

A NEW GENUS AND SPECIES OF JUMPING SPIDERS (ARANEAE: SALTICIDAE: SPARTAEINAE) FROM MALAYSIA

J. X. Zhang

College of Life Sciences, Hebei University, Baoding, Hebei 071002, China
Present address: Department of Zoology, 6270 University Boulevard,
University of British Columbia, Vancouver, BC V6T 1Z4, Canada
Email: jxzhang@interchange.ubc.ca

Jeremy R. W. Woon

Department of Biological Sciences, Department of Zoology, National University of Singapore, 14 Science Drive 4,
Singapore 117543, Republic of Singapore

Daiqin Li

Department of Biological Sciences, Department of Zoology, National University of Singapore, 14 Science Drive 4,
Singapore 117543, Republic of Singapore
College of Life Sciences, Hubei University, Wuhan 430062, Hubei, P. R. China
Email: dbslidq@nus.edu.sg (Corresponding author)

ABSTRACT. – A new genus and species of jumping spider, *Sparbambus gombakensis*, is described from Peninsular Malaysia. *Sparbambus* is included in the subfamily Spartaeinae for the presence of large posterior median eyes (PMEs) and a tegular furrow on palpal organ. It differs from other closely related genera by the complex palpal tibial apophyses and the large petal-like conductor.

KEY WORDS. – Araneae, Salticidae, Spartaeinae, spiders, new genus, new species, Malaysia.

INTRODUCTION

The Spartaeinae, defined by Wanless (1984a), is usually considered as one of the two peculiar salticid subfamilies (the other subfamily is Lyssomaninae) that lack many derived features that mark the bulk of Salticidae (Maddison, 1995). The “*Cocalodes*-group”, comprising the genera *Allococalodes*, *Cocalodes*, *Holcolaetis* and *Sonoita*, was once excluded from Spartaeinae because of the presence of a median tegular apophysis on the male palp, but Rodrigo & Jackson (1992) indicated that it is monophyletic with other spartaeine genera, and then should be included in the subfamily. Being one of the best studied group of salticids, the Spartaeinae is now comprising 18 existing and five fossil genera, and a total of 119 species of the existing genera are recorded from the Old World (Prószyński, 2003; Platnick, 2005; Zhang & Li, 2005). Members of this subfamily are diagnosed by the presence of palpal tegular furrow and a membranous area between the tegulum and embolar base which was referred to as distal haematodocha by Wanless (1984a) in male. While similar to lyssomanines, the spartaeines usually have large posterior median eyes (PME), which have been reduced in the genera *Cyrba*, *Gelotia* and *Wanlessia*.

After a series of revisions on the spartaeine genera and a general review of the subfamily by Wanless (1978, 1979, 1981a, b, 1984a, b, 1987), Wijesinghe (1992) erected the new genus *Wanlessia* of this subfamily. He compared its palp with other spartaeine genera, and pointed out that the well developed conductor in *Wanlessia* was peculiar to spartaeines, and the tegular ledge or M3 labeled by Wanless in other spartaeine genera was actually identical to the condition of the conductor in *Wanlessia*.

In a study of the spartaeine spiders collected from Peninsular Malaysia, we found an interesting species also having a well developed palpal conductor, and concluded that it belongs to a new genus rather than *Wanlessia*. The new genus and species are described here under the name of *Sparbambus gombakensis*.

MATERIALS AND METHODS

All measurements given in this paper are in millimeters. Palp measurements are shown as: total length (femur+patella+tibia+tarsus). Leg measurements are shown as: total length (femur+patella+tibia+metatarsus+tarsus).

Dissected epigynes were digested in lactic acid for 10-30 min. or in 10% KOH for approximately 24 hrs at room temperature, rinsed in distilled water, stained in ethanol solution of chlorazol black E and mounted in glycerin. Specimens including types are deposited in the Raffles Museum of Biodiversity Research (formerly Zoological Reference Collection, or ZRC).

The abbreviations used are: ALE – anterior lateral eyes, AME – anterior median eyes, PLE – posterior lateral eyes, PME – posterior median eyes, e – embolus, c – conductor, dta – dorsal tibial apophysis, rta – retrolateral tibial apophysis, vta – ventral tibial apophysis, tf – tegular furrow.

TAXONOMY

Sparbambus, new genus

Type species. – *Sparbambus gombakensis*, new species.

Diagnosis. – This new genus is similar to all other spartaeine genera in the presence of a palpal tegular furrow, but it differs from the latter (except *Wanlessia*) in males by the well developed and petal-like conductor of palpal organ, the large and wide retrolateral tibial apophysis; and in females by the concave line between PMEs and

PLEs, and the shallow depressions on carapace. It also resembles *Wanlessia* Wijesinghe, 1992 in having a well developed conductor of male palpal organ, and *Phaeacius* Simon, 1900 in having a flat body and a small hump on copulatory duct. It can be easily distinguished from *Wanlessia* in males by the large PMEs, the flat body, the large and wide retrolateral tibial apophysis, and the presence of dorsal tibial apophysis. It differs from the *Phaeacius* in males by the well developed palpal conductor, the wide and weakly sclerotized retrolateral tibial apophysis, and the presence of dorsal tibial apophysis; and in females by the concave line between PMEs and PLEs, the shallow depressions on carapace, and the large spermathecae.

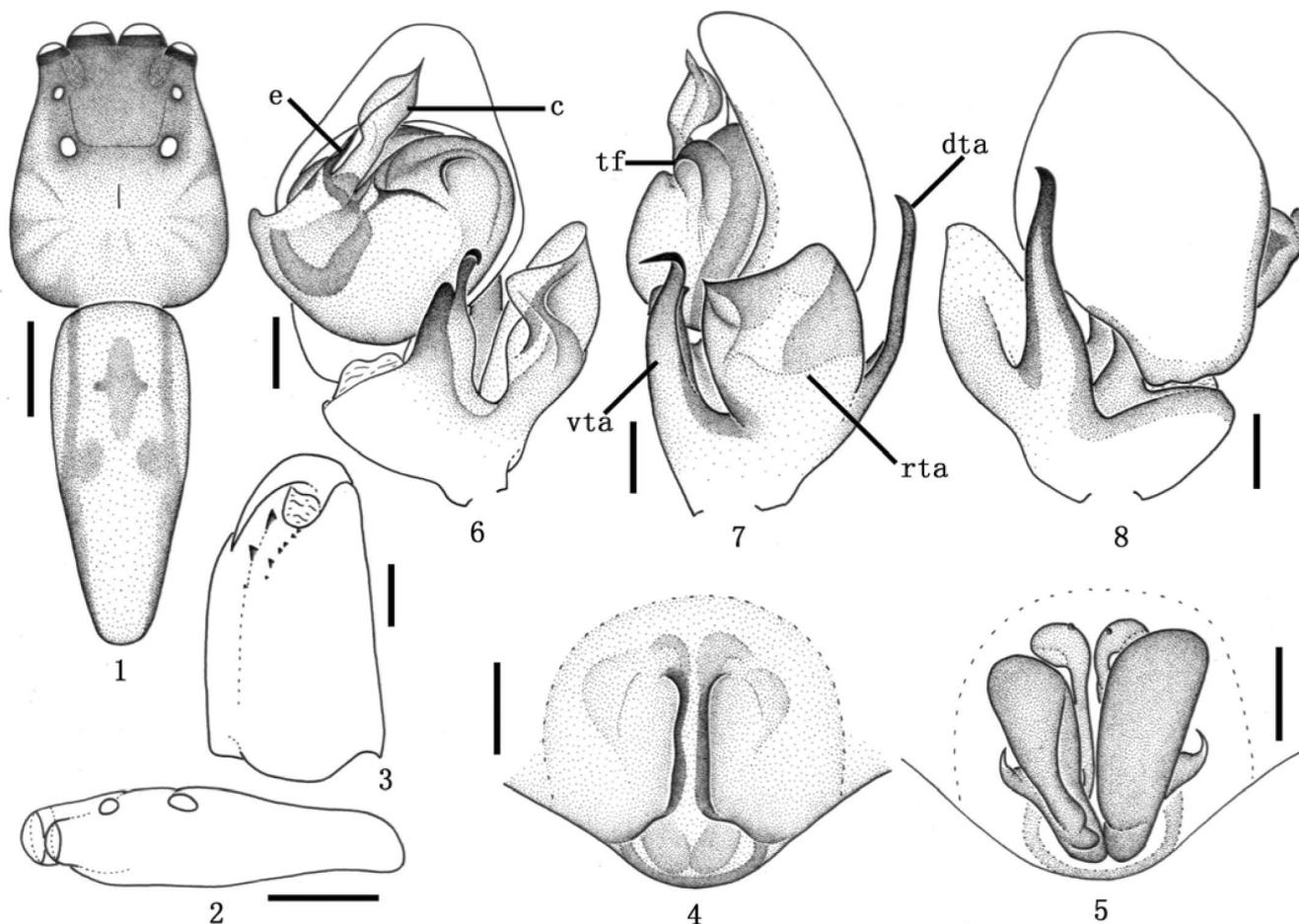
Description. – See following descriptions of the new species.

Etymology. – The generic name is from the Indian *bambu*, and refers the habitat of the type species; “Spar” refers the subfamily Spartaeinae, which the new genus is attributed to; masculine in gender.

Sparbambus gombakensis, new species

(Figs. 1-8)

Holotype. – Male, Ulu Gombak Field Studies Centre (University of Malaya) (3° 19.50'N 101° 545.18'E), Selangor, Malaysia, 17 May.2005, coll. I. Agnarsson.



Figs. 1-8. *Sparbambus gombakensis*, new species. 1. female; 2. carapace, lateral view; 3. left chelicera, retrolateral view; 4. epigynum, ventral view; 5. same, dorsal view; 6. left palp, ventral view; 7. same, retrolateral view; 8. same, dorsal view. Scale bars: 1-2 = 1.0 mm; 3-8 = 0.2 mm.

of Malaya) (3°19.50'N 101°54.18'E), Selangor, 002/west Malaysia, Malaysia, 15 May.2004; 2 females, 17 May.2005, coll. Jeremy R. W. Woon.

Description. – Female. Total length 6.62: cephalothorax 3.06 long, 2.25 wide, 0.85 high; abdomen 3.56 long, 1.58 wide. Carapace (Figs. 1-2) flat, yellow brown, lateral margins grey brown with brown short hairs, eye area black brown with pale yellow long hairs (Fig. 9). Carapace with three shallow depressions behind first eye row, and a concave line between PMEs and PLEs. Fovea distinct. Eye sizes: AME 0.51, ALE 0.34, PME 0.15, PLE 0.27. First eye row 1.70 wide, second eye row 1.43 wide, third eye row 1.39 wide, eye area 1.48 long. Clypeus height 0.00. Palp pale yellow, basal part of coxa grey with long white hairs (Fig. 9). Chelicerae (Fig. 3) yellow brown, distal part of outer-lateral and prolateral surfaces grey, fang red brown, promargin with three teeth and retromargin with six teeth. Endites pale yellow. Labium and sternum pale grey yellow. Sternum smooth, lacking setae. Coxae, trochanters and femora of legs pale yellow, other segments yellow, with grey annulations. Legs with spines and brown hairs (Fig. 9). Spination of leg I: metatarsi v 2-4-0, p 0-1-1, r 0-1-1; tibiae v 2-4-2, p 0-1-1, r 0-1-1, d 1-1-0; patellae p 0-1-0, r 0-1-0; femora d 0-2-2. Measurements of legs: I 6.94 (1.98+0.95+1.89+1.49+0.63), II 7.27 (2.25+0.99+1.85+1.58+0.63), III 7.93 (2.52+0.90+2.12+1.76+0.63), IV 8.20 (2.66+0.90+2.12+1.89+0.63). Leg formula: 4321. Abdomen long oval and yellow, dorsum with two lateral dark brown stripes, an anterior mesal dark brown patch and two red brown patches (Fig. 9). Median septum of epigynum

(Figs. 4-5) long and widened posteriorly, copulatory duct with a small hump near intromittent orifice, spermatheca large.

Male. Total length 6.21: cephalothorax 2.84 long, 2.03 wide, 0.82 high; abdomen 3.38 long, 1.31 wide. Carapace black, lacking concave line (Fig. 10). Eye sizes: AME 0.51, ALE 0.34, PME 0.17, PLE 0.26. First eye row 1.67 wide, second eye row 1.45 wide, third eye row 1.46 wide, eye area 1.39 long. Clypeus height 0.00. Legs pale yellow, with indistinct grey annulations. Spination of leg I: metatarsi v 2-4-0, p 0-1-1, r 0-1-1; tibiae v 2-4-2, p 0-1-1, r 0-1-1, d 1-1-0; patellae p 0-1-0, r 0-1-0; femora d 0-2-2. Leg I lacking minute tubercle on ventral femur. Measurements of palp and legs: palp 2.44 (0.90+0.37+0.27+0.90); I 5.35 (1.89+0.81+1.71+1.40+0.54), II 6.58 (2.07+0.81+1.76+1.40+0.54), III 7.17 (2.39+0.77+1.85+1.62+0.54), IV 7.57 (2.52+0.77+1.89+1.85+0.54). Leg formula: 4321. Abdomen long oval and pale grey yellow, with grey brown stripes and patches, ventrally with a mesal brown stripe (Fig. 10A). Male palp (Figs. 6-8, 10B) with ventral, retrolateral and dorsal tibial apophyses, ventral apophysis hooked distally with a round tip near distal end, retrolateral apophysis wide, slightly sclerotized, and almost quadrate in retrolateral view, dorsal apophysis long and thin; embolus spinous, with distal part hidden by petal-like conductor; tegular furrow short.

Etymology. – The specific name refers to the type locality.

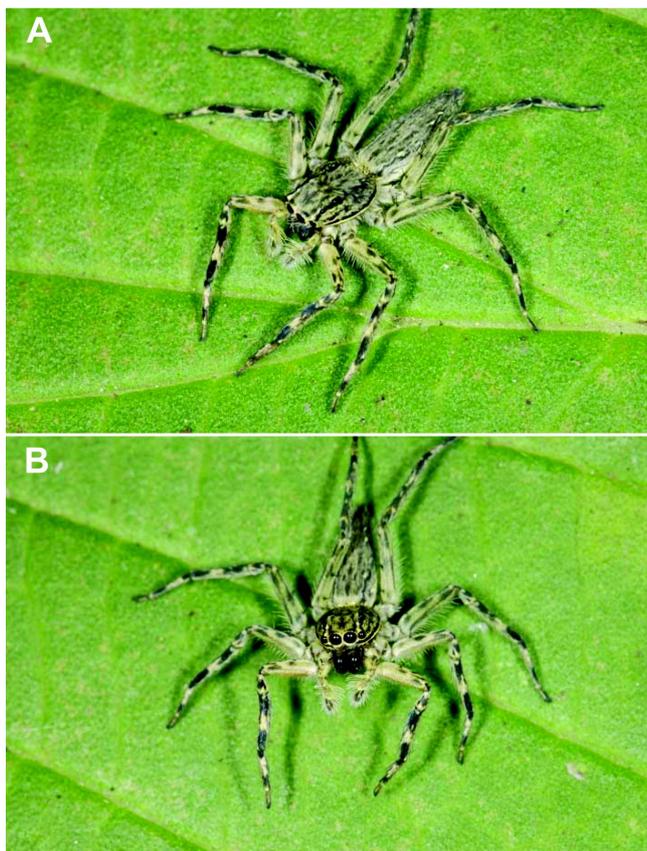


Fig. 9. *Sparbambus gombakensis* females: A, dorsal view; B, front view.

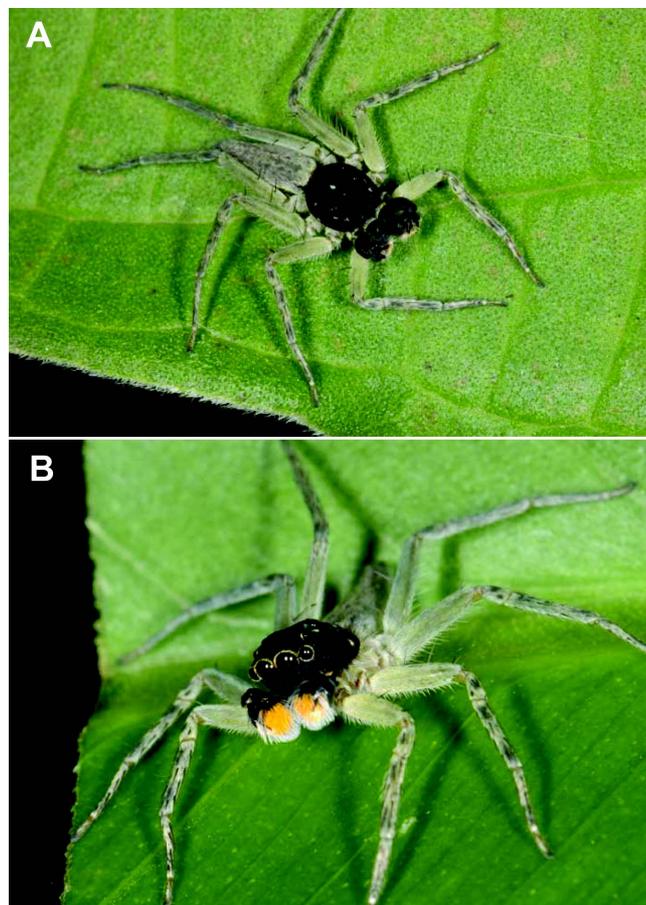


Fig. 10. *Sparbambus gombakensis* males: A, dorsal view; B, front view showing palps.

Biology. – *Sparbambus gombakensis* females have been collected only in the decaying internodes of fallen bamboo culms in Ulu Gombak (Fig. 11) and one juvenile was found resting on the culm surface. A single male specimen was collected by beating the fallen bamboo culms but it is uncertain if it came out of the internodes of the bamboo culm or it was roaming on the surface. Extensive searching and sampling by beating and sweep netting vegetation outside of bamboo culms were carried out but no specimens were found. However, the relatively small number of specimens collected thus far indicates that we have yet to find its proper habitat. Furthermore, Kovac & Streit (1996) conducted extensive sampling of bamboo internode communities but failed to discover this species. Although *S. gombakensis* seems to share the same microhabitat (the hollow interior of decaying bamboo internodes) with *Paracyrba wanlessi*, which has been reported to prey on aquatic animals, particularly mosquito larvae and pupae, whether *S. gombakensis* preys upon aquatic animals is unknown.

ACKNOWLEDGEMENTS

This study was in part supported by grants from National University of Singapore ARC to D. Li (R-154-000-199-112 and R-154-000-234-112). Valuable and generous assistance was provided by Gombak Field Station, University of Malaya. Special thanks are extended to Rosli Hashim from University of Malaya for generous assistance. Import permit was provided by the CITES unit, Agri-food & Veterinary Authority of Singapore.

LITERATURE CITED

Kovac, D. & B. Streit, 1996. The arthropod community of bamboo internodes in Peninsula Malaysia: microzonation and trophic structure. In Edwards, D.S. et al (eds.), *Tropical rainforest research – current issues*, Kluwer Academic Publishers, The Netherlands. Pp. 85-99.

Maddison, W., 1995. The Tree of Life Web Project: Salticidae. (<http://tolweb.org/tree/phylogeny.html>)

Platnick, N. I., 2005. The World Spider Catalog, version 6.0. American Museum of Natural History. (<http://research.amnh.org/entomology/spiders/catalog81-87/index.html>)

Prószyński, J., 2003. Salticidae of the World. (<http://salticidae.org/salticid/main.htm>)

Rodrigó, A. J. & R. R. Jackson, 1992. Four jumping spider genera of the *Cocalodes*-group are monophyletic with genera of Spartaeinae (Araneae: Salticidae). *New Zealand Natural Sciences*, **19**: 61-67.

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.

Wanless, F. R., 1978. A revision of the spider genus *Portia* (Araneae: Salticidae). *Bulletin of the British Museum (Natural History)*, **34**: 83-124.

Wanless, F. R., 1979. A revision of the spider genus *Brettus* (Araneae: Salticidae). *Bulletin of the British Museum (Natural History)*, **35**: 183-190.

Wanless, F. R., 1981a. A revision of the spider genus *Phaecius* (Araneae: Salticidae). *Bulletin of the British Museum (Natural History)*, **41**: 199-212.

Wanless, F. R., 1981b. A revision of the spider genus *Cocalus* (Araneae: Salticidae). *Bulletin of the British Museum (Natural History)*, **41**: 253-261.

Wanless, F. R., 1984a. A review of the spider subfamily Spartaeinae nom. n. (Araneae: Salticidae) with descriptions of six new genera. *Bulletin of the British Museum (Natural History)*, **46**: 135-205.

Wanless, F. R., 1984b. A revision of the spider genus *Cyrba* (Araneae: Salticidae) with the description of a new presumptive pheromone dispersing organ. *Bulletin of the British Museum (Natural History)*, **47**: 445-481.

Wanless, F. R., 1987. Notes on spiders of the family Salticidae. 1. The genera *Spartaeus*, *Mintonia* and *Taraxella*. *Bulletin of the British Museum (Natural History)*, **52**: 107-137.

Wijesinghe, D. P., 1992. A new genus of jumping spider from Borneo with notes on the spartaeine palp (Araneae: Salticidae). *Raffles Bulletin of Zoology*, **40**(1): 9-19.

Zhang, J. X. & D. Li, 2005. Four new and one newly recorded species of the jumping spiders (Araneae: Salticidae: Lyssomaninae & Spartaeinae) from (sub)tropical China. *Raffles Bulletin of Zoology*, **53**(2): 221-229.



Fig. 11. Habitat showing the bamboo *Gigantochloa scortechinii* at the Ulu Gombak Field Studies Centre, Malaysia.