46–1.53; EL/EW = 1.38–1.54, EL/PL = 2.65–2.88, EW/PW = 1.20–1.33.

*Comparison*. In external characters, this new species is similar to the two preceding ones and in its general appearance it is particularly similar to S. (Egadroma) melniki sp. nov. Stenolophus (E.) ovchinnikovi sp. **nov.** is easily distinguished from both species by the deeper elytral striae, the absence of a discal setigerous pore on elvtral interval 3, the shorter metatarsomere 1 and by the more markedly widened pro- and mesotarsi in male. Additionally, S. (E.) ovchinnikovi **sp. nov.** is distinguished from *S*. (*E*.) *melniki* sp. nov. in having the femora infuscate as in S. (E.) ovatulus. The aedeagal median lobe of S. (E.) ovchinnikovi sp. nov. distinctly differs from that of S. (E.) ovatulus and S. (E.) melniki sp. nov. in having a straight (not bent ventrad at tip) terminal lamella and a different armature of the internal sac with two large, slender spines in middle portion of the median lobe and with a row of medium-sized spines on the left side in the apical portion of the median lobe. Additional differences of S. (E.) ovchinnikovi sp. **nov.** from S. (E.) ovatulus are listed in the description of the former.

*Etymology.* This new species is named after our friend and colleague, entomologist and arachnologist Sergey Ovchinnikov (1958–2007), who collected the holotype and some of the paratypes.

*Distribution.* Known from Pakistan and India (Uttarakhand, Punjab, Madhya Pradesh and Goa) (Fig. 21c).

#### ACKNOWLEDGEMENTS

We are very grateful to A.V. Abramov (St Petersburg), T. Deuve (Paris), A. Dostal (Vienna), R.Yu. Dudko (Novosibirsk), D.N. Fedorenko (Moscow), J. Hájek (Prague), M. Hartmann (Erfurt), I.I. Kabak (St Petersburg), R. Kmeco (Litovel), H.-B. Liang (Beijing), I.V. Melnik (Moscow) and A.V. Puchkov (Kiev) for providing material used in this study and to K.V. Makarov (Moscow) who took the photographs of general appearance. We appreciate very much the support of Jon Cooter (Oxford, England) for reading an early draft of the manuscript. The study was supported (for BK) by the Russian Foundation for Basic Research (project No. 13–04–01002a) and Ministry of Education and Science of the Russian Federation.

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Received October 20, 2013 / Accepted November 25, 2013