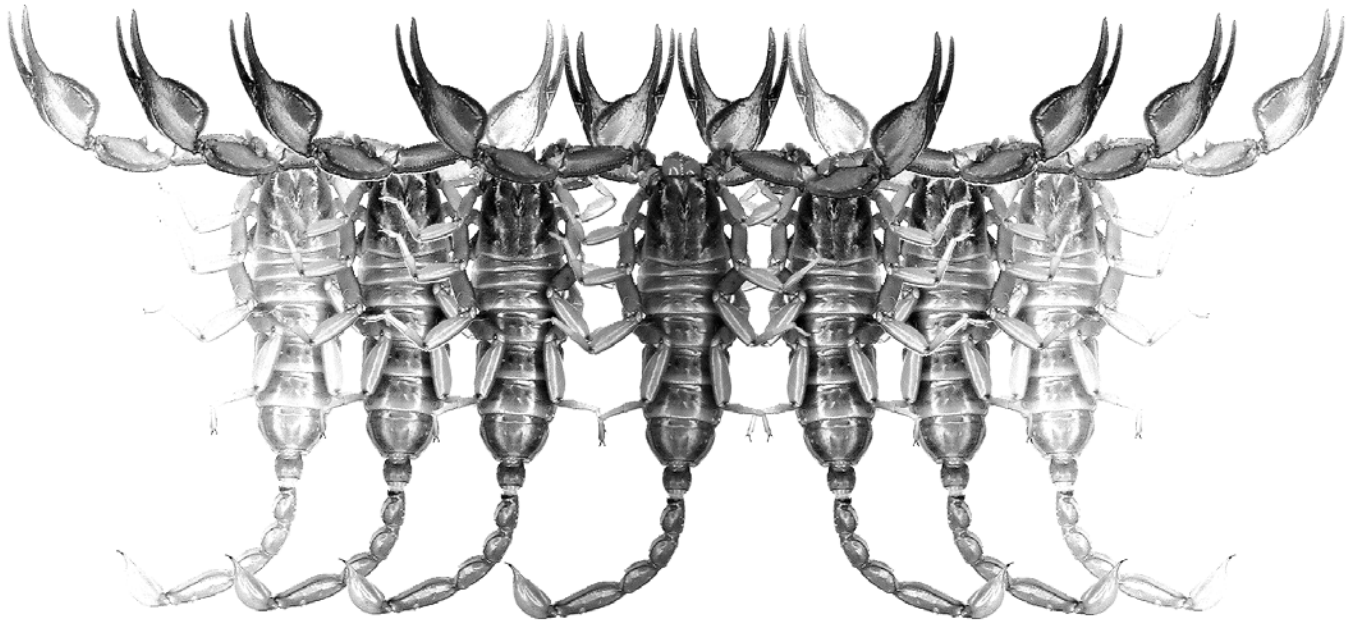


Euscorpius

Occasional Publications in Scorpiology



**Two New Species of the Genus *Compsobuthus* Vachon, 1949
from Afghanistan and Pakistan (Scorpiones: Buthidae)**

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Two new species of the genus *Compsobuthus* Vachon, 1949 from Afghanistan and Pakistan (Scorpiones: Buthidae)

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Summary

Two new species of *Compsobuthus* from the *wernerii* group are described. *C. afghanus* sp. n. is characterized chiefly by the combination of numerous rows of granules on the movable finger of pedipalp (14 rows) and a high number of pectinal teeth (29–31). *C. pakistanus* sp. n. is most similar to *C. plutenkoi* Kovařík, 2003 from Iran, from which it differs in having internal granules in all rows on the movable finger of pedipalp and 18–19 pectinal teeth. A key is provided for all species of the genus found in Afghanistan, Iran, Pakistan, and adjacent countries.

Compsobuthus afghanus sp. n. (Figs. 1–3, Table 1)

Type material. Afghanistan, Henġān env., 35°52'N 68°09'E, 1962, 1♀ (holotype) 1 im. (paratype), collector unknown. The types are deposited in the first author's collection (FKCP).

Etymology. Named after the country of occurrence.

Diagnosis: Total length 49.3 mm. Base color yellow to yellowish brown, only anterior part of fifth metasomal segment black. Movable finger of pedipalp bears 14 rows of granules, with external, very small granules present at all rows (*wernerii* group). Internal granules present at all rows and larger than external granules. First metasomal segment with 10 carinae, second to fourth with 8 carinae. Intermediate carinae on second metasomal segment replaced by less than 10 minute, isolated granules situated mainly in posterior half; third segment bears only 2–3 posteriorly situated granules; fourth segment with lateral surface smooth, devoid of granules. Pectinal teeth number 29–31.

Description: The holotype (adult female) is 49.3 mm long. For habitus see Figs. 2 and 3. Measurements of the carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1.

Coloration: The base colour is yellow to yellowish brown, only anterior part of the fifth metasomal segment is black (Figs. 2 and 3).

Carapace and Mesosoma: Tergites I–VI bear denticulate lateral carinae. Tergite VII is pentacarinata. Carapace

and mesosoma are smooth, only sparsely granulated. The pectinal tooth count is 29–31. The seventh segment is smooth and bears four ventral crenulate carinae. The other sternites are smooth, and the sixth segment bears four smooth carinae without granules.

Metasoma and telson: The first segment has a total of 10 carinae, the second through fourth segments have eight carinae, and the fifth segment has five carinae. Intermediate carinae of the second segment are replaced by less than 10 minute and isolated granules situated mainly in the posterior half; the third segment bears only two or three posteriorly situated granules; and the fourth segment has the lateral surface smooth, entirely devoid of granules. The segments bear only a few bristles each, which are absent between ventral carinae. The telson is elongate, with the vesicle longer than the aculeus. Its surface is generally smooth and bears a few granules.

Pedipalps: The femur has four granulose to crenulate carinae and the patella has seven partly crenulate carinae. The chela has smooth carinae, which are difficult to see. For the position and distribution of trichobothria on the chela see Fig. 1. The movable fingers of pedipalps bear 14 rows of granules, with external, very small granules present at all rows. Internal granules are also present at all rows and are larger than the external granules.

Affinities. The described features distinguish *C. afghanus* sp. n. from all other species of the genus. They are recounted in the key below. This species is characterized by numerous rows of granules on the movable finger of pedipalp (14 rows) and a high number of pectinal teeth (29–31).

	<i>C. afghanus</i> sp. n. female holotype	<i>C. pakistanus</i> sp. n. immature female holotype
Total length *	49.3	27.5
Carapace length	4.5	2.9
width	4.6	2.8
Metasoma and telson length *	26	16.2
segment I length	3.0	2.0
width	2.7	1.6
segment II length	3.5	2.2
width	2.4	1.4
segment III length	3.7	2.5
width	2.4	1.3
segment IV length	4.4	3.0
width	2.3	1.4
segment V length	4.9	3.4
width	2.0	1.3
telson length	4.8	2.6
Pedipalp		
femur length	3.8	2.7
width	1.1	0.8
patella length	4.8	3.4
width	1.7	1.1
chela length	8.9	5.6
manus width	1.6	0.8
finger mov. length	6.1	4.2
Pectinal teeth	29:31	18:19

Table 1: Measurements (in mm) of type specimens of the new species. * Includes intersegment membranes.

***Compsobuthus pakistanus* sp. n.**

(Figs. 4–5, Table 1)

Type material. **Pakistan**, Karachi env., 1962, 1♀ (holotype), collector unknown. The holotype is deposited in the first author's collection (FKCP).

Etymology: Named after the country of occurrence.

Diagnosis: Total length 27.5 mm (immature female). Movable finger of pedipalp bears 11 rows of granules, with external, very small granules present at all rows (*werneri* group). Internal granules present at all rows and larger than external granules. All segments of pedipalps are long and narrow. First metasomal segment with 10 carinae, second to fourth with 8 carinae. Intermediate carinae of second metasomal segment replaced by less than 10 minute, isolated granules situated mainly in posterior half; third segment bears only 2–3 posteriorly situated granules; fourth segment with lateral surface smooth, devoid of granules. Pectinal teeth number 18–19.

Description: The holotype (immature female) is 27.5 mm long. For habitus see Fig. 4. Measurements of the

carapace, telson, segments of the metasoma and segments of the pedipalps, and numbers of pectinal teeth are given in Table 1.

Coloration: The holotype is uniformly yellowish brown, discolored by the preserving fluid (alcohol).

Mesosoma: Tergites I–VI bear very strong, denticulate lateral carinae. Each carina terminates in a spiniform process that extends well past the posterior margin of the tergite. Tergite VII is pentacarinata, with strong serrato-crenulate carinae. The carapace and mesosoma are sparsely granulated. The pectinal tooth count is 18 and 19. The seventh segment bears four strong and crenulate ventral carinae. The other sternites are smooth, and the sixth segment bears four granulate carinae.

Metasoma and telson: The first segment has a total of 10 carinae, the second through fourth segments have eight carinae, and the fifth segment has five carinae. Intermediate carinae of the second segment are replaced by less than 10 minute and isolated granules situated mainly in the posterior half; the third segment bears only two or three posteriorly situated granules; and the fourth segment has the lateral surface smooth, entirely devoid of granules. The segments bear only a few bristles each, which are absent between ventral carinae. The telson is

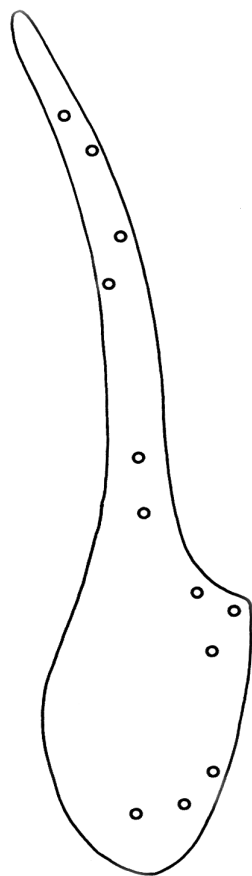


Figure 1: *Compsobuthus afghanus* sp. n., female holotype, chela of pedipalp.

elongate, with the vesicle longer than the aculeus. Its surface is generally smooth and bears small, smooth subaculear tubercle and few rounded granules.

Pedipalps: The femur has four and the patella seven granulose to crenulate carinae. The chela has smooth carinae, which are difficult to see. The position and distribution of trichobothria on the chela are the same as those in *C. afghanus* shown in Fig. 1. All segments of pedipalps are long and narrow, especially the fingers (Fig. 4, Table 1). The movable finger bears 11 rows of granules, with external, very small granules present at all rows. Internal granules are also present at all rows and are larger than the external granules.

Affinities. The described features distinguish *C. pakistanus* sp. n. from all other species of the genus. They are recounted in the key below. The key does not include *C. humaae* Amir & al., 2005 from Pakistan, whose taxonomic position is questionable. However, it can be easily distinguished from *C. pakistanus* sp. n. in having 29 pectinal teeth. *C. pakistanus* sp. n. is closest to *C. plutenkoi* from Iran, from which it differs in having internal granules present at all rows on the movable

finger of pedipalp and in the number of pectinal teeth (22 in *C. plutenkoi*).

The geographic distribution of *C. pakistanus* sp. n. corresponds to that of *C. rugosulus* (Pocock, 1900), which is easily distinguished by much stronger granulation and 10 carinae on the second to fourth metasomal segments.

Key of *Compsobuthus* from Afghanistan, Iran, Pakistan, and adjacent countries *

1. Rows of granules on movable finger without external granules (fig. 7 in Kovařík, 2003: 98). Occasionally, there may be an external granule present at the last two or three rows, but in most of the rows it is absent (fig. 12 in Kovařík, 2003: 98) ... (*acutecarinatus* group)..... 2
- Rows of granules on movable finger with external granules (often very small) usually present at all rows (fig. 10 in Kovařík, 2003: 98) and always in more than one-half of rows (fig. 9 in Kovařík, 2003: 98) (*wernerii* group)..... 8
2. Rows of granules on movable finger with internal granules 5
- Rows of granules on movable finger without internal granules (fig. 1 in Lourenço, 2004: 159 and fig. 2 in Lourenço, 2001: 316) 3
3. Third metasomal segment with 10 carinae (see Lourenço, 2004: 161) *C. andresi* Lourenço, 2004
- Third metasomal segment with 8 carinae (see Lourenço, 2001: 317 and Lourenço, 2001: 180) 4
4. Pectinal teeth number 21. Occurs in Afghanistan..... *C. tofti* Lourenço, 2001
- Pectinal teeth number 16–19. Occurs in Iran..... *C. garyi* Lourenço et Vachon, 2001
5. Male has longer metasoma than female. Width of pedipalp manus the same in both sexes..... *C. matthiesseni* (Birula, 1905)
- Length of metasoma the same in both sexes. Male has much wider and shorter pedipalp chela..... 6
6. Movable finger of pedipalp bears rows of granules, all without external granules. *C. jakesi* Kovařík, 2003
- Movable finger of pedipalp bears rows of granules, of which only first eight rows lack external granules..... 7
7. Telson bulbous, without a subaculear tooth or tubercle and with a smooth ventral surface. Occurs only in Pakistan..... *C. becvari* Kovařík, 2003
- Telson elongate, with vesicle longer than aculeus; ventral surface smooth, with a median row composed of



Figure 2: *Compsobuthus afghanus* sp. n., female holotype, dorsal aspect.



Figure 3: *Compsobuthus afghanus* sp. n., female holotype, ventral aspect.

- | | | |
|--|---|----|
| a few minute granules. Occurs only in Iran..... | - Second segment of metasoma with 8 carinae and sometimes with several accessory granules which do not form a complete carina | 9 |
| <i>C. sobotniki</i> Kovařík, 2003 | | |
| 8. Second segment of metasoma with 10 carinae..... | 9. Movable finger of pedipalp with external lateral granules present at all rows of granules | 10 |
| <i>C. rugosulus</i> (Pocock, 1900) | | |



Figure 4: *Compsobuthus pakistanus* sp. n., immature female holotype, dorsal aspect.

- External lateral granules absent at first four rows of granules (fig. 9 in Kovářik, 2003: 98).....

..... *C. kafkai* Kovářik, 2003

10. Movable finger of pedipalp with 14 rows of granules..... *C. afghanus* sp. n.

- Movable finger of pedipalp with 10–13 rows of granules. 11

11. Stocky pedipalp chelae; males with a recess and a lobe at base of chela fingers.....

..... *C. kaftani* Kovářik, 2003

- Elongated pedipalp chelae. 12

12. Movable finger of pedipalp with 10–11 rows of granules..... 12

- Movable finger of pedipalp with 13 rows of granules. *C. petriolii* Vignoli, 2005

12. Internal granules present at third to tenth rows of granules on movable finger of pedipalp. Pectinal teeth number 22. Occurs in Iran.

..... *C. plutenkoi* Kovářik, 2003

- Internal granules present at all rows of granules on movable finger of pedipalp. Pectinal teeth number 18–19. Occurs in Pakistan *C. pakistanus* sp. n.

* The key does not include *Compsobuthus humaae* Amir et al., 2005 from Pakistan, whose taxonomic position is questionable because its description lacks characters differentiating the taxon from other species of the genus. It is not clear whether the species belongs in the *acutecarinatus* group or the *wernerii* group.

List of *Compsobuthus* from Afghanistan, Iran, Pakistan, and adjacent countries

Compsobuthus afghanus sp. n. (Afghanistan)

Compsobuthus andresi Lourenço, 2004 (India)

Compsobuthus becvari Kovářik, 2003 (Pakistan)

Compsobuthus garyi Lourenço et Vachon, 2001 (Iran)

Compsobuthus humaae Amir et al., 2005 (Pakistan)

Compsobuthus jakesi Kovářik, 2003 (Iraq)

Compsobuthus kafkai Kovářik, 2003 (Iran)

Compsobuthus kaftani Kovářik, 2003 (Iran)



Figure 5: *Compsobuthus pakistanus* sp. n., immature female holotype, ventral aspect.

Compsobuthus matthiesseni (Birula, 1905) (Iraq, Iran, Syria, Turkey)
Compsobuthus pakistanus sp. n. (Pakistan)
Compsobuthus petrioli Vignoli, 2005 (Iran)
Compsobuthus plutenkoi Kovařík, 2003 (Iran)
Compsobuthus rugosulus (Pocock, 1900) (India, Pakistan)
Compsobuthus sobotniki Kovařík, 2003 (Iran)
Compsobuthus tofti Lourenço, 2001 (Afghanistan)

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