

A REVIEW OF THE SPIDER GENUS *HYLYPHANTES* (ARANEAE: LINYPHIIDAE) FROM CHINA

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ABSTRACT. – Three *Hylyphantes* species, including one new species, *H. geniculatus* Tu & Li, are reported from China. A description of the new species and diagnoses of the known species are given. Distributional data and illustrations of genital organs are provided.

KEY WORDS. – Review, *Hylyphantes*, Linyphiidae, new species, China.

INTRODUCTION

The spider genus *Hylyphantes* was established by Simon (1884) to accommodate *Erigone nigrata* Simon, 1881. According to Platnick (2003) and Ono & Saito (2001), the current genus is now represented by 3 species: *Hylyphantes graminicola* (Sundevall, 1830), *H. nigratus* (Simon, 1881) and *H. tanikawai* Ono & Saito, 2001. The species *H. graminicola* and *H. nigratus* are widely distributed in Palearctic, while *H. tanikawai* is only known from Japan. During our study of *Hylyphantes* collections from China, one new species has been identified. A description of this new species and diagnoses of other species known from China are given in the present paper.

MATERIALS AND METHODS

Specimens, preserved in 80% ethanol, were examined and illustrated under SZ11- and BX40-Olympus microscope, with epigyna dissected and vulvae macerated in lactic acid. The leg measurements are given in the following sequence: Total (femur, patella + tibia, metatarsus, tarsus). All measurements are in millimeters. All scales are 0.1mm in length.

The material examined is deposited in the Institute of Zoology, Chinese Academy of Sciences in Beijing (IZCAS), in the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research, National University of Singapore, and in the Senckenberg Museum, Frankfurt am Main (SMF).

For each species, only the name that appeared in the original description is listed. Synonyms listed in Platnick's spider catalogue (Platnick, 2003) are not presented.

Abbreviations used: AER = anterior eye row, ALE = anterior lateral eye, AME = anterior median eye, PER = posterior eye row, PLE = posterior lateral eye, PME = posterior median eye, DSA = distal suprategular apophysis, E = embolus, LC = lamella characteristic, P = paracymbium, PT = protegulum, R = radix, SPT = suprategulum, T = tegulum.

TAXONOMY

Genus *Hylyphantes* Simon, 1884

Hylyphantes Simon, 1884: 463.

Type species. – *Erigone nigrata* Simon, 1881, by monotypy.

Generic diagnosis. – Tm I 0.60-0.65, Tm IV present, tibial spines 2-2-1-1. Both sexes are similar in general appearance, male head without modification. Male palp tibia has three trichobothria. The male *Hylyphantes* can be distinguished from other erigonine genera by: 1) the turbinated embolus; 2) the plate-shaped, bifurcated (with thumb-shaped upper ramus) paracymbium; 3) protegulum membranous with numerous papillae and a tail-shaped tip. The female *Hylyphantes* can be identified by a pair of spiral copulatory ducts.

Description. – See Simon (1884).

Hylyphantes nigratus (Simon, 1881) (Fig. 1)

Erigone nigrata Simon, 1881: 233.

Material examined. – 2 males and 3 females (IZCAS-Tu0037), Lake Jingyuetan, Changchun City (43.9°N, 125.3°E), Jilin

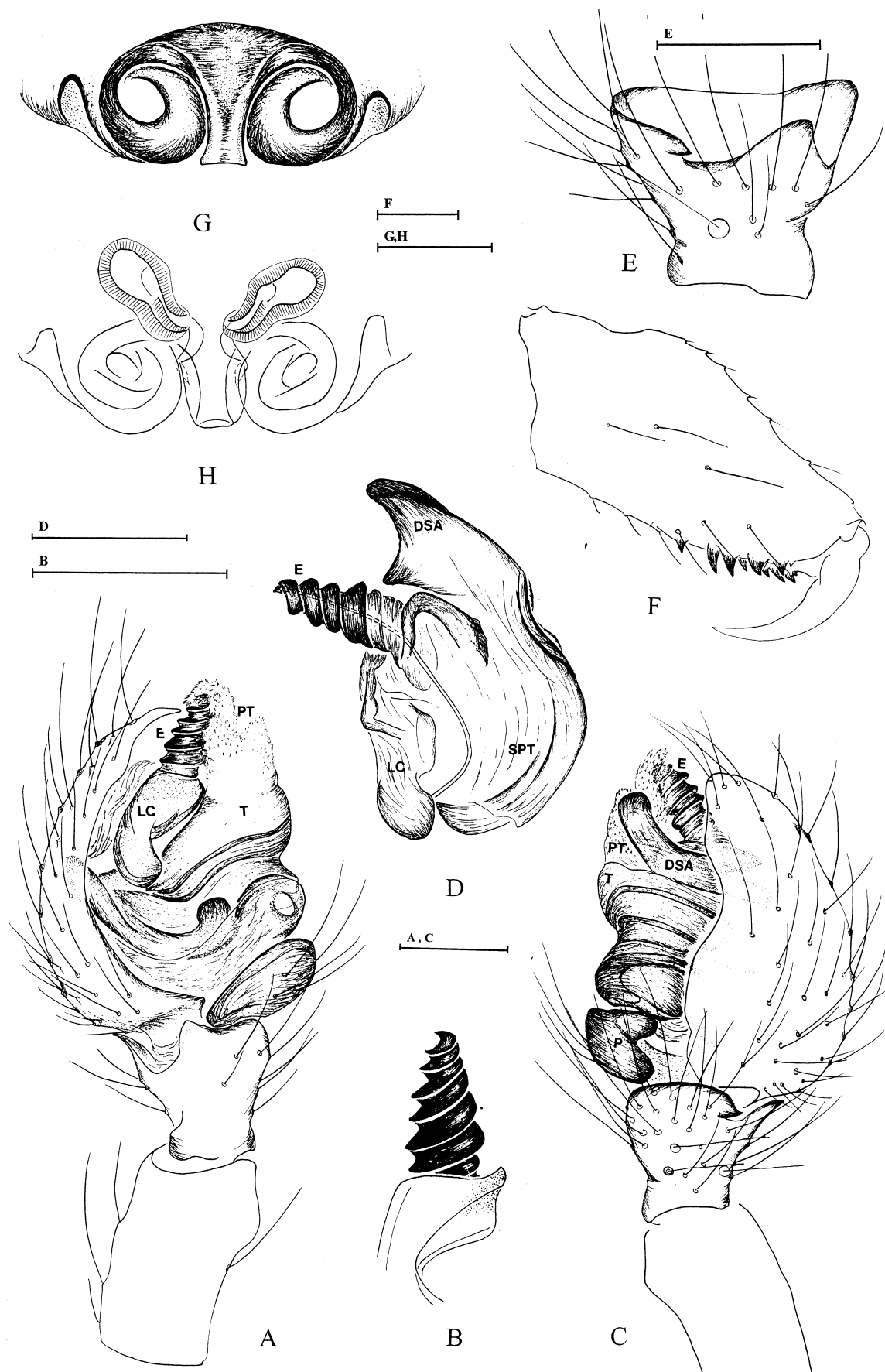


Fig. 1. *Hylyphantes nigratus* (Simon, 1881). A. left male palp, prolateral view; B. embolus, prolateral view; C. left male palp, retrolateral view; D. embolus division, ventral view; E. palpal tibia, dorsal view; F. left chelicera, frontal view; G. epigynum, ventral view; H. vulva, dorsal view. [Scale bars: 0.1mm; Drawings were based on specimen from Changchun, IZCAS-Tu0037].

Province, 4 Jun.1987; 1 male and 1 female (ZRC), Laotuding Town, Qingyuan County (42.1°N, 124.9°E), Liaoning Province, 12-13 Jun.1989; 3 males (IZCAS), Qingyuan County, Liaoning Province, Jun.1985; 1 female (IZCAS), Haoping Village, Mt. Taibaishan (33.9°N, 107.7°E), Shaanxi Province, 6 Aug.1989.

Diagnosis. – Smallest in size and darkest in color among the three species of *Hylyphantes* occurring in China. Male chelicerae without tooth-like process situated on front face (present in other *Hylyphantes* species), promargin with six teeth, retromargin five (Fig. 1F). Tm I 0.64, Tm IV present.

Palp: palpal patella without ventral apophysis (Figs. 1A, C); tibia half shorter than patella, tibia dorsal apophysis small compared with other two species (Fig. 1E); embolus with 7 spirals (Fig. 1B); distal suprategular apophysis (DSA) is long and band-shaped with a middle tooth inside (Figs. 1C, D).

Epigynum: atrium with a septum, copulatory ducts spiral and two copulatory openings visible in ventral view, filled with white exudation (Figs. 1G, H).

Habitats. – *Hylyphantes nigritus* is rare and recorded only from a few localities in China. It lives on herbs and bushes, and at or near humid places.

Distribution. – Palearctic.

Hylyphantes geniculatus, new species

(Fig. 2)

Material examined. – Holotype – male (IZCAS-Tu0018), Hongyagou Village, Miaotaizi Town, Liuba County (33.6°N, 106.9°E), Shaanxi Province, China, alt.1510-1700m, coll. Dr. Jun Chen, 22 Jul.1998.

Diagnosis. – This new species is similar to *H. graminicola*, but differs in: 1) embolus with 5 spirals, and the first two spirals bigger than others (Figs. 2A-D); 2) tegulum shorter and wider, with slightly bulged outer margin (Figs. 2A, C); 3) the dorsal apophysis of palpal tibia with a middle tooth (Fig. 2E).

Description of male. – Total length: 2.49, carapace: length 1.13, width 0.88, abdomen: length 1.40, width 0.93. Carapace: smooth and reddish brown; eyes with black surroundings and several long hairs at ocular area; AER straight, PER procurved, ALE and PLE close together; AME-AME equals to AME-ALE, less than AME diameter; PME-PME equals to PME- PLE, equal to PME diameter. Chelicerae brown, anterolaterally furnished with small warty granulations, promargin with five teeth, retromargin four; with a tooth-like process on front face (Fig. 2F). Legs pale brown; lengths of legs: leg I 3.89 (1.08+1.27+0.94+0.60), II 3.55 (0.98+1.15+0.87+0.55), III 2.83 (0.80+0.92+0.68+0.43), IV 3.56 (1.03+1.18+0.95+0.50); tibial spines: 2-2-1-1; Tm I 0.65; Tm IV present.

Palp: patella with a ventral apophysis (Figs. 2A, C); tibia with three trichobothria, tibia dorsal apophysis stout, and

the dorsal margin with a middle tooth strongly sclerotized (Fig. 2E); paracymbium plate-shaped, bifurcated with thumb-shaped upper ramus in retrolateral view (Fig. 2C); tegulum bent like a knee, prottegulum membranous with numerous papillae and a tail-shaped tip (Figs. 2A, C); distal suprategulum apophysis triangular (Figs. 2C, D); embolus turbinate with 5 spirals, and seen in the prolateral view, between the third and the fourth spirals, the spiral direction changed (Figs. 2A, B).

Female (unknown).

Habitat. – The type specimen was found on lower branches of tree.

Etymology. – The specific name comes from Latin *geniculatus*, means bent like a knee, referring to the shape of palpal tegulum.

Distribution. – Known only from the type locality.

Hylyphantes graminicola (Sundevall, 1830)

(Fig. 3)

Linyphia graminicola Sundevall, 1830: 26.

Material examined. – 1 male and 7 females (SMF18260/8), Schiller Park, Dessau, Germany, coll. H. Wiehle, 23 May.1948; 1 male (SMF8537), Arachn, Belgien, coll. Rwr.-Lfd.1939; 5 males and 40 females (SMF3689), Kompira, Saga, Japan, coll. W. Doenitz, 1882; 4 males and 1 female (SMF35669), Koezki bei Losice (FD 20) (Duene am Bug-Ufer), Poland, coll. Starega 0388, 30 May.1981; 1 male (SMF 25021/1), bei Bremen, Germany, ex Slg. RII/11864, coll. J. Wunderlich, 1970; 1 female (SMF 25072/1), Bremen, Germany, ex Slg. RII/9096, coll. J. Wunderlich, 1971; 20 male and 15 females (ZRC), Hanshiqiao Reservoir, Shunyi County (40.1°N, 116.6°E), Beijing, 11 Jul.2002; 11 males and 5 females (IZCAS-Tu0019), Zhejiang Province, 16 Oct.1966; 3 females (IZCAS-020), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 1 female (IZCAS-021), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 1 female (IZCAS-024), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec. 2000; 1 female (IZCAS-025), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 4 females (IZCAS-026), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 1 female (IZCAS-027), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 3 females (IZCAS-042), Viet Lann Village, Ha Giang Province, Vietnam, 10 Dec.2000; 2 males and 2 females (IZCAS-056), Quang Hoa, Cao Bang Province, Vietnam, 18 Dec.2000; 3 males and 8 females (IZCAS-059), Sac Ha Village, Cao Bang Province, Vietnam, 16 Dec.2000; 3 females (IZCAS-064), Sac Ha Village, Cao Bang Province, Vietnam, 16 Dec.2000; 1 female (IZCAS-069), Sac Ha Village, Cao Bang Province, Vietnam, 17 Dec.2000; 2 males and 2 females (IZCAS-072), Sac Ha Village, Cao Bang Province, Vietnam, 17 Dec.2000; 1 male and 3 females (IZCAS-075), Sac Ha Village, Cao Bang Province, Vietnam, 17 Dec.2000; 4 males and 6 females (IZCAS-081), Quang Hoa, Cao Bang Province, Vietnam, 18 Dec.2000; 1 male and 1 female (IZCAS-100), Quang Hoa, Cao Bang Province, Vietnam, 19 Dec.2000; 1 female (IZCAS-112), Tan Linh Village, Son Tay Province, Vietnam, 24 Dec.2000; 3 females (IZCAS-113), Tan Linh Village, Son Tay Province, Bavi Distr., Vietnam, 23 Dec.2000; 5 males and 5 females (IZCAS-114), Tan Linh Village, Son Tay Province,

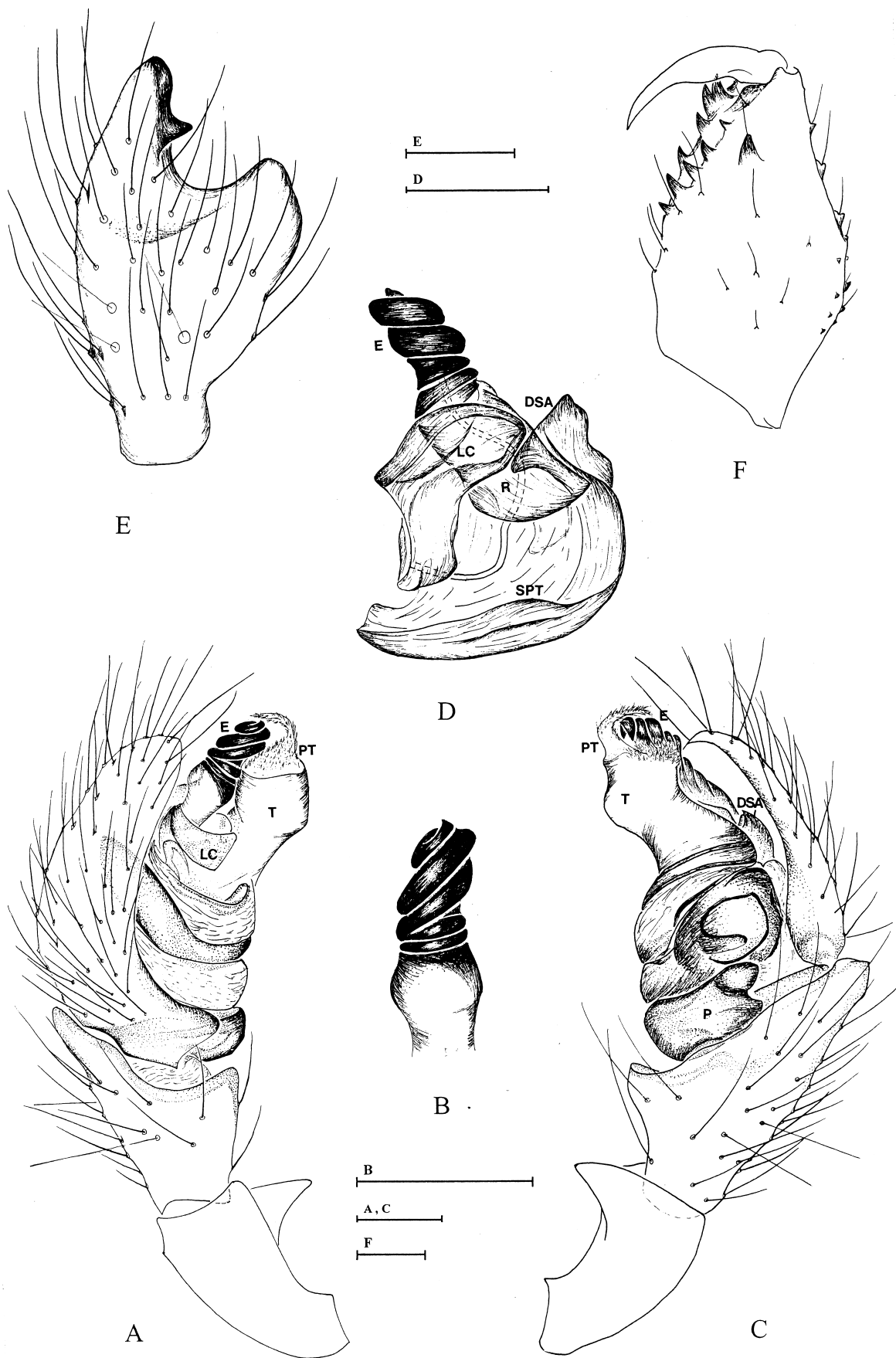


Fig. 2. *Hylyphantes geniculatus*, new species. A. left male palp, prolateral view; B. embolus, prolateral view; C. left male palp, retrolateral view; D. embolus division, ventral view; E. palpal tibia, dorsal view; F. right chelicera, frontal view. [Scale bars: 0.1mm.].

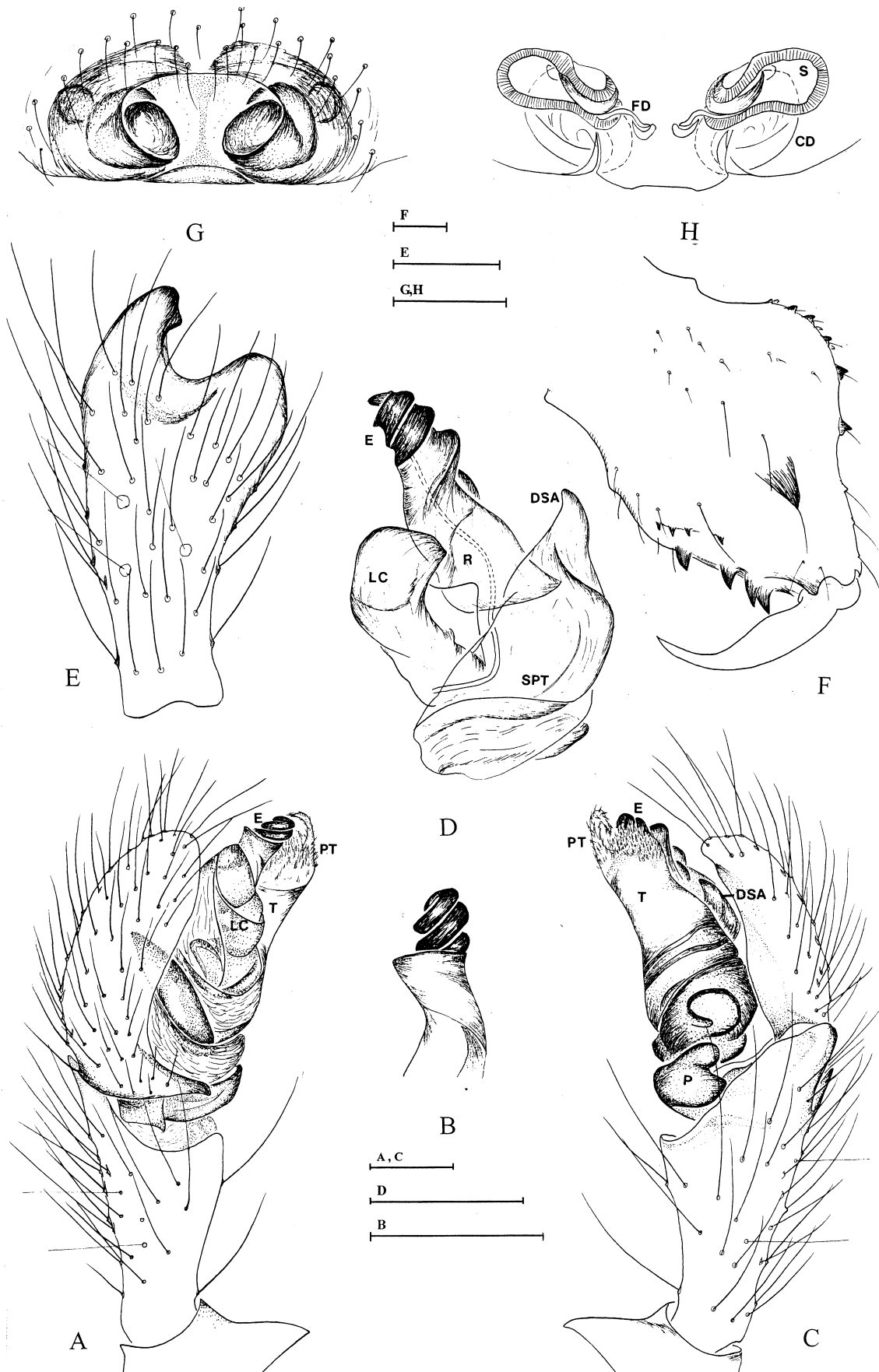


Fig. 3. *Hylyphantes graminicola* (Sundevall, 1830). A. left male palp, prolateral view; B. embolus, prolateral view; C. left male palp, retrolateral view; D. embolus division, ventral view; E. palpal tibia, dorsal view; F. left chelicera, frontal view; G. epigynum, ventral view; H. vulva, dorsal view. [Scale bars: 0.1mm; Drawings were based on specimen from Beijing, IZCAS-Tu0019].

Bavi Distr., Vietnam, 23 Dec.2000; 3 males and 7 females (IZCAS 115), Tan Linh Village, Son Tay Province, Bavi Distr., Vietnam, 23 Dec.2000; 1 male (IZCAS-116), Van Hoa Village, Son Tay Province, Bavi Distr., Vietnam, 22 Dec.2000; 1 male (IZCAS-23), Van Hoa Village, Son Tay Province, Bavi Distr., Vietnam, 23 Dec.2000.

Diagnosis. – Male chelicerae with a tooth-like process situated on front face, promargin with four to five teeth and retromargin four, but the former much smaller than the later (Fig. 3F), whereas in female, chelicerae without the tooth-like process, promargin teeth bigger than retromargin. Tm I 0.60, Tm IV present.

Palp: palpal patella with ventral apophysis (Figs. 3A, C); tibia dorsal apophysis stout, and with an apical tooth strongly sclerotized (Fig. 3E); embolus with 3 spirals and the third one much larger than the other two (Figs. 3A-D); distal suprategular apophysis triangular form (Fig. 3D); tegulum ventral margin straight (Figs. 3A, C).

Epigynum: atrium ovate, wider than long, the copulatory ducts spiral (Figs. 3G, H).

Habitats. – *Hylyphantes graminicola* is one of the most important natural enemies of different pests in farmland and forest in Asia (Waterhous, 1998). The ecology of *H. graminicola* was studied by several authors (Li, 1995; Li, 1998, Liu & Liu 1990). In cotton field, it built small web between clods when the cotton is small, latter lives on branches when the cotton become bigger. A density of 30-individual/m² can be found in cotton field of North China (Li, 1998).

Distribution. – Palearctic, Vietnam.

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