

Leaf suspension by a brooding female *Epeus indicus* (Araneae: Salticidae: Plexippina) in Karnataka

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Summary. The suspension of a dying leaf with reinforced silk lines, comprising two suspensors, by a female *Epeus indicus* to support her nest is documented in Karnataka.

The plexippine genus *Epeus* Peckham & Peckham 1886 includes 19 described species, 12 known from a single sex (WSC 2021). All are inhabitants of tropical forest in south and southeast Asia. For *Epeus indicus* Prószyński 1992 only the distinctive female has been described (Prószyński 1992; Jastrzębski 2010; Dhali et al. 2017; Figure 1), but posted photographs suggest that the male is similar in appearance, but more black, with paired white spots on the dorsum of a black abdomen.



Figure 1. Photographs of a female *Epeus indicus* in Karnataka. Photographs posted on iNaturalist © Harshith J. V., used under an Attribution-NonCommercial 4.0 International ([CC BY-NC 4.0](https://creativecommons.org/licenses/by-nc/4.0/)) license.

In a sequence of photographs (Figure 2:1-33) we document the suspension of a dying *Solanum macranthum* (Giant Potato Tree, ornamental native to Brazil) leaf by a female *Epeus indicus* at the the Indraprastha Organic Farm of the senior author at Kalalwadi Village, Mysuru, Karnataka, India. By suspending this leaf, the female *E. indicus* was able to maintain her use of this leaf to support her brood, and also to support her use of this leaf as a shelter. We do not know if the securing of this leaf with multiple strands of silk (apparently draglines) was a functional response to the condition of the leaf. It may instead represent a behaviour associated with the use of any leaf, regardless of its condition. Nonetheless in this instance the advantage and *apparent* foresight demonstrated by this behaviour was quite evident. The silk suspensors were not only strong, but also well-placed to maintain the position of the brood leaf after the petiole of this leaf separated and it quickly dried.



Figure 2 (continued on next page). Nesting female *Epeus indicus*. **1-2**, Female with 26 eggs deposited in a nest on the upper surface of a *Solanum macranthum* leaf. **3-4**, Three days later, female with hatchling first instars, sometimes referred to as *nymphs*. Note the white remnant of each egg membrane, still attached to each nymph.

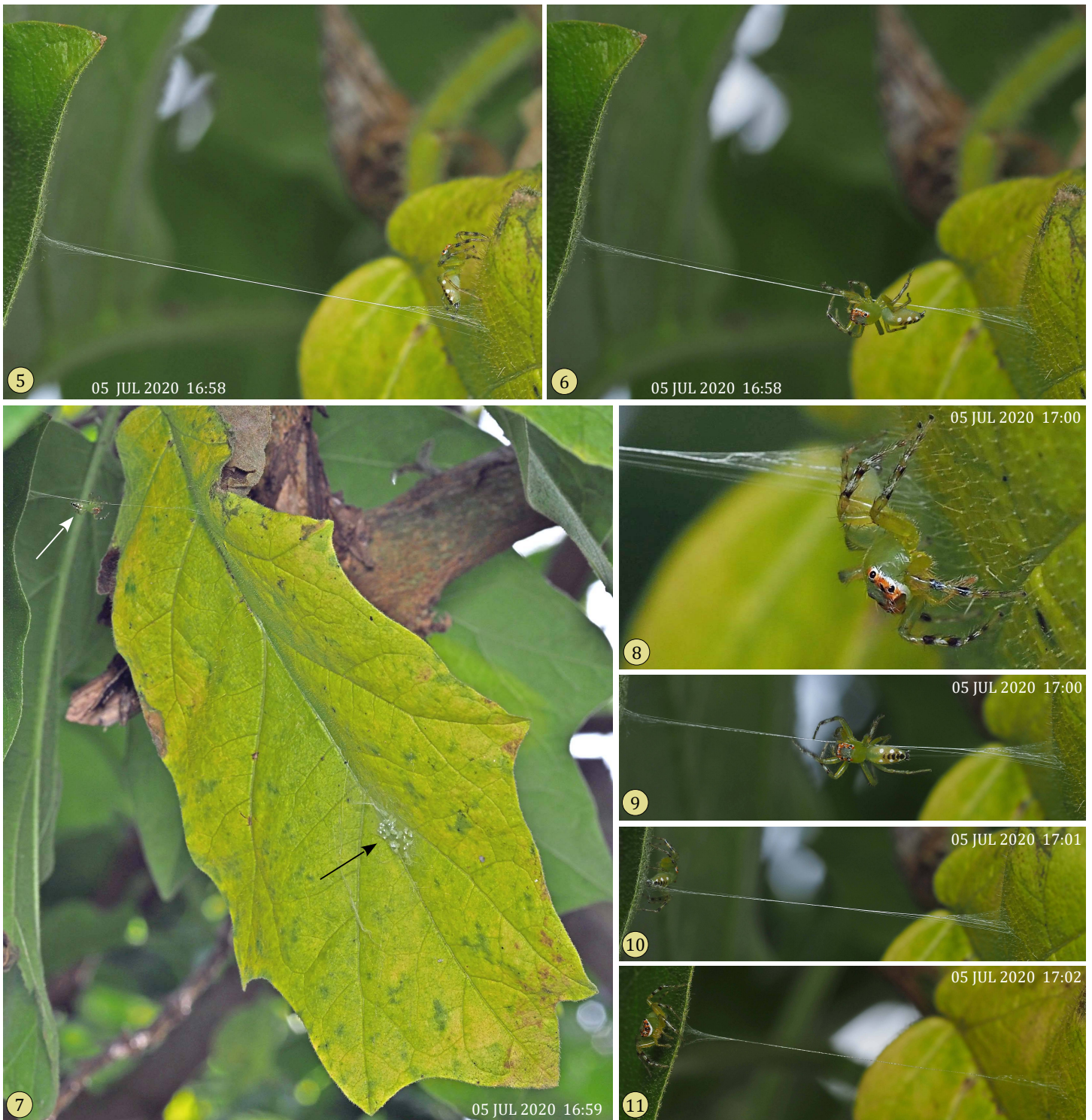


Figure 2 (continued from previous page, continued on next page). Nesting female *Epeus indicus*. **5-6**, Female traversing a silk suspensor (bridge) from a position near the petiole (stem) of the yellowing brood leaf to a nearby green leaf, adding dragline silk to that suspensor with each traverse. The suspensor was about 3.5 cm in length. **7**, View of the yellowing brood leaf, showing the female as she traversed the suspensor (white arrow at upper left), and the position of the nest (black arrow). **8-11**, More images of the female adding silk lines to the suspensor.



Figure 2 (continued from previous page, continued on next page). Nesting female *Epeus indicus*. **12, 14-15**, Female at or near nest with brood on two successive days. **13**, Female near suspensor (white arrow). **16-17**, Female reinforcing the suspensor by adding more silk lines as she traversed it. A second, thin line connecting the two leaves was added near this one, but not subsequently observed.



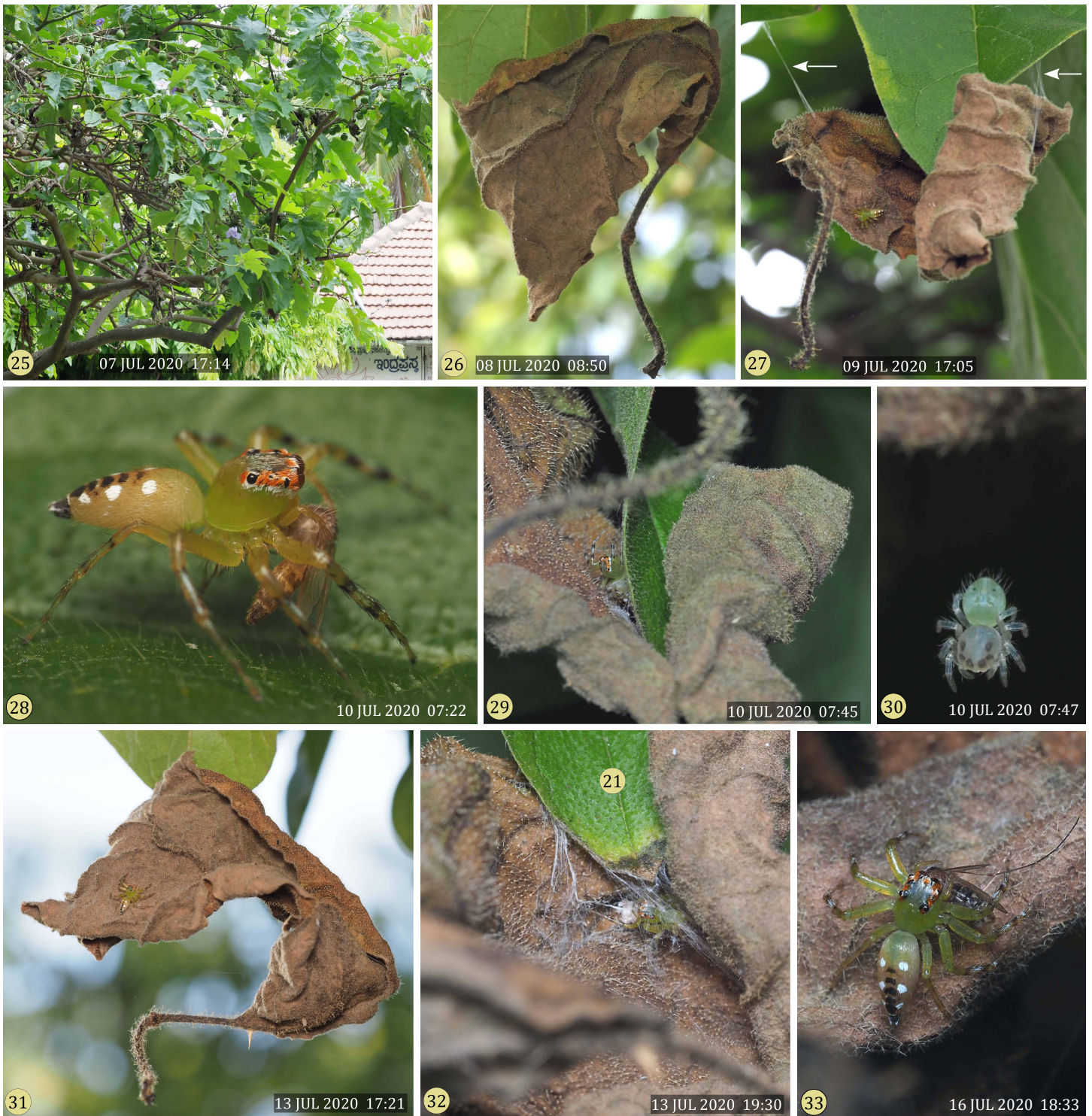


Figure 2 (continued from previous page). Nesting female *Epeus indicus*. **25**, Large *Solanum macranthum* tree at the Indraprastha Organic Farm where this sequence was observed. **26**, Rear view of the suspended brood leaf, now completely dry. **27**, Female on the suspended brood leaf. The two suspensors are indicated with white arrows. **28**, The female with prey (Diptera: Nematocera) on a nearby leaf. **29**, Female in nest. **30**, First instar with partly developed eyes suspended from nest. **31**, Female on rear or bottom of suspended brood leaf. **32**, Female in nest. **33**, Female with prey (Diptera: Nematocera) on the dried brood leaf. After this the female *E. indicus* was not seen again.

By the morning of 7 July, fewer young were visible in this nest, but the cause for this is not known. On the afternoon of that date it rained heavily and there was a breeze, but the suspended brood leaf retained its position. By this time more lines had been added to reinforce a second suspensor above the brood sac, connecting the underside of the now curling brood leaf to a second adjacent green leaf (Figure 2:23-24). That suspensor originally consisted of silk lines extending to that second leaf above the brood sac on the previous day (present but concealed by the second leaf over the nest in Figure 2:18-21). With a single suspensor, the dry leaf would have rotated wildly in the breeze, but the addition of a second suspensor prevented this movement. Several days later a few juveniles were observed in the vicinity (Figure 2:30), but later (Figure 2:31-33) none were observed as the female continued to use her nest as a home base.

Acknowledgements

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