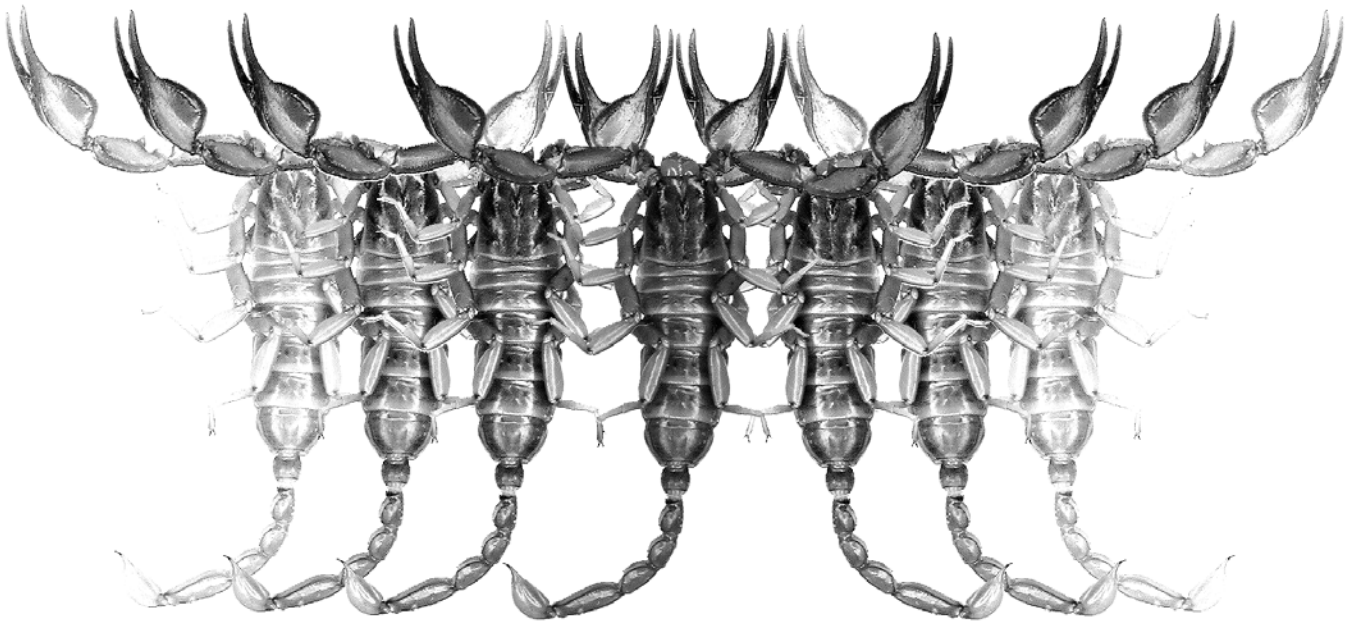


Euscorpius

Occasional Publications in Scorpiology



**Three New Species of *Compsobuthus* Vachon, 1949 from
Yemen, Jordan, Israel, and Somaliland (Scorpiones:Buthidae)**

František Kovařík

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Three new species of *Compsobuthus* Vachon, 1949 from Yemen, Jordan, Israel, and Somaliland (Scorpiones: Buthidae)

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Summary

Compsobuthus krali **sp. n.** of the *weneri* group from Yemen, *C. levyi* **sp. n.** of the *weneri* group from Jordan and Israel, and *C. somalilandus* **sp. n.** of the *acutecarinatus* group from Somaliland are described. A key to all species of the genus *Compsobuthus* Vachon, 1949 is presented.

Systematics

Compsobuthus Vachon, 1949 (Figs. 1–42)

Compsobuthus Vachon, 1949: 93; Vachon, 1952: 213; Tikader & Bastawade, 1983: 168; Sissom, 1990: 101; Fet & Lowe, 2000: 124 (complete reference list until 1998); Kovařík, 2003: 88 (in part); Kovařík, 2009: 31.

TYPE SPECIES. *Buthus acutecarinatus* Simon, 1882.

DIAGNOSIS. Total length 20–55 mm. Dorsal trichobothria of femur arranged in *beta*-configuration. Trichobothrium *db* on chela of pedipalp basal to *est*. Trichobothrium *eb* located on fixed finger of chela. Pectines with fulcra. Pectinal teeth number 9–34. Tibial spurs present on third and fourth legs. Cheliceral fixed finger with two ventral denticles. Carapace with distinct carinae. Central lateral and posterior lateral carinae of carapace joined to form a continuous linear series of granules to posterior margin. Carapace in lateral view with entire dorsal surface horizontal or nearly so. Dentate margin of pedipalp chela movable finger with distinct granules divided into 8–14 rows and 4 terminal granules and one basal terminal granule. Tergites I–VI of mesosoma bear three carinae projecting beyond posterior margin as distinct spiniform processes.

Key to species of *Compsobuthus*

1. Rows of granules on movable finger without external granules (Fig. 14). *acutecarinatus* group 2

– Rows of granules on movable finger with external, often very small granules (Fig. 31)... *weneri* group ...23

2. Rows of granules on movable finger with internal granules. 6
– Rows of granules on movable finger without internal granules. 3

3. Third metasomal segment with 10 carinae. 5
– Third metasomal segment with 8 carinae. 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. Occurs in India. *C. andresi* Lourenço, 2004
– Occurs in Morocco. *C. williamsi* Lourenço, 1999

6. Male has longer metasoma than female. Width of pedipalp manus the same in both sexes. 7
– Length of metasoma the same in both sexes. 8

7. Movable finger of pedipalp bears 10 rows of granules. Chela extremely slender and elongated. Pedipalp chela length/width ratio 5.47–6.06 in females and 6.74–7.56 in males. *C. matthiesseni* (Birula, 1905)
– Movable finger of pedipalp bears 9 rows of granules. Pedipalp chela length/width ratio ca 5.3.....
..... *C. maindroni* (Kraepelin, 1901)

8. Occurs in Asia (Iraq and Iran). 11
– Does not occur in Asia 9

9. Occurs in Africa. 12
– Does not occur in Africa 10

10. Occurs in Arabia. 15
– Occurs in Jordan and Syria.
..... *C. jordanensis* Levy et al., 1973
11. Pectinal teeth number 15–19. Telson bulbous. Male has much wider and shorter pedipalp chela.
..... *C. jakesi* Kovařík, 2003
– Pectinal teeth number 21–26. Telson elongate. Width of pedipalp manus same in both sexes.
..... *C. persicus* Navidpour et al., 2008
12. Movable finger of pedipalp with internal granules located at end of every row (fig. 3 in Lourenço, 1999: 86). *C. simoni* Lourenço, 1999
– Movable finger of pedipalp with internal granules located in middle of every row (Fig. 14). 13
13. Subaculear tubercle present. 14
– Subaculear tubercle inconspicuous or absent.
..... *C. berlandi* Vachon, 1950
14. Base color uniformly reddish to gray. Trochanter of pedipalp with numerous long setae. Subaculear tubercle present, but not spinoid. *C. abyssinicus* (Birula, 1903)
– Base color uniformly yellow to yellowish brown with dark spots (Figs. 37–40). Trochanter of pedipalp without setae and with one to 12 spines. Subaculear tubercle present, long and spinoid. *C. somalilandus* Kovařík, **sp. n.**
15. Chela extremely slender and elongated. Pedipalp chela length/width ratio more than 6.2. 16
– Pedipalp chela length/width ratio less than 6.1. 18
16. Movable finger of pedipalp with 9–12 rows of granules. 17
– Movable finger of pedipalp with 7–8 rows of granules.
..... *C. polisi* Lowe, 2001
17. Movable finger of pedipalp with 9–10 rows of granules. Pectinal teeth number 15–17. *C. setosus* Hendrixson, 2006 and *C. lowei* Lourenço et Duhem, 2012
– Movable finger of pedipalp with 11–12 rows of granules. Pectinal teeth number 28–34.
..... *C. nematodactylus* Lowe, 2009
18. Male with much wider manus of pedipalp.
..... *C. brevimanus* (Werner, 1936)
– Width of manus of pedipalp same in male and female.
..... 19
19. Pectinal teeth number 19–29. 20
– Pectinal teeth number 9–18. 21
20. Total length 35–48 mm. Sternites and ventral surface of metasoma with numerous small red setae.
..... *C. acutecarinatus* (Simon, 1882)
– Total length 25–37 mm. Sternites and ventral surface of metasoma lacking small red setae.
..... *C. maindroni* (Kraepelin, 1901)
21. Movable finger of pedipalp with 8–9 rows of granules. 22
– Movable finger of pedipalp with 10–11 rows of granules. *C. pallidus* Hendrixson, 2006
22. Second metasomal segment with 10 carinae.
..... *C. vachoni* Sissom, 1994
– Second metasomal segment with 8 carinae.
..... *C. arabicus* Levy et al., 1973
23. Occurs in Africa. 32
– Does not occur in Africa. 24
24. Occurs in Asia. 25
– Occurs in the Arabian Peninsula, Israel, Jordan, and Syria. 37
25. Second segment of metasoma with 10 carinae. 26
– Second segment of metasoma with 8 carinae and sometimes with several accessory granules which do not form a complete carina. 27
26. First metasomal segment of both sexes longer than wide. *C. rugosulus* (Pocock, 1900)
– First metasomal segment of both sexes approximately as wide as long. *C. sindicus* Kovařík et Ahmed, 2011
27. Movable finger of pedipalp with 14 rows of granules. *C. afghanus* Kovařík et Ahmed, 2007
– Movable finger of pedipalp with 10–13 rows of granules. 28
28. Pedipalp chela stocky; males with a recess and a lobe at base of chela fingers. 29
– Pedipalp chela elongated. 30
29. Manus of chela approximately as long or longer than fixed finger. *C. atrostriatus* (Pocock, 1897)
– Manus of chela shorter than fixed finger.
..... *C. kaftani* Kovařík, 2003
30. Movable finger of pedipalp with 10–11 rows of granules. 31
– Movable finger of pedipalp with 13 rows of granules.
..... *C. petrioli* Vignoli, 2005
31. Internal granules on movable finger of pedipalp present at third to tenth rows of granules. Pectinal teeth number 22. Occurs in Iran. .. *C. plutenkoi* Kovařík, 2003
– Internal granules on movable finger of pedipalp present at all rows of granules. Pectinal teeth number 18–

19. Occurs in Pakistan. *C. pakistanus* Kovářik et Ahmed, 2007
32. Movable finger of pedipalp with 9-11 rows of granules. 33
– Movable finger of pedipalp with 13 rows of granules. *C. seichertii* Kovářik, 2003
33. Telson with aculeus markedly shorter than vesicle. 34
– Telson with aculeus approximately as long as vesicle, aculeus may also be slightly shorter than vesicle. 35
34. Third metasomal segment bears 10 carinae. *C. klaptoczi* (Birula, 1909)
– Third metasomal segment bears 8 carinae. *C. egyptiensis* Lourenço et al., 2009
35. Second metasomal segment bears 8 carinae. Pectinal teeth number 15–18. *C. kabateki* Kovářik, 2003
– Second metasomal segment bears 10 carinae. Pectinal teeth number 17–22. 36
36. Fifth metasomal segment length/width ratio higher than 2.45. *C. werneri* (Birula, 1908)
– Fifth metasomal segment length/width ratio less than 2.4. *C. tombouctou* Lourenço, 2009
37. Second metasomal segment bears 8 carinae. 38
– Second metasomal segment bears 10 carinae. 40
38. Movable finger of pedipalp with 9–11 rows of granules. 39
– Movable finger of pedipalp with 14 rows of granules. *C. longipalpis* Levy et al., 1973
39. All metasomal segments of both sexes longer than wide. Fifth metasomal segment length/width ratio 2.4–2.6. *C. levyi* Kovářik, **sp. n.**
– First metasomal segment of male wider than long or as wide as long. Fifth metasomal segment length/width ratio 2.2–2.3. *C. carmelitis* Levy et al., 1973
40. First metasomal segment of male wider than long. 41
– First metasomal segment of both sexes longer than wide. 42
41. Movable finger of pedipalp with 9 rows of granules. *C. birulai* Lourenço et al., 2010
– Movable finger of pedipalp with 11 rows of granules. *C. kralli* Kovářik, **sp. n.**
42. Pectinal teeth number 15–18 in males and 12–16 in females. Total length 20–35 mm. Telson of female with aculeus shorter than vesicle. *C. schmiedeknechti* Vachon, 1949

– Pectinal teeth number 19–25 in males and 17–22 in females. Total length 27–45 mm. Telson of female with aculeus approximately as long as vesicle. *C. manzonii* (Borelli, 1915) and *C. fuscatus* Hendrixson, 2006

Compsobuthus kralli* Kovářik, **sp. n.*
(Figs. 1–7)

TYPE LOCALITY AND TYPE REPOSITORY. Yemen, Ta'izz Governorate, Wadi Bani Khawlan, NNW Ash Shuqayrah by road, 13°19'57"N 43°43'19"E, 467 m a.s.l.; author's collection (FKCP).

TYPE MATERIAL. Yemen, Ta'izz Governorate, Wadi Bani Khawlan, NNW Ash Shuqayrah by road, 13°19'57"N 43°43'19"E, 467 m a.s.l., 27.–28.X.2007, 1♂ (holotype), leg. David Král.

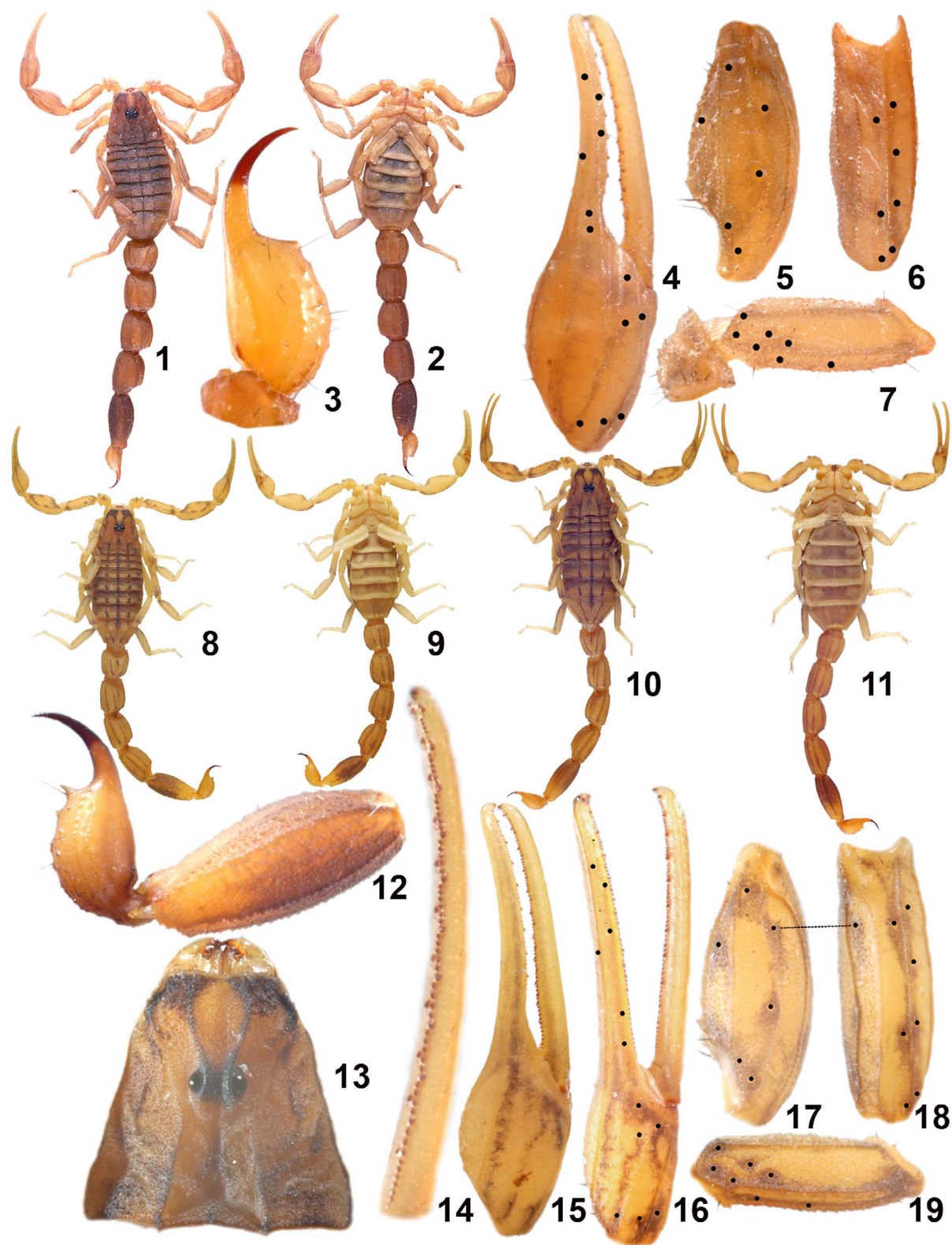
ETYMOLOGY. Named after the Czech coleopterist and my friend David Král, who collected the holotype.

DIAGNOSIS. Total length of male holotype 25 mm. Carapace, mesosoma, metasoma, telson, and pedipalp femur and patella of adults densely granulated. Movable finger of pedipalp bears 11 rows of granules, with external and internal granules (*werneri* group). Male has fingers of pedipalps proximally flexed and chela robust; female unknown. First to third metasomal segments bear 10 carinae; fourth metasomal segment bears 8 carinae. All metasomal segments sparsely setose and densely granulated. First metasomal segment of male wider than long. Fifth metasomal segment length/width ratio in male less than 2. Pectinal teeth number 21–22. Seventh sternite bears 4 well developed carinae. Telson with aculeus little shorter than vesicle. Subaculear tubercle present.

DESCRIPTION. The male holotype is 25 mm long. The habitus is shown in Figs. 1–2. For position and distribution of trichobothria of pedipalps see Figs. 4–7. Adult male has fingers of pedipalps proximally flexed and chela robust.

COLORATION. The base color is uniformly yellow to reddish brown, with dark spots. Carapace, mesosoma and fifth metasomal segments are dark.

CARAPACE AND MESOSOMA. The entire carapace is covered by large granules. The carinae are moderately to strongly developed and granular. The anterior margin of the carapace is straight, medially weakly concave, and bears six short, symmetrically distributed macrosetae. Tergites are granulated. 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 lateral pairs strong, serratocrenulate and the median carina moderate, crenulate and present only in the prox-



Figures 1–19: 1–7. *Compsobuthus krali* Kovařík, sp. n., dorsal (1) and ventral (2) views, telson (3), and trichobothrial pattern of pedipalp (4–7), ♂ (25 mm) holotype. 8–9, 15. *C. somalilandus* Kovařík, sp. n., dorsal (8) and ventral (9) views, and chela external (15), ♂ (28 mm) holotype. 10–14, 16–19. Dorsal (10) and ventral (11) views, telson and fifth metasomal segment (12), carapace and chelicerae (13), movable finger (14), and trichobothrial pattern (16–19), ♀ (32 mm) allotype.

imal half. The pectinal tooth count in the male holotype is 21–22. The pectinal marginal tips extend to midlength of the fourth sternite. The pectines have three marginal lamellae and six middle lamellae. The lamellae bear numerous dark setae, each fulcrum with two dark setae. All sternites are sparsely to densely granulated, but the granules are smaller than on the tergites. The sixth and seventh segments bear four ventral crenulate carinae, which are more strongly developed on the seventh segment. The other sternites bear two carinae. The carinae span two posterior thirds of the sternites and in no case reach the anterior margin.

METASOMA AND TELSON. The first to third segments bear 10 carinae; the fourth metasomal segment bears eight carinae and the fifth segment bears five carinae. All segments are very sparsely setose and densely granulated. The telson is elongate, with the aculeus little shorter than vesicle. A subaculear tubercle is present. The ventral surface of the telson is sparsely granulated.

PEDIPALPS. The pedipalps are granulated. The femur bears five carinae. The patella bears seven granular carinae. The chela bears five carinae. The movable finger bears 11 rows of granules, with external and internal granules. The fixed finger bears 10 rows of granules, with external and internal granules. The male has fingers of pedipalps proximally flexed and chela robust; the female is unknown.

LEGS. The legs III and IV bear tibial spurs. Retrolateral and prolateral pedal spurs are present on all legs. The prolateral pedal spurs are basally bifurcate. The tarsomeres bear two rows of short macrosetae on the ventral surface and numerous macrosetae on the other surfaces. Bristlecombs are absent. The femur bears four carinae and the patella bears four to six carinae. The femur and patella bear only solitary macrosetae and are densely granulated except for external lateral surfaces which are smooth.

MEASUREMENTS IN MM. Total length of *male holotype* 25; carapace length 3.0, width 3.2; metasoma and telson length 15.2; first metasomal segment length 1.8, width 2.1; second metasomal segment length 2.3, width 2.0; third metasomal segment length 2.5, width 2.0; fourth metasomal segment length 2.6, width 1.9; fifth metasomal segment length 3.3, width 1.7; telson length 2.7; pedipalp femur length 2.4, width 0.7; pedipalp patella length 3.1, width 1.3; chela length 4.8; manus width 1.4; movable finger length 3.1.

AFFINITIES. The described features distinguish *C. krali* **sp. n.** from all other species of the genus. They are recounted in the key. In the *weneri* group from the Arabian Peninsula only *C. krali* **sp. n.** from Yemen and *C. birulai* Lourenço, Leguin et Duhem, 2010 from United Arab Emirates have the first metasomal segment of male wider than long. However, *C. birulai* has the movable finger of pedipalp with nine rows of granules,

total length 31–41 mm, and subaculear tubercle absent. *C. krali* **sp. n.** has the movable finger of pedipalp with 11 rows of granules, total length 25 mm, and subaculear tubercle present.

Compsobuthus levyi* Kovařík, **sp. n.*
(Figs. 20–36)

Compsobuthus weneri weneri: Levy et al., 1973: 114; Levy & Amitai, 1980: 63; Kabakibi et al., 1999: 82.

TYPE LOCALITY AND TYPE REPOSITORY. Jordan, near Qasr Burqu; author's collection (FKCP).

TYPE MATERIAL. Jordan, near Qasr Burqu, 1♂6♀ (holotype, allotype and paratypes), 9. –12.IV.1996, leg. D. Modrý. Israel, south part of Negev Desert, wadi near Sede Boqer (Haluqim Ridge), XI.–XII.2004, 1♀ (paratype), leg. J. Král.

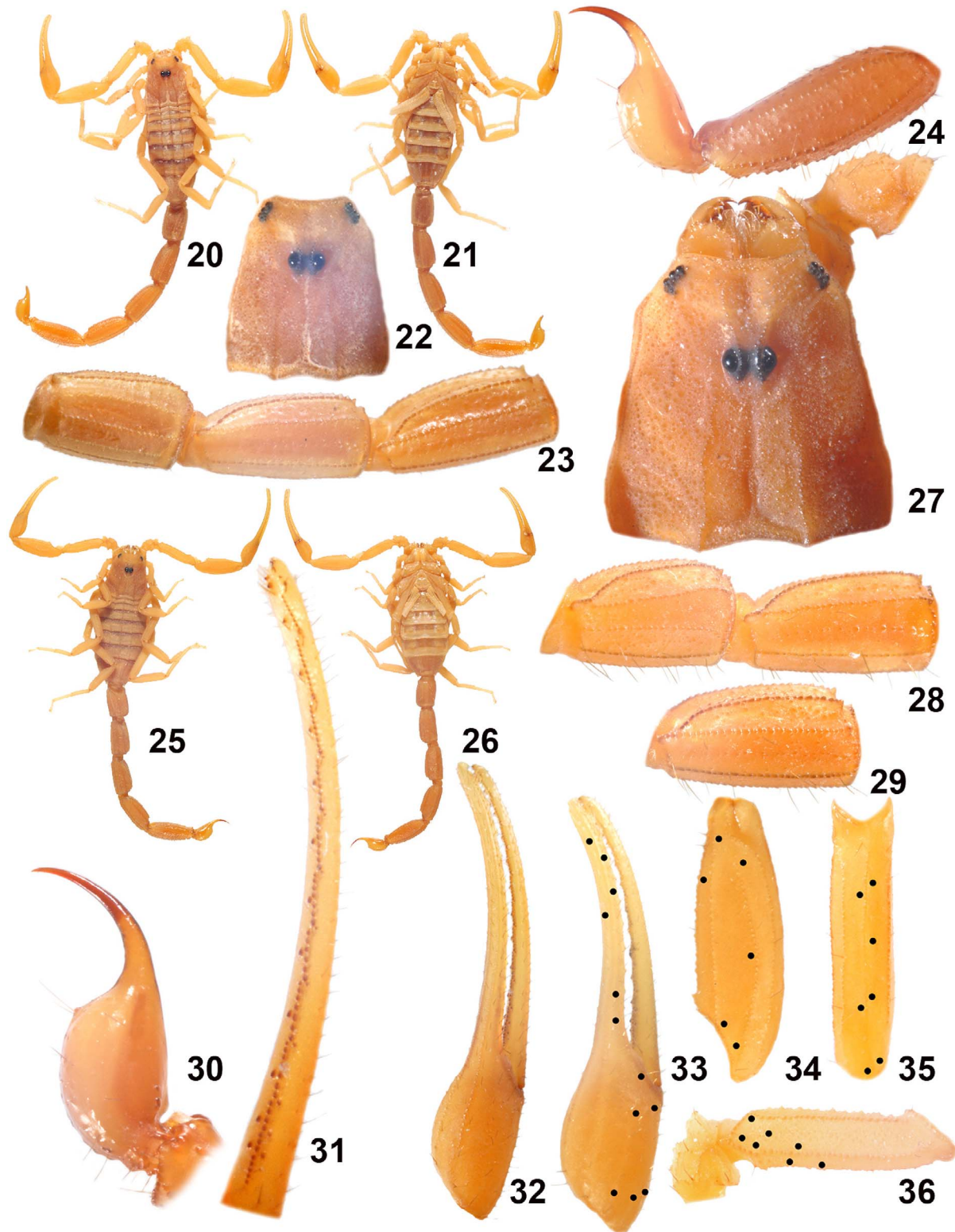
ETYMOLOGY. Named after the Israeli arachnologist Gershon Levy (1937–2009), who in 1973 and 1980 published important works on *Compsobuthus* from Israel, Jordan and the Arabian Peninsula. Since no specimens of *C. weneri* from the type locality (Sudan) were available to him, he mistook *C. levyi* **sp. n.** for *C. weneri weneri*.

DIAGNOSIS. Total length 28–38.4 mm. Movable finger of pedipalp bears 10–11 rows of granules, with external and internal granules (*weneri* group). Sexual dimorphism minor, there is no difference between males and females in length of pedipalps and metasomal segments. Male with fingers of pedipalps slightly flexed proximally. Chela slender and elongated. Pedipalp chela length/width ratio 4.9–5.8 in females and 4.8 in males. Trochanter of pedipalp with numerous setae. First metasomal segment bears 10 carinae; second to fourth bear 8 carinae. Intermediate carinae of the second to fourth metasomal segments replaced by 15–20 isolated granules. All metasomal segments of both sexes slender and longer than wide. Fifth metasomal segment length/width ratio 2.4–2.6. Pectinal teeth number 18–23. Seventh sternite bears 4 crenulate carinae. Telson elongate, with aculeus approximately as long as vesicle; subaculear tubercle distinct, very small.

DESCRIPTION. Total length 28–38.4 mm. The habitus is shown in Figs. 20–26. For position and distribution of trichobothria of pedipalps see Figs. 33–36. Sexual dimorphism minor, adult males have fingers of pedipalps slightly flexed proximally.

COLORATION. The base color is uniformly yellow to yellowish brown, without spots.

CARAPACE AND MESOSOMA. The entire carapace is covered by large granules. The carinae are moderately to



Figures 20–36: *Compsobuthus levyi* Kovařík, sp. n.. 20–23, 33–36. Dorsal (20) and ventral (21) views, carapace (22), lateral view of first to third metasomal segments (23), and trichobothrial pattern of pedipalp (33–36), ♂ (30 mm) holotype. 24. Lateral view of fifth metasomal segment and telson, ♂ (28 mm) paratype. 25–32. Dorsal (25) and ventral (26) views, carapace with chelicerae and trochanter (27), lateral view of first to second and third (28), and fourth (29) metasomal segments, telson (30), movable finger of pedipalp (31), and chela of pedipalp (32), ♀ (38 mm) allotype.

strongly developed and granular. The anterior margin of the carapace is straight, medially weakly concave, and bears six short, symmetrically distributed macrosetae. The tergites are granulated. 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 lateral pairs strong, serratocrenulate and the median carina moderate, crenulate and present only in the proximal half. The pectinal tooth count is 22–23 in the male holotype, 19 in the male paratype, and 18–22 in the females. The pectinal marginal tips extend to anterior third of the fifth sternite in males and to midlength of the fourth sternite in females. The pectines have three marginal lamellae and seven to nine middle lamellae. The lamellae bear numerous dark setae, each fulcrum with two dark setae. All sternites are smooth. The sixth and seventh segments bear four ventral crenulate carinae, which are more strongly developed on the seventh segment. The other sternites bear two carinae.

METASOMA AND TELSON. The first segment bears 10 carinae; the second to fourth segments bear eight carinae and the fifth segment bears five carinae. Intermediate carinae of the second to fourth segments are replaced by 15 to 20 isolated granules. All segments are setose, mainly on ventral surface, and granulated. Accessoric rows of granules are present on dorsal surfaces of segments as well as on the ventral surface of the fifth segment. The telson is elongate, with the aculeus approximately as long as the vesicle. A subaculear tubercle is present but is very small.

PEDIPALPS. The pedipalps are granulated and hirsute. The femur bears five carinae. The patella bears seven granular carinae. The chela bears five carinae. The movable finger bears 10 or 11 rows of granules, with small external and larger internal granules. The fixed finger bears 10 or 11 rows of granules, with external and internal granules. The trochanter of pedipalps bears numerous setae.

LEGS. The legs III and IV bear tibial spurs. Retrolateral and prolateral pedal spurs are present on all legs. The prolateral pedal spurs are basally bifurcate. The tarsomeres bear two rows of long macrosetae on the ventral surface and numerous macrosetae on the other surfaces. Bristle combs are absent. The femur bears four carinae and the patella bears four to six carinae. The femur and patella bear only solitary macrosetae and are densely granulated except for external lateral surfaces which are smooth.

MEASUREMENTS IN MM. Total length of *male holotype* 30; carapace length 3.7, width 3.4; metasoma and telson length 19; first metasomal segment length 2.6, width 1.7; second metasomal segment length 3.0, width 1.5; third metasomal segment length 3.2, width 1.4; fourth metasomal segment length 3.5, width 1.4; fifth metasomal segment length 3.6, width 1.4; telson length 3.0;

pedipalp femur length 3.3, width 0.8; pedipalp patella length 4.0, width 1.2; chela length 6.3; manus width 1.3; movable finger length 4.2.

Total length of *female allotype* 38.4; carapace length 4.5, width 4.5; metasoma and telson length 23.8; first metasomal segment length 3.2, width 2.2; second metasomal segment length 3.7, width 2.0; third metasomal segment length 3.9, width 1.9; fourth metasomal segment length 4.1, width 1.9; fifth metasomal segment length 4.7, width 1.9; telson length 4.2; pedipalp femur length 4.5, width 1.1; pedipalp patella length 5.2, width 1.6; chela length 8.4; manus width 1.5; movable finger length 6.1.

AFFINITIES. The described features distinguish *C. levyi* sp. n. from all other species of the genus. They are recounted in the key. From *C. werneri* from Sudan and other related species from Israel, Jordan, and Syria, with which it has hitherto been confused, it differs primarily by slender and elongated metasomal segments.

***Compsobuthus somalilandus* Kovařík, sp. n.**
(Figs. 8–19, 37–42)

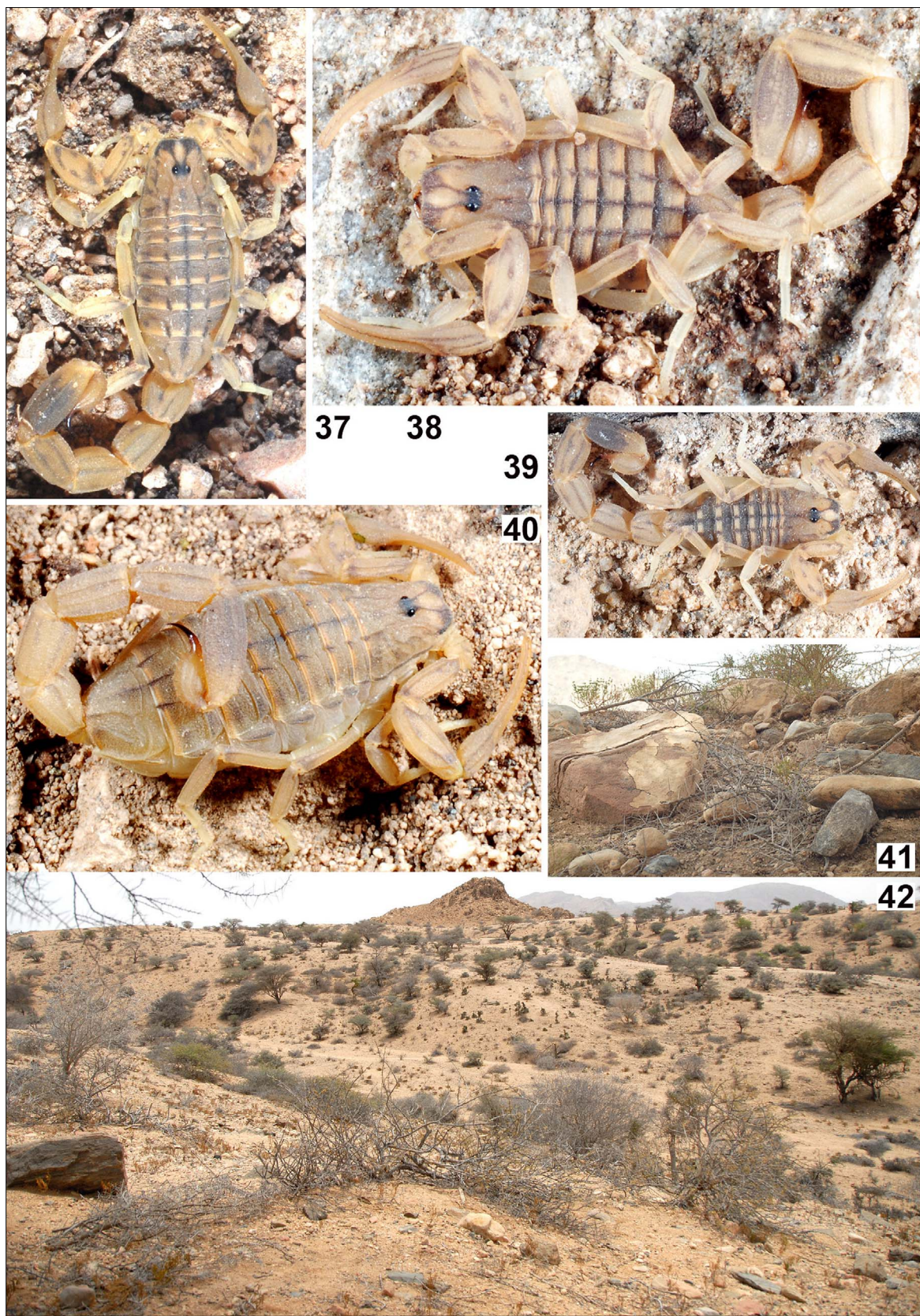
TYPE LOCALITY AND TYPE REPOSITORY. Somaliland, near Berbera, 10°14'25.8"N 45°04'55.4"E, 407 m a.s.l.; author's collection (FKCP).

TYPE MATERIAL. Somaliland, near Berbera, 10°14'25.8"N 45°04'55.4"E, 407 m a.s.l. (Fig. 42), 9.VII.2011, 4♂ 4♀ (holotype and paratypes), leg. F. Kovařík; near Berbera, 10°15'30.5"N 45°06'04.2"E, 376 m a.s.l., 12.VII.2011, 1♀, leg. F. Kovařík; near Sheikh, foothills of Goolis Mts., 09°59.881'N 45°09.762'E, 896 m a.s.l., 2♀ (allotype and paratype), XI.2010, leg. T. Mazuch and P. Novak.

ETYMOLOGY. Named after the country of occurrence.

NOTE. I intentionally use here the name Somaliland (Hargeysa) for the northern territory corresponding to the former British colony (British Somaliland), to be distinguished from Somalia (Mogadisho). Somaliland has its own currency, a functional government with representation in several countries, and its officials contributed to our safe visit.

DIAGNOSIS. Total length 28–32 mm. Sexual dimorphism minor, adult males with chela of pedipalps broader and fingers of pedipalps flexed proximally; there is no difference in length and width of metasomal segments. Base color uniformly yellow to yellowish brown, with dark spots. Movable finger of pedipalp bears 10 rows of granules, all without external and with internal granules (*acute carinatus* group). Pedipalp chela length/width ratio



Figures 37–42: *Compsobuthus somalilandus* Kovařík, **sp. n.**, males (37–39) and female (40) at the type locality, Somaliland, near Berbera, 10°14'25.8"N 45°04'55.4"E, 407 m a.s.l. (41–42).

4.0 in males and 4.8 in females. Manus of chela shorter than fixed finger. Trochanter of pedipalps with one to twelve spines and without setae. Anterior margin of carapace bears 8 symmetrically distributed spines. First to third metasomal segments bear 10 carinae, fourth metasomal segment bears 8 or 10 carinae. All metasomal segments longer than wide. Pectinal teeth number 18–21 in males and 15–18 in females. Sternites and ventral surface of metasoma granulated. Seventh sternite bears four crenulate carinae. Telson bulbous, aculeus shorter than vesicle. Subaculear tubercle present, long and spinoid.

DESCRIPTION. Total length 28–32 mm. The habitus is shown in Figs. 8–11. For position and distribution of trichobothria of pedipalps see Figs. 16–19.

COLORATION. The base color is uniformly yellow to yellowish brown, with dark spots. All carinae on carapace, tergites and metasoma, and the surface near these carinae, are black. The anterior half of the fifth metasomal segment is dark.

CARAPACE AND MESOSOMA. The entire carapace is covered by large granules. The carinae are moderately to strongly developed and granular. The anterior margin of the carapace is straight, medially weakly concave, and bears eight symmetrically distributed spines. The tergites are granulated. 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 lateral pairs strong, serratocrenulate and the median carina moderate, crenulate and present only in the proximal half. The pectinal tooth count is 18–21 (1x18, 4x19, 2x20, 1x21) in the males and 15–18 (3x15, 2x16, 4x17, 5x18) in the females. The pectinal marginal tips extend to one-third of the fourth sternite in the female and to one-third of the fifth sternite in the male. The pectines have three marginal lamellae and six to eight middle lamellae. The lamellae bear numerous dark setae, each fulcrum with two dark setae. However, most specimens of both sexes from the type locality either lack these setae or have them only in the last third of pectens. All sternites are finely granulated. The sixth and seventh segments bear four ventral crenulate carinae, which are more strongly developed on the seventh segment. The other sternites bear two carinae.

METASOMA AND TELSON. The first to third segments bear 10 carinae, the fourth segment bears 8 or 10 carinae and the fifth segment bears five carinae. Intermediate carinae of the fourth segment are replaced by isolated granules that may also form carinae. All segments are sparsely setose and densely granulated. Accessory rows of granules are present on dorsal surfaces of segments as well as on the ventral surface of the fifth segment. The telson is bulbous, with the aculeus shorter than the vesicle. A subaculear tubercle is present, long and spinoid.

PEDIPALPS. The pedipalps are granulated and hirsute. The femur bears five carinae. The patella bears seven granular carinae. The chela bears five carinae. The movable and fixed fingers bear 10 rows of granules, all without external and with internal granules (*acuteccarinatus* group). The trochanter of pedipalps has one or two spines and lacks setae in males and females from the type locality. Three other females have the trochanter of pedipalps with ca. 10 spines and without setae.

LEGS. The legs III and IV bear tibial spurs. Retrolateral and prolateral pedal spurs are present on all legs. The tarsomeres bear two rows of macrosetae on the ventral surface and numerous macrosetae on the other surfaces. Bristlecombs are absent. The femur bears four carinae and the patella bears four to six carinae. The femur and patella bear only solitary macrosetae and are densely granulated except for external lateral surfaces which are smooth.

MEASUREMENTS IN MM. Total length of *male holotype* 28; carapace length 3.2, width 3.3; metasoma and telson length 16.8; first metasomal segment length 2.2, width 2.1; second metasomal segment length 2.5, width 1.9; third metasomal segment length 2.6, width 1.9; fourth metasomal segment length 2.9, width 1.8; fifth metasomal segment length 3.6, width 1.7; telson length 3; pedipalp femur length 2.5, width 0.8; pedipalp patella length 3.2, width 1.3; chela length 5.2; manus width 1.3; movable finger length 3.5.

Total length of *female allotype* 32; carapace length 3.9, width 4; metasoma and telson length 18.7; first metasomal segment length 2.5, width 2.1; second metasomal segment length 2.8, width 2; third metasomal segment length 2.9, width 1.9; fourth metasomal segment length 3.2, width 1.8; fifth metasomal segment length 4, width 1.8; telson length 3.3; pedipalp femur length 2.9, width 0.9; pedipalp patella length 3.7, width 1.4; chela length 5.8; manus width 1.2; movable finger length 3.7.

AFFINITIES. The described features distinguish *C. somalilandus* **sp. n.** from all other species of the genus. They are recounted in the key. It differs from *C. abyssinicus* (Birula, 1903) in having lighter-colored tergites and metasoma with characteristic dark spots, much better developed subaculear tubercle, and the trochanter of pedipalp without setae.

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References

- FET, V. & G. LOWE. 2000. Family Buthidae C. L. Koch, 1837. Pp. 54–286 in Fet, V., W.D. Sissom, G. Lowe & M.E. Braunwalder. 2000. *Catalog of the Scorpions of the World (1758–1998)*. New York: The New York Entomological Society, 689 pp.
- KABAKIBI, M.M., N. KHALIL & Z. AMR 1999. Scorpions of southern Syria. *Zoology in the Middle East*, 17: 79–89.
- KOVAŘÍK, F. 2003. Eight new species of *Compsobuthus* Vachon, 1949 from Africa and Asia (Scorpiones: Buthidae). *Serket*, 8(3): 87–112.
- KOVAŘÍK, F. 2009. *Illustrated Catalog of Scorpions. Part I. Introductory Remarks; Keys to Families and Genera; Subfamily Scorpioninae With Keys to Heterometrus and Pandinus Species*. Clairon Production, Prague, 170 pp.
- LEVY, G. & P. AMITAI. 1980. *Fauna Palaestina, Arachnida I. – Scorpiones*. Jerusalem: The Israel Academy of Sciences and Humanities, 132 pp.
- LEVY, G., P. AMITAI & A. SHULOV. 1973. New scorpions from Israel, Jordan and Arabia. *Zoological Journal of the Linnean Society*, 52: 113–140.
- SISSOM, W.D. 1990. Systematics, biogeography and paleontology. Pp. 64–160 in Polis, G.A. (ed.), *The Biology of Scorpions*. Stanford: Stanford University Press, 587 pp.
- TIKADER, B.K. & D.B. BASTAWADE. 1983. Scorpions (Scorpionida: Arachnida). *The Fauna of India*, Vol. 3. (Edited by the Director). Calcutta: Zoological Survey of India, 671pp.
- VACHON, M. 1952. *Études sur les scorpions*. Institut Pasteur d'Algérie, Alger, 1–482. (published 1948–1951 in *Archives de l'Institut Pasteur d'Algérie*, 1948, 26: 25–90, 162–208, 288–316, 441–481. 1949, 27: 66–100, 134–169, 281–288, 334–396. 1950, 28: 152–216, 383–413. 1951, 29: 46–104).