

**ON THE MYGALOMORPHS (ARANEAE: MYGALOMORPHAE)
IN THE COLLECTION OF ENTOMOLOGY LABORATORY,
UNIVERSITY OF CALCUTTA**

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ABSTRACT: Six mygalomorphs of the family Idiopidae and Theraphosidae are dealt with. The taxa, *Heligmomerus* Simon, *H. barkudensis* (Gravely, 1921), *H. garoensis* (Tikader, 1977) comb. nov. and *Chilobrachys khasiensis* (Tikader, 1977) are reported for the first time from the state of West Bengal and *Chilobrachys stridulans* (Wood Mason, 1877) from Arunachal Pradesh. All these rare and poorly known mygalomorphs are diagnosed and illustrated in the interest of Indian Arachnology.

KEY WORDS: Taxonomy, Mygalomorphae, *Chilobrachys*, *Heligmomerus*, new record, West Bengal, Arunachal Pradesh.

Spiders of the infraorder Mygalomorphae or primitive spiders belong to 15 families (Raven, 1985; Platnick, 2011). Indian mygalomorphs are now placed within 8 of the 15 families namely Atypidae, Barychelidae, Ctenizidae, Dipluridae, Hexathelidae, Idiopidae, Nemesiidae and Theraphosidae (Sebastian & Peter, 2009; Platnick, 2011). Till date, a total of 83 species under 23 genera are known from India (Platnick, 2011). Wood-Mason (1877), Cambridge (1883, 1885, 1890), Simon (1884, 1888, 1891, 1892, 1897, 1906), Pocock (1895, 1899a,b,1900a,b), Hirst (1909), Gravely (1915, 1921, 1935), Chamberlin (1917), Tikader (1969, 1977), Barman (1978), Biswas & Biswas (1992), Coyle (1995), Schmidt (2003), Molur & Siliwal (2004), Molur et al. (2004), Smith (2004, 2006), Rao et al. (2005, 2006), Siliwal et al. (2007, 2009a,b, 2010), Siliwal (2009), Siliwal & Molur (2009a,b), Javed et al. (2010) and Siliwal & Raven (2010) studied the Indian mygalomorphs.

In the past two decades during our survey on the spiders in the states of North-East India we came across with 6 mygalomorph species under 2 genera viz. *Heligmomerus barkudensis* (Gravely, 1921) and *H. garoensis* (Tikader, 1977) comb. nov. [Idiopidae]; *Chilobrachys hardwickei* (Pocock, 1895), *C. himalayensis* (Tikader, 1977), *C. khasiensis* (Tikader, 1977) and *C. stridulans* (Wood Mason, 1877) [Theraphosidae]. Out of these *H. barkudensis* (Gravely), *H. garoensis* (Tikader, 1977) comb. nov. and *C. khasiensis* (Tikader) are reported for the first time from West Bengal while *C. stridulans* (Wood Mason) from Arunachal Pradesh. It is worthwhile to mention that all 6 species are so far known to be endemic to India. *Chilobrachys himalayensis* (Tikader), *C. khasiensis* (Tikader) and *H. garoensis* (Tikader) comb. nov. are recorded nearly after three decades. The above named species are treated sensu Raven (1985), Dippenaar-Schoeman (2002), Siliwal & Raven (2010) and Siliwal et al. (2010).

These rarely known Indian mygalomorphs otherwise demand serious attention because of their economic, medicinal and toxicological values. Accordingly, we are tempted to diagnose- illustrate and indicate new

distributional range of the recorded mygalomorph species following the present trend on spider taxonomy.

MATERIAL AND METHODS

Mygalomorphs were collected and preserved following Tikader (1987) and Barrion & Litsinger (1995). The materials were studied under Stereo Zoom Binocular Microscopes, model Olympus SZX-7 and Zeiss SV-11. The measurements indicated in the text are in millimeters, made with an eye piece graticule. Leg measurements are shown as: total length (femur, patella, tibia, metatarsus, tarsus).

Abbreviations used: CL= Cephalothorax length, CW= Cephalothorax width, AL= Abdominal length, AW= Abdominal width, TL= Total length, AME= Anterior median eyes, ALE= Anterior lateral eyes, PME= Posterior median eyes, PLE= Posterior lateral eyes, PMS= Posterior median spinnerets, PLS= Posterior lateral spinnerets.

All material are in the deposition of Entomology Laboratory, Department of Zoology, University of Calcutta.

TAXONOMIC ACCOUNT

Family: Idiopidae Simon

Heligmomerus Simon, 1892: 90-91.

Type species: Heligmomerus taprobanicus Simon, 1892.

Distribution: Africa, India and Sri Lanka (Dippenaar-Schoeman, 2002; Siliwal et al., 2010; Platnick, 2011).

Remark: The genus is reported for the first time from West Bengal.

Heligmomerus barkudensis (Gravely, 1921)

(Figures. 1-10, 58)

Acanthodon barkudensis Gravely, 1921: 399.

Idiops barkudensis (Gravely), Roewer, 1942: 155.

Heligmomerus barkudensis (Gravely), Siliwal, Molur & Raven, 2010: 941.

Material examined: 1♀, Sodepur, North 24 PGS, West Bengal, India, 19.iv.2005, coll. S. Basu, S. Biswas and A. Roy.

Measurements (♀): CL- 6.93, CW- 6.53, AL- 8.66, AW- 6.33, TL- 15.59.

Eye group 1.25 long and 1.53 wide. Eye diameter: AME=0.17, ALE=0.35, PME=0.14, PLE=0.28. Inter ocular distance: AME-AME=0.10, ALE-AME=0.42, ALE-ALE=0.08, PME-PME= 0.42, PLE-PME=0.14, PLE-PLE=0.96, ALE-PLE=0.71, AME-PME=0.14.

Chelicerae: length=3.43 and width=2.08.

Legs: I 11.20 (0.6, 3.0, 1.11, 3.55, 2.11, 1.44); II 10.54 (3.11, 1.66, 3.0, 1.77, 1.0); III 9.43 (3.33, 1.22, 2.22, 1.66, 1.0); IV 15.42 (5.0, 2.55, 2.88, 3.22, 1.77). Leg formula 4123.

Spinneret length: PMS=0.43, PLS=2.75; Inter spinneret distance: PMS-PMS=0.25, PLS-PLS=0.87.

Distribution: India: Orissa (Siliwal et al., 2010; Platnick, 2011); West Bengal (new record).

Remark: Siliwal et al. (2010) provided a detail description of *Heligmomerus barkudensis* (Gravely). Besides being longer than those described by Siliwal et al. (2010), the species shows differences in the number of cheliceral teeth (6/5), blunt spines in rastellum (27) and number of cuspules in labium and maxillae (12 & 95).

***Heligmomerus garoensis* (Tikader, 1977) comb. nov.**

(Figures. 11-19, 59)

Acanthodon garoensis Tikader, 1977: 306.

Idiops garoensis (Tikader), Brignoli, 1983: 115.

Material examined: 1♂, Scottish Church College campus, Kolkata, West Bengal, India, other data not available.

Diagnosis: Cephalothorax densely warty; eye diameter PLE>AME>ALE>PME, ALE situated far away from AME on clypeal edge; promargin and retromargin of chelicerae with 5 and 4 teeth respectively, cheliceral rastellum with 9 blunt, stout spines; tarsal claw 3, paired claw with 2 denticles; leg formula 4123; male palp (figs.17-18): tibia basally bulging, with a prolateral excavation, bearing short, thorn-like spines arranged in a half-circle.

Measurements (♂): CL- 5.29, CW- 5.0, AL- 5.11, AW- 3.41, TL- 10.40.

Eye group 1.20 long and 1.0 wide. Eye diameter: AME=0.16, ALE=0.12, PME=0.09, PLE=0.19. Inter ocular distance: AME-AME=0.14, ALE-AME=0.31, PME-PME= 0.36, PLE-PME=0.40, PLE-PLE=0.81, ALE-PLE=0.68, AME-PME=0.16.

Chelicerae: length=2.0 and width=1.10.

Legs: I 10.97 (3.88, 1.22, 2.55, 2.44, 0.88); II 10.75 (4.44, 1.22, 2.77, 1.55, 0.77); III 8.08 (2.88, 0.88, 1.55, 1.66, 1.11); IV 11.87 (4.33, 1.33, 2.77, 2.44, 1.0). Leg formula 4123.

Spinneret length: PMS=0.37, PLS=1.25; Inter spinneret distance: PMS-PMS=0.29, PLS-PLS=0.44.

Distribution: India: Meghalaya (Tikader, 1977; Platnick, 2011); West Bengal (new record).

Remark: Somatic structures of the aforesaid species are strongly coherent to the diagnosis of *Heligmomerus* Simon (for details of diagnosis see Dippenaar-Schoeman, 2002; Siliwal et al., 2010). We therefore propose a new combination *Heligmomerus* Simon for *Idiops garoensis* Tikader.

Family: Theraphosidae Thorell

***Chilobrachys* Karsch, 1891: 271.**

Type species: *Chilobrachys nitelinus* Karsch, 1891.

Distribution: South East Asia, India (Raven, 1985; Schmidt, 2003; Zhu & Zhang, 2008; Platnick, 2011)

***Chilobrachys hardwicki* (Pocock, 1895)**

(Figures. 20-30, 60)

Musagetes hardwickii Pocock, 1895: 174.

Chilobrachys hardwickii (Pocock), Pocock, 1900: 198.

Material examined: 3 ♀♀, Dinhat, Cooch Behar, West Bengal, India, 29.ix.2007, coll. D. Raychaudhuri; 1 ♀ & 1 ♂, Gorumara, Gorumara National Park, West Bengal, India, 06.v.2008, coll. S. Sen; 1 ♀, Belegkata, Kolkata, West Bengal, India, 05.v.2009, coll. S. Saha.

Diagnosis: Eye diameter AME>ALE>PME>PLE; cephalothorax longer than metatarsus and tarsus together of leg IV and shorter than patella and tibia together of leg I; tarsal claw 2, each with 3 denticles (tarsi IV without denticle); leg formula 1423; labium and maxillae with ca. 610 and ca. 341 cuspules respectively, prolateral side of maxillae with a row of paddle setae and few thorn setae; retrolateral side of chelicerae with distinct spinules; spermatheca 1 pair, elongate, broad at base, medially narrowed, apically broad, clubbed; male palpal bulb pear like, embolus long, flat, broad, suddenly narrowed towards apex, inwardly twisted near base, prolateral superior and inferior keels evident.

Measurements (♀): CL-11.30, CW-8.88, AL-12.0, AW-6.44, TL-23.30.

Eye group 1.14 long and 1.82 wide. Eye diameter: AME=0.42, ALE=0.39, PME=0.35, PLE=0.32. Inter ocular distance: AME-AME=0.17, ALE-AME=0.10, ALE-ALE=1.25, PME-PME=0.85, PLE-PME=0.08, PLE-PLE=1.32, ALE-PLE=0.25, AME-PME=0.10.

Chelicerae: length=6.81 and width=4.72.

Legs: I 30.42 (9.66, 3.33, 8.22, 5.33, 3.88); II 26.70 (7.77, 3.22, 7.0, 5.44, 3.27); III 23.53 (5.66, 2.77, 6.22, 5.0, 3.88); IV 29.31 (7.44, 2.88, 8.22, 6.55, 4.22). Leg formula 1423.

Spinneret length: PMS=2.77, PLS=10.60; Inter spinneret distance: PMS-PMS=0.44, PLS-PLS=2.66.

Distribution: India: Andhra Pradesh, Chhattisgarh, Kerala, Maharashtra, West Bengal (Pocock, 1900; Schmidt, 2003; Rao et al. 2005; Sebastian & Peter, 2009; Platnick, 2011).

Chilobrachys himalayensis (Tikader, 1977)

(Figures. 31-40, 61)

Phlogiodes himalayensis Tikader, 1977: 317.

Chilobrachys himalayensis (Tikader), Siliwal & Raven, 2010: 73.

Material examined: 1 ♂, Kharagpur town, West Midnapur, West Bengal, India, 15.vi.2004, coll. S. P. Paria.

Diagnosis: Eye diameter ALE>AME=PLE>PME; cephalothorax shorter than patella and tibia together of leg I and longer than metatarsus and tarsus together of leg IV; tarsal claw 2, each with 2 denticles (tarsi I and IV without denticle); leg formula 1423; anterior 3/4th of metatarsus IV without scapulae; labium and maxillae with ca. 502 and ca. 298 cuspules; prolateral side of maxillae with a row of paddle setae and few thorn setae; retrolateral side of chelicerae with distinct spinules; male palpal bulb globose, compressed at both ends, embolus long, straight, gradually narrowed and apically pointed.

Measurements (♂): CL-10.40, CW-8.77, AL-11.66, AW-5.77, TL-22.06.

Eye group 1.0 long and 1.96 wide. Eye diameter: AME=0.28, ALE=0.42, PME=0.14, PLE=0.28. Inter ocular distance: AME-AME=0.28, ALE-AME=0.21, ALE-ALE=1.35, PME-PME=0.89, PLE-PME=0.14, PLE-PLE=1.42, ALE-PLE=0.21, AME-PME=0.16.

Chelicerae: length=6.27 and width=4.27.

Legs: I 31.53 (8.77, 4.55, 9.44, 5.11, 3.66); II 24.08 (6.66, 3.33, 7.55, 3.77, 2.77); III 21.31 (6.55, 1.66, 5.55, 4.44, 3.11); IV 26.89 (8.11, 2.22, 8.11, 5.22, 3.33). Leg formula 1423.

Spinneret length: PMS=1.77, PLS=6.0; Inter spinneret distance: PMS-PMS=0.77, PLS-PLS=1.88.

Distribution: India: West Bengal (Sebastian & Peter, 2009; Siliwal & Raven, 2010; Platnick, 2011).

Remark: *Chilobrachys himalayensis* (Tikader) was previously known only from the type locality but during the present survey it was sampled from other location in West Bengal.

Chilobrachys khasiensis (Tikader, 1977)

(Figures. 41-49, 62)

Ischnocolus khasiensis Tikader, 1977: 314.

Chilobrachys khasiensis (Tikader), Siliwal, 2009: 533.

Material examined: 2♀♀, Kalipur, Gorumara National Park, West Bengal, India, 29.ix.2007, coll. B. Debnath.

Diagnosis: Eye diameter AME=ALE>PLE>PME; cephalothorax longer than patella and tibia together of leg I and nearly equal to the length of tarsus and metatarsus together of leg IV; tarsal claw 2, each with 4 denticles; leg formula 4123; anterior half of metatarsus IV without scapulae, metatarsi I and II weakly scopulate; labium and maxillae with ca. 430 and ca. 290 cuspules respectively; prolateral side of maxillae with a row of paddle setae and few thorn setae; retrolateral side of chelicerae with strong, pointed spinules; spermatheca 1 pair, elongate, triangular, basally broad.

Measurements (♀): CL-11.75, CW-8.33, AL-11.60, AW-6.44, TL-23.35.

Eye group 1.10 long and 1.77 wide. Eye diameter: AME=0.38, ALE=0.38, PME=0.27, PLE=0.33. Inter ocular distance: AME-AME=0.17, ALE-AME=0.10, ALE-ALE=1.25, PME-PME= 0.85, PLE-PME=0.08, PLE-PLE=1.30, ALE-PLE=0.24, AME-PME=0.12.

Chelicerae: length=6.88 and width=4.50.

Legs: I 27.78 (7.21, 2.80, 7.22, 6.55, 4.0); II 26.29 (7.0, 3.22, 7.4, 5.4, 3.27); III 23.64 (5.77, 2.77, 6.0, 5.22, 3.88); IV 30.56 (7.44, 3.33, 8.22, 7.33, 4.24). Leg formula 4123.

Spinneret length: PMS=2.10, PLS=7.0; Inter spinneret distance: PMS-PMS=0.40, PLS-PLS=2.60.

Distribution: India: Meghalaya (Siliwal, 2009; Sebastian & Peter, 2009; Platnick, 2011); West Bengal (new record).

Chilobrachys stridulans (Wood Mason, 1877)

(Figures. 50-57, 63)

Mygale stridulans Wood-Mason, 1877: 281.*Chilobrachys stridulans* (Wood Mason), Pocock, 1900: 198.*Material examined*: 1♀ (damaged), Doimukh, Arunachal Pradesh, India, 15.i.2005, coll. M. K. Biswas.*Diagnosis*: Eye diameter ALE=PLE>AME>PME; cephalothorax longer than patella and tibia together of leg I and shorter than metatarsus and tarsus together of leg IV, tarsal claw 2, each with 2 denticles; labium and maxillae with ca. 569 and ca. 300 cuspules respectively, prolateral side of maxillae with a row of large paddle setae; retrolateral side of chelicerae with distinct spinules; spermatheca 1 pair, basally broad, outwardly curved, closely approximating, apically round.*Measurements* (♀): CL-10.20, CW-8.55, AL-11.44, AW-6.11, TL-21.60.

Eye group 1.03 long and 1.64 wide. Eye diameter: AME=0.28, ALE=0.32, PME=0.21, PLE=0.32. Inter ocular distance: AME-AME=0.32, ALE-AME=0.12, ALE-ALE=1.14, PME-PME= 0.87, PLE-PME=0.07, PLE-PLE=1.35, ALE-PLE=0.21, AME-PME=0.16.

Chelicerae: length=6.81 and width=5.0.

Legs: I 24.19 (6.66, 3.55, 5.77, 4.33, 3.88); II 18.52 (4.88, 1.66, 4.66, 3.77, 3.55); III 17.14 (5.77, 2.22, 4.44, 2.44, 2.27); IV 29.31 (7.66, 3.77, 6.33, 7.22, 4.33). Leg formula 4123.

Spinneret length: PMS=1.50, PLS=5.92; Inter spinneret distance: PMS-PMS=0.44, PLS-PLS=1.66.

Distribution: India: Assam (Pocock, 1900; Schmidt, 2003; Sebastian & Peter, 2009; Platnick, 2011); Arunachal Pradesh (new record).**ACKNOWLEDGEMENTS**

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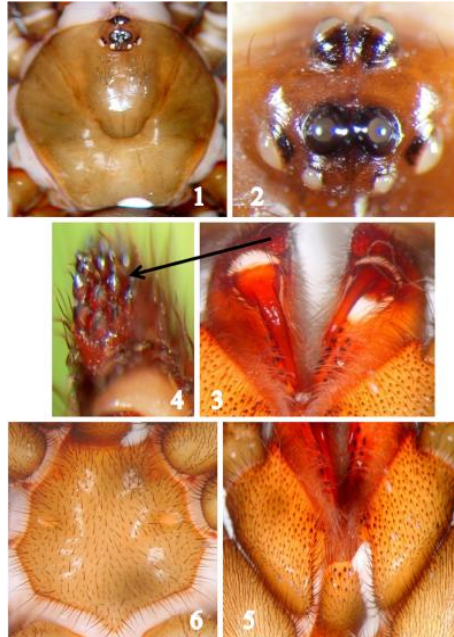
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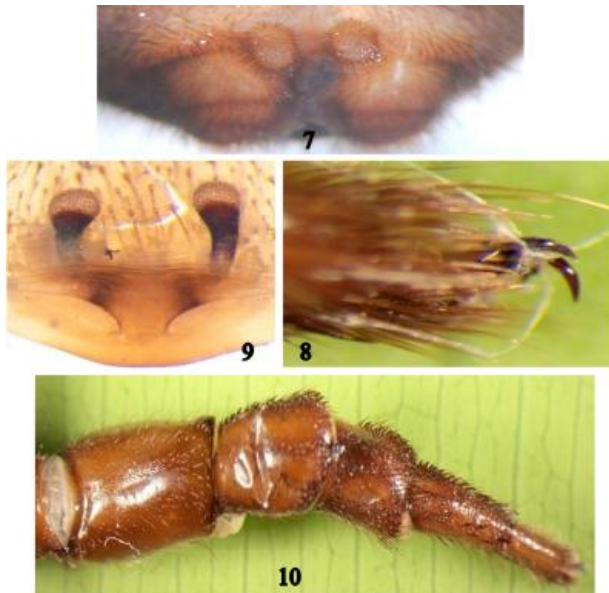
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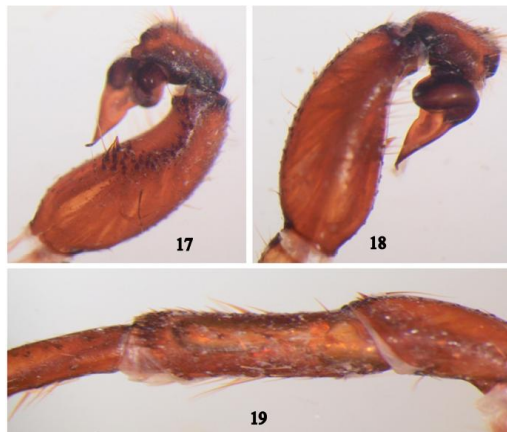
Figures 1-6: *Heligmomerus barkudensis* (Gravely): Female: 1. Cephalothorax, dorsal view; 2. Eyes, dorsal view; 3. Chelicerae, ventral view; 4. Cheliceral rastellum; 5. Labium and Maxillae, ventral view; 6. Sternum, ventral view.



Figures. 7-10: *Heligmomerus barkudensis* (Gravely): Female: 7. Spinnerets, ventral view; 8. Tarsal claw; 9. Spermathecae, dorsal view; 10. Leg III, retrolateral view.



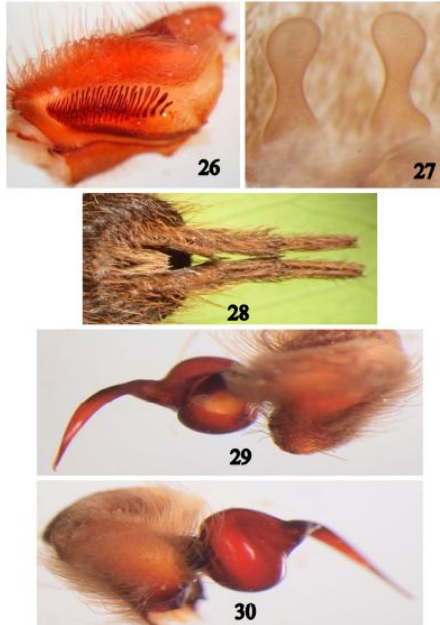
Figures. 11-16: *Heligmomerus garoensis* (Tikader) comb. nov.: Male: 11. Cephalothorax, dorsal view; 12. Eyes, dorsal view; 13. Chelicerae, ventral view; 14. Cheliceral rastellum; 15. Labium and Maxillae, ventral view; 16. Spinnerets, ventral view.



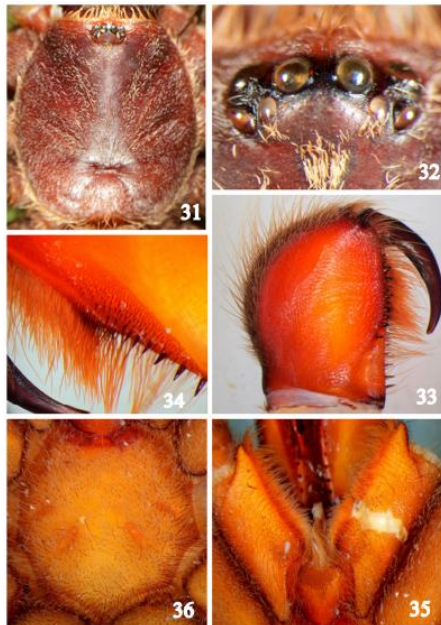
Figures. 17-19: *Heligmomerus garoensis* (Tikader) comb. nov.: 17. Palp, prolateral view; 18. Palp, retrolateral view. 19. Leg III, retrolateral view.



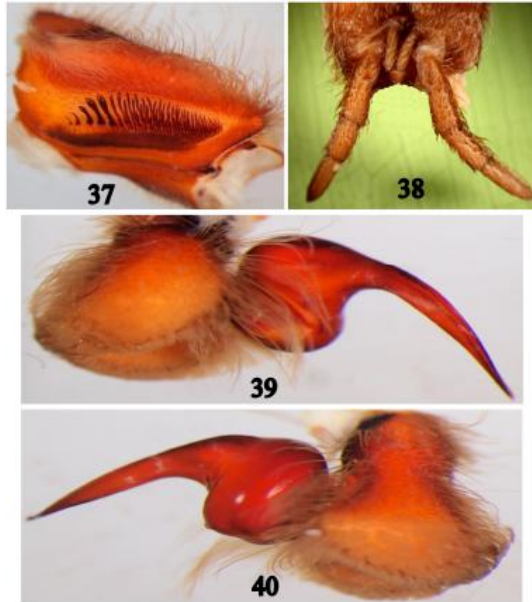
Figures. 20-25: *Chilobrachys hardwickii* (Pocock): Female: 20. Cephalothorax, dorsal view; 21. Eyes, dorsal view; 22. Chelicerae, prolateral view; 23. Chelicerae, retrolateral view; 24. Labium and Maxillae, ventral view; 25. Sternum, ventral view.



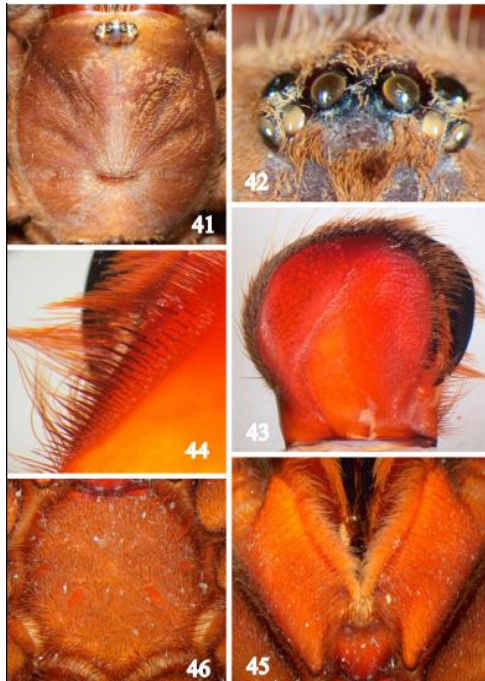
Figures. 26-30: *Chilobrachys hardwickii* (Pocock): Female: 26. Maxillae, prolateral view; 27. Spermathecae, dorsal view; 28. Spinnerets, ventral view; Male: 29. Palp, prolateral view; 30. Palp, retrolateral view.



Figures. 31-36: *Chilobrachys himalayensis* (Tikader): Male: 31. Cephalothorax, dorsal view; 32. Eyes, dorsal view; 33. Chelicerae, prolateral view; 34. Chelicerae, retrolateral view; 35. Labium and Maxillae, ventral view; 36. Sternum, ventral view.



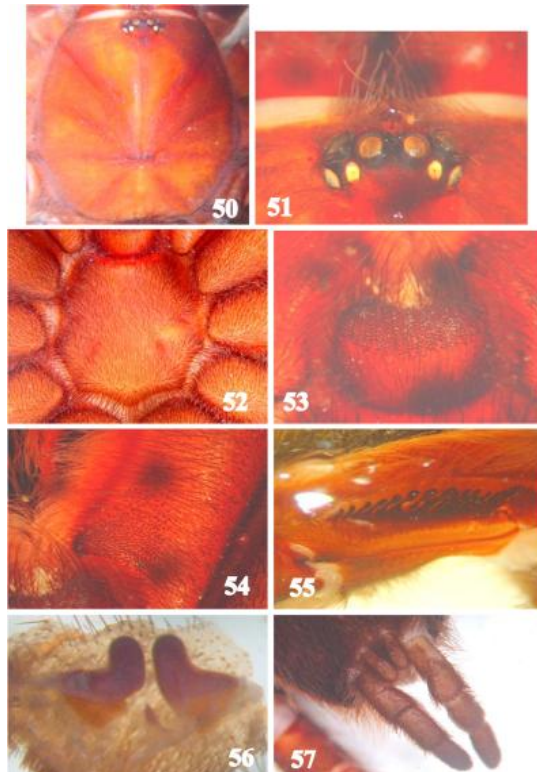
Figures. 37-40: *Chilobrachys himalayensis* (Tikader): Male: 37. Maxillae, prolateral view, 38. Spinnerets, ventral view; Male: 39. Palp, prolateral view; 40. Palp, retrolateral view.



Figures. 41-46: *Chilobrachys khasiensis* (Tikader): Female: 41. Cephalothorax, dorsal view; 42. Eyes, dorsal view; 43. Chelicerae, prolateral view; 44. Chelicerae, retrolateral view; 45. Labium and Maxillae, ventral view; 46. Sternum, ventral view.



Figures. 47-49: *Chilobrachys khasiensis* (Tikader): Female: 47. Maxillae, prolateral view, 48. Spermathecae, dorsal view; 49. Spinnerets, ventral view.



Figures. 50-57: *Chilobrachys stridulans* (Wood Mason): Female: 50. Cephalothorax, dorsal view; 51. Eyes, dorsal view; 52. Sternum, ventral view; 53. Labium, ventral view; 54. Maxillae, ventral view; 55. Maxillae, prolateral view, 56. Spermathecae, dorsal view; 57. Spinnerets, ventral view.



Figures. 58-59: General habitus: 58. *Heligmomerus barkudensis* (Gravely), female; 59. *Heligmomerus garoensis* (Tikader) comb. nov., male.



Figures. 60-63: General habitus: 60. *Chilobrachys hardwickii* (Pocock), female; 61. *Chilobrachys himalayensis* (Tikader), male; 62. *Chilobrachys khasiensis* (Tikader), female; 63. *Chilobrachys stridulans* (Wood Mason), female.