Five New Species of *Chaerilus* Simon, 1877 from China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam (Scorpionidae: Chaerilidae)

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**Derivatio Nominis**

The name *Euscorpius* Thorell, 1876 refers to the most common genus of scorpions in the Mediterranean region and southern Europe (family Euscorpiidae).

*Euscorpius* is located on Website ‘http://www.science.marshall.edu/fet/euscorpius/’ at Marshall University, Huntington, WV 25755-2510, USA.
Five new species of *Chaerilus* Simon, 1877 from China, Indonesia, Malaysia, Philippines, Thailand, and Vietnam (Scorpiones: Chaerilidae)

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**Summary**

*Chaerilus cinrmmani* sp. n. from Thailand, *C. seiteri* sp. n. from Philippines (Negros Island), *C. solegladi* sp. n. from Indonesia and Malaysia (Borneo Island), *C. terueli* sp. n. from Vietnam (Côn Son Island), and *C. wrzecionkoi* sp. n. from China (Tibet) are described. A key to all species of the genus *Chaerilus* Simon, 1877 is also presented.

**Abbreviations**

FKCP – František Kovařík, private collection, Praha, Czech Republic.
NMWA – Naturhistorisches Museum Wien, Vienna, Austria.

**Systematics**

*Chaerilus* Simon, 1877

(Figs. 1–77)

**Family Chaerilidae** Pocock, 1893

(Figs. 1–77)

*Chaerilini* Pocock, 1893: 306.


**Type species.** *Chaerilus variegatus* Simon, 1877.

**Diagnosis.** Total length 15–75.4 mm. Pedipalp patella with three ventral trichobothria and pedipalp femur with 9 trichobothria, 4 of them dorsal (Type B). Fifth metasomal segment with a single ventral carina. Sternum subpentagonal (Type 1). Legs without tibial spurs, but with prolateral and retrolateral pedal spurs. Tarsi of legs bear two rows of ventral setae and a median row of spinules. Telson without a subaculear tubercle. Ventral edge of cheliceral movable finger crenulated, dorsal edge with a single subdistal denticle. Ventral surface of cheliceral fixed finger with four denticles.

**Key to species of genus *Chaerilus***

1. Median and lateral eyes present. ......................... 2
   – Median and lateral eyes absent. .......................  

   *C. sabinae* Lourenço, 1995 and *C. telnovi* Lourenço, 2009
2. Movable finger of pedipalp with 6–8 rows of granules (Fig. 36). ........................................3
   – Movable finger of pedipalp with 9–16 rows of granules (Fig. 16). .......................................20

3. Occurs in China or India. ............................16
   – Does not occur in China or India. ...................4

4. Metasoma very slender, fifth metasomal segment with length/width ratio higher than 2.9. ........5
   – Fifth metasomal segment with length/width ratio lower than 2.5. .....................................6

5. Trichobothrium d2 and d3 on patella of pedipalp either absent on dorsal surface but present as internal tri-
   chobothrium. .... C. chapmani Vachon et Lourenço, 1985
   – Trichobothrium d2 on patella of pedipalp on dorsal surface, trichobothrium d3 on dorsal/internal edge............. C. agilis Pocock, 1899

6. Total length of adults under 40 mm. ...............8
   – Total length of adults over 40 mm. ................7

7. Manus of pedipalp in male narrow. Chela
   length/width ratio in male higher than 3. ................. C. laevimanus Pocock, 1899
   – Manus of pedipalp in male robust (Fig. 38). Chela
   length/width ratio in adults lower than 2.2. .................. C. solegladi Kovařík, sp. n.

8. Ventral sides of seventh sternite smooth (granules
   may be present on margins of seventh sternite) (Fig. 29).
   – Ventral sides of first metasomal segment and seventh
   sternite granulated. ........................................ C. petzelkai Kovařík, 2000 and C. phami Lourenço, 2011

9. Male has chela of pedipalp much narrower than female (Fig. 18 versus Fig. 30). ..........................10
   – Male has chela of pedipalp wide and ampullar (Fig. 50). .......................................................13

10. Chela length/width ratio in male is higher than 4. .................................................................12
    – Chela length/width ratio in male is lower than 3.7. ..............................................................11

11. First to third metasomal segments are wider than long in both sexes. Telson is spotted (Fig. 29).
    .......................................................... C. seiteri Kovařík, sp. n.
    – Third metasomal segment is longer than wide or as
    long as wide. Telson is yellow without spots.............. C. sejnai Kovařík, 2005

12. Male with shorter fingers of chela. Chela length to
    finger length ratio in male higher than 2.6. Occurs in
    Laos. ................................................. C. laeticus Lourenço et Zhu, 2008
    – Chela length to finger length ratio in male lower than
    2.2. Occurs in Malaysia. .... C. rectimanus Pocock, 1899

13. Adult male has fingers flexed (Fig. 51). ............ C. terueli Kovařík, sp. n.
    – Male has fingers straight (Fig. 69). ....................14

14. All metasomal segments dorsally with a pair rows of
    granules, which may form incomplete carinae. ....... C. ojangureni Kovařík, 2005
    – Metasomal segments dorsally without granules, at
    least fourth and fifth segments dorsally quite smooth. .............................................................15

15. Total length 17–30 mm. Pectinal teeth number 3–5.
    Chela ampullar. Fingers of chela short. Chela length to
    movable finger length ratio in male higher than 2.... C. celebensis Pocock, 1894, C. philippinus
    Lourenço et Ythier, 2008, C. thai Lourenço et al., 2010, and C. spinatus Lourenço et Duhem, 2010
    – Total length 27–35 mm. Pectinal teeth number 5–7
    Chela not ampullar. Chela length to movable finger
    length ratio in male lower than 2. ........................ C. borneensis Simon, 1880

16. Anterior margin of carapace straight or weakly concave in both sexes. .................................17
    – Anterior margin of male carapace arched. ............ C. assamensis Kraepelin, 1913

17. Second metasomal segment with 10 carinae.
    ........................................................ C. conchiformus Zhu et al., 2008
    – Second metasomal segment with 8 carinae. ..........18

18. Seventh sternite with 4 distinct carinae.
    ...................................................... C. mainlingensis Di et Zhu, 2009
    – Seventh sternite granulated but without carinae. .... 19

19. Manus of pedipalp in male narrow and long. Chela
    length/width ratio in male higher than 3. .............. C. tryznai Kovařík, 2000
    – Manus of pedipalp in male robust (Fig. 68). Chela
    length/width ratio in adults lower than 2.6. ............ C. wrzečionkoi Kovařík, sp. n.

    ...................................................... C. ceylonensis Pocock, 1894
    – Chela of pedipalp with 8 carinae or less. Fingers not
    markedly short ...........................................21

21. Manus of pedipalp lobate and very wide. Adult male
    has fingers flexed. .......................................22
– Manus of pedipalp non-lobate and not as wide. Adult male has fingers straight. .................................................. 23

22. Movable finger of pedipalp with 11 rows of granules. ................................................. C. robinsoni Hirst, 1911
– Movable finger of pedipalp with 13–14 rows of granules. ................................................. C. variegatus Simon, 1880

23. Male telson very long and narrow. Aculeus short. ......................................................... C. pictus (Pocock, 1890)
– Aculeus of both sexes similar, ampullar. ................................................................. 24

24. Chela lacking one dorsal and one internal carina. Total of 6 carinae on chela of pedipalp. ................................................................. C. tricostatus Pocock, 1899
– Chela with full number of dorsal carinae, internal carina may or may not be developed. Total of 7 or 8 carinae on chela of pedipalp. ................................................................. 25

– Pectinal teeth number 3–8. Movable finger of pedipalp with 9–14 rows of granules. ................................................................. 26

26. Manus of pedipalp narrow and long. Chela length/width ratio in adults higher than 3.3. ................................................................. C. insignis Pocock, 1894
– Chela length/width ratio in adults lower than 3.2. ................................................................. 27

27. Total length of adults 45–68 mm. Occurs in China, India and Nepal. ................................................................. 31
– Total length of adults 46 mm or less. Occurs in Andaman Islands, Indonesia, Malaysia, Thailand, and Vietnam. ................................................................. 28

28. Total length of adult 25 mm. Pectinal teeth number 8 (male). Occurs in Andaman Islands. ................................................................. C. andamanensis Lourenço et al., 2011
– Total length of adults 25–46 mm. Pectinal teeth number 4–7. Occurs in Indonesia, Malaysia, Thailand, and Vietnam. ................................................................. 29

29. Movable finger of pedipalp with 12–14 cutting edges. ................................................. C. cavernicola Pocock, 1894
– Movable finger of pedipalps with 10–11 cutting edges. ................................................................. 30

– Chela length/width ratio in both sexes lower than 2.2. ................................................................. C. cimrmani Kovář, sp. n.

31. Third metasomal segment with 8 carinae. ................................................................. 32
– Third metasomal segment with 10 carinae. ................................................................. C. tessellatus Qi et al., 2005

32. Male telson strongly depressed dorsally. ................................................................. C. annapurna Lourenço et Duhem, 2010
– Male telson straight dorsally. ................................................................. C. truncatus Karsch, 1879

Chaerilus cimrmani Kovář, sp. n.
(Figs. 1–17)


TYPE LOCALITY AND TYPE REPOSITORY. Thailand, Phetchaburi Province, 2 km N of Ban Sa Yai Non, 12°56’58”N 99°47’44”E, 40 m a.s.l.; FKCP.

TYPE MATERIAL. Thailand, Phetchaburi Province, 2 km N of Ban Sa Yai Non, 12°56’58”N 99°47’44”E, 40 m a.s.l., 16.-18.I.2006, 1♂ (holotype) 1♀ (allotype) 1im. (paratype), leg. S. Bečvár and R. Fousqué, FKCP; Trang Province, 20 km E of Trang, XI.1998, 1♂ (paratype), leg. Kozmík, FKCP.

ETYMOLOGY. Named after Jára Cimrman, a well known Czech renaissance man.

DIAGNOSIS. Total length 31–38 mm. Two pairs of lateral eyes and one pair of median eyes. Chela of pedipalp wide and ampullar, identical in both sexes. Movable finger of pedipalp with 10 or 11 cutting edges. Chela of pedipalp with 7 or 8 granulated carinae. Patella with 5 carinae, femur with 4 or 5 carinae. Pectinal teeth number 4–5. Carapace granulated. Anterior margin of carapace straight to weakly concave. Mesosomal tergites granulated. All sternites smooth, without carinae. First metasomal segment with 6 to 10 carinae, second with 8 to 10 carinae, third and fourth segments with 8 carinae, fifth segment with 7 carinae. Dorsal surfaces of all metasomal segments granulated.

DESCRIPTION. Total length 31–38 mm. Two pairs of lateral eyes and one pair of median eyes. The male has relatively larger pectens. The chela of pedipalp is wide and ampullar, identical in both sexes. Pectinal teeth number 4–5. For the position and distribution of trichobothria see Figs. 9–15. Trichobothrium d2 of pedipal patella is located on edge between the dorsal and internal surfaces, and trichobothrium d3 is located on the internal surface (Fig. 12).

COLORATION. The color is reddish to black, spotted. Legs, pedipalps and telson are red to yellow, lighter than the mesosoma, and spotted.

MESOSOMA AND CARAPACE. The entire carapace is covered by large granules, the larger of which form two longitudinal, symmetrical carinae. The anterior margin of the carapace is straight to weakly concave. The mesosomal tergites are granulated, less so in the male
Figures 1–17: Chaerilus cimrmani Kovařík, sp. n. 1–5. Dorsal (1) and ventral (2) views, pectens (3), metasoma dorsal (4) and ventral (5), ♂ (31 mm) holotype. 6–8. Dorsal (6) and ventral (7) views, and pectens (8), ♀ (38 mm) allotype. 9–17. Trichobothrial pattern of pedipalp (9–15), movable finger (16), and carapace (17), ♀ (37 mm) paratype.
holotype and more densely in larger females. All sternites are smooth, without carinae.

**Metasoma and Telson.** The first metasomal segment bears 6 to 10 carinae, the second bears 8 to 10 carinae, the third and fourth segments bear eight carinae, and the fifth segment bears seven carinae of which one ventral carina posteriorly branches to form the letter “Y”. All carinae are composed of sparse and denticulate granules. The spaces between carinae are irregularly granulated on all surfaces. Granules on the dorsal surface may form a pair of carinae. All segments are sparsely hirsute. The telson is elongate, smooth and sparsely hirsute.

**Pedipalps.** The movable finger has 10 (male holotype) or 11 (female allotype) cutting edges (Fig. 16). The chela has seven or eight granulated carinae. The carina on the externolateral surface of chela may be incomplete. The patella has five carinae and the femur has four or five carinae. All carinae consist of granules. The spaces between carinae are covered by unevenly spaced small granules that form a reticulate pattern on the dorsal surface of the chela.

**Legs.** The legs are hirsute, without bristlecombs and carinae. The femora are granulated, and solitary granules may be present also on the patella.

**Measurements in mm.** Total length of male holotype 31; carapace length 4.3, width 4.3; metasoma and telson length 16; first metasomal segment length 1.8, width 2.1; second metasomal segment length 1.9, width 1.9; third metasomal segment length 1.9, width 1.9; fourth metasomal segment length 2.2, width 1.8; fifth metasomal segment length 3.8, width 1.7; telson length 4.3; pedipalp femur length 2.9, width 1.4; pedipalp patella length 3.2, width 1.6; chela length 6.7; manus width 3.1; movable finger length 3.5.

Total length of female allotype 38; carapace length 5.1, width 5.2; metasoma and telson length 17.7; first metasomal segment length 1.6, width 2.7; second metasomal segment length 2.1, width 2.3; third metasomal segment length 2.2, width 2.2; fourth metasomal segment length 2.4, width 2.1; fifth metasomal segment length 4.4, width 2.1; telson length 5; pedipalp femur length 3.5, width 1.7; pedipalp patella length 3.6, width 1.9; chela length 7.7; manus width 3.9; movable finger length 4.3.

**Affinities.** The described features distinguish *C. cimrmani* sp. n. from all other species of the genus. They are recounted in the key. Morphologically closest is *C. cavernicola*, with which the female paratype was formerly confused (see Kovářík, 2000: 42). However, these two species can be easily separated, because *C. cavernicola* has the dorsal surfaces of metasomal segments smooth, especially the fourth and fifth segments, whereas *C. cimrmani* sp. n. has all metasomal segments dorsally granulated. The movable finger of pedipalp has 12–14 cutting edges in *C. cavernicola* and only 10–11 cutting edges in *C. cimrmani* sp. n.

**Chaerilus seiteri** Kovářík, sp. n.

(Figs. 18–33)

**Type Locality and Type Repository.** Philippines, Negros Island; NMWA.

**Type Material.** Philippines, Negros Island, 1♂ (holotype), NMWA, 1♂1♀ (paratypes), FKCP, reared by Michael Seiter in 2011-2012.

**Etymology.** Named after Michael Seiter, an Austrian arachnologist.

**Diagnosis.** Total length 23–25 mm. Two pairs of lateral eyes and one pair of median eyes. Movable finger of pedipalp with 7 edges composed of granules. Fingers straight in both sexes. Chela of pedipalp with 8 carinae, patella with 5 carinae, femur with 4 carinae. Patella of pedipalp bears an internal tubercle. Pectinal teeth number 5 in males and 4 in female. Male differs from female in having pedipalp chela much narrower. Chela length/width ratio in males = 3.2–3.5. Carapace and mesosomal tergites sparsely covered by granules. Stermites smooth, without carinae. Carinae of metasomal segments consist of large, pointed, widely spaced granules. First to fourth metasomal segments with 4 to 6 carinae of which lateral can be incomplete or missing. First metasomal segment with ventral side smooth, devoid of granules. Second to fourth segments may or may not have 2 ventral carinae and lack lateral carinae. Fifth metasomal segment with 7 carinae. Spaces between carinae smooth. Color yellow or reddish to black, spotted including telson.

**Description.** Total length 23–25 mm. Two pairs of lateral eyes and one pair of median eyes. The male has relatively larger pectens. The chela of pedipalp is narrow. Male differs from female in having pedipalp chela much narrower. Fingers straight in both sexes. Pectinal teeth number 5 in male and 4 in female. For the position and distribution of trichobothria see Figs. 20–26.

**Coloration.** The color is yellow or reddish to black, spotted including telson. Younger specimens have lighter ornament. The manus of chela is reddish to black, spotted including telson. Numerous white setae are on teeth of pectines.
Figures 18–33: *Chaerilus seiteri* Kovařík, sp. n. 18–29. Dorsal (18) and ventral (19) views, trichobothrial pattern of pedipalp (20–26), carapace and chelicerae (27), pectens, and metasoma (together with seventh sternite and telson) ventral (29), ♂ (24 mm) paratype. 30–32. Dorsal (30) and ventral (31) views, and pectens (32), ♀ (38 mm) allotype. 33. Male holotype.
Metasoma and telson. The first to fourth metasomal segments bear four to six carinae of which the lateral ones can be incomplete or missing. The first metasomal segment has the ventral side smooth, devoid of granules. The second to fourth segments may or may not have two ventral carinae and lack lateral carinae. The fifth metasomal segment bears seven carinae of which one ventral carina posteriorly branches to form the letter “Y”. All carinae are composed of sparse and denticulate granules. Spaces between carinae are smooth. All segments are sparsely covered by white hairs. The telson is elongate, smooth and sparsely hirsute, mainly in ventral part.

Pedipalps. The movable finger has seven edges. The chela bears eight granulated carinae, the carina on the external lateral surface may be incomplete. The patella bears five carinae and the femur bears four or five carinae. All carinae consist of granules and are black. The spaces between carinae are covered by unevenly spaced small granules that can form a reticulate pattern on the dorsal surface of the chela. The patella of pedipalp bears an internal tubercle.

Legs. The legs are hirsute, without bristlecombs and carinae. The femora are sparsely granulated, and solitary granules may be present also on the patella.

Measurements in mm. Total length of male paratype 24.2; carapace length 3.6, width 3.6; metasoma and telson length 12.2; first metasomal segment length 1.2, width 1.85; second metasomal segment length 1.35, width 1.65; third metasomal segment length 1.4, width 1.55; fourth metasomal segment length 1.6, width 1.45; fifth metasomal segment length 2.95, width 1.4; telson length 3.7; pedipalp femur length 3.4, width 1.15; pedipalp patella length 3.75, width 1.3; chela length 6.95; manus width 2.0; movable finger length 3.45.

Total length of female paratype 23; carapace length 3.4, width 3.8; metasoma and telson length 11.9; first metasomal segment length 1.05, width 1.95; second metasomal segment length 1.3, width 1.55; third metasomal segment length 1.4, width 1.45; fourth metasomal segment length 1.55, width 1.35; fifth metasomal segment length 2.8, width 1.4; telson length 3.8; pedipalp femur length 2.75, width 1.25; pedipalp patella length 3.1, width 1.4; chela length 6.3; manus width 2.28; movable finger length 3.35.

Affinities. The described features distinguish C. seiteri sp. n. from all other species of the genus. They are recounted in the key. Morphologically closest are C. rectimanus, C. sejnai, C. phami and probably C. petrzelkai. The smooth ventral sides of the seventh sternite distinguish C. seiteri sp. n. from C. phami and C. petrzelkai, which have the ventral sides of the first metasomal segment and the seventh sternite granulated. The male of C. rectimanus has longer and narrower chela of pedipalps. The chela length/width ratio in male C. rectimanus is higher than 4, whereas in C. seiteri sp. n. the ratio in the males 3.2 to 3.5 similar as C. sejnai, in which the male chela length/width ratio is 3.2 to 3.6. It appears that C. sejnai is the species most closely related to C. seiteri sp. n. These two species differ in the shape of the metasomal segments; in C. seiteri sp. n. the first to third metasomal segments are wider than long in both sexes, whereas in C. sejnai the third metasomal segment is longer than wide or as long as wide. Another difference can be seen in the color of the telson, which in C. sejnai is yellow without spots and contrasts with coloration of other body parts, whereas in C. seiteri sp. n. it is spotted (Fig. 32).

Chaerilus solegladi Kovář, sp. n. (Figs. 34–47)

Type locality and type repository. Indonesia, Borneo Island; RMNH.

Type material. Indonesia, Borneo Island, Exped. Dr. Nieuwenhuis, 1894, 2♂□; 3♂♂jvs. (holotype, allotype and paratypes), RMNH Nos. 279 and 280; Malaysia, Borneo Island, Sabah, Sepilok, 1♂ (paratype), III.2012, leg. M. Čermicka, FKCP; Malaysia, Borneo Island, Sabah, Kinabatangan, 1♂1♀12 juveniles (paratypes, still alive), III.2012, leg. J. Severa, FKCP.

Etymology. Named after my colleague and friend Michael Soleglad, who has contributed to our knowledge of scorpions in many ways.

Diagnosis. Total length 42–45 mm. Two pairs of lateral eyes and one pair of median eyes. Movable finger of pedipalp with 7 or 8 cutting edges composed of granules. Fingers straight in both sexes. Manus of pedipalp in male robust. Chela of pedipalp with 7 or 8 carinae, patella with 5 carinae, femur with 4 carinae. Pectinal teeth number 4–5. Chela of pedipalp wide and ampullar, identical in both sexes or wider in male than in female. Entire carapace granulated. Even larger granules form two symmetrical, longitudinal carinae, which may reach posterior margin of carapace. Mesosomal tergites granulated, but without carinae. Stermites smooth, without carinae. First metasomal segments lack ventral carinae; ventral side of first metasomal segment usually smooth, but may bear several solitary granules. First through fourth metasomal segments with 6–8 carinae. All metasomal segments dorsally with a pair of rows of granules, which may form incomplete carinae. Fifth metasomal segment bears 7 carinae and is densely granulated.

Description. Total length 42–45 mm. Two pairs of lateral eyes and one pair of median eyes. The male has relatively larger pectens. Pectinal teeth number four (female) or five (male). For the position and distribution of trichobothria see Figs. 38–45. Trichobothrium d2 of
Figures 34–47: *Chaerilus soleladi* Kovařík, sp. n., 34–44. Dorsal (34) and ventral (35) views, movable finger (36), second metasomal segment lateral (37), and trichobothrial pattern of pedipalp (38–45), ♂ (45 mm) holotype. 46–47. Dorsal (46) and ventral (47) views, ♀ (42 mm) allotype.
the pedipalp patella is located on the edge between dorsal and internal surfaces. Trichobothrium d3 is located on the internal surface. (Fig. 41). The chelicerae are granulated.

COLORATION. The color is dark brown to black.

MESOSOMA AND CARAPACE. The entire carapace is covered by large granules, the larger of which form two longitudinal, symmetrical carinae. The anterior margin of carapace is straight. The mesosomal tergites are granulated, but without carinae. The sternites are smooth, without carinae and without glossy zones in the middle of the posterior margin.

METASOMA AND TELSON. The first through fourth metasomal segments bear six to eight carinae (two ventral carinae and main lateral carinae may be poorly developed or absent); the fifth segment bears seven carinae of which one ventral carina posteriorly branches to form the letter “Y”. All carinae are composed of posteriorly inclined, denticulate granules. The spaces between carinae are irregularly granulated on lateral and ventral surfaces; the dorsal surface is smooth but bears pair rows of granules, which may form incomplete carinae. All segments are sparsely hirsute. The telson is elongate, smooth and sparsely hirsute.

PEDIPALPS. The movable finger has seven or eight cutting edges composed of granules. The chela has seven or eight granulated carinae. The patella has five carinae and the femur has four carinae. All carinae consist of widely spaced, rounded granules. The spaces between carinae are covered by unevenly spaced small granules, which on the chela form a reticulate pattern.

LEGS. The legs are hirsute, without bristlecombs and carinae.

MEASUREMENTS IN MM. Total length of male holotype 45; carapace length 6.4, width 6.6; metasoma and telson length 26.9; first metasomal segment length 2.7, width 3.7; second metasomal segment length 3.3, width 3.3; third metasomal segment length 3.4, width 3.3; fourth metasomal segment length 3.6, width 3; fifth metasomal segment length 6.7, width 2.9; telson length 7.2; pedipalp femur length 5.2, width 2.3; pedipalp patella length 5.6, width 2.7; chela length 12.2; manus width 6.1; movable finger length 6.3.

Total length of female allotype 42; carapace length 5.2, width 6.3; metasoma and telson length 23.5; first metasomal segment length 2.3, width 2.6; second metasomal segment length 2.4, width 2.5; third metasomal segment length 2.4, width 2.4; fourth metasomal segment length 3.5, width 2.8; fifth metasomal segment length 6.2, width 2.7; telson length 6.7; pedipalp femur length 4.5, width 1.9; pedipalp patella length 4.8, width 2.2; chela length 9.3; manus width 4; movable finger length 4.6.

AFFINITIES. The described features distinguish C. solegladi sp. n. from all other species of the genus. They are recounted in the key. The female of C. solegladi sp. n. is very similar to C. laevimanus, but the males of these two species are quite different. Whereas the male of C. laevimanus has longer and narrower chela of pedipalps, the male of C. solegladi sp. n. has the chela robust (Fig. 38) like the male of C. variegatus. However, these two species cannot be confused, because C. variegatus has the movable finger of pedipalp with 13–15 cutting edges composed of granules, whereas C. solegladi sp. n. has the movable finger with 7 or 8 cutting edges composed of granules.

Chaerilus terueli Kovařík, sp. n.
(Figs. 48–61)

TYPE LOCALITY AND TYPE REPOSITORY. Vietnam, Côn Son Island (Poulo Condore); FKCP.

TYPE MATERIAL. Vietnam, Côn Son Island (Poulo Condore), III.2012, 1♂ (holotype) 2♀ (paratypes), leg. V. Fura, FKCP.

ETYMOLOGY. Named after my colleague and friend Rolando Teruel Ochoa, who has contributed to our knowledge of scorpions in many ways.

DIAGNOSIS. Total length 31–37 mm. Two pairs of lateral eyes and one pair of median eyes. Movable finger of pedipalp with 7–8 cutting edges composed of granules. Chela of pedipalp wide and ampullar, adult male has fingers strongly flexed. Manus of pedipalp in male robust. Chela of pedipalp with 4 complete carinae, patella with 4 or 5 carinae, femur with 4 carinae. Pectinal teeth 5–6 in males. Entire carapace granulated. Larger granules form two symmetrical, longitudinal carinae. Mesosomal tergites granulated. Several large, symmetrical granules on posterior margins of tergites II–VI may be interpreted as incomplete carinae. Stermites smooth, without carinae. First metasomal segments lack ventral carinae; ventral side of first metasomal segment smooth, but may bear several solitary granules. First through third metasomal segments with 6–8 carinae; dorsally with a pair of rows of granules, which may form incomplete carinae. Fourth metasomal segment with 8 carinae and irregular granules on lateral surface.

DESCRIPTION. Total males length 31–37 mm. Two pairs of lateral eyes and one pair of median eyes. Pectinal teeth number 5–6 (3x5, 3x6) in males. For the position and distribution of trichobothria see Fig. 50–56. Trichobothrium d2 of the pedipalp patella is located on the edge between dorsal and internal surfaces. Trichobothrium d3 is located on the internal surface. (Fig. 53). The chelicerae are granulated.

COLORATION. The color is reddish to black, spotted. Younger specimens are lighter-colored. Legs, pedipalps
(mainly chela) and telson are red to yellow, lighter than the mesosoma.

**Mesosoma and Carapace.** The entire carapace is covered by large granules, the larger of which form two longitudinal, symmetrical carinae. The anterior margin of the carapace is straight to weakly concave. The mesosomal tergites are granulated. Several large, symmetrical granules on the posterior margins of tergites II–VI may be interpreted as incomplete carinae. The sternites are smooth, without carinae and without glossy zones in the middle of the posterior margin.

**Metasoma and Telson.** The first through third metasomal segments bear six to eight carinae (two ventral carinae and main lateral carinae may be poorly developed or absent); the fourth metasomal segment bears eight carinae and irregular granules on lateral surface. The fifth segment bears five to seven carinae of which one ventral carina posteriorly branches to form the letter...
“Y”. All carinae are composed of posteriorly inclined, denticulate granules. The spaces between carinae are irregularly granulated on lateral, ventral and dorsal surfaces; the dorsal surface bears a double row of granules, which may form incomplete carinae. All segments are sparsely hirsute. The telson is elongate, finely granulate and sparsely hirsute.

PEDIPALPS. The chela of pedipalp is wide and ampullar, the adult male has fingers strongly flexed (Fig. 51). The male manus of pedipalp is robust. The movable finger of pedipalp has seven to eight cutting edges and the fixed finger has six to seven cutting edges composed of granules. The chela of pedipalp has four complete carinae, the patella has four or five carinae and the femur has four carinae. All carinae consist of widely spaced, rounded granules. The spaces between carinae are covered by unevenly spaced small granules, which on the chela form a reticulate pattern.

LEGS. The legs are hirsute, without bristlecombs and carinae but with macrosetae.

MEASUREMENTS IN MM. Total length of male holotype 33.7; carapace length 4.5, width 4.6; metasoma and telson length 17.7; first metasomal segment length 1.6, width 2.5; second metasomal segment length 2.0, width 2.3; third metasomal segment length 2.1, width 2.2; fourth metasomal segment length 2.4, width 1.9; fifth metasomal segment length 4.5, width 1.9; telson length 5.1; pedipalp femur length 3.6, width 1.4; pedipalp patella length 3.6, width 1.6; chela length 7.9; manus width 4.3; movable finger length 4.1.

AFFINITIES. The described features distinguish C. terueli sp. n. from all other species of the genus. They are recounted in the key. The male of C. terueli sp. n. has the chela robust (Fig. 50) like the male of C. solegladi sp. n., C. robinsoni and C. variegatus. Of these species only C. solegladi sp. n. has the movable finger with seven or eight cutting edges composed of granules (Fig. 36), like C. terueli sp. n., C. robinsoni has the movable finger with 11 cutting edges and C. variegatus with 13–15 cutting edges. However, C. solegladi sp. n. and C. terueli sp. n. cannot be confused, because C. solegladi sp. n. has the fingers straight in both sexes (Fig. 39), whereas the adult male of C. terueli sp. n. has the fingers strongly flexed (Fig. 51).

Chaerilus wrzecionkoi Kovarik, sp. n. (Figs. 62–77)

TYPE LOCALITY AND TYPE REPOSITORY. China, Tibet, Tomi (Tangmai), 30 km W of Donjung, 2075 m a.s.l.; FKCP.

TYPE MATERIAL. China, Tibet, Tomi (Tangmai), 30 km W of Donjung, 2075 m a.s.l., 23.VI.2007, 2♂2♀ (holotype, allotype and paratypes), leg. A. Wrzecionko; FKCP.

ETYMOLOGY. Named after Antonin Wrzecionko, who collected the type series.

DIAGNOSIS. Total length 33–41 mm. Two pairs of lateral eyes and one pair of median eyes. Male has a slightly longer pedipalp chela. Color dark brown to black. Manus of male pedipalp robust (Fig. 68). Chela length/width ratio in adults lower than 2.6. Movable finger of pedipalp with 8 cutting edges. Chela of pedipalp with 7 or 8 granulated carinae. Patella with 5 carinae, femur with 4 or 5 carinae. Pectinal teeth number 3–5. Carapace granulated. Anterior margin of carapace straight. Mesosomal tergites granulated. Seventh sternite granular, without carinae, other sternites smooth. First metasomal segment with 10 carinae, second thought fourth segments with 8 carinae, fifth segment with 7 carinae.

DESCRIPTION. Total length 33–41 mm. Two pairs of lateral eyes and one pair of median eyes present. The male has relatively larger pectens and telson, and differs from the female also in shape of the pedipalp manus and in having a slightly longer pedipalp chela. Pectinal teeth number 3–5 (females 3x4, 1x4; males 1x4, 3x5). For the position and distribution of trichobothria see Figs. 68–74. Trichobothrium d2 is situated on the dorsal surface and d3 on the internal surface of the patella (Fig. 69).

COLORATION. The color is dark brown to black.

MESOSOMA AND CARAPACE. The entire carapace is sparsely covered by large granules, the larger of which form two longitudinal, symmetrical carinae. The anterior margin of carapace is straight. The mesosomal tergites are granulated, the first to third segments weakly and the last segment densely. The seventh sternite lacks carinae and is covered by granules of unequal size, several of them large and hemispherical (Fig. 65). Other sternites are smooth. The fifth sternite has a glossy zone in the middle of posterior margin.

METASOMA AND TELSON. The first metasomal segment bears 10 carinae, the second thought fourth segments bear eight carinae, and the fifth segment bears seven carinae of which one ventral carina posteriorly branches to form the letter “Y”. All carinae are composed of sparse and denticulate granules. The spaces between carinae are irregularly granulated on lateral surfaces; the dorsal surface is smooth. All segments are sparsely hirsute. The telson is elongate, smooth and sparsely hirsute.

PEDIPALPS. The movable finger has eight cutting edges. The chela has seven or eight granulated carinae. The carina on the externolateral surface of chela may be incomplete. The patella has five carinae and the femur has four or five carinae. All carinae consist of widely
Figures 62–77: Chaerilus wrzecionkoi Kovařík, sp. n., 62–75. Dorsal (62) and ventral (63) views, movable finger (64), seventh sternite and first metasomal segment ventral (65), first and second metasomal segments lateral (66), pectens (67), trichobothrial pattern of pedipalp (68–74), and telson (75), ♂ (37 mm) holotype. 76–77. Dorsal (76) and ventral (77) views, ♀ (39 mm) allotype.
spaced rounded granules. The spaces between carinae are covered by unevenly spaced small granules.

LEGS. The legs are hirsute, without bristlecombs and carinae. The femora bear solitary granules.

MEASUREMENTS IN MM. Total length of male holotype 37; carapace length 4.3, width 4.4; metasoma and telson length 19.1; first metasomal segment length 2.0, width 2.4; second metasomal segment length 2.4, width 2.0; third metasomal segment length 2.4, width 2; fourth metasomal segment length 2.7, width 1.9; fifth metasomal segment length 4.7, width 1.8; telson length 4.9; pedipalp femur length 4.5, width 1.6; pedipalp patella length 4.8, width 1.7; chela length 9; manus width 3.5; movable finger length 5.

Total length of female allotype 39; carapace length 4.5, width 5.1; metasoma and telson length 18.2; first metasomal segment length 1.8, width 2.7; second metasomal segment length 2.2, width 2.2; third metasomal segment length 2.2, width 2; fourth metasomal segment length 2.7, width 1.8; fifth metasomal segment length 4.4, width 1.6; telson length 4.9; pedipalp femur length 3.7, width 1.7; pedipalp patella length 4, width 2.2; chela length 8.3; manus width 3.5; movable finger length 4.5.

AFFINITIES. The described features distinguish C. wrzecionkoi sp. n. from all other species of the genus. They are recounted in the key. Morphologically closest are C. mainlingensis Di et Zhu, 2009 and C. tryznai Kovařík, 2000. Both these species have manus and patella of pedipalp narrower and longer. C. mainlingensis Di et Zhu, 2009 also differs in having four distinct carinae on the seventh sternite; C. wrzecionkoi sp. n. has the seventh sternite granulated but without carinae (Fig. 65).

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References


