

***Portia* cf. *labiata* (Araneae: Salticidae: Spartaeini) as predator and prey of cellar spiders (Araneae: Pholcidae: *Crossopriza*) in Karnataka, India**

Abhijith A. P. C.¹, Pavan Ramachandra² and David E. Hill³

¹ Indraprastha Organic Farm, Kalalwadi Village, Udboor Post, Mysuru-570008, Karnataka, India, *email* abhiapc@gmail.com

² #B 4-20, BEML Layout, Srirampura 2 stage, Mysuru-570023, Karnataka, India, *email* pavan.mys@gmail.com

³ 213 Wild Horse Creek Drive, Simpsonville SC 29680, USA, *email* platycryptus@yahoo.com

The genus *Portia* Karsch 1878 presently includes 21 described species, 4 from India (Table 1; Figure 1; Metzner 2021; Xu, Peng & Li 2021; WSC 2021). Although several species of this genus can be recognized from field marks, positive identification of most species may require microscopic examination. The spiders that we described here agree with posted or published photographs of *P. labiata*, and thus we refer to them as *Portia* cf. *labiata*.

Table 1. Jumping spiders of the genus *Portia* from India.

species	reported distribution	field marks (♀)	notes
<i>P. albimana</i> (Simon 1900)	Pakistan to Vietnam	long white fringes on pedipalps and tibiae I, filled white semicircle on clypeus	
<i>P. assamensis</i> Wanless 1978	India to Malaysia	similar and closely related to <i>P. labiata</i>	examination of epigynum may allow identification
<i>P. fimbriata</i> (Doleschall 1859)	Sri Lanka, India and Nepal to tropical Australia	dark vertical bars through AME, no transverse white bar across clypeus	type species for genus
<i>P. labiata</i> (Thorell 1887)	Sri Lanka, India to southeast Asia and Philippines	curved white bar across clypeus above transverse white bar at top of chelicerae	

Portia is well-known to invade the webs of other spiders, and to prey on them (Jackson & Hallas 1986; Jackson & Wilcox 1990; Li, Jackson & Barrion 1997; Harland & Jackson 2001). DNA sequencing has revealed that this genus is part of a larger clade of *web invasion*, *aggressive mimicry* spartaeines (Su et al. 2007; Maddison et. al 2014; Ahmed et al. 2018).

Here we document predation by *Portia* cf. *labiata* on pholcid spiders of the genus *Crossopriza* Simon 1893 (Figures 2-3), as well as predation on *Portia* by *Crossopriza* (Figure 4).

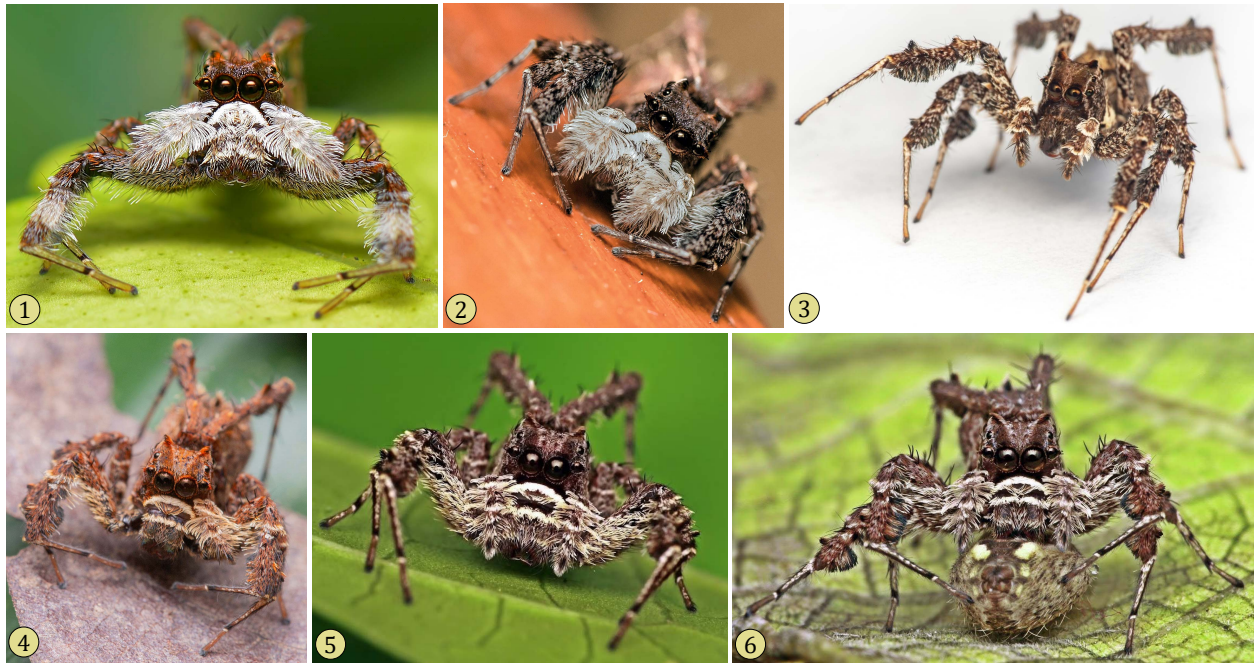


Figure 1. Female *Portia* representing three species that have been found in India. **1**, *P. albimana*, Kundannor, Maradu, Ernakulam, Kerala, India (21 JUL 2013). **2**, *P. albimana*, Halanayakanahalli, Karnataka, India (8 MAY 2021). **3**, *P. fimbriata*, Daintree Forest, Queensland, Australia (9 DEC 2018). **4**, *P. labiata*, Singapore (17 NOV 2021). **5**, *P. labiata*, Malaysia (SEP 2019). **6**, *P. labiata* with spider prey, Penang, Malaysia (FEB 2018). Species names have not been confirmed by microscopic examination. Photo credits (all from *iNaturalist*): 1, Sunny Josef; 2, Thomas Job; 3, martisma; 4, budak; 5-6, Richard Ong. Photographs used under either a [CC BY 4.0](#) license (1), or a [CC BY-NC 4.0](#) license (2-6).

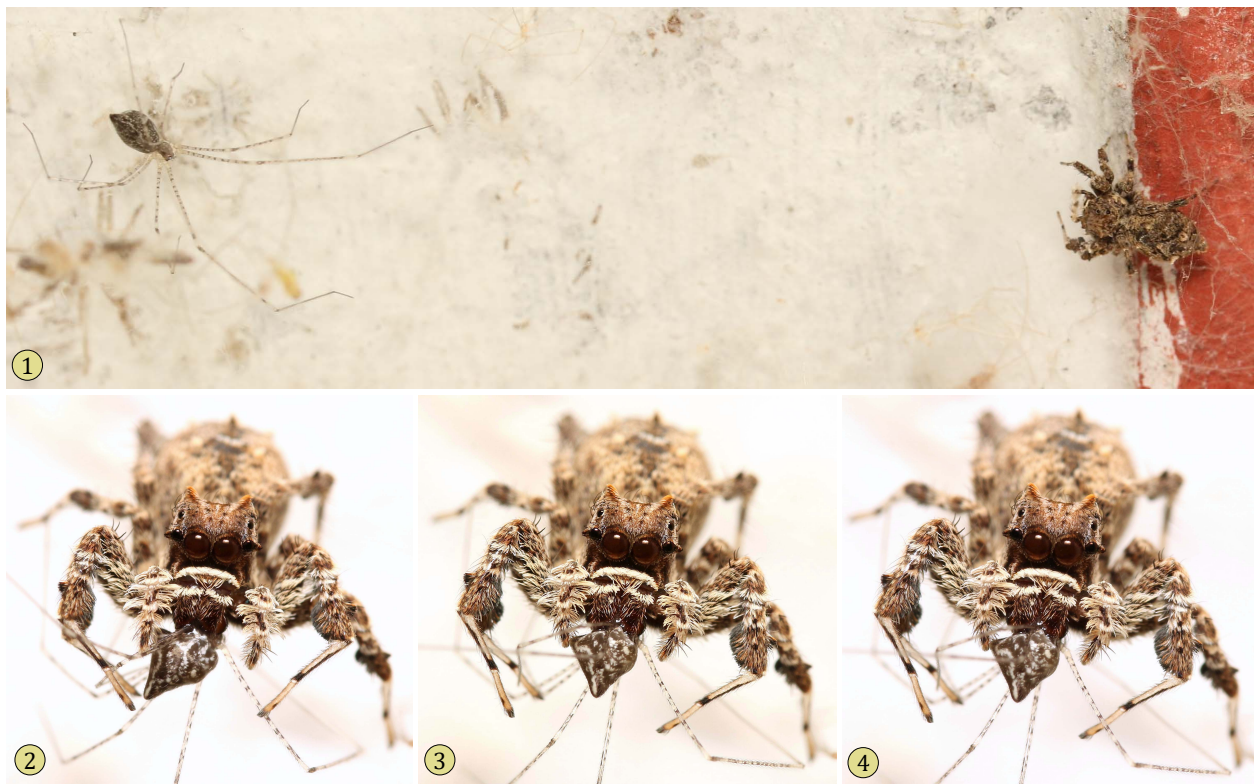


Figure 2. Adult female *Portia* cf. *labiata*. **1**, *Portia* (at right) watching a nearby pholcid spider of the genus *Crossopriza*. **2-4**, Three sequential images of a *Portia* feeding on a captured *Crossopriza*. Photographs by Abhijith A. P. C., taken at his Indraprastha Organic Farm, Kalalwadi Village, Karnataka, India.

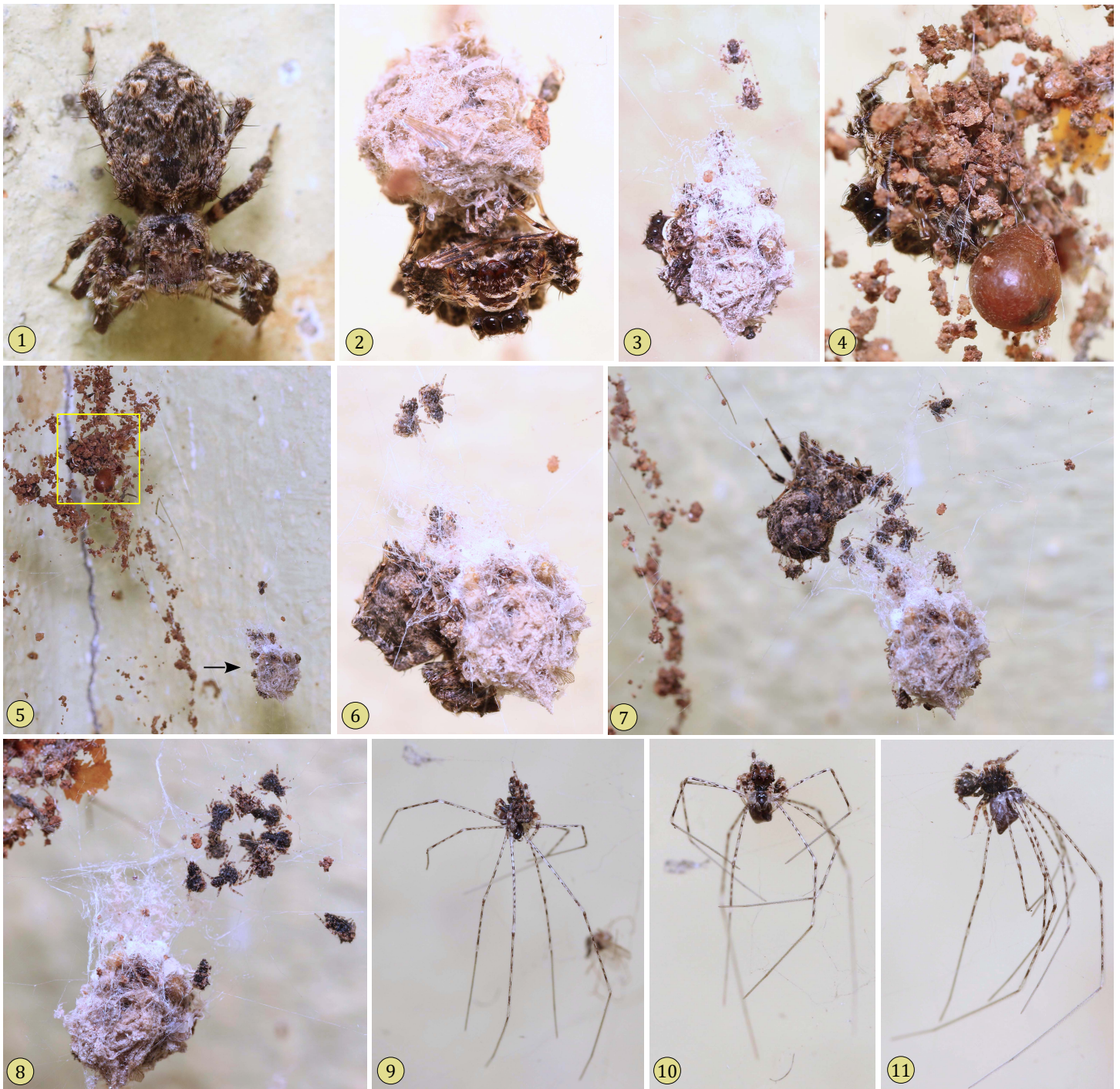


Figure 3. Female *Portia* cf. *labiata* near her nest and emergent (second instar) young. **1**, Dorsal view of female on vertical wall. **2**, Female beneath her nest. **3**, Female clinging to her nest. Note emergent young above the nest. **4**, Female concealed by debris, suspended with silk lines (detail of **5**). **5**, Female position in debris (yellow rectangle), near nest (arrow). **6-7**, Two more views of female at nest, with emergent young. **8**, Detail of emergent *Portia* above nest. **9-11**, Three views of an emergent *Portia* feeding on a small, immature *Crossopriza*. Photographs by Abhijith A. P. C., taken at his Indraprastha Organic Farm, Kalalwadi Village, Karnataka, India.

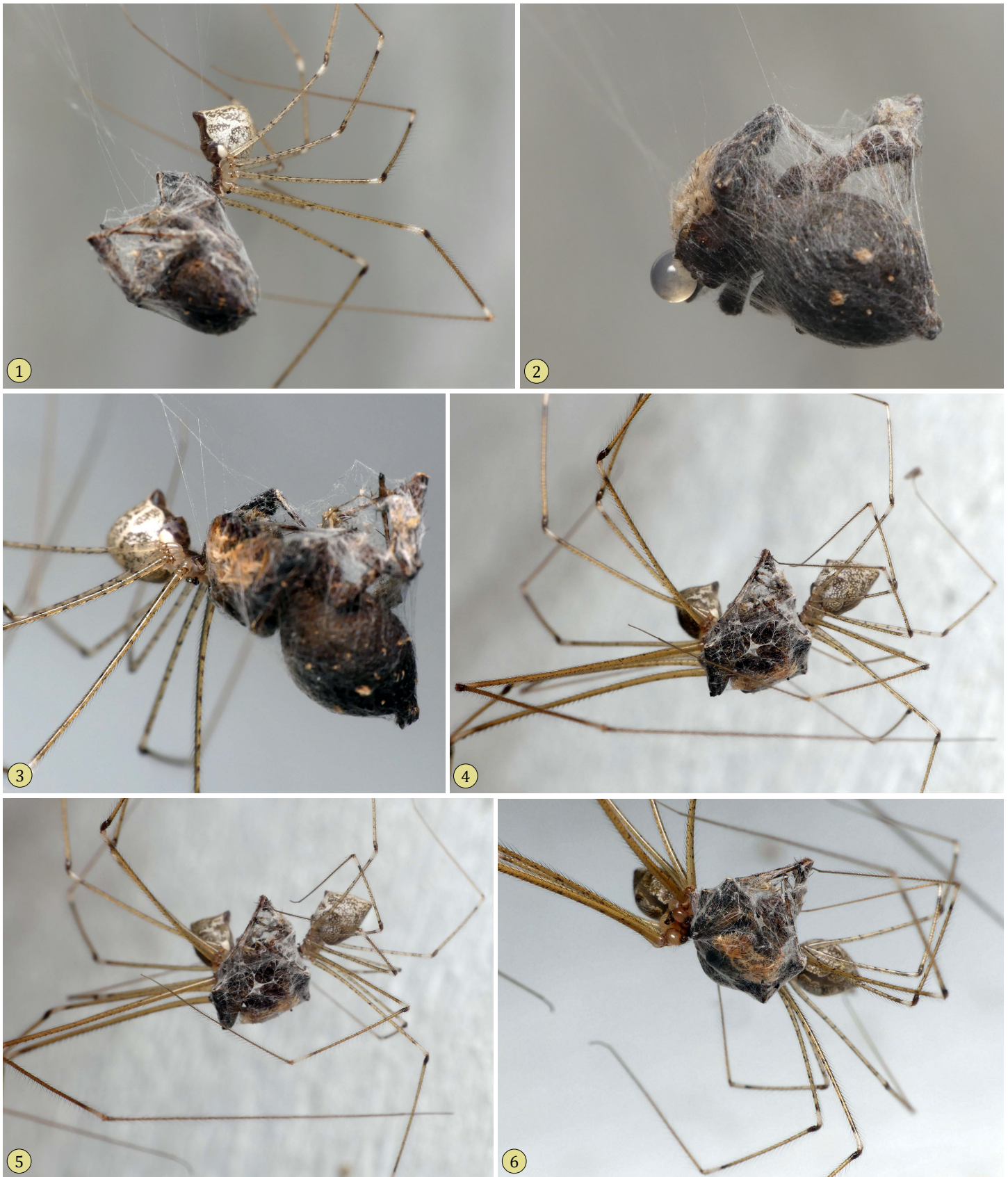


Figure 4. Pholcids of the genus *Crossopriza* feeding on a captured female *Portia* cf. *labiata*. **1, 3**, Female *Crossopriza* feeding on this *Portia* (3 AUG 2021). **2**, Note fluid oozing out of the captured *Portia*. **4-6**, Three views of a different female *Crossopriza* (at right), accompanied by a male (at left), as they fed on the remains of this *Portia* several days later (5 AUG 2021). Earlier (27 JUL 2021) this *Portia* female had been observed as it wandered about the walls inhabited by these pholcids. Photographs by Pavan Ramachandra at Lingambudhi Lake, Mysuru, Karnataka, India (12°16'05.5"N, 76°36'45.9"E).

References

- Ahmed, J., D. E. Hill, I. Banerjee, R. Khalap, R. J. Pearce and K. Mohan. 2018.** First record of the genus *Neobrettus* Wanless 1984 from India, with some natural history notes (Araneae: Salticidae: Spartaeina). *Peckhamia* 166.1: 1-13.
- Doleschall, L. 1859.** Tweede Bijdrage tot de kennis der Arachniden van den Indischen Archipel. *Acta Societatis Scientiarum Indica-Neerlandica* 5: 1-60.
- Harland, D. P. and R. R. Jackson. 2001.** Prey classification by *Portia fimbriata*, a salticid spider that specializes at preying on other salticids: species that elicit cryptic stalking. *Journal of Zoology* 255 (4): 445-460.
- Jackson, R. R. and S. E. A. Hallas. 1986.** Comparative biology of jumping spiders *Portia africana*, *P. albimana*, *P. fimbriata*, *P. labiata* and *P. schultzi*, areanophagic, web-building jumping spiders (Araneae: Salticidae) utilisation of webs, predatory versatility, and intraspecific interactions. *New Zealand Journal of Zoology* 13 (4): 423-489.
- Jackson, R. R. and R. S. Wilcox. 1990.** Aggressive mimicry, prey-specific predatory behaviour and predator-recognition in the predator-prey interactions of *Portia fimbriata* and *Euryattus* sp., jumping spiders from Queensland. *Behavioral Ecology and Sociobiology* 26 (2): 111-119.
- Karsch, F. 1878.** Exotisch-araneologisches. *Zeitschrift für die Gesamten Naturwissenschaften* 51: 322-333, 771-826.
- Li, D., R. R. Jackson and A. Barrion. 1997.** Prey preferences of *Portia labiata*, *P. africana*, and *P. schultzi*, araneophagic jumping spiders (Araneae: Salticidae) from the Philippines, Sri Lanka, Kenya, and Uganda. *New Zealand Journal of Zoology* 24 (4): 333-349.
- Maddison, W. P., D. Li, M. Bodner, J. Zhang, X. Xiu, Q. Liu and F. Liu. 2014.** The deep phylogeny of jumping spiders (Araneae, Salticidae). *ZooKeys* 440: 57-87.
- Metzner, H. 2021.** Jumping spiders (Arachnida: Araneae: Salticidae) of the world, *online at* <http://www.jumping-spiders.com/>, accessed on 26 NOV 2021.
- Simon, E. 1893.** Histoire naturelle des araignées. Deuxième édition, tome premier. Roret, Paris: 257-488.
- Simon, E. 1900.** Etudes arachnologiques. 30e Mémoire. XLVII. Descriptions d'espèces nouvelles de la famille des Attidae. *Annales de la Société Entomologique de France* 69: 27-61.
- Su, K. F., R. Meier, R. R. Jackson, D. P. Harland and D. Li. 2007.** Convergent evolution of eye ultrastructure and divergent evolution of vision-mediated predatory behaviour in jumping spiders. *Journal of Evolutionary Biology* 20 (4): 1478-1489.
- Thorell, T. 1887.** Viaggio di L. Fea in Birmania e regioni vicine. II. Primo saggio sui ragni birmani. *Annali del Museo Civico di Storia Naturale di Genova* 25: 5-417.
- Wanless, F. R. 1978.** A revision of the spider genus *Portia* (Araneae: Salticidae). *Bulletin of the British Museum of Natural History, Zoology* 34: 83-124.
- WSC. 2021.** World Spider Catalog. Version 22.5. Natural History Museum Bern, *online at* <http://wsc.nmbe.ch>, accessed on 26 NOV 2021. doi: 10.24436/2
- Xu, X., X. J. Peng and D. Q. Li. 2021.** Four new species of the jumping spider genus *Portia* (Araneae, Salticidae) from China. *ZooKeys* 1968: 27-40.