Anepsion japonicum (Bösenberg & Strand 1906) is a junior synonym of *A. maritatum* (O.Pickard-Cambridge 1877)

Akio Tanikawa^{1*} & Takeshi Yamasaki²

¹ Laboratory of Biodiversity Science, School of Agriculture and Life Sciences, The University of Tokyo, 1-1-1, Yayoi, Bunkyo-ku, Tokyo, 113-8657 Japan

² Makino Herbarium, Tokyo Metropolitan University, 1-1 Minami-osawa, Hachioji-shi, Tokyo, 192-0397 Japan

* Corresponding author

Abstract — *Anepsion japonicum* (Bösenberg & Strand 1906) is newly synonymized with *A. maritatum* (O.Pickard-Cambridge 1877) by examining the type specimens.

Keywords — *Anepsion maritatum*, *Anepsion japonicum*, new synonymy

Introduction

Anepsion maritatum (O.Pickard-Cambridge 1877) was described as *Paraplectana maritata* from Sri Lanka. Simon (1905) transferred it to the genus *Anepsion* and synonymized *P. nigroanalis* van Hasselt 1882 with it. Chrysanthus (1961) and Malamel et al. (2015) then synonymized *P. picta* Thorell 1877 and *Cyrtarachne keralensis* Sunil Jose 2011 with it, respectively. *Anepsion maritatum* (O.Pickard-Cambridge 1877) has been recorded in India (Malamel et al. 2015), Sri Lanka (O.Pickard-Cambridge 1877), Indonesia (Thorell 1877), and China (Yaginuma & Wen 1983).

Anepsion japonicum (Bösenberg & Strand 1906) was described as *P. japonica* from Japan. Chotwong et al. (2013) transferred it to the genus *Anepsion* and synonymized *A. japonicum* (Yaginuma 1962) with it. *Anepsion japonicum* (Yaginuma 1962) was originally described as *Anepsium japonicum* having the same specific epithet as *A. japonicum* (Bösenberg & Strand 1906). *Anepsion japonicum* (Bösenberg & Strand 1906) has been recorded in Japan (Bösenberg & Strand 1906, Yaginuma 1962), China (Yin et al. 1997) and Thailand (Chotwong et al. 2013).

The morphological features of *A. japonicum* (Bösenberg & Strand 1906) mentioned by Chotwong et al. (2013) closely resemble those of *A. maritatum* mentioned by Malamel et al. (2015). However, Malamel et al. (2015) did not examine the type material of the species. Therefore, we tested the synonymy of *A. japonicum* and *A. maritatum* by examining the type material of these two species.

Materials and Methods

We examined the syntypes of *Paraplectana maritata* O. Pickard-Cambridge 1877, five females and three males from Royal Botanic Gardens, Sri Lanka, preserved in Oxford

University Museum of Natural History, no. 2009-031; the holotype of *P. japonica* Bösenberg & Strand 1906, subadult female from Saga, Japan, preserved in Senckenberg Museum, no. 4179; and the holotype of *Anepsium japonicum* Yaginuma 1962, male from Kagoshima Pref., Japan, preserved in Otemon-Gakuin University.

The morphological features were examined under a stereoscopic microscope (M3Z, Wild Heerbrugg AG, Heerbrugg, Switzerland). Photographs were taken with an EOS Kiss X7 (Canon Inc., Tokyo, Japan) attached to the stereoscopic microscope.

Results

The general appearance and epigyne and male palp of each sex specimen from the syntypes of *Paraplectana maritata* O. Pickard-Cambridge 1877 (= *Anepsion maritatum*) are shown in Fig. 1. We did not recognize any distinct morphological difference between females in the syntypes of *P. maritata* O. Pickard-Cambridge 1877 (= *A. maritatum*) and the holotype of *P. japonica* Bösenberg & Strand 1906 (= *A. japonicum*). As mentioned in Chotwong et al. (2013), the holotype of *P. japonica* is a subadult female, but the shape of its epigyne can be observed under the exoskeleton. We also did not recognize any morphological differences between males in the syntypes of *P. maritata* O. Pickard-Cambridge 1877 (= *A. maritatum*) and the holotype of *Anepsium japonicum* Yaginuma 1962 (= *A. japonicum*). Consequently, we concluded that *A. japonicum* (Bösenberg & Strand 1906) is a junior synonym of *A. maritatum* (O.Pickard-Cambridge 1877) due to lack of a morphological difference.

Taxonomy

Anepsion maritatum (O. Pickard-Cambridge 1877)
(Fig.1)

Fig. 1. One female and one male from the syntypes of *Anepsion maritatum* (O.Pickard-Cambridge 1877) – A, female, dorsal view; B, same, ventral view; C, epigyne; D, male, dorsal view; E, male left palp, retrolateral view; F, same, ventral view. (Scales: 0.5mm)

Paraplectana maritata O. Pickard-Cambridge 1877. p. 32, pl. 7, fig. 7.

Paraplectana picta Thorell 1877, p. 356.

Paraplectana nigroanalis van Hasselt 1882. p. 15, pl. 1, fig. 3.

Anepsia maritata: Simon 1905. p. 63.

Paraplectana japonica Bösenberg & Strand 1906, p. 242, pl. 15, fig. 424. NEW SYNONYMY

Anepsion maritatum: Chrysanthus 1961. p. 465, figs. 3, 5, 10 (part., figs. 6–7: doubtful; figs. 8–9: misidentification); Yaginuma & Wen, 1983. p. 196, figs. 4A–B; Song 1987, p. 158, fig. 118; Yin et al., 1997. p. 118, figs. 43a–b; Song, Zhu & Chen 1999. p. 236, figs. 134A, 146E; Malamel et al. 2015. p. 478, figs. 1A–O, 2A–I.

Anepsium japonicum Yaginuma 1962. p.134, figs. 6–8. NEW SYNONYMY

Cyrtarachne keralensis Sunil Jose, 2011. p. 322, figs. 1a–g.

Anepsion japonicum: Yaginuma 1986, p.123, fig. 65.1; Yin et al 1997, p.117, figs. 42a–c; Song, Zhu & Chen 1999, p. 236, figs. 134B–C, 146D; Tanikawa 2007, p. 55, fig. 485; Tanikawa 2009, p. 433, fig. 67; Chotwong et al. 2013, p.

92, figs. 5–7, 12–14; Baba, Suguro & Yamauchi 2015, p. 23, figs. 2–4. NEW SYNONYMY

Acknowledgments

We wish to express our thanks to Peter Jäger and Julia Altmann, Senckenberg Museum, Frankfurt-am-Main, Germany; Takahide Kamura, Otomon Gakuin University; and Zoë M. Simmons, Oxford University Museum of Natural History, for their loaning of invaluable specimens. We are also grateful to Maria L. Tavano, Museo Civico di Storia Naturale di Genova, for giving us the opportunity to examine comparative specimens; and Tadashi Miyashita, University of Tokyo, for his kind help with the study.

References

- Baba, Y. G., Suguro T. & Yamauchi, T. 2015. A record of *Anepsion japonicum* (Araneae: Araneidae) from Yakushima Island, Ryukyu Islands, Japan, after an interval of 47 years. *Fauna Ryukyuana*, 26: 23–26. (in Japanese with English abstract and figure captions)
- Bösenberg, W. & Strand, E. 1906. Japanische Spinnen. *Abh. Senck. Naturf. Ges.*, 30: 93–422.
- Chotwong, W., Tanikawa, A., Ikeda, Y. & Miyashita, T. 2013. Two spider species of the genus *Anepsion* (Araneae: Araneidae) from Thailand, with a note on the synonymy of *Anepsion japonicum* (Bösenberg & Strand 1906). *Acta Arachnol.*, 62: 89–94.

- Chrysanthus, P. 1961. Die Gattung *Anepsion* Strand 1929 (Arach., Araneae: Araneidae-Araneinae). Senckenberg. biol., 42: 463–477.
- Hasselt, A. W. M. van 1882. Araneae. In: Veth, P. J. (ed.) *Midde-Sumatra* 4A(11). Reizen en onderzoekingen der Sumatra-expeditie, uitgerust door het aardrijkskundig genootschap, 1877–1879. Brill, Leiden, 1–56, pl. 1–5.
- Malamel, J. J., Sankaran, P. M., Joseph, M. M. & Sebastian, P. A. 2015. *Cyrtarachne keralensis* Jose, 2011 is a junior synonym of *Anepsion maritatum* (O. Pickard-Cambridge, 1877) (Araneae, Araneidae). *Zootaxa*, 4039(3): 478–482.
- Pickard-Cambridge, O. 1877. On some new genera and species of Araneidea. *Ann. Mag. Nat. Hist.*, 4: 26–39.
- Simon, E. 1905. Arachnides de Java, recueillis par le Prof. K. Kraepelin en 1904. *Mitt. Natur. Mus. Hamburg*, 22: 49–73.
- Song, D. X. 1987. Spiders from agricultural regions of China (Arachnida: Araneae). Agriculture Publishing House, Beijing, 376 pp.
- Song, D. X., Zhu, M. S. & Chen, J. 1999. The Spiders of China. Hebei Sci. Technol. Publ. House, Shijiazhuang, 640 pp.
- Sunil Jose, K. 2011. A new species of the genus *Cyrtarachne* (Araneae: Araneidae) from western Ghats, India. *Mun. Ent. Zool.*, 6: 321–324.
- Tanikawa, A. 2007. An identification guide to the Japanese spiders of the families Araneidae, Nephilidae and Tetragnathidae. Arachnological Society of Japan, 121 pp.
- Tanikawa, A. 2009. Hersiliidae, Nephilidae, Tetragnathidae, Araneidae. In Ono, H. (ed.), *The Spiders of Japan with keys to the families and genera and illustrations of the species*. Tokai Univ. Press, Kanagawa, pp. 149, 403–463.
- Thorell, T. 1877. Studi sui Ragni Malesi e Papuani. I. Ragni di Selesbes raccolti nel 1874 dal Dott. O. Beccari. *Ann. Mus. civ. stor. nat. Genova*, 10: 341–637.
- Thorell, T. 1878. Studi sui ragni Malesi e Papuani. II. Ragni di Amboina raccolti Prof. O. Beccari. *Ann. Mus. civ. stor. nat. Genova*, 13: 1–317.
- Yaginuma, T. 1962. Spiders from Osumi Peninsula, Mt. Takakuma and Mt. Kirishima, Kyushu, Japan. *Misc. Rep. Res. Inst. nat. Resour.*, Tokyo 56–57: 129–136.
- Yaginuma, T. 1986. Spiders of Japan in color (new ed.). Hoikusha Publ. Co., Osaka.
- Yaginuma, T. & Wen, Z. G. 1983. Chinese and Japanese spiders (II). *Fac. Let. Rev., Otomon Gakuin Univ.*, 17: 187–205.
- Yin, C. M., Wang, J. F., Zhu, M. S., Xie, L. P., Peng, X. J. & Bao, Y. H. 1997. *Fauna Sinica: Arachnida: Araneae: Araneidae*. Science Press, Beijing, xiii + 460 pp.

Received January 18, 2019 / Accepted February 20, 2019