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## **The goblin spider genus *Xyphinus* (Araneae; Oonopidae)**

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## Abstract

The goblin spider genus *Xyphinus* Simon 1893 presents several peculiar characters, such as spines and spikes on carapace and abdomen in different sizes and shapes, strongly modified male palps with distinct apophyses and female epigastric modifications with sclerotized scapi, which can be short or long or even contorted. The genus is restricted to the Old World tropics, except for one species collected also in Australia; as revised here, the group currently comprises 20 species, 10 are newly described: *X. holgeri* sp. nov., *X. deelemanae* sp. nov., *X. acutus* sp. nov., *X. sabal* sp. nov., *X. krabi* sp. nov., *X. infaustus* sp. nov., *X. rogerfedereri* sp. nov., *X. pachara* sp. nov., *X. baehrae* sp. nov., and *X. distortus* sp. nov. *Pseudotri-aeris* Brignoli 1974 is placed as junior synonym of *Xyphinus*.

**Key words:** new species, taxonomy, distribution

## Introduction

The goblin spider genus *Xyphinus* was established by Simon (1893) for an extraordinary species, *Xyphinus hystrix* Simon 1893, from Singapore. Simon stated the presence of conspicuous spines on the carapace surface and sides in both sexes. He also mentioned the strongly elevated carapace, the spine-less legs, the elongated and very rugose pedicel tube, as well as the male palp with a twisted bulb with a short apophysis, all features separating *Xyphinus* from similar genera. *Xyphinus hystrix* remained the only known species until 1987, when C.L. Deeleman-Reinhold added six new species to the genus, collected from the Malay Peninsula and Borneo (Deeleman-Reinhold 1987). Her revision of the genus with excellent descriptions and illustrations for the type species and the six new species led to a redefinition of the genus. To the known characters Deeleman-Reinhold added the apical rim (backwards folded ridge) of the male endites and the presence of sickle-shaped impressions on the sternum. She also noted the highly complicated male palpal bulb and the protrusion in the female epigastric region. In their book “Japanische Spinnen”, Bösenberg & Strand (1906) described a new species, collected together with *Gamasomorpha cataphracta* Karsch 1881 near Saga (Japan). Although they provided very informative illustrations and even noted the peculiar “eigentümlich konstruierte” (strangely shaped) male palps, obviously very different from the palps of *Gamasomorpha* Karsch 1881, and the endites with the backwards folded ridge, absent in *Gamasomorpha*, they

## Discussion

Based on detailed investigations, the oonopids can be divided into three subfamilies: Orchestininae Chamberlin and Ivie, Sulsulinae Platnick et al. and Oonopinae Simon (Platnick et al. 2012). *Xyphinus* belongs to the third group, like e.g. *Gamasomorpha* Karsch, 1881, *Opopaea* Simon, 1891 or *Pellicinus* Simon, 1891. Many of the oonopid spider genera are quite uniform and their members differ often only by small variation of the male palpal bulb, for instance *Gamasomorpha* or *Opopaea* (Eichenberger et al. 2012; Baehr et al. 2013). *Xyphinus* on the other hand is a morphologically very diverse genus. Remarkable variation occurs for example in the ornamentation of the carapace and abdomen. While being smooth in some species, they can be slightly to strongly reticulate in others and the carapace as well as the abdomen can lack spikes or present an extraordinary armature, e.g. in *Xyphinus hystrix* and *X. abanghamidi*.

The absence or presence of pits on the posterior part of the carapace divides the genus in two distinct groups, i.e. *X. hystrix*, *X. xelo*, *X. krabi* sp. nov., *X. rogerfedereri* sp. nov., *X. pachara* sp. nov. and *X. distortus* sp. nov. with pits, and all other species without pits. This was already stated by Deeleman-Reinhold (1987). She also suggested a geographical separation of these groups, which can no longer be supported, since *X. baehrae* sp. nov. (pits absent) is widely distributed and is also present in the Malayan peninsula. Pits on the carapace are also known in other oonopid genera, i.e. *Brignolia* Dumitrescu & Georgescu, 1983 or some *Gamasomorpha* and *Opopaea* species. They are supposed to have a secretory function (Platnick et al. 2011). Numbers of Tarsal organ sensilla of some species do not follow the pattern suggested by Platnick et al. 2012 (i.e. 3322). They show only two sensilla in the first leg of *X. hystrix* instead of three, but there are some pores visible that might represent a modified third sensillum. In *X. xanthus* the tarsal organs of the hind legs show 3 instead of 2 sensilla. This character should therefore be investigated in more details. Great variation also occurs in the male and female genitalia. In *X. abanghamidi*, *X. lemniscatus*, *X. xanthus*, *X. holgeri* sp. nov., *X. deelemane* sp. nov., *X. acutus* sp. nov., *X. krabi* sp. nov. and *X. baehrae* sp. nov. the male palpal patella or tibia are provided with small to large microsculpture, which may function as stridulating organs in relation with a corresponding element on the chelicerae or carapace; similar organs are known from many other spider families (Uetz & Stratton 1982; Jocqué 2005). Interestingly, in *X. krabi* sp. nov. also the female palps are provided with a microsculpture. The size and shape of the different apophyses on the male bulb show a great variation as well. They can be rather simple and small (e.g. *X. hystrix*, *X. xelo*), greatly plate-like enlarged (e.g. *X. acutus* sp. nov., *X. rogerfedereri* sp. nov. and *X. pachara* sp. nov.) or extremely elongated (e.g. *X. lemniscatus*). The function of these apophyses suggests a locking mechanism during copulation with the process in the female genitalia, which can be very short (e.g. *X. hystrix*, *X. xelo*, *X. baehrae* sp. nov.) or consist of a conspicuously large scape (e.g. *X. lemniscatus*, *X. acutus* sp. nov.). Another supposed function of the apophyses may be to act as copulatory courtship devices (Burger 2010).

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## References

- Baehr, B.C., Harvey, M.S., Smith, H.M. & Ott, R. (2013) The goblin spider genus *Opopaea* in Australia and the Pacific islands (Araneae: Oonopidae). *Memoirs of the Queensland Museum*, 58, 107–338.
- Bösenberg, W. & Strand, E. (1906) Japanische Spinnen. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*,

- Brignoli, P.M. (1974h) On some Oonopidae from Japan and Formosa (Araneae). *Acta Arachnologica*, 25, 73–85. [Tokyo]  
<http://dx.doi.org/10.2476/asjaa.25.73>
- Burger, M. (2010) Goblin spiders without distinct receptacula seminis (Arachnida: Araneae: Oonopidae). *Journal of Morphology*, 271, 1110–1118.  
<http://dx.doi.org/10.1002/jmor.10857>
- Burger, M. (2013) Genital morphology of female goblin spiders (Arachnida: Araneae: Oonopidae) with functional implications. *Acta Zoologica (Stockholm)*, 92, 280–290.  
<http://dx.doi.org/10.1111/j.1463-6395.2011.00553.x>
- Chen, Z.F. & Zhang, Z.H. (1991) Fauna of Zhejiang: Araneida. Zhejiang Science and Technology Publishing House, Zhejiang, 356 pp.
- Deeleman-Reinhold, C.L. (1987) Revision of the genus *Xyphinus* Simon (Araneae: Oonopidae). *Acta Arachnologica*, 35, 41–56.  
<http://dx.doi.org/10.2476/asjaa.35.41>
- Eichenberger, B., Kranz-Baltensperger, Y., Ott, R., Graber, W., Nentwig, W. & Kropf, C. (2012) Morphology of new Indian/Indonesian *Gamasomorpha* and *Xestaspis* species (Araneae: Oonopidae). *Zootaxa*, 3160, 1–68.
- Jocqué, R. (2005) Six stridulating organs on one spider (Araneae, Zodariidae): Is this the limit? *Journal of Arachnology*, 33, 597–603.  
<http://dx.doi.org/10.1636/04-107.1>
- Karsch, F. (1881) Diagnoses Arachnoidarum Japoniae. *Berliner entomologische Zeitschrift*, 25, 35–40.  
<http://dx.doi.org/10.1002/mmnd.18810250107>
- Kraus, O. (1968) Eine wenig bekannte Technik des wissenschaftlichen Zeichnens. *Natur und Museum*, 98, 155–160.
- Kraus, O. (1984) Hoyer's Gemisch statt Polyvinyl-Lactophenol. *Mikrokosmos*, 73, 54–55.
- Ono, H. (2009a) *The Spiders of Japan with keys to the families and genera and illustrations of the species*. Tokai University Press, Kanagawa, 739 pp.
- Platnick, N.I. (2011) The world spider catalog, version 11.5. American Museum of Natural History. Available from: <http://research.amnh.org/iz/spiders/catalog> (accessed 5 September 2014)
- Platnick, N.I., Dupérré, N., Ott, R. & Kranz-Baltensperger, Y. (2011) The goblin spider genus *Brignolia* (Araneae, Oonopidae). *Bulletin of the American Museum of Natural History*, 349, 1–131.  
<http://dx.doi.org/10.1206/743.1>
- Platnick, N.I., Abraham, N., Alvarez-Padilla, F., Andriamalala, D., Baehr, B., Baert, L., Bonaldo, A.B., Brescovit, A.D., Chousou-Polydouri, N., Dupérré, N., Eichenberger, B., Fannes, W., Gaublomme, E., Gillespie, R.G., Grismado, C.J., Griswold, C.E., Harvey, M.S., Henrard, A., Hormiga, G., Izquierdo, M.A., Jocqué, R., Kranz-Baltensperger, Y., Kropf, C., Ott, R., Ramírez, M.J., Raven, R.J., Rheims, C.A., Ruiz, G.R.S., Santos, A.J., Saucedo, A., Sierwald, P., Szuts, T., Ubick, D. & Wang, X.P. (2012) Tarsal Organ Morphology and the Phylogeny of Goblin Spiders (Araneae, Oonopidae), With Notes on Basal Genera. *American Museum Novitates*, 3736, 1–52.  
<http://dx.doi.org/10.1206/3736.2>
- Simon, E. (1893) *Histoire naturelle des araignées. Vol. 1*. Roret, Paris, 1084 pp. [pp. 257–488]  
<http://dx.doi.org/10.5962/bhl.title.51973>
- Song, D.X. (1987) *Spiders from agricultural regions of China (Arachnida: Araneae)*. Agriculture Publishing House, Beijing, pp. 1–376.
- Song, D.X., Zhu, M.S. & Chen, J. (1999) *The Spiders of China*. Hebei Science and Technology Publishing House, Shijiazhuang, pp. 1–640.
- Tong, Y.F. & Li, S.Q. (2013) A new genus and species of oonopid spiders from Laos (Araneae, Oonopidae). *Acta Zootaxonomica Sinica*, 38 (4), 784–789.
- Tong, Y. & Li, S. (2013) Six new species of oonopid spiders from Champasak, Laos (Araneae, Oonopidae). *Zootaxa*, 3709 (1), 71–88.  
<http://dx.doi.org/10.11646/zootaxa.3709.1.3>
- Tong, Y.F. & Li, S. (2014) A survey of oonopid spiders in Taiwan with descriptions of three new species. *ZooKeys*, 396, 67–86.  
<http://dx.doi.org/10.3897/zookeys.396.7033>
- Uetz, G.W. & Stratton, G.E. (1982) Acoustic communication and reproductive isolation in spiders. In: Witt, P.N. & Rovner, J.S. (Eds.), *Spider communication: mechanisms and ecological significance*. Princeton University Press, Princeton, N.J. pp. 123–159.
- Uyemura, T. (1937a) How to discriminate between two related species (1). *Acta arachnologica Tokyo*, 2, 55–64.
- Yin, C.M. & Wang, J.F. (1984a) On some Oonopidae from southern China (Araneae). *Journal of Hunan Teachers College*, 51–59.
- Yin, C.M., Peng, X.J., Yan, H.M., Bao, Y.H., Xu, X., Tang, G., Zhou, Q.S. & Liu, P. (2012) Fauna Hunan: Araneae in Hunan, China. *Hunan Science and Technology Press*, Changsha, 1590 pp.