

## THE JUMPING SPIDERS FROM DALI, YUNNAN, CHINA (ARANEAE: SALTICIDAE)

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**ABSTRACT.** – Eight jumping spiders-, including 2 new species, from Dali, Yunnan, China, are studied. They are: *Cyrba ocellata* (Kroneberg), *Hasarius adansoni* (Audouin), *Langona biangula*, new species, *Langona maculata*, new species, *Pellenes nigrociliatus* (L. C. Koch), *Phlegra pisarskii* Zabka, *Plexippus bhutani* Zabka and *Plexippus yinae* Peng & Li.

**KEY WORDS.** - Araneae, Salticidae, new species, Dali, China.

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### INTRODUCTION

Dali (99°58'-100°27' E, 25°25'-25°58'N), officially called Dali Bai Nationality Autonomous Prefecture, is situated in the southwest of Yunnan and at the intersection of the Yunnan-Burma Highway and Yunnan-Tibetan Highway. Dali City, the capital of Dali Bai Nationality Autonomous Prefecture, stands against Cangshan Mountain in the west and adjoins Erhai Lake (one of the seven big freshwater lakes in China) in the east, and is embraced by undulating hills around. The elevation of the city proper is 1,974 meters.

Dali City is a highland city in low latitudes and its climate is of subtropical highland monsoon type. The weather is temperate, the annual mean temperature being 15°C and rainfall 1,078 mm. The monsoon season falls on June through October, and there are no marked seasonal changes in a year. Abundant sunshine makes the weather warm, but the wind is very strong, so Xiaguan of Dali is known as “A City of Wind”.

The diverse landscapes and suitable climate of Dali gives rise to very high biodiversity of both animals and plants. In order to make a good understanding of the biodiversity of this area, several fields surveys were made by the authors in the past decades, and many specimens, including some jumping spiders, have been collected. A recent examination on those specimens identified eight jumping spiders, including two new species.

### MATERIALS AND METHODS

Specimens, preserved in 80% ethanol, were examined and illustrated under Olympus-SZ40 stereomicroscope and Olympus-BX40 compound microscope. The epigyna were drawn before they were dissected from the spider abdomina, while the vulvae were drawn after they were macerated in lactic acid. The leg measurements are given in the following sequence: Total (femur, patella + tibia, metatarsus, tarsus). All measurements are given in millimeters. The material examined is deposited in: (IZCAS) Institute of Zoology, Chinese Academy of Sciences, Beijing, China; (HBU) Hubei University, Wuhan, China; (HNU) Hunan Normal University, Changsha, China; (JLU) Jilin University, Changchun, China; (MCZ) Museum of Comparative Zoology, Harvard University, USA; and (ZRC) Zoological Reference Collection of the Raffles Museum of Biodiversity Research, National University of Singapore.

For each species only the following synonyms and references are given in the text: References to relevant papers by Chinese colleagues, and synonyms not listed in Platnick's spider catalogue (Platnick, 2004) or in Prószyński's Salticidae catalogue (Prószyński, 2003).

Abbreviations used: AER-anterior eye row, AL-abdomen length, ALE-anterior lateral eye, AME-anterior median eye, AW-abdomen width, CL-carapace length, CLYH-clypeus height, CW-carapace width, EFL- eye field length, PER-posterior eye row, PLE-posterior lateral eye, TL-total length.

**TAXONOMY**

***Cyrbia ocellata* (Kroneberg)**

*Cyrbia ocellata* (Kroneberg) – Song & Chai, 1991: 15, Figs. 4A-D (female); Song et al., 1999: 508, Fig. 291H.

**Material examined.** – 1 female (IZCAS), Dali City, Yunnan Province; 1 male (IZCAS), Diding Town, Jingxi District, Guangxi Zhuang Autonomous Region, 23 Jun.2000, coll. J. Chen; 1 female (HNU), Fugong District, Yunnan Province, 25 Jul.2000, coll. D. Kavanaugh & H. M. Yan; 1 female (HNU), Libo District, 30 Jul.1991, coll. X. P. Wang; 1 female 1 male (ZRC), Mt. Jianfeng, Ledong District, Hainan Province, Dec.1989; 3 males (IZCAS), Tongzha City, Hainan Province, Dec.1989; 1 female (MCZ), Fuzhou City, Fujian Provinces (MCZ).

**Distribution.** – China (Fujian, Guangxi, Hainan, Yunnan), Central Asia to Australia, Somalia.

**Material examined.** – 2 males (IZCAS), campus of Dali College, Dali City, Yunnan Province, 2 Jul.1999, coll. Z. Z. Yang; 1 male (IZCAS), campus of Dali College, Dali City, Yunnan Province, 8 Jul.1999, coll. Z. Z. Yang; 1 female (HNU), Gongshan suburb, Yunnan Province, 4 Jul.2000, coll. D. Kavanaugh, C. E. Griswold, D. Ubick & H. M. Yan; 11 females (HNU), Liuku suburb, Yunnan Province, 25 Jun.2000, coll. D. Kavanaugh & H. M. Yan; 1 female (HNU), Liuku suburb, Yunnan Province, 26 Jun.2000, coll. D. Kavanaugh & H. M. Yan; 1 male (IZCAS), Yingjiang District, Yunnan Province, 7. X. coll. Z. Z. Zhong; 11 females (ZRC), Erhai Lake, Yunnan Province, 10 Aug.1999, coll. Z. Z. Yang; 1 female (IZCAS), Xinlei Town, Jingxi District, Guangxi Zhuang Autonomous Region, 1 Apr.1998, coll. M. Wu; 1 female (IZCAS), Jinxiu District, Guangxi Zhuang Autonomous Region, 30 Jun.2000, coll. J. Chen; 1 male (IZCAS), Wenxian District, Gansu Province, 23 Jun.1998, coll. J. Chen.

**Distribution.** – Cosmopolitan. In China distributed in the provinces of Gansu, Guangxi and Yunnan.

***Hasarius adansoni* (Audouin)**

*Hasarius adansoni* (Audouin) – Yin & Wang, 1979: 30, Figs. 8A-E (female); Hu, 1984: 363, Figs. 378.1-5 (female); Feng, 1990: 206, Figs. 181.1-7 (female); Chen & Gao, 1990: 183, Figs. 233a-c (female); Peng et al., 1993: 85, Figs. 264-272 (female); Zhao, 1993: 396, Figs. 199a-c (female); Song, Chen & Zhu, 1997: 1735, Figs. 45a-c (female); Song, Zhu & Chen, 1999: 513, Figs. 299G, N, 326F-G (female).

***Langona biangula*, new species**

(Figs. 1A-E)

**Material examined.** – Holotype – female (IZCAS), campus of Dali College, Dali City, Yunnan Province, 18 Jan.2001, coll. Z. X. Li.

**Diagnosis.** – The new species is allied to *L. maculata*, new species, but differs in: 1. the depression in promargin of epigynal hood much deeper, which makes the hood look like

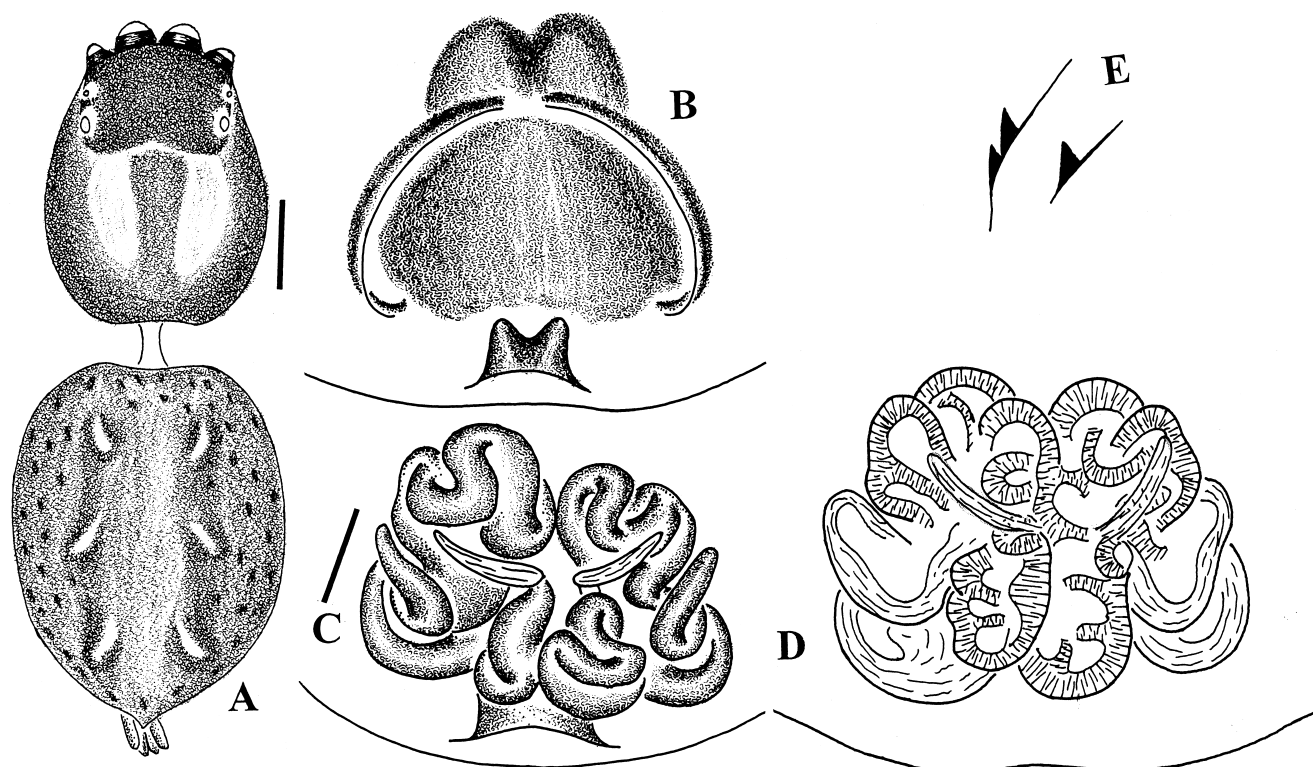


Fig. 1. *Langona biangula*, new species. A. Body of female; B. Epigynum; C. Vulva; D. Spermatheca and canal, dorsal; E. Cheliceral teeth. Scale bars = 1.00 (A), 0.10 (B-C).

bicorn-shaped; 2. epigynum strongly sclerotized, vulva invisible before maceration in ventral view versus visible in *L. maculata*; 3. copulatory ducts shorter and folded simpler; 4. markings on abdomen.

**Etymology.** – The specific name is derived from the form of epigynal hood.

**Description.** – Female (holotype): Measurements: TL 7.60. CL 3.00, CW 2.30, AL 3.80, AW 3.00, AER 1.60, PER 1.60, EFL 1.00, AME 0.43, ALE 0.27, PLE 0.30, CLYH 0.20. Leg I 4.10 (1.50, 1.70, 0.50, 0.40); II 4.00 (1.50, 1.60, 0.50, 0.40); III 5.40 (1.80, 1.90, 1.00, 0.70); IV 5.60 (1.80, 1.90, 1.20, 0.70); leg formula 1, 4, 3, 2, 0.

Carapace (Fig. 1A) dark grayish black, clothed in white and black hairs; anterior portion of ocular area with bar-shaped hairs. Clypeus only with sparse brown hairs, no long white hairs. Legs dark brown, with distinct black annuli and lightly colored oval patches; spination: tibiae I & II v 1-1-2, metatarsus I without lateral spines, metatarsus II pr 1-1ap, rt 0-0. Abdomen grayish black, densely clothed in grey and black hairs, median area with three pairs lightly colored patches, lateral areas scattered with many black dots. Ventral side light brown, scattered with irregular black patches.

**Male.** – Unknown.

**Distribution.** – China (Yunnan).

***Langona maculata*, new species**  
(Figs. 2A-E)

**Material examined.** – Holotype – female (IZCAS), Fenyi District (32.9°N, 111.5°E), Dali Bai Nationality Autonomous Prefecture, Yunnan Province, 7 Nov.2000, coll. Z. Z. Yang.

**Diagnosis.** – The new species is allied to *L. simoni* Heciak & Prószyński, 1983 (219, Figs. 24, 30-31), but can be separated from the latter by: 1. promarginal incision of epigynal hood much shallower, that of *L. simoni* very deep, almost divides the hood into two parts; 2. copulatory opening is far away from the hood versus connects to hood in *L. simoni*; 3. the course of copulatory ducts; 4. markings on abdomen.

**Etymology.** – The specific name is derived from the distinct patterns on the abdomen.

**Description.** – Female (holotype): Measurements: TL 5.70. CL 3.00, CW 2.20, AL 3.70, AW 2.30, AER 1.60, PER 1.60, EFL 1.00, AME 0.37, ALE 0.27, PLE 0.23, CLYH 0.30. Leg I 4.30 (1.50, 1.70, 0.60, 0.50); II 3.90 (1.40, 1.50, 0.60, 0.40); III 6.00 (2.00, 2.10, 1.20, 0.70); IV 6.20 (2.00, 2.10, 1.30, 0.80); leg formula 4, 3, 1, 2.

Carapace (Fig. 2A) brown, margin black with a circle of brown hairs; ocular area black, clothed in dense short black and brown hairs, long black setae sparse; anterior portion of

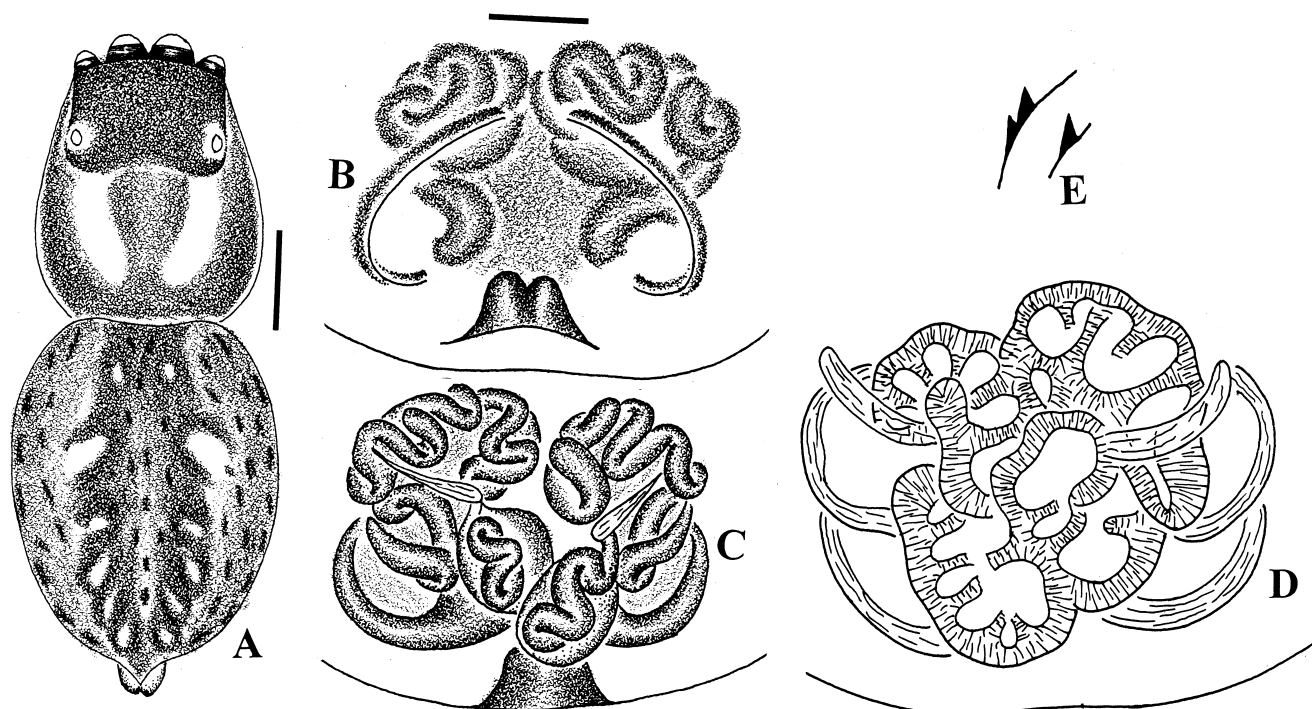


Fig. 2. *Langona maculata*, new species. A. Body of female; B. Epigynum; C. Vulva; D. Spermatheca and canal, dorsal; E. Cheliceral teeth. Scale bars = 1.00 (A), 0.10 (B-C).

ocular area with bar-shaped hairs; two lightly colored longitudinal bands in thoracic median area; fovea invisible; cervical and radial grooves dark brown. Sternum brown, flask-shaped, clothed in light brown hairs, margin dark brown, median area reticulated. Clypeus light brown, anterior margin and lateral sides with grayish black markings, clothed in brown hairs and sparse long black setae. Chelicerae brown to dark brown, two promarginal teeth and one retromarginal. Endites light brown, distal area light yellow with black hairs. Labium triangular, dark brown, distal area light yellow with black hairs. Legs brown with black annuli and lightly colored circles, hairs long and black; spines sparse and long, spination: tibiae I & II v1-1-2, Metatarsus I without lateral spine, Metatarsus II pr 1-1ap. rt 1-0ap or 0-0, Metatarsus I & II v2-2. Abdomen wide oval, slightly wider anteriorly; dorsum densely clothed in grayish black and black hairs; markings clear: median area darker with six pairs of lightly colored patches, lateral areas scattered with many black dots. Ventral side yellowish brown, scattered with many dark patches. Spinnerets short cylindrical, brown.

**Male.** – Unknown.

**Distribution.** – China (Yunnan).

#### *Pellenes nigrociliatus* (L. C. Koch)

*Pellenes nigrociliatus* (C.L. Koch) – Zhang, 1987: 246, Figs. 218.1-5 (female); Zhou & Song, 1988: 5, Figs. 7a-e (female); Hu & Wu, 1989: 381, Figs. 297.1-6 (female); Song, Zhu & Chen, 1999: 537, Figs. 306K-L, 307B-C (female); Hu, 2001: 402, Figs. 255.1-4 (female).

*Pellenes nigrociliatus* Peng et al., 1993: 146, Figs. 505-508 (female).

**Materials examined.** – 1 male (IZCAS), campus of Dali College, Dali City, Yunnan Province, 18 Jan.2001, coll. Z. X. Li; 2 females (JLU), Bohu District, Xinjiang Uygur Autonomous Region, 2 May.1982, coll. C. D. Zhu.

**Distribution.** – Palearctic. In China distributed in the provinces of Xinjiang and Yunnan.

#### *Phlegra pisarskii* Zabka

*Phlegra pisarskii* Zabka – Zhang, Song & Zhu, 1992: 5, Figs. 8.1-3 (female); Song, Zhu & Chen, 1999: 539, Figs. 309J-K, 328H (female).

**Materials examined.** – 1 male (IZCAS), campus of Dali College, Dali City (25.60°N, 100.1°E), Yunnan Province, 18 Jan.2001, coll. Z. X. Li.; 1 male (IZCAS), campus of Hubei University, Wuhan City, Hubei Province, 1 Jun.1982 (HBU); 1 male (HBU), Xiangyang City, Hubei Province, 24 Jun.1979; 1 male (IZCAS), Markam District, Xizang Autonomous Region; 1 male (ZRC), Mt. Jianfeng, Ledong District, Hainan Province.

**Distribution.** – China (Hainan, Hubei, Xizang, Yunnan), Vietnam.

#### *Plexippus bhutani* Zabka

*Plexippus bhutani* Zabka – Xie & Peng, 1993: 21, Figs. 9-11 (female); Peng et al., 1993: 180, Figs. 629-631 (female); Song Zhu & Chen, 1999: 540, Figs. 311a, 312a (female).

**Material examined.** – 1 female (IZCAS), Cangshan Mountain, Dali Bai Nationality Autonomous Prefecture, Yunnan Province, 9 Mar.2002, coll. Z. X. Li; 1 female (ZRC), Wuying Town, Weishan District, Yunnan Province, China, 8 Jun.1999, coll. Z. X. Li.

**Distribution.** – Bhutan, China (Yunnan).

#### *Plexippus yinae* Peng & Li

*Plexippus yinae* Peng & Li, 2003: 755, Figs. 5A-E (male).

**Material examined.** – 1 male (IZCAS), campus of Dali College, Dali City, Yunnan, 18 Jan.2001, coll. Z. X. Li; 1 male (ZRC), campus of Dali College, Dali City, Yunnan, 18 Jan.2001, coll. Z. X. Li.

**Distribution.** – China (Yunnan).

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