

**Aphodiinae (Coleoptera: Scarabaeidae) of the Goa,
Maharashtra and Rajasthan (India) with description of
Aphodius (Gilletianus) rajawatorum sp. nov.**

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Abstract. Altogether 29 species of aphodiine tribes Aphodiini (24 species) and Psammodiini (5 species) were recorded in the states of Goa, Maharashtra and Rajasthan (India) during a faunistic research in 2002–2005. Findings of *Aphodius (Pharaphodius) calo* Balthasar, 1971 and *A. (P.) redargutus* Balthasar, 1971 represent new country records for India. Species *A. (Megatelus) contractus* Klug, 1845 and *Pararhyssemus coluber* (Mayet, 1887) are new for the whole Indo-Pakistani subcontinent. *Aphodius (Gilletianus) rajawatorum* sp. nov. from Rajasthan is described and illustrated. The new species is close to *A. (G.) fukiensis* Balthasar, 1952, *A. (G.) segmentaroides* A. Schmidt, 1909 and *A. (G.) therondi* Balthasar, 1963 exhibiting distinctly narrow, almost parallel-sided protibia.

Key words. Coleoptera, Scarabaeoidea, Aphodiinae, Aphodiini, Psammodiini, taxonomy, new species, description, distribution, Goa, Maharashtra, Rajasthan, India, Oriental Region

Introduction

Only a very little attention has been paid to the distribution of aphodiine beetles in the Indian subcontinent. The relatively better-studied areas so far are that of the Himalaya (cf. e.g. AHRENS & STEBNICKA 1997; BALTHASAR 1964; BORDAT & DELLACASA 1996; DELLACASA & DELLACASA 2006a; STEBNICKA 1981, 1985, 1986, 1988, 1989, 1990, 1992). Studies dedicated to the distribution of this group in the states of the northwestern and western parts of India are still limited: Haryana: MITTAL (1981), Himachal Pradesh (MITTAL 2000, 2005), Uttarakhand (formerly Uttaranchal): MITTAL (1999, 2005). An annotated checklist of Aphodiinae summarizing all the distributional data available was published by CHANDRA (1999). Some additional data have been reported in taxonomic studies (cf. e.g. BALTHASAR 1964; MITTAL 1984, 1993b; PAULIAN 1945; SCHMIDT 1922) and ecological studies (cf. e.g. KAKKAR 2010; MITTAL 1986, 1993a; MITTAL & BHATI 1998; THAKARE et al. 2011).

During the years 2002 and 2003, a primatologic study concerning the Hanuman langoor (*Semnopithecus entellus* (Dufresne, 1797)) (Primates: Cercopithecidae) was carried out near Dausa in western Rajasthan, India, about 60 km NE by air of Jaipur. For this reason one of the authors (PŠ) spent several months in India; although he collected data on langoors, he and his friends also collected beetles and other insects. In 2004 and 2005 he visited the research site again, and collected some more material of dung beetles.

The study presents results of faunistic exploration of aphodiine beetles, conducted between 2002 and 2005 in the Indian states of Goa, Maharashtra and Rajasthan. Altogether 29 species were recorded (Aphodiini – 24 species, Psammodiini – 5 species). Of this number, findings of 15 species are first country records for the Goa, five species for the Maharashtra and 22 species for the Rajasthan state. Findings of two species, *Aphodius* (*Pharaphodius*) *calo* Balthasar, 1971 and *A. (P.) redargutus* Balthasar, 1971 represent first records from India. Two species, *A. (Megatelus) contractus* Klug, 1845 and *Pararhyssemus coluber* (Mayet, 1887), are new for the whole Indo-Pakistani subcontinent. Among the material we have found also a new *Aphodius* (*Gilletianus*) species described below.

Material and methods

Generic groups taxonomy of Aphodiini agrees with the monograph by DELLACASA et al. (2001) but the genera are treated as subgenera of *Aphodius* as is also understood in the Catalogue of Palaearctic Coleoptera (DELLACASA & DELLACASA 2006a). Nomenclature was adopted from DELLACASA & DELLACASA (2006a) for the tribe Aphodiini and from RAKOVIČ et al. (2006) for the tribe Psammodiini.

Specimens were examined with an Olympus SZ61 stereomicroscope; measurements were taken with an ocular grid. The habitus photographs were taken using a Canon MP-E 65mm/2.8 1–5× Macro on bellows attached to a Canon EOS 550D camera. Partially focused images of each specimen were combined using Zerene photo stacker software. Exact label data are cited for the type material, individual labels are separated by a double slash (/), individual lines of every label by a single slash (/). Authors' remarks and additional comments are found in square brackets.

All material is deposited in the collection of the National Museum Praha, Czech Republic (NMPC).

Localities visited

Brief characteristics and collecting circumstances are given here for each of the sites. Map of the localities is provided in Fig. 1. The locality data follow exactly the locality labels.

(1) Goa province, 30 km S of Margao (= Madgaon), Palolem env., 15°00.47'N 74°01.58'E, 0–20 m a.s.l., 14.–22.viii.2002, P. Šípek & M. Fikáček lgt.

The locality is situated on shore of the Indian ocean in the foothills of Western Ghats. The hills are covered with dense tropical semi-moist secondary forests and bamboo shrubs. Specimens were collected individually on wet longshore pastures in cow and buffalo

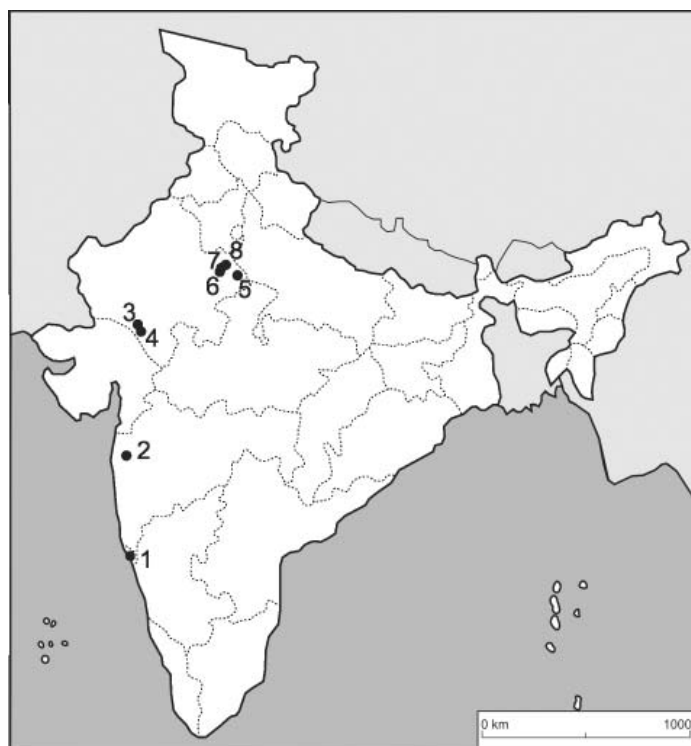


Fig. 1. Sketch map of India with marked localities visited (states of Goa, Maharashtra and Rajasthan).

dungpads near the village. The collections were carried out during the second half of the monsoon season.

(2) Maharashtra province, 120 km NE of Mumbai, Igatpuri env., 19°42.17'N 73°33.06'E, 600 m a.s.l., 1.–12.viii.2002, P. Šípek & M. Fikáček lgt.

Beetles were collected in cow and buffalo dungpads on pastures in the vicinity of the town. The pastures were intermixed with secondary shrub formations and planted forest stretches (mainly Mimosoideae formerly referred to the genus *Acacia*, *Eucalyptus* and fruit trees). The weather was fairly cold and wet during the investigations.

(3) Rajasthan province, 100 km W of Udaipur, Mt. Abu env., 24°35.35'N 72°42.72'E, 1150 m a.s.l., 24.–27.viii.2002, P. Šípek & M. Fikáček lgt.

The locality is situated on an altiplano in the Aravali mountain range at an altitude of ca 1100 m above sea level. The hills are covered with dense subtropical evergreen and semideciduous forests. Specimens were collected individually in cow and buffalo dungpads, during the end of monsoon season. The weather was wet and relatively cold, even though the monsoon almost failed in that year.

(4) Rajasthan province, 93 km W of Udaipur, Abu road env., 24°29'N 72°47'E, 263 m a.s.l., 28.viii.2002, P. Šípek lgt.

Specimens collected in cow and buffalo dungpads on a rocky hill behind the city. The whole area was covered with arid cultural semidesert.

(5) Rajasthan province, 50 km W of Agra, Bharatpur env., 27°12.35'N 77°30.35'E, 205 m a.s.l.

Specimens were collected in the vicinity of the Keoladeo National Park in cow and buffalo dungpads and also in dungheap of the blue bull (*Boselaphus tragocamelus* (Pallas, 1766)). Outside the park there was a cultural semidesert with scattered pastures and dry fields. The area of Keoladeo N.P. is covered with savanna and thorny forest (Mimosoideae formerly referred to the genus *Acacia*, *Prosopis*), intermixed with numerous swamps and seasonal ponds. However, the monsoon failure in 2002 caused almost all ponds and swamps in the park to dry out. The collections in 2004 were carried out at the beginning of hot season. Specimens were either collected individually in dung or at light.

Collecting events:

- a) 31.viii.–5.ix.2002, P. Šípek & M. Fikáček lgt.;
- b) 22.iii.2004, P. Šípek & L. Šejnohová lgt.

(6) Rajasthan province, 30 km N of Dausa, Gola-Ka-Bas env., 27°05.46'N 76°17.18'E, 380 m a.s.l.

The locality is situated at the foot of Aravalli hills, near the border of the Sariska tiger reserve. The whole area is covered with a cultural semidesert, with scattered thorny vegetation (mainly Mimosoideae formerly referred to the genus *Acacia* and *Prosopis*), intermixed with seasonal fields on irrigated patches of land. Beetles were collected individually in cow and buffalo dungpads, in compost and at light (gas cylinder, common and white fluorescent bulbs). Collections in 2002 were carried out during the end of monsoon and at the onset of cold season; however, the monsoon failed completely that year. In 2004 beetles were collected during the end of cold and at the onset of hot season.

Collecting events:

- a) 9.ix.–8.x.2002, P. Šípek lgt.;
- b) 9.–31.x.2002, P. Šípek lgt.;
- c) 1.xi.2002, P. Šípek lgt.;
- d) 19.xi.2002, P. Šípek lgt.;
- e) 25.–29.ii.2004, light trap + individual collecting, P. Šípek & L. Šejnohová lgt.;
- f) 29.ii.2004, P. Šípek & local collectors lgt.;
- g) 1.–23.iii.2004, local collectors – Rajawat family lgt.;
- h) 24.–26.iii.2004, P. Šípek & L. Šejnohová lgt.;
- i) 26.–30.iii.2004, P. Šípek & L. Šejnohová lgt.;
- j) 5.–9.ix.2005, P. Šípek lgt.;
- k) 10.ix.–13.x.2005, local collectors – Rajawat family lgt.;
- l) 13.x.–8.xi.2005, P. Šípek & local collectors lgt.;
- m) 30.x.–11.xi.2005, P. Šípek lgt.

(7) Rajasthan province, 35 km N of Dausa, Nararimata env., 27°08.22'N 76°20.39'E, 461 m a. s.l.

The basic characteristics of the locality are almost the same as for (6) Gola-Ka-Bas. Beetles were collected at light (gas cylinder) near a small stream and in a temple complex.

Collecting events:

- a) 10.ix.–15.x.2002, light trap, P. Šípek lgt.;
- b) 7.–8.xi.2002, P. Šípek lgt.

(8) Rajasthan province, 35 km N of Dausa, Khoh-Dariba env., 27°11'N 76°23'E, cca 500 m a. s.l., 30.ix.2002, light trap, P. Šípek lgt.

Rocky cultural semidesert with scattered thorny vegetation. Specimens were collected at lighth (gas cylinder). The whole area with similar conditions to the localities (6) Gola-Ka-Bas and (7) Nararimata.

Distribution and taxonomy

Comments to species recorded are presented in the survey below, for complete account of material collected in each locality see Table 1.

Tribe Aphodiini Leach, 1815

Aphodius (Aganocrossus) postpilosus Reitter, 1895

Distribution. Oriental species, widely distributed in China (type locality: Shanghai), recorded also from Japan, Laos, South Korea and Vietnam; from India so far reported only from Sikkim (BORDAT & DELLACASA 1996, DELLACASA & DELLACASA 2006a). First record for the states of Maharashtra and Rajasthan.

Aphodius (Aganocrossus) urostigma Harold, 1862

Distribution. Widespread Oriental species distributed from Afghanistan easternmost to China and Indonesia, also introduced to Australia (cf. e.g. AHRENS & STEBNICKA 1997; BALTHASAR 1964; BORDAT & DELLACASA 1996; DELLACASA & DELLACASA 2006a; PAULIAN 1945; SCHMIDT 1922; STEBNICKA 1986, 1988, 1989, 1990, 1992). In India known from Assam, Himachal Pradesh and Uttarakhand (MITTAL 1999, 2000, 2005; PETROVITZ 1968; STEBNICKA 1981). First records for the states of Goa, Maharashtra and Rajasthan.

Aphodius (Alocoderus) teyrovskyi Balthasar, 1935

Distribution. Himalayan species, recorded from Afghanistan, India (Darjeeling, Punjab, Sikkim), Nepal, Pakistan and Vietnam (AHRENS & STEBNICKA 1997; BALTHASAR 1964; DELLACASA & DELLACASA 2006a; STEBNICKA 1981, 1986, 1989, 1990). First record for the state of Rajasthan.

Table 1. Complete survey of material collected on each locality: **Goa**: 1 – Palolem, **Maharashtra**: 2 – Igatpuri; **Rajasthan**: 3 – Mt. Abu, 4 – Abu road, 5 – Bharatpur, 6 – Gola-Ka-Bas, 7 – Mararimata, 8 – Khoh-Dariba. For complete locality data see Localities visited.

locality No. / number of specimens collected	1	2	3	4	5a	5b	6a	6b	6c	6d	6e	6f	6g	6h	6i	6j	6k	6l	6m	7a	7b	8
<i>Aphodius (Aganocrossus) postpilosus</i>		3			5																	
<i>Aphodius (Aganocrossus) urostigma</i>	15	4								1						1						
<i>Aphodius (Alocoderus) teyrovskiyi</i>						5				1	6	1	8	1	1							
<i>Aphodius (Emadiellus) rifopustulatus</i>	1																					
<i>Aphodius (Gilletianus) costatulus</i>	40		6	2	17	1	20									2		12		1		
<i>Aphodius (Gilletianus) rajawatorum</i> sp. nov.					5																	
<i>Aphodius (Gilletianus) rangoonensis</i>	15	4																				
<i>Aphodius (Gilletianus) segmentaroides</i>					2																	
<i>Aphodius (Labarrus) hodbinhensis</i>	2	2	2	2	55	6	1	4	3	2	17	3	14					9	10			
<i>Aphodius (Loboparius) scheibei</i>					21				3	1								5	1			
<i>Aphodius (Megatelus) contractus</i>							1						2					7				
<i>Aphodius (Mesontoplatys) mungo</i>																				1		
<i>Aphodius (Mesontoplatys) parvulus</i>			2	3				1								2				7		
<i>Aphodius (Mesontoplatys) rifolaterus</i>	1					15														1		
<i>Aphodius (Neocalaphodius) moestus</i>	4	2	2	2	10	8	3	8	11	1	5	2								5		
<i>Aphodius (Paradidacrylia) avunculus</i>																				2		
<i>Aphodius (Paradidacrylia) carinulatus</i>	1					3																
<i>Aphodius (Paradidacrylia) ovalulus</i>					1																	
<i>Aphodius (Paradidacrylia) wichei</i>															1					2		
<i>Aphodius (Pharaphodius) calo</i>	7	7	32	8												34	6	5	2			
<i>Aphodius (Pharaphodius) cornutus</i>	3	1	27	2	2	2	2											1	1			
<i>Aphodius (Pharaphodius) redargutus</i>	9	1	1	1																		
<i>Aphodius (Trichaphodius) hindustanicus</i>	1	1																				
<i>Aphodius (Trichaphodius) moorei</i>																				4		
<i>Neotrichihyssemus expansicollis</i>	3																					
<i>Pararhyssemus coluber</i>						1																
<i>Rhyssemodes sindicus</i>	14	2	2		24	1	11	1				1	2		11		1		16	6	11	
<i>Rhyssemus indicus</i>	5														8					16	1	
<i>Rhyssemus inscitus</i>	2	5				3								2				21	1	8	4	

Aphodius (Emadiellus) rufopustulatus Wiedemann, 1823

Distribution. Widespread Oriental species known from Cambodia, Laos, Myanmar, Pakistan, Thailand and Vietnam (BALTHASAR 1964; DELLACASA & DELLACASA 2006; PAULIAN 1945; RAKOVIČ 1991; SCHMIDT 1922; STEBNICKA 1989, 1992). In India known from Punjab, Uttarakand and West Bengal (CHANDRA 1999; MITTAL 1999, 2005; STEBNICKA 1992). First record for the state of Goa.

Aphodius (Gilletianus) costatulus A. Schmidt, 1908

Distribution. Widespread Oriental species reaching westernmost Afghanistan and easternmost China and Indonesia (cf. e.g. BALTHASAR 1964; DELLACASA & DELLACASA 2006a; PAULIAN 1945; SCHMIDT 1922; STEBNICKA 1986, 1989, 1992). In India recorded from Andhra Pradesh: Kistna, and Tamil Nadu: Dindigul (CHANDRA 1999; STEBNICKA 1986, 1992). First records for the states of Goa and Rajasthan.

Aphodius (Gilletianus) rajawatorum sp. nov.

(Figs 1, 2A–D, 3B)

Type locality. NW India, Rajasthan province, 50 km W of Agra, Bharatpur env., 27°12.42'N 77°30.48'E, 220 m a. s. l. (Fig. 1).

Type material. HOLOTYPE and PARATYPES Nos 1–4 (all ♂♂), labelled: 'INDIA bor. occ. / RAJASTHAN province / 50 km W. of AGRA / Bharatpur env.: 220m // INDIA 2002 Expedition / 27°12.42'N 77°30.48'E; 31.VIII.–5. IX.2002 / P. Šípek & M. Fikáček lgt. [printed] // *Aphodius (Gilletianus) / rajawatorum* sp. nov., / HOLOTYPE [or] PARATYPE No. x ♂ / David Král & Petr Šípek det. 2011 [red label, printed]'.

Description. *Male* (holotype; left metatarsomeres 2–5 missing in the specimen). Total body length 3.3 mm. Body elongately oval, moderately convex, dorsal surface shining; colour brown, anterior and lateral parts of head, sides of pronotum, apical elytron declivity, and ventral surface lighter; subapical darker spots of elytron faintly marked (Figs 2A–B, 3B).

Head (Figs 2A–B, 3B) semicircular; clypeus almost semicircular, anterior margin only weakly sinuate, not considerably upturned, sides regularly round towards small, right-angled genae, distinctly exceeding large eyes; frontal suture slightly impressed; surface punctures double, fine, superficial, evenly distributed, large punctures about three times larger than small ones.

Pronotum (Figs 2A–B, 3B) more or less rectangular, sides regularly round, distinctly bordered, posterior angles obtuse, base without border, surface punctation double, coarse punctures relatively densely distributed, concentrated laterobasally.

Scutellar shield narrowly triangular, impunctate.

Elytra (Fig. 2A) suboval, slightly widened toward apex, minutely macrosetaceous apically, striae finely impressed and punctate, punctures separated by more than once their diameter, slightly crenate interval margins, intervals moderately convex in basal half, toward apex becoming completely flat, sutural interval almost flat in whole length, surface punctation superficial, fine and sparse.

Metaventral disc (Fig. 2B) shiny, flat, glabrous, with longitudinal line distinctly impressed.

Table 2. Character matrix distinguishing *Gilletianus* species close to *A. (G.) rajawatorum* sp. nov.

character in male / species	<i>A. (G.) fukiensis</i> Balthasar, 1952	<i>A. (G.) rajawatorum</i> sp. nov.	<i>A. (G.) segmentaroides</i> A. Schmidt, 1909	<i>A. (G.) therondi</i> Balthasar, 1963
clypeus outline	trapezoidal, anterior margin distinctly sinuate, considerably upturned, sides almost straight (Fig. 3A)	semicircular, anterior margin only weakly sinuate, not considerably upturned, sides round (Figs 2A, 3B)	trapezoidal, anterior margin very weakly sinuate, considerably upturned, sides almost straight (Fig. 3C)	trapezoidal, anterior margin very weakly sinuate, considerably upturned, sides almost straight (Fig. 3D)
clypeus surface punctation	simple (Fig. 3A)	double (Figs 2A, 3B)	simple (Fig. 3C)	double (Fig. 3D)
pronotum outline	sides round, posterior angle round (Fig. 3A)	sides round, posterior angle angular (Figs 2A, 3B)	sides almost parallel, posterior angle round (Fig. 3C)	sides in posterior third slightly sinuate, posterior angle angular (Fig. 3D)
pronotum surface punctation	double, coarse punctures relatively sparsely distributed, concentrated laterally (Fig. 3A)	double, coarse punctures relatively densely distributed, concentrated laterobasally (Fig. 3B)	double, coarse punctures relatively densely distributed, concentrated laterally (Fig. 3C)	double, coarse punctures relatively sparsely distributed on whole surface except for disc (Fig. 3D)
elytron surface	shining	shining	opaque	shining
elytron macrosetation	entirely glabrous	minutely macrosetaceous apically	distinctly macrosetaceous laterally and in apical half	entirely glabrous
shape and punctation of sutural elytron interval	almost flat, with very sparse minute punctures	moderately convex, impunctate	almost flat, with sparse minute punctures	almost flat, with very sparse minute punctures
shape of protibia	not narrowed basally (Fig. 3A)	narrowed basally (Fig. 3B)	not narrowed basally (Fig. 3C)	not narrowed basally (Fig. 3D)
shape and direction of terminal protibial spur	broadly lanceolate, bent strongly downward	simply thickened, not strongly bent downward	simply thickened, not strongly bent downward	broadly lanceolate, not strongly bent downward
known distribution	China: Fujian; Thailand	India: Rajasthan	India: Karnataka, Rajasthan, Uttarakhand; Laos; Myanmar; Thailand; Vietnam	N Vietnam

Legs. Femora shining, glabrous (Fig. 2B). Protibia considerably narrow, almost parallel, moreover narrowed in basal quarter, with three triangular teeth externally (Figs 2A–B, 3C), ventral edge unarmed, terminal spur simply thickened, not strongly bent downward. External carinae and terminal edge of meso- and metatibia fimbriate with macrosetae strongly unequal in length. Tarses long and thin; basimesotarsite hardly longer than exterior terminal spur of mesotibiae, basimetatarsite approximately one quarter longer than exterior terminal spur of metatibiae and equal in length to next three tarsites combined (Figs 2A–B). Claws feebly arcuate, almost as long as two preceding tarsites combined.

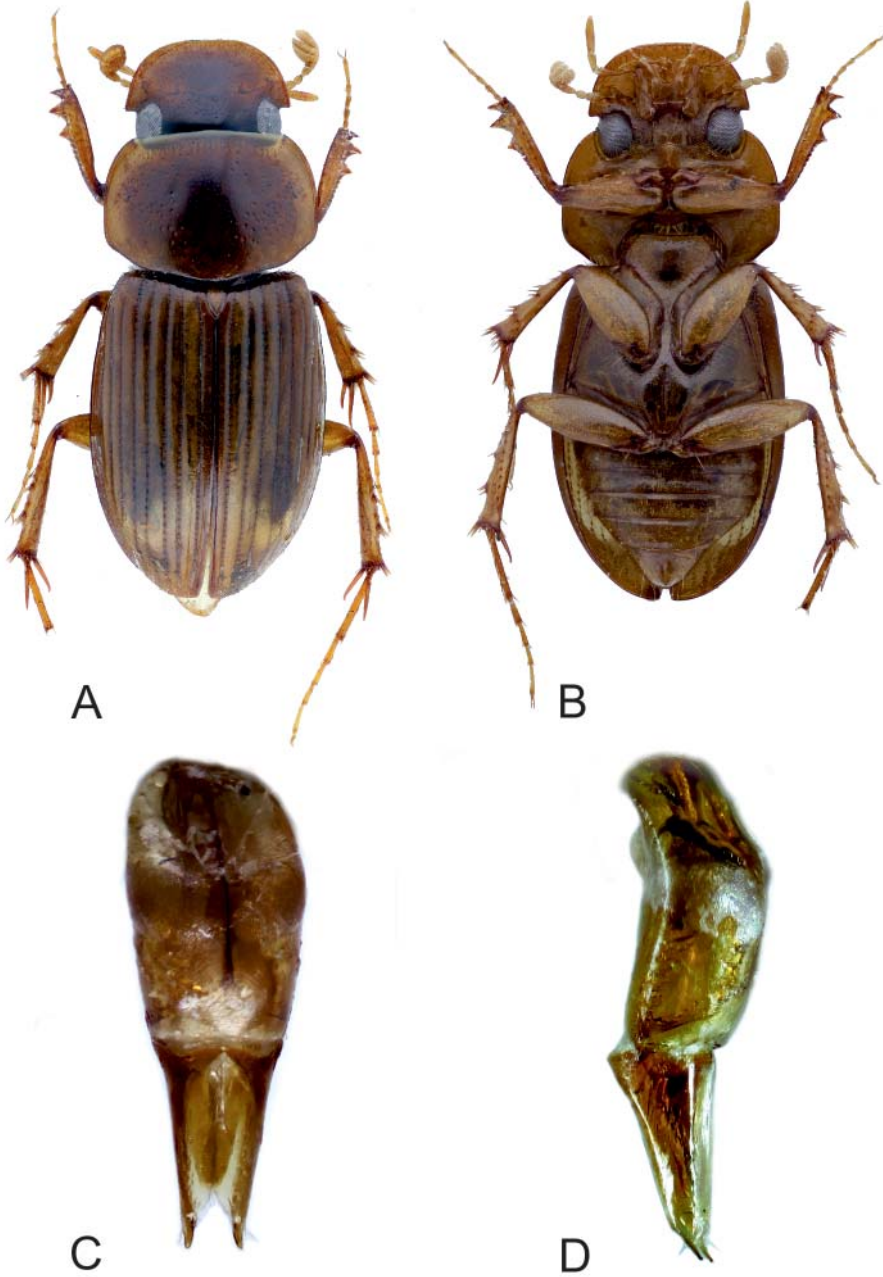


Fig. 2. *Aphodius (Gilletianus) rajawatorum* sp. nov., holotype, male. A – habitus in dorsal aspect; B – habitus in ventral aspect; C–D – aedeagus in dorsal (C) and left lateral (D) aspect.

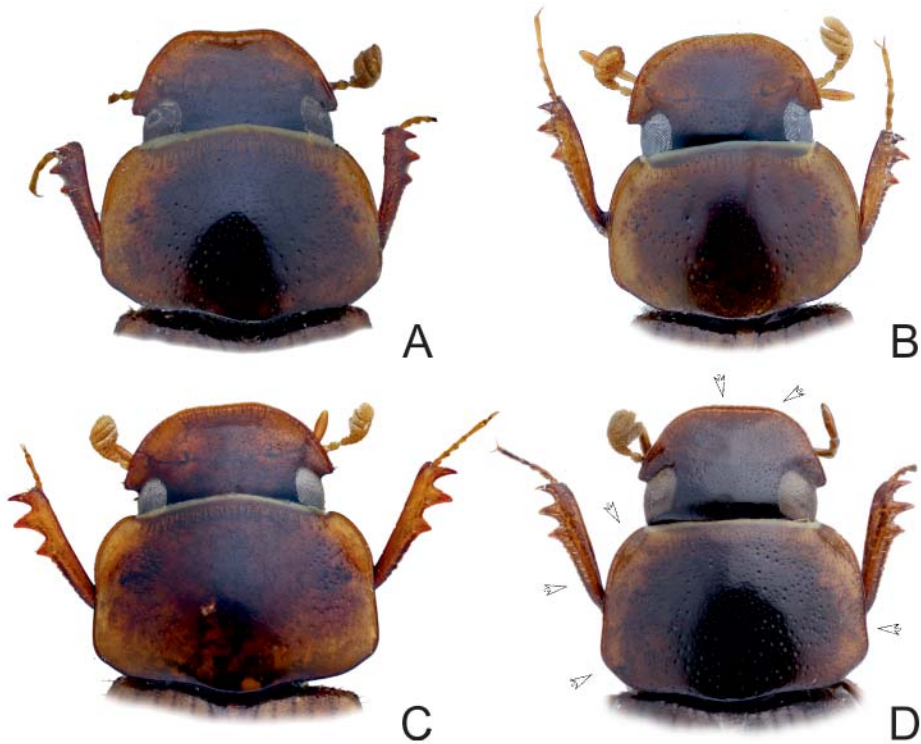


Fig. 3. Head, pronotum and protibia, ♂♂, dorsal aspect. A – *Aphodius (Gilletianus) fukiensis* Balthasar, 1952 (China, Fujian: Kuantun; syntype, NMPC), B – *A. (G.) rajawatorum* sp. nov. (holotype), C – *A. (G.) segmentaroides* A. Schmidt, 1909 (India, Rajasthan: 50 km W of Agra, Bharatpur, NMPC), D – *A. (G.) therondi* Balthasar, 1963 (Vietnam: Tonkin, Tam Dao, paratype, NMPC); arrows show diagnostic characters mentioned in the description of the new species and in Table 2.

Ventrites shining, impunctate, only with few long erect macrosetae (Fig. 2B).

Aedeagus (Figs 2C–D). Parameres simple, shorter than phallobasis, with tuft of long, fine macrosetae subapically, almost acute apically.

Female. Unknown.

Variability. Paratypes (Fig. 2B) vary only slightly in body length (3.2–3.3 mm).

Differential diagnosis. *Aphodius (G.) rajawatorum* sp. nov. is classified to the subgenus *Gilletianus* Balthasar, 1933, as the subgenus was diagnosed by BALTHASAR (1933), DELLACASA et al. (2001), DELLACASA & DELLACASA (2006b) and OCHI et al. (2010). Within this subgenus it is close to *A. (G.) fukiensis* Balthasar, 1952, *A. (G.) segmentaroides* A. Schmidt, 1909 and *A. (G.) therondi* Balthasar, 1963 in having distinctly narrow, almost parallel protibia, only very weakly widened in distal part (Figs 2–3). The remaining *Gilletianus* species known from the Oriental Region possess protibia more or less distinctly triangularly widened distad. These four species are distinguishable from each other by diagnostic characters given in Table 2.

Etymology. The new species is named in honour of the Rajawat family from Gola-Ka-Bas (India: Rajasthan) who not only hosted me (PŠ) in their house, but also became our second family far from our homes.

Collecting circumstances. Collected from cow dung pad. For brief characteristics of locality see the Localities visited section, localities No. 5a and 5b.

Distribution. India: Rajasthan (Fig. 1).

Aphodius (Gilletianus) rangoonensis Petrovitz, 1970

Distribution. Oriental species, so far known from Bhutan, India (Punjab), Myanmar, Nepal and Thailand (AHRENS & STEBNICKA 1997; DELLACASA & DELLACASA 2006a; PETROVITZ 1970; STEBNICKA 1986, 1989, 1992). First records for the states of Goa and Maharashtra.

Aphodius (Gilletianus) segmentaroides A. Schmidt, 1909

Distribution. Rarely collected Oriental species, described from Belgaum (India: Karnataka), further records are from India (Uttarakhand), Myanmar, Laos, Thailand and Vietnam (BALTHASAR 1964; CHANDRA 1999; PAULIAN 1945; SCHMIDT 1922; STEBNICKA 1981, 1992). First record for the state of Rajasthan.

Aphodius (Labarrus) hoabinhensis Balthasar, 1946

Distribution. Widely distributed throughout the Oriental Region, recorded from Bhutan, India (Tamil Nadu), Nepal, Philippines, Sri Lanka, Thailand and Vietnam (AHRENS & STEBNICKA 1997; BALTHASAR 1964; DELLACASA & DELLACASA 2006a; STEBNICKA 1981, 1986, 1988, 1989, 1990). First records for the states of Goa and Rajasthan.

Aphodius (Loboparius) scheibei Balthasar, 1955

Distribution. So far known from Afghanistan, across the Himalaya to Sikkim (AHRENS & STEBNICKA 1997; BALTHASAR 1964; DELLACASA 1983; DELLACASA & DELLACASA 2006a; STEBNICKA 1981, 1986, 1989). First record for the state of Rajasthan.

Aphodius (Megatelus) contractus Klug, 1845

Distribution. Probably a typical Saharo-Sindian zoogeographical element in Indian fauna. So far known from all the Maghreb countries, Chad and Ethiopia, south-eastern Mediterranean (Cyprus, Rhodes and Turkey) and Italy (Pantelleria Island), the Levantine region, to Afghanistan (ALFIERI 1976; BALTHASAR 1964; BARAUD 1985, 1992; CHIKATUNOV & PAVLIČEK 1997; DELLACASA 1986; DELLACASA & DELLACASA 2006a,c; SCHMIDT 1922). First record for the state of Rajasthan, India and the whole Indo-Pakistani subcontinent.

Aphodius (Mesontoplatys) mungo Balthasar, 1946

Distribution. Originally described from 'Madras' (= Tamil Nadu: Chennai) (BALTHASAR 1964, CHANDRA 1999, DELLACASA 1988). First record for the state of Rajasthan.

Aphodius (Mesontoplatys) parvulus Harold, 1871

Distribution. Widespread Afrotropical species reaching desert and semidesert regions of the Indian subcontinent in Pakistan (BALTHASAR 1964, BORDAT 1990, DELLACASA 1988, DELLACASA & DELLACASA 2006a, ENDRÓDI 1964) and northern India: Haryana, Himachal Pradesh and Uttarakhand (MITTAL 1981, 1999, 2000, 2005). First record for the state of Rajasthan.

Aphodius (Mesontoplatys) rufolaterus Motschulsky, 1863

Distribution. Distributed in the Indian subcontinent, hitherto known from Sri Lanka (type locality: Colombo), India: Uttarakhand and Tamil Nadu, and Pakistan (BALTHASAR 1964; DELLACASA 1988; DELLACASA & DELLACASA 2006a; MITTAL 1999, 2005; PITTINO 1984a; SCHMIDT 1922). First records for the states of Goa and Rajasthan.

Aphodius (Neocalaphodius) moestus Fabricius, 1801

Distribution. Widespread Afrotropical (including Madagascar, Mascarene Islands and Seychelles) species reaching the south of the Palaearctic Region (Afghanistan, Iraq and Turkey); from the Indian subcontinent known so far from Bhutan, India (Andaman Islands, Assam, Haryana, Himachal Pradesh, Punjab, Uttarakhand), Nepal, Pakistan and Sri Lanka (AHRENS & STEBNICKA 1997; BALTHASAR 1964; BORDAT 1990; CHANDRA 1999; DELLACASA & DELLACASA 2006a; DELLACASA & KIRGIZ 1990; ENDRÓDI 1964; MITTAL 1981, 1999, 2000, 2005; PAULIAN 1945; SCHMIDT 1922; STEBNICKA 1981, 1986, 1988, 1989, 1992). First record for the state of Rajasthan.

Aphodius (Paradidactylia) avunculus Balthasar, 1946

Distribution. Described from 'Madras' (Tamil Nadu: Chennai) (BALTHASAR 1964, CHANDRA 1999). First record for the state of Rajasthan.

Aphodius (Paradidactylia) carinulatus Motschulsky, 1863

Distribution. Described from 'India' (type locality), known also from Sri Lanka (BALTHASAR 1964, CHANDRA 1999, SCHMIDT 1922, STEBNICKA 1988), and probably erroneously reported also from China (Guanxi and Taiwan) (DELLACASA & DELLACASA 2006a). First records for the states of Goa and Rajasthan.

Aphodius (Paradidactylia) ovatulus Harold, 1861

Distribution. Described from 'Ostindien' [= East India], reported also from 'Java' (HAROLD 1861, DELLACASA 1988); so far recorded also from Nepal, Sri Lanka and India (Orissa) (BALTHASAR 1964, CHANDRA 1999, DELLACASA & DELLACASA 2006a, STEBNICKA 1986). First record for the state of Rajasthan.

Aphodius (Paradidactylia) wichei Petrovitz, 1961

Distribution. Described from Pakistan (Karakoram), known also from India (Tamil Nadu: Coimbatore) (BALTHASAR 1964, DELLACASA 1988, DELLACASA & DELLACASA 2006a). First record for the state of Rajasthan.

Aphodius (Pharaphodius) calo Balthasar, 1971

Distribution. So far known only from the Nepali lowlands (Terai) (DELLACASA & DELLACASA 2006a; STEBNICKA 1986, 1989). First records for the Goa and Rajasthan states and the whole India.

Aphodius (Pharaphodius) cornutus Wiedemann, 1823

Distribution. So far known from India (described from 'Bengalen', further records e.g. from the West Bengal and Uttarakhand states), Afghanistan and Nepal (BALTHASAR 1964; CHANDRA 1999; DELLACASA 1977; DELLACASA & DELLACASA 2006a; SCHMIDT 1922; STEBNICKA 1986, 1989). First records for the states of Goa, Maharashtra and Rajasthan.

Aphodius (Pharaphodius) redargutus Balthasar, 1971

Distribution. So far known from the Nepali lowlands (Terai) only (AHRENS & STEBNICKA 1997; DELLACASA & DELLACASA 2006a; STEBNICKA 1986, 1989). First records for the states of Goa and Rajasthan and for the whole India as well.

Aphodius (Trichaphodius) hindustanicus Balthasar, 1935

Distribution. Probably widespread species throughout northern India (e.g. Punjab) and the Himalaya (Darjeeling, Nepal, Pakistan, Sikkim and Uttarakhand) (AHRENS & STEBNICKA 1997; BALTHASAR 1964; CHANDRA 1999; DELLACASA & DELLACASA 2006a; PETROVITZ 1968; STEBNICKA 1981, 1986, 1989, 1990). First records for the states of Goa and Rajasthan.

Aphodius (Trichaphodius) moorei Paulian, 1936

Distribution. So far known only from Sri Lanka and southern parts of India without further precise data (BALTHASAR 1964, CHANDRA 1999, PAULIAN 1936, STEBNICKA 1988). First record for the state of Rajasthan.

Tribe Psammodiini Mulsant, 1842

Neotrichiorhyssemus expansicollis (Bénard, 1930)

Distribution. Rarely collected species, described from south India: Tamil Nadu (type locality: Kodicanal (= nowadays Kodaikanal)) (BÉNARD 1930, BALTHASAR 1964, CHANDRA 1999, RAKOVIČ 1987, RAKOVIČ & KRÁL 1997); further recorded from Indonesia (Sumatra) and Singapore (PITTINO 1984b). First record for the state of Goa.

Pararhyssemus coluber (Mayet, 1887)

Distribution. Saharo-Sindian species, so far known from Sub-Saharan Africa (Eritrea, Ethiopia, Kenya, Niger, Somalia) and the Maghreb region (Morocco, Algeria, Tunisia) across Egypt and the Arabian Peninsula (Saudi Arabia) to Afghanistan and Iran (BALTHASAR 1964; BARAUD 1985; PITTINO 1984a,b; RAKOVIČ et al. 2006; SCHMIDT 1922). First record for the state of Rajasthan, India and the whole Indo-Pakistani subcontinent.

Rhysemodes indicus Pittino, 1984

Distribution. Species known from northern part of the Indian subcontinent (Nepal, Pakistan, Uttarakhand) and Iran (CHANDRA 1999, PITTINO 1984b, RAKOVIČ et al. 2006). First records for the states of Goa and Rajasthan.

Rhysemus indicus Clouët des Pesruches, 1901

Distribution. Described from Sri Lanka, known also from India (Andhra Pradesh, Tamil Nadu and Uttar Pradesh) and Nepal (BALTHASAR 1964, PITTINO 1984b, RAKOVIČ et al. 2006). First record for the state of Goa.

Rhysemus inscitus (Walker, 1858)

Distribution. Widespread species distributed from Madagascar throughout the Oriental Region and Australia, reported so far from India (without further more precise data), Indonesia, Laos, Myanmar, Nepal, South China, Thailand and Vietnam (BALTHASAR 1964; CHANDRA 1999; PITTINO 1984b, 1990; RAKOVIČ et al. 2006; STEBNICKA 1992). First records for the states of Goa and Rajasthan.

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