

## FIRST RECORD OF *Eriovixia Poonaensis* (TIKADER & BAL, 1981) (ARANEAE: ARANEIDAE) IN PENINSULAR MALAYSIA

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**Abstract:** Mangrove spiders are poorly studied in Malaysia. Available data have been primarily limited to the west coast of Peninsular Malaysia. In the present work, we report the first record of a spider species for Peninsular Malaysia, the Orb-weaver spider *Eriovixia poonaensis* (Tikader & Bal, 1981), from Setiu Wetlands in Terengganu state, on the east coast of the peninsula.

Keywords: *Eriovixia poonaensis*, New record, Malaysia.

### Introduction

The genus *Eriovixia* was first described by Archer (1951), with the type-species *Eriovixia rhinura* (Pocock, 1899). It was then reclassified under the genus *Neoscona* (Simon, 1864). The name *Eriovixia* became valid nomenclature again by Grasshoff (1986) (World Spider Catalog, 2020). The members of the genus *Eriovixia* are medium-sized orb-weaving spiders, found in Africa and Asia (Murphy & Murphy, 2000). Recently five new species, *Eriovixia nocturnalis* was described from Bangladesh (Biswas & Raychaudhuri, 2018), *Eriovixia kachugaonensis* from India (Basumatary *et al.*, 2019), *E. nigrimaculata*, *E. huwena*, and *E. jianfengensis* from Hainan, China (Han & Zhu, 2010).

The Orb-weaver spider *Eriovixia poonaensis* (Tikader & Bal, 1981) is a nocturnally active spider, found resting during the day in rolled leaves. It constructs a vertical, round web with near-placed spirals and the spider rests in the close hub (Solanki, 2016). It is one of 25 species under this genus (World Spider Catalog, 2020). It has so far been reported in India (Tikader & Bal 1981; Tikader & Biswas, 1981; Tikader, 1982), China (Yin *et al.*, 1990; Yin *et al.*, 1997; Song *et al.*, 1999), and Vietnam (Ono *et al.*, 2012). Mi & Wang (2016) re-described the female and

presented the first male description from China.

In Malaysia, this genus is represented by *Eriovixia laglaizei* (Simon, 1877), with two specimens collected from Genting Highlands, Pahang, and Johor plus another two specimens of the genus (unknown species) of one male and one female, collected from Genting Highlands, Pahang (Murphy & Murphy, 2000). Dzulhelmi *et al.*, (2014) had listed *Eriovixia laglaizei* as the first record for Sabah, Malaysia. The second species is the long-tailed *Eriovixia*, *Eriovixia pseudocentrodus* (Bösenberg & Strand, 1906). Two female specimens of the latter species were collected in Sabah (Dzulhelmi *et al.*, 2014) and one specimen in Belum Temengor, Perak (Izzauddin *et al.*, 2019).

In this article, we report a third species, the Orb-weaver spider *Eriovixia poonaensis* (Tikader & Bal, 1981), collected from Setiu Wetlands, Terengganu, Peninsular Malaysia.

### Materials and Methods

Three specimens (one adult ♀ and two juvenile ♂ and ♀) were hand-collected from Setiu Wetlands Boardwalk (Jalan Pengkalan Gelap, Permaisuri, Setiu, Terengganu, 5 ° 40' 22.03" N, 102 ° 43' 05.53" E). An adult female was collected from its web, built on a wooden

structure, on the night of November 3rd, 2018. The remaining two specimens were handpicked from the lower surface of a Screw Pine leaf (*Pandanus odoratissimus*), at noon on January 8th, 2019. All specimens were preserved in 80% ethanol. Photographs were taken using a stereomicroscope (Olympus® SZX5). Identification of the specimens to the species level was made using published taxonomic keys and epigyne descriptions (Tikader & Bal, 1981; Yin et al., 1997; Mi & Wang, 2016). Measurements are given in millimetres (mm). Leg measurements are given as Femur, Patella + Tibia, Metatarsus, and Tarsus. Descriptions are provided based on fresh samples. The collected samples are deposited at the UMT Zoological Collection under voucher number UMTZC 00046.

**Results and Discussion**

**Systematic Accounts**

- Family Araneidae Clerck, 1757
- Genus *Eriovixia* Archer, 1951
- Taxonomy and Historical line of Synonymy*
- Eriovixia poonaensis* (Tikader & Bal, 1981)
- 1981 *Neoscona poonaensis* Tikader & Bal.
- 1981 *Neoscona poonaensis* Tikader & Biswas.
- 1982 *Neoscona poonaensis* Tikader.
- 1986 *Eriovixia poonaensis* Grasshoff.
- 1990 *Neoscona poonaensis* Yin et al.
- 1997 *Eriovixia poonaensis* Yin et al.
- 1999 *Eriovixia poonaensis* Song, et al.
- 2016 *Eriovixia poonaensis* Mi & Wang.

**Description**

Female (adult), 1ex. cephalothorax brownish, legs yellow with a black band; abdomen yellowish. Total body length 6.50 mm. Carapace

slightly longer than wide (2.50 mm long, 2.00 mm wide), pear-shaped; abdomen 4.00 mm long and 4.00 mm wide pentagonal shape (Figure 1). The ventral side was presented with a large black patch in the shape of a star, and one pair of (chalk-white spots), between the epigastric furrow and the spinnerets (Figure 2). The leg measurements of the adult female specimen are presented in Table (1). Epigynum with a lateral rimmed scape; copulatory openings situated on the posterior surface; copulatory ducts twisted near the copulatory openings; spermathecae is spherical.

Mangrove invertebrates, particularly spiders, are little known in many tropical regions (Liow, 2000). The extensive leafy canopy of the mangrove forests provides a cool, stable, and shaded environment subject to significant humidity for faunal colonization (Ross & Underwood, 1997). In Malaysia where mangroves are one of the threatened coastal ecosystems, previously reported mangrove spider fauna is greatly underestimated with 26 species belonging to 10 families (Norma-Rashid et al., 2009), from the west coast of Peninsular Malaysia. Other studies were conducted in Sabah and Sarawak (Murphy & Murphy, 2000; Dzulhelmi et al., 2014). A recent study surveyed the Cukai riparian ecosystem in Terengganu (Abdullah et al., 2019), listed 26 morphospecies from seven families (Araneidae, Clubionidae, Oxyopidae, Salticidae, Sparassidae, Tetragnathidae, and Thomisidae). A more recent study focused on the diversity of foliage-dwelling spiders (Arachnida, Araneae) in Peninsular Malaysia, yielded 92 morphospecies from 65 genera that belong to 15 families (Naser et al., 2020).

Table 1: Leg measurements (in mm) for an adult female of *E. poonaensis* (Tikader & Bal, 1981)

| Legs | Total | Femur | Patella + Tibia | Metatarsus | Tarsus |
|------|-------|-------|-----------------|------------|--------|
| I    | 8,9   | 3,6   | 2,6             | 1,9        | 0,8    |
| II   | 7,4   | 2,6   | 2,5             | 1,7        | 0,6    |
| III  | 4,3   | 1,6   | 1,5             | 0,7        | 0,5    |
| IV   | 7     | 2,4   | 2,4             | 1,5        | 0,7    |

Although the species we report here was collected from a mangrove ecosystem, other authors reported it from tea plantations in China (Li Jianlong *et al.*, 2019) and Moist Deciduous forest in India (Sunil *et al.*, 2008), which represent other habitats where this species can be found. In Malaysia, spider diversity studies are still inadequate to cover all ecosystems nor to produce a comprehensive checklist for spiders; therefore, more surveys are needed, especially in the least studied region of the east coast.

## Conclusion

In the present study, we managed to collect three specimens of *Eriovixia poonaensis* (Tikader & Bal, 1981) of which two were females (one adult and one immature), and one was a sub-adult male (Figure 1). Based on a thorough review of the literature on Malaysian spiders, this is the first record of this Arachnid species for Malaysia. Additional sampling in this wetland area will be conducted in the future to compile a checklist of all spider species in the area.

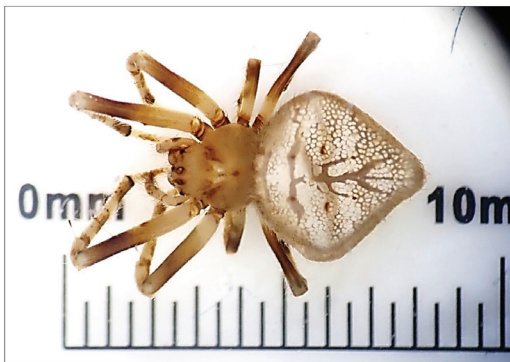


Figure 1: Dorsal view of the orb-weaver spider *E. poonaensis* (Tikader & Bal, 1981), adult female



Figure 2: Ventral view of the orb-weaver spider *E. poonaensis* (Tikader & Bal, 1981), adult female



Figure 3: The orb-weaver spider *E. poonaensis* (Tikader & Bal, 1981), ventral view of Epigyne

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## References

- Abdullah, N. A., Hazmi, I. R., Asri, L. N., Sulaiman, N., Sulaiman, A., Husin, S. M., & Engku Nasrullah Satiman, E. M. F. (2019). Spider assemblage (Arachnida: Araneae) in a Riparian Firefly Sanctuary of Sungai Chukai, Terengganu, Malaysia. *Pertanika*

- Journal of Tropical Agricultural Science*, 42(4), 1361-1373.
- Archer, A. F. (1951). Studies in the orb-weaving spiders (Argiopidae). 1. *American Museum Novitates*, 1487, 1-52.
- Basumatary, P., Chanda, D., Das, S., Kalita, J., Brahma, D., Basumatary, T., Basumatary, B. K., & Daimary, S. (2019). On a new species of the orb-weaving spider genus *Eriovixia* (Araneae: Araneidae) from India. *Arachnology*, 18(1), 24-27.
- Biswas, V., & Raychaudhuri, D. (2018). New species of the genus *Eriovixia* Archer, 1951 (Araneae: Araneidae) from Bangladesh. *Bangladesh Journal of Zoology*, 46(1), 1-10.
- Bösenberg, W., & Strand, E. (1906). Japanische Spinnen. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, 30, 93-422.
- Dzulhelmi, M. N., Wong, C. X., Goh, T. G., Juhaida, H., & Faszly, R. (2014). Spider fauna (Arachnida, Araneae) from Sabah, Malaysia. *Journal of Entomology and Zoology Studies*, 2(5), 335-344.
- Grasshoff, M. (1986). Die Radnetzspinnen-Gattung *Neoscona* in Afrika (Arachnida: Araneae). *Annalen Zoologische Wetenschappen*, 250, 1-123.
- Han, G. X., & Zhu, M. S. (2010). Taxonomy and biogeography of the spider genus *Eriovixia* (Araneae: Araneidae) from Hainan Island, China. *Journal of Natural History*, 44, 2609-2635.
- Izzauddin, Nik Ahmad Irwan, N. H., Suhaila, A. H., & Zarul, H. H. (2019). *Royal Belum-Temengor Rainforest: The hidden treasure of Perak*. Penerbit Universiti Sains Malaysia and Kementerian Air, Tanah dan Sumber Asli. pp 300.
- Li Jianlong, Li Huashou, Li Xiudi, Liu Jie, Li Jiaxian, Tang Hao, & Tang Jinchi. (2019). Study on the structure and diversity of spider community in Yingde tea area, Guangdong. *Tea Science*, 34(3), 253-260. <http://www.tea-science.com/CN/10.13305/j.cnki.jts.2014.03.007>.
- Liow, L. H. (2000). Mangroves conservation in Singapore: A physical or a psychological impossibility? *Biodiversity Conservation*, 9, 309-332.
- Mi, X. Q., & Wang, C. (2016). First description on the female of *Eriovixia huwena* and the male of *E. poonaensis* (Araneae, Araneidae). *Sichuan Journal of Zoology*, 35(5), 728-733.
- Murphy, F., & J. Murphy. (2000). *An Introduction to the Spiders of South East Asia: With notes on all the genera*. Kuala Lumpur: Malaysian Nature Society. 624 pp.
- Nasir, D. M., Su, S., Sulaiman, B., Halim, M., Mamat, N. S., Rosli, F. N., & Rahim, F. (2020). Field survey of foliage-dwelling spiders (Arachnida, Araneae) in Peninsular Malaysia. *Jurnal Entomologi Indonesia*, 16(3), 129.
- Norma-Rashid, Y., Rahman, N. A., & Li, D. (2009). Mangrove spiders (Araneae) of peninsular Malaysia. *International Journal of Zoological Research*, 5(1), 9-15.
- Ono, H., Thinh, T. H., & Sac, P. (2012). Spiders (Arachnida, Araneae) recorded from Vietnam, 1837–2011. *Memoirs of the National Museum of Nature and Science, Tokyo*, 48, 1-37.
- Pocock, R. I. (1899). On the scorpions, Pedipalpi, and spiders from tropical West Africa represented in the collection of the British Museum. *Proc. zool. Soc. Lond.* 1899, 833–885.
- Ross, P. M., & Underwood, A. J. (1997). Distribution and abundance of Barnacles in a mangrove forest. *Australian Journal Ecology*, 22, 37-47.
- Simon, E. (1877). Etudes arachnologiques. 5e Mémoire. IX. Arachnides recueillis aux îles Phillipines par MM. G. A. Baer et Laglaise. *Annales de la Société Entomologique de France*, 5(7), 53-96.

- Solanki, R. B. C. (2016). *Ecology and diversity of spider fauna in southern tropical dry deciduous forests of Gujarat* [Doctoral dissertation, Maharaja Sayajirao University of Baroda (India)]. ProQuest Dissertations Publishing, 2016. 27666657.
- Song, D. X., Zhu, M. S., & Chen, J. (1999). *The spiders of China*. Shijiazhuang: Hebei University of Science and Technology Publishing House. pp 640.
- Sunil, J. K., Sudhikumar, A., Davis, S., & Sebastian, P. (2008). Preliminary studies on the diversity of spider fauna (Araneae: Arachnida) in Parambikulam Wildlife Sanctuary in Western Ghats, Kerala, India. *Journal of the Bombay Natural History Society*, 105(3), 264-273.
- Tikader, B. K., & Bal, A. (1981). Studies on some orb-weaving spiders of the genera *Neoscona* Simon and *Araneus* Clerck of the family Araneidae (= Argiopidae) from India. *Records of the Zoological Survey of India, Occasional Paper*, 24, 1-60.
- Tikader, B. K., & Biswas, B. (1981). Spider fauna of Calcutta and vicinity, Pt. 1. *Records of the Zoological Survey of India, Occasional Paper*, 30, 1-148.
- Tikader, B. K. (1982). Family Araneidae (= Argiopidae), typical orb-weavers. *Fauna India (Araneae)*, 2, 1-293.
- World Spider Catalog. (2020). World Spider Catalog, version 20. Natural History Museum Bern. <http://www.wsc.nmbe.ch>. (Accessed February 10<sup>th</sup> 2020).
- Yin, C. M., Wang, J. F., Xie, L. P., & Peng, X. J. (1990). New and newly recorded species of the spiders of family Araneidae from China (Arachnida, Araneae). In *Spiders in China: One hundred new and newly recorded species of the families Araneidae and Agelenidae* (pp 1-171). Hunan Normal University Press.
- Yin, C. M., Wang, J. F., Zhu, M. S., Xie, L. P., Peng, X. J., & Bao, Y. H. (1997). *Fauna Sinica: Arachnida: Araneae: Araneidae*. Beijing: Science Press. 13.