

**First reports of *Liocheles nigripes* from Indonesia and Malaysia and  
*Hormiops davidovi* from Malaysia (Scorpiones: Ischnuridae)**

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**Abstract.** *Liocheles nigripes* (Pocock, 1897) is compared to all other species of the genus *Liocheles* Sundevall, 1833 and first record for Indonesia and Malaysia is established. Key to species of the genus *Liocheles* is provided. First record of *Hormiops davidovi* Fage, 1933 for Malaysia is established.

**Taxonomy, key, faunistics, Scorpiones, Ischnuridae, *Liocheles nigripes*, *Hormiops davidovi*, Oriental region**

***Hormiops davidovi* Fage, 1933  
(Figs 1–7, Tab. 1)**

*Hormiops davidovi* Fage, 1933: 32; Fage, 1936: 181; Fage, 1944: 71; Takashima, 1945: 94; Vachon, 1974: 918; Lourenço & Monod, 1999: 343.

TYPE LOCALITY. Poulo-Condore, dans la foret, sous les pierres.

MATERIAL EXAMINED. W. Malaysia, Pahang [state], Tioman Island, W. slope of Mt. Kajang, 23.–25.II.1988, leg. S. Bočváf & V. Tichý, 2 males, 2 females, and 1 juv. The specimens are dry mounted and are currently in the author's collection.

REDESCRIPTION. The total length is 28–38 mm. The habitus is shown in Fig. 1. Measurements of the carapace, telson, segments of the metasoma and of the pedipalps, and numbers of pectinal teeth are given in Table 1. There are 5–7 pectinal teeth. For the position and distribution of trichobothria on the patella and chela (tibia) of pedipalps see Figs 3–7.

The color is uniformly brown, only the telson is yellowish brown.

The carapace lacks keels but is sparsely granulated and bears a straight median longitudinal groove. The large median eyes are situated on a slight elevation, and the two pairs of lateral eyes are placed very close to the anterior margin.

The pedipalps lack dorsal and ventral keels, are densely covered by minute granules of nearly equal size, and are punctate. All segments of the pedipalps, and especially the chela, are longer in the male than in the female (see Figs 1 and 2).

The dorsal surface of the mesosoma lacks keels but is tuberculate. In the anterior part of each mesosomal segment is an irregularly delimited but bilaterally symmetrical, slightly elevated area that encompasses the entire width of the segment (Fig. 1). The seventh segment of the mesosoma ventrally bears two furrows.

The legs are lighter in color than the body, only the external surface of the femur and patella are black and bear keels composed of granules.

The metasoma is very thin, sparsely setose, and its segments have rounded, smooth dorsolateral edges instead of keels. Only the third and fourth segments bear two symmetrical, pointed thorns on

Tab. 1. Measurements in millimeters of *Hormiops davidovi* Fage and *Liocheles nigripes* (Pocock). Line denoted "pectinal teeth" contains numbers of both left and right teeth separated by a colon

	<i>Hormiops davidovi</i> male	<i>Hormiops davidovi</i> female	<i>Liocheles nigripes</i> male	<i>Liocheles nigripes</i> female
Total length	29.3	29.1	49.1	38
Carapace length	4.0	3.9	7.4	6.3
width	3.8	4.0	7.7	6.9
Metasoma length	11.9	10.7	21.0	15.4
segment I length	1.4	1.4	2.4	1.8
width	0.9	1.0	1.8	1.5
segment II length	2.0	1.8	2.8	2.3
width	0.7	0.8	1.5	1.2
segment III length	1.9	1.5	3.0	2.3
width	0.7	0.8	1.5	1.2
segment IV length	2.3	2.0	3.5	2.7
width	0.7	0.8	1.4	1.2
segment V length	2.3	2.0	4.3	3.0
width	0.6	0.8	1.4	1.2
telson length	1.9	1.8	4.6	3.2
Pedipalp				
femur length	5.8	4.3	7.6	7.6
width	1.5	1.6	3.1	3.1
patella length	5.2	4.2	7.9	7.9
width	1.9	2.1	3.7	3.7
tibia length	9.5	8.1	15.6	15.6
manus width	2.2	2.8	5.4	5.4
movable finger length	3.5	3.3	6.5	6.5
Pectinal teeth	6:6	5:5	9:8	9:8

the posterodorsal surface. The ventral surface of chiefly the second and fifth segments is tuberculate, with keels and pronounced, pointed thorns. The subaculear tooth is smooth and very sparsely setose.

COMMENTS. Fage based *Hormiops davidovi* on three specimens (one male and two females) collected by M. C. Dawydoff during II.1930 – IV.1932 on Poulo-Condore Island (south Vietnam) and deposited in the Muséum National d'Histoire Naturelle, Paris, France. No other occurrence has so far been reported (Fage, 1933: 32; Lourenco & Monod, 1999: 343), and the discovery of this species on Tioman Island can thus be deemed significant.

### *Liocheles nigripes* (Pocock, 1897)

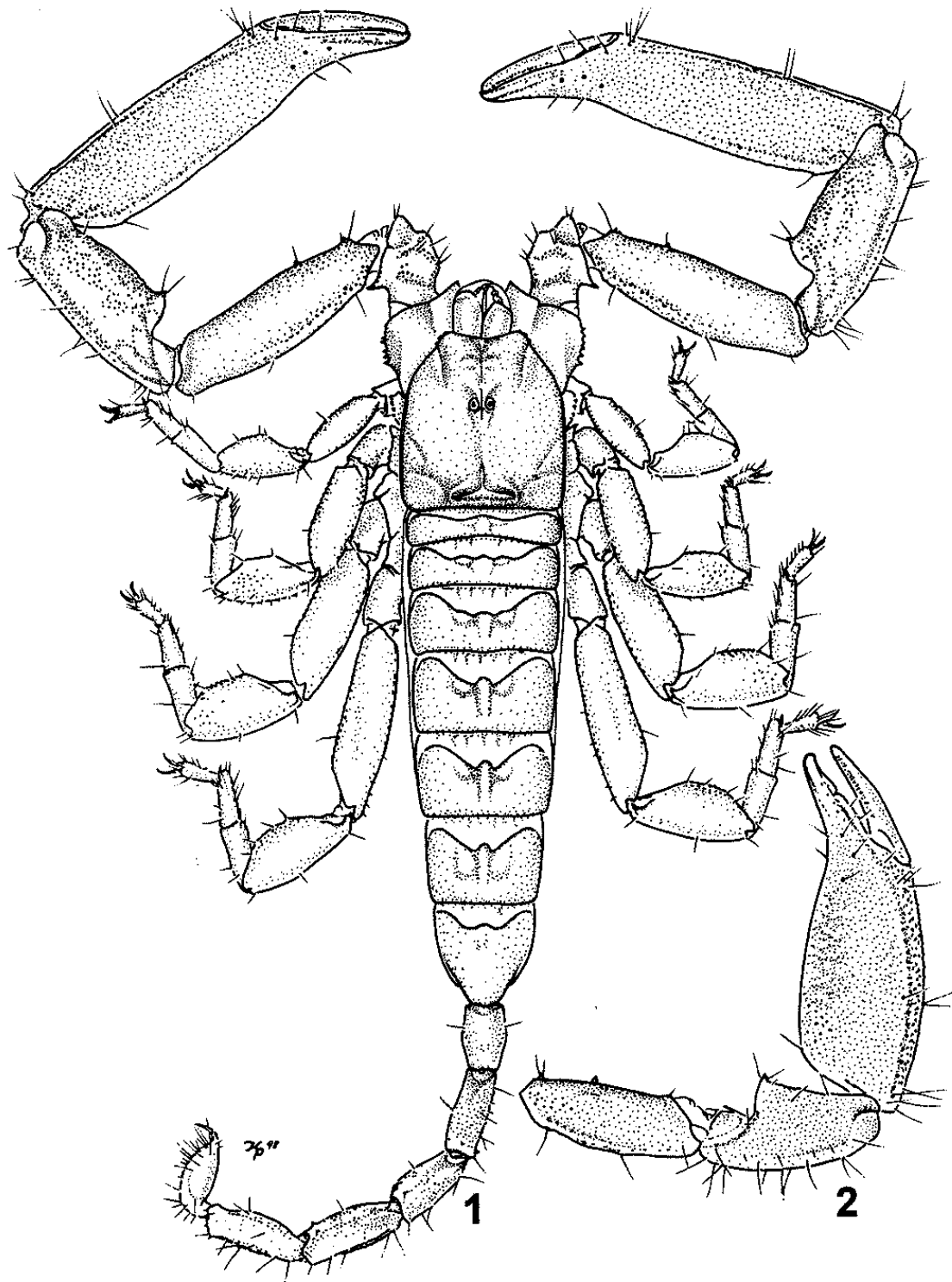
(Figs 8–12, and 14, Table 1)

*Hormurus nigripes* Pocock, 1897: 117; Kraepelin, 1899: 155; Pocock, 1900: 80; Kraepelin, 1913: 163; Giltay, 1931: 10; Fage, 1933: 27; Caius, 1942: 112; Fage, 1944: 72; Minnocci, 1974: 37; Tikader & Bastawade, 1983: 506.

*Hormurus higripes* [sic]: Tikader, 1987: 35.

*Liocheles nigripes*: Takashima, 1945: 95; Kovařík, 1995: 202; Kovařík, 1998: 134.

TYPE LOCALITY. India, Panch Mahals in Guzerat.



Figs 1-2. *Hormiops davidovi* Fage. 1 - dorsal aspect of male. 2 - pedipalp of female.

TYPE MATERIAL EXAMINED. India, Panch Mahals in Gujrat, 1 female (immature) (holotype), leg. W. A. Wallinger. Holotype is in the British Museum (Natural History), London, England.

ADDITIONAL MATERIAL EXAMINED. Indonesia, West Sumatra south, hills above Padangpanjang, 2.–6.IV.1996, leg. S. Bečvář, 1 female (probably immature). W. Malaysia, Cameroon Highland, Tanah Rata, 20.–24.II.1988, leg. O. Bužga & A. Kudrna, 2 males 1 juv. All specimens are in the author's collection.

REDESCRIPTION. The total length is 38–49.1 mm. Holotype (immature female) is 36 mm long. The habitus is shown in Fig. 14. Measurements of the carapace, telson, segments of the metasoma and of the pedipalps, and numbers of pectinal teeth are given in Table 1. There are 8–9 (3×8, 1×9) pectinal teeth in the males and 6 in the females. For the position and distribution of trichobothria on the patella and chela of pedipalps see Figs 8–12. Position of trichobothrium em2 on the external surface of the patella is variable. Trichobothria Et2-5 on the external surface of the chela are arranged in a straight row in the female; their position in the male is shown in Fig. 11.

A color photo of the still-alive male is in Kovařík (1998: 72).

The color is uniformly black to blackish brown, only the telson is yellowish brown and the legs and chelicerae are brown. The carapace, mesosomal tergites, and dorsal surface of the legs may be slightly speckled.

The carapace lacks keels but is densely punctated and bears a straight median longitudinal groove. The large median eyes are situated on a slight elevation, and the three pairs of lateral eyes are placed very close to the anterior margin.

The pedipalps lack dorsal and ventral keels, are densely covered by minute granules of nearly equal size, and are punctate. In contrast to the female, in males the fingers of the chela are conspicuously flexed (Fig. 11).

The dorsal surface of the mesosoma lacks keels but is tuberculate. In the anterior part of each mesosomal segment is an irregularly delimited but bilaterally symmetrical, slightly elevated area that encompasses the entire width of the segment (Fig. 14). The seventh segment of the mesosoma is ventrally punctate, without keels or furrows.

The metasomal segments are sparsely setose and finely punctate, with smooth and rounded dorsal and lateral margins rather than keels. Only the third and fourth segments bear two symmetrical, pointed thorns on the posterodorsal surface. The ventral surface of chiefly the second and less so of the fifth segments is tuberculate, with keels and pronounced, pointed thorns. The subaculear tooth is smooth and very sparsely setose.

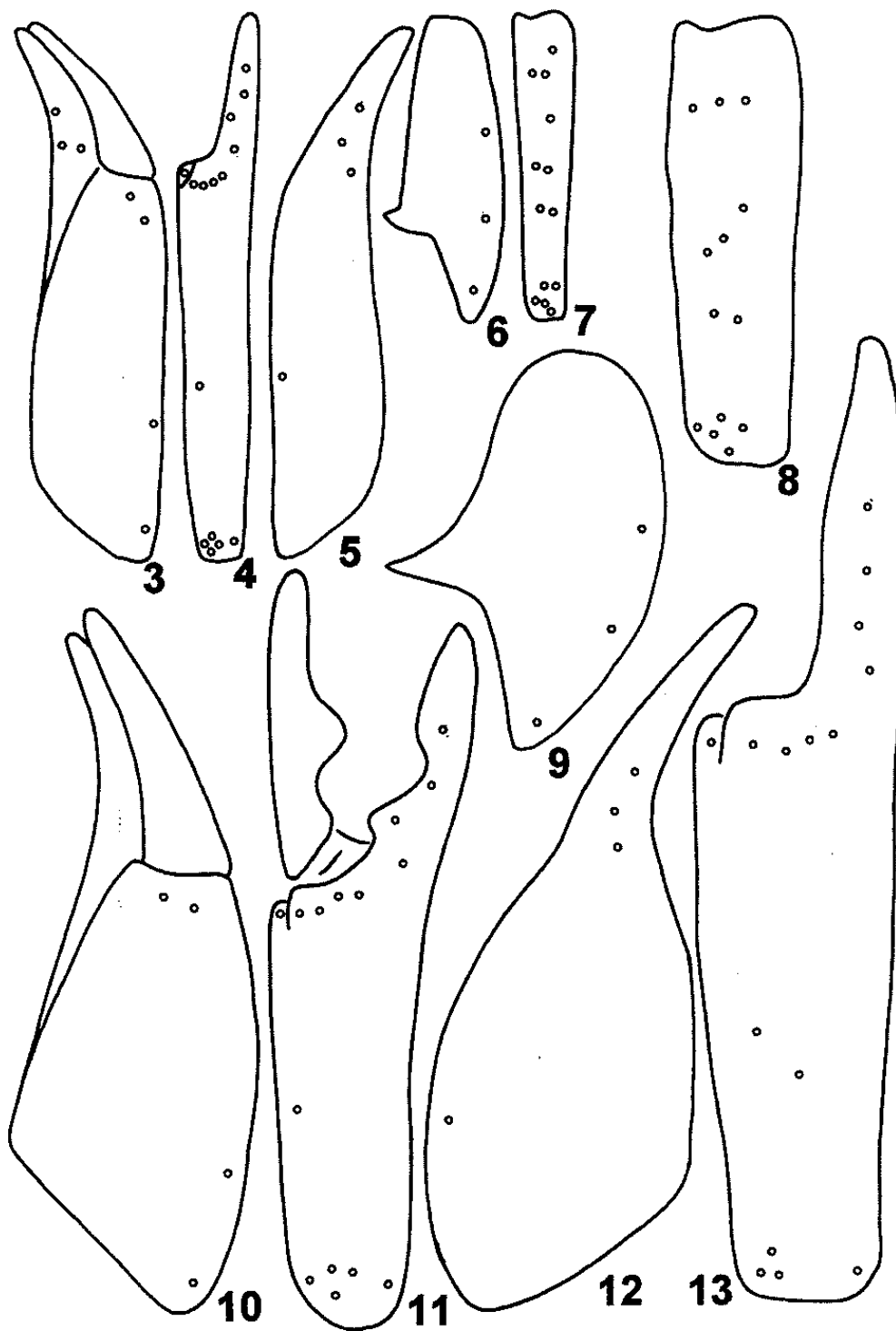
AFFINITIES. The described features distinguish *Liocheles nigripes* from all other species of the genus *Liocheles*. They are recounted in the key below.

*Liocheles nigripes* is most closely related to *L. waigiensis* and *L. karschii*, which however reach larger size and are easily recognized by the position of trichobothria on the external surface of tibia of pedipalps (Figs 11 and 13).

COMMENTS. Sundewall (1833) described the genus *Liocheles* as a subgenus with the type species *Scorpio australasiae* Fabricius, 1775. C. L. Koch (1837) described the genus *Ischnurus* with the type species *Sisyphus* [lapsus calami] (= *Ischnurus*) *complanatus* C. L. Koch, 1837 (= *Liocheles australasiae* Fabricius, 1775). Even recent publications often incorrectly use the generic name *Hormurus* erected by Thorell (1876) with the type species *Ischnurus caudicula* L. Koch, 1867 (= *Liocheles waigiensis* (Gervais, 1844)).

The genus *Liocheles* occurs from India to Australia. The northern limit of distribution is south China and Korea (Kovařík 1998: 1334–134). The type species *L. australasiae* is present throughout the geographic range of the genus and in most locales is the most commonly encountered scorpion species.

*Liocheles nigripes* is based on an immature female from India (Pocock 1897: 117). Fage (1944: 72) recorted this species from Laos and Vietnam, for which reason its occurrence is predicted also in



Figs 3-13. 3-7 - *Hormiops davidovi* Fage, male. 8-12 - *Liocheles nigripes* (Pocock), male from Malaysia. 13 - *Liocheles waigiensis* (Gervais), female. 3, 10 - chela, ventral view. 11 - chela, external view. 4, 13 - tibia, external view. 5, 12 - tibia, dorsal view. 6, 9 - patella, ventral view. 7-8 - patella, external view.

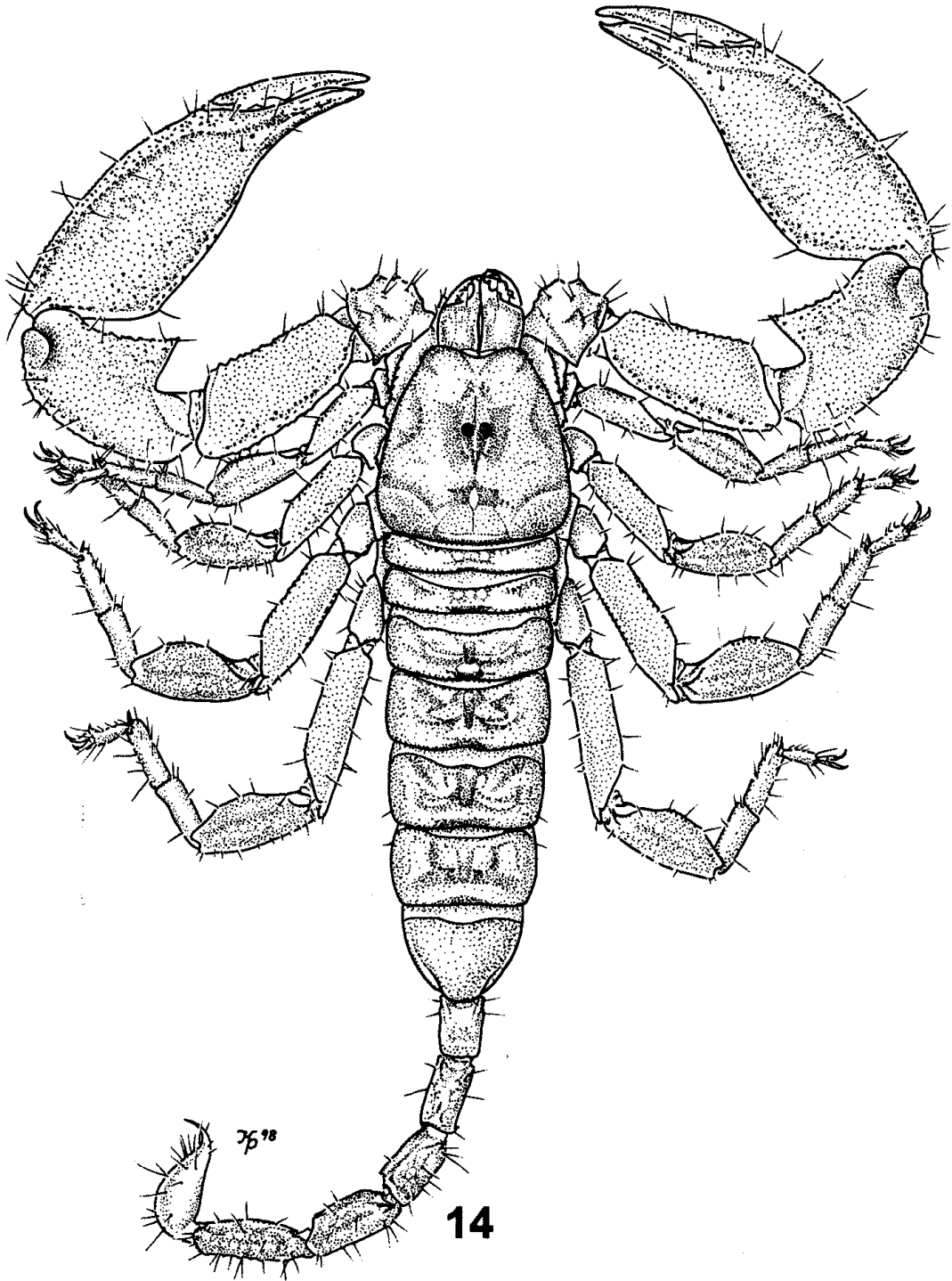


Fig. 14. *Liocheles nigripes* (Pocock). Dorsal aspect of male from Malaysia.

Myanmar, Cambodia, and Thailand (Kovařík 1995: 202). The large area of its distribution is evidenced by the record in Indonesia and Malaysia.

### Key to *Liocheles* species

1. Patella of pedipalps with 5 ventral trichobothria (fig. 8 in Francke & Lourenço, 1991: 202). ..... *L. penta* Francke & Lourenço, 1991
- Patella of pedipalps with 3 ventral trichobothria (Fig. 9). ..... 2
2. Chela of pedipalps with 5 Eb and Esb trichobothria (Fig. 11) (terminology of trichobothria after Vachon, 1974). ..... 5
- Chela of pedipalps with 4 Eb and Esb trichobothria. Fifth trichobothrium is displaced toward the middle, like Est trichobothria (Fig. 13). ..... 3
3. Manus of male very narrow and long. Chela length to width ratio higher than 4.8. .... *L. longimanus* Locket, 1995
- Manus of male not as narrow. Chela length to width ratio lower than 4.7. .... 4
4. Largest species of the genus. Carapace length up to 13.6 mm, pectinal teeth 7–12 (usually 9–12), the three trichobothria on chela (dst, dsb, and db) in a smooth, shining, continuous sulcus. .... *L. karschii* (Keyserling, 1885)
- Carapace length 6.6–11.8 mm, pectinal teeth 5–10 (usually 6–9), the three trichobothria on chela (dst, dsb, and db) on an irregular and granulated surface or rarely on smooth, shining, continuous surface. .... *L. waigiensis* (Gervais, 1843)
5. Total length of adults 22–36 mm. The color is uniformly brown to yellowish brown. .... *L. australasiae* (Fabricius, 1775)
- Total length of adults 38 (probably immature female) – 49.1 mm. The color is uniformly black to blackish brown. .... *L. nigripes* (Pocock, 1897)

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### REFERENCES

- CAIUS J. F. 1942: The distribution of the scorpion (*Hormurus nigripes* Pocock). *J. Bombay Natur. Histor. Soc.* **43**: 112.
- FAGE L. 1933: Les scorpions de L'Indochine Française leurs Affinités, leur distribution géographique. *Ann. Soc. Entomol. Fr.* **102**: 25–34.
- FAGE L. 1936: Nouvelle contribution à l'étude des Scorpions de l'Indochine Française. *Bull. Soc. Entomol. Fr.* **41**: 179–181.
- FAGE L. 1944: Scorpions et Pédipalpes de l'Indochine Française. *Ann. Soc. Entomol. Fr.* **113**: 71–81.
- FRANCKE O. F & LOURENÇO W. R. 1991: Scorpions (Arachnida) from Rennell Island. *Natur. Histor. Rennell Isl., British Solomon Isl.* **8**: 199–204.
- GILTAY M. L. 1931: Scorpions et pédipalpes. Résultats scientifiques du voyage aux Indes Orientales néerlandaises. *Mém. Mus. Roy. Histor. Natur. Belg.* **3(6)**: 1–28.
- KOVAŘÍK F. 1995: Review of Scorpionida from Thailand with descriptions of *Thaicharmus mahunkai* gen. et sp. n. and *Lychas krali* sp. n. (Buthidae). *Acta Soc. Zool. Bohem.* **59**: 187–207.
- KOVAŘÍK F. 1998: *Štíři [Scorpiones]*. Jihlava (Czech Republic): Publishing House "Madagaskar", 176 pp (in Czech).
- KRAEPELIN K. 1899: Scorpiones und Pedipalpi. *Das Tierreich* **8**: 1–265.
- KRAEPELIN K. 1913: Neue Beiträge zur Systematik der Gliederspinnen. III. A. Bemerkungen zur Skorpionenfauna Indiens. B. Die Skorpione, Pedipalpen und Solifugen Deutsch-Ostafrikas. *Jahrb. Hamburg. Wiss. Anst.* **30**: 123–196.
- LOCKET N. A. 1995: A new ischnurid scorpion from the Northern Territory, Australia. *Rec. West. Austral. Mus., Suppl.* **52**: 191–198.
- LOURENÇO W. R. & MONOD L. 1999: Confirmation de la validité du genre *Hormiops* Fage, 1933 avec redescription d'*Hormiops davidovi* Fage, 1933 (Scorpiones, Ischnuridae). *Zoosystema* **21**: 337–344.

- MINNOCCI S. P. 1974. Un inventario preliminar de los escorpiones de la region Palearctica y claves para la identificacion de los generos de la region Palearctica occidental. *Fac. Cienc.* 7: 1-45.
- POCOCK R. I. 1897: Descriptions of some new species of scorpions from India. *J. Bombay Soc.* 11: 102-117.
- POCOCK R. I. 1900: *The fauna of British India, including Ceylon and Burma. Arachnida.* London: Taylor and Francis, 279 pp.
- TAKASHIMA H. 1945: Scorpions of Eastern Asia. *Acta Arachnol. Tokyo* 9: 68-106.
- TIKADER B. K. & BASTAWADE D. B. 1983: Scorpions (Scorpionida: Arachnida). In: *The Fauna of India, Vol. 3.* (Edited by the Director). Calcutta: Zool. Survey of India, 671pp.
- TIKADER B. K. 1987: The Scorpions. Pp. 20-38 in: *Handbook Indian Spiders.* (Edited by the Director). Calcutta: Zool. Survey of India, 251 pp.
- VACHON M. 1974: Étude des caractères utilisés pour classer les familles et les genres de Scorpions. *Bull. Mus. Natl. Histor. Natur. Paris* 140: 857-958.