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The Genus *Dolichomitus* SMITH (Hymenoptera: Ichneumonidae) from North China

M.-L. SHENG & S.-P. SUN

A b s t r a c t : Twelve species of genus *Dolichomitus* SMITH 1877, collected in North China are reported. Three species are new for science: *Dolichomitus splendidus* SHENG, *Dolichomitus fortis* SHENG and *Dolichomitus debilis* SHENG. Seven species are new for China: *D. atratus* (RUDOW), *D. diversicostae* (PERKINS), *D. dux* (TSCHEK), *D. mandibularis* (UCHIDA), *D. mesocentrus* (GRAVENHORST), *D. nakamurai* (UCHIDA), *D. pterelas* (SAY), and some with host records. A key to the species known in North China is given.

K e y w o r d s : Hymenoptera, Ichneumonidae, *Dolichomitus*, new species, host record, China.

Introduction

The genus *Dolichomitus* SMITH 1877, a relative large genus belonging to subfamily Pimplinae, family Ichneumonidae, is wide in distribution. Sixty-four species have been known in the world, in which fourteen distribute in Oriental Region, thirty-two in Palearctic, twenty in Nearctic, eleven in Neotropical. Five, *D. melanomerus* (VOLLENHOVEN 1878) distributing in Taiwan, *D. messor* (GRAVENHORST 1829) in Xinjiang, *D. populneus* (RATZEBURG 1848) in Jilin and Liaoning, *D. triangustus* WANG 1997, in Sichuan, *D. tuberculatus* (GEOFFROY 1785) in Hunan, have been known in China. In the present study on the specimens collected in North China, three new species and seven new Chinese records have been found. Specimens are deposited in the Collections of General Station of Forest Pest Management, The State Forestry Administration, P. R. China.

Genus *Dolichomitus* SMITH 1877

Genus *Dolichomitus* SMITH 1877 - Proc. Zool. Soc. London 1877: 411.

Diagnosis: Front wing 5 to 22 mm long. Clypeus black to fulvous, its apical part impressed and with a deep median notch, rarely with a median apical tubercle. Occipital carina complete, with a strong dip on the midline. Areolet rather wide. Second recurrent vein received basad of apical corner of areolet. Nervellus intercepted near or above the middle. First tergite long, about as long as second tergite. Second tergite with a conspicuous oblique groove on each side that runs from the base, near the midline, toward the spiracle. Third and fourth tergites nearly always with strong tubercles. Ovipositor

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sheath 1.2 to 8.0 as long as front wing. Tip of lower valve of ovipositor with a dorsal lobe that partially encloses tip of upper valve.

Dolichomitus splendidus **SHENG sp. nov. (Figs 1, 2)**

♀: Body about 12 mm long. Front wing 10 mm long. Inner margin of eyes weakly convergent downward. Face smooth, with even and fine punctures (lateral margin without puncture); upper centre weakly convex longitudinally. Clypeal suture distinct. Clypeus flat, smooth and without puncture, apical half thin and with a big median notch. Mandible strong, two teeth equal. Cheek narrow, with fine leathery texture. Temple smooth, shiny, weakly convergent backward, with unclear fine punctures. Vertex smooth, shiny, with very sparse and indistinct punctures. Stemmaticum convex. Frons smooth, shiny, without puncture. Antenna longer than the half of body, flagellum with 32 segments. Pronotum smooth, shiny, only its upper-hind corner with unclear fine punctures. Epomia distinct. Mesonotum nearly smooth, with dense pubescence and unclear fine punctures. Notaulus deep, reaching backward to two fifth of mesonotum. Upper part of mesopleurum smooth, shiny, only upper-front corner (near prepectal carina) with very sparse fine punctures; lower part with fine punctures. Prepectal carina distinct, upper end not reaching to front margin of mesopleurum. Prepectus weakly rough, with weak punctures. Scutellum weakly convex, with surface as mesonotum with. Metapleurum smooth, shiny, with sparse fine punctures. Propodeum rough, with dense punctures and yellowish brown hairs, without carina. Wing brownish hyaline. Nervulus opposite basal vein. Postnervulus intercepted a little bellow its middle. Nervellus intercepted about at its upper 0.33. Legs normal, hind coxae with dense brownish hairs. Tergite 1 of abdomen about as long as second; tergite 2 and 3 about square; tergite 4 slightly transverse; the rest distinctly transverse. Tergites 1-4 and basal half of 5 with dense and relative bigger punctures; the rest tergites punctured finely and gradually unclearly. Each hind margin of tergites 2-4 smooth widely and impunctured. Each of tergites 3-5 with two big tubercles, their surfaces with punctures. Ovipositor sheath about 16 mm long. Dorsal lobe of ventral valve of ovipositor with 4 relative weak ridges.

Black. Apical margin of clypeus reddish brown. Median sections of mandibles brownish black. Palpi, front coxae and trochanters, middle trochanters, tegulae yellow. The rest of front and middle legs (except fifth tarsi relatively dark), Second trochanters and basal apexes of femora of hind legs yellowish brown. Hind coxae nearly black entirely. Hind femora dark-reddish brown, tibiae and tarsi blackish brown. Stigmata blackish brown. Veins brownish black.

Holotype ♀, Baotianman Natural Reserve, 1300m-1500m, Neixiang County, Henan Province, July 12, 1998. Mao-Ling Sheng.

This species is similar to *D. kriechbaumeri* (SCHULZ, 1906) and *D. dux* (TSCHEK). It can be distinguished from *D. kriechbaumeri* (SCHULZ) by: vertex smooth, shiny, with very sparse and indistinct punctures; Mesonotum nearly smooth, with dense pubescence and unclear fine punctures; tergite 2 slightly longer than its apical wide; the third about square; the fourth transverse; nervellus intercepted at its upper 0.33. *D. kriechbaumeri*: vertex and mesonotum with distinct punctures; tergites 2-4 nearly square; nervellus intercepted about at its middle.

It can be distinguished from *D. dux* (TSCHEK) by: upper part of mesopleurum smooth, shiny, only upper-front corner (near prepectal carina) with very sparse fine punctures;

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propodeum without carina; hind coxae black; tergite 2 nearly square. *D. dux* (TSCHEK): upper part of mesopleurum with dense punctures; propodeum with distinct median longitudinal carinae; hind coxae brown to blackish brown; tergite 2 distinctly longer than its apical wide.

Dolichomitus fortis **SHENG sp.nov. (Figs 3, 4, 5)**

♀: Body 15.5-18.5 mm long. Fore wing 12-14.5 mm long. Inner margin of eyes weakly convergent downward. Face smooth, shiny, weakly convex, with fine punctures (very sparse laterally) and relative long hairs. Clypeal suture distinct. Clypeus flat, its base with fine punctures, middle part smooth, apical part thin and with a big median notch. Mandible strong, middle part with fine longitudinal wrinkles, two teeth equal. Cheek narrow, with fine leathery texture. Temple smooth, shiny, weakly convergent backward, with very sparse, fine and unclear punctures. Vertex with surface as temple, but its punctures relatively clear. Stemmaticum weakly convex. Frons smooth, shiny, without puncture. Antenna about 12.5 mm long, about 0.67 as long as body, flagellum with 33 segments. Pronotum a little rough dorsally, smooth and shiny laterally, only its upper-hind corner with distinct punctures. Epomia distinct. Mesonotum with even and fine punctures and pubescences. Notaulus nearly reaching backward to centre of mesonotum. Mesopleurum with even dense punctures, only mesopleural fovea and the part around it smooth, shiny, without puncture. Upper end of prepectal carina far from front margin of mesopleurum. Scutellum convex, with even and dense punctures. Upper part of metapleurum with dense, lower part sparse punctures. Propodeum with very short trace of median longitudinal carinae; basal half with median longitudinal groove; apical part smooth, shiny; the rest with very dense punctures. Wing brownish hyaline. Nervulus a little distad of basal vein. Postnervulus intercepted a little bellow its middle. Nervellus intercepted about at its upper 0.33. Tergites 1-5 of abdomen with dense punctures (gradually finer backward), the rest tergites punctured unclearly. Each of tergites 3-5 with two big tubercles, punctures on them relatively sparse; tergite 1 about as long as tergite 2, tergite 2 a little longer than its width, tergite 3 nearly square; tergite 4 a little wider than long; the rest distinctly transverse. Each of tergites 1-5 with smooth, impunctured hind margin, which of tergite 1 and 5 narrow. Legs relatively long and slender. Basal part of front side of hind coxa with punctures, inner and outer side with relative long hairs. Ovipositor sheath 18-23 mm long. Dorsal lobe of ventral valve of ovipositor with 4 strong ridges.

Black. Middle parts of mandibles unclearly darkish red. Palpi, most parts of front trochanters, small flecks of middle trochanters, front halves of tegulae, flecks on front sides of front and middle femora, flecks on front sides of tibiae, yellow. Coxae black. Front, middle femora and tibiae reddish brown; middle tarsi dark brown. Hind femora black, tibiae and tarsi brownish black. Stigmata darkish brown. Veins blackish brown. Apical part of clypeus reddish brown.

Holotype ♀, Benxi County, 600 m, Liaoning Province, Aug. 2, 1997. Mao-Ling Sheng. Paratype, 1♀, Baishilazi Natural Reserve, 400 m, Kuandian County, Liaoning Province, June 1, 2001. Su-Ping Sun.

This species is similar to *D. nakamurai* (UCHIDA), and can be distinguished from the latter by: upper tooth of mandible as long as lower tooth; tergites 3 and 4 square to transverse; propodeum without carina; coxae black. *D. nakamurai* (UCHIDA): upper tooth

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of mandible distinctly longer than lower tooth; each of tergites 3 and 4 longer than its own apical wide; median longitudinal carinae of propodeum distinct; front and middle coxae yellow to yellowish brown.

Dolichomitus debilis **SHENG sp.nov. (Figs 6, 7)**

♀: Body 12.5 mm long. Fore wing 9.5 mm long. Inner margin of eyes evenly convergent downward. Face with even punctures and relative long hairs; its centre convex longitudinally. Clypeal suture distinct, middle part (between clypeal foveae) straight. Centre of clypeus weakly convex transversely, basal part with punctures, apical part thin and with a big median notch. Mandible strong, with dense longitudinal wrinkles, its two teeth equal. Cheek with fine leathery texture. Malar space about 0.1-0.15 time as long as basal width of mandible. Temple convergent backward, with even fine punctures. Vertex with fine punctures. Stemmaticum convex. Frons smooth, punctured laterally. Antenna longer than half of body, reaching about to apex of second abdominal tergite, flagellum with 30 segments. Occipital carina complete and strong. Pronotum smooth, shiny, its upper-hind corner and near upper margin with distinct punctures. Epomia distinct. Mesonotum with weak, fine punctures. Notaulus (hind part weak) reaching backward about to centre of mesonotum. Mesopleurum with even, dense punctures, its hind margin, speculum, mesopleural fovea and the part around it smooth, shiny, without puncture. Prepectal carina distinct, upper end not reaching to front margin of mesopleurum. Scutellum weakly convex, with punctures. Metapleurum smooth, upper half with punctures. Median longitudinal carinae of propodeum distinct, about 0.33 as long as propodeum; between the carinae and apical part of propodeum smooth, without puncture. The rest of propodeum weakly rough, punctured unclearly. Wing brownish hyaline. Nervulus opposite basal vein. Postnervulus intercepted about at its middle. Nervellus intercepted a little above its middle. Legs normal, front sides of hind coxae with very fine punctures. Tergite 1 of abdomen about as long as second, middle part with unclear transverse wrinkles, apical-centre with punctures. Apex of tergite 2 very wide, about as wide as its long. Tergites 3 and 4 about square (the former weakly longer); rest tergites distinct transverse. Tergites 2 to 4 with dense punctures, each of them with wide, smooth and impunctured hind margin, their tubercles very weak. Ovipositor sheath about 15 mm long. Dorsal lobe of ventral valve of ovipositor with 3 distinct ridges.

Black. Palpi, front sides of front and middle trochanters and tegulae yellow. Front and middle legs (except tarsi dark brown), hind trochanters and femora brown. Hind coxae dark-reddish brown, tibiae and tarsi blackish brown. Base of hind tibia with light-colored ring. Stigmata yellowish brown. Veins blackish brown.

♂: Body about 14 mm. Front wing 10.5 mm. Flagellum of antenna with 39 segments. Abdomen slender. Tergites 1 to 7 more longer than their own wide, weakly rough, punctured unclearly. Hind coxae reddish brown, base with black fleck.

Holotype ♀, Xinbin, 700-750 m, Liaoning Province, Aug. 5, 1997. Mao-Ling Sheng.
Paratype: 1♂, Huinan, Jilin Province, June 17, 1992. Su-Ping Sun.

This species is similar to *D. nakamurai* (UCHIDA) and *D. splendidus* SHENG, and can be distinguished from *D. nakamurai* (UCHIDA) by: two teeth of mandible equal in length; tergite 2, stigmata yellowish brown; each of tergites 2-4 about square, their tubercles very weak; dorsal lobe of ventral valve of ovipositor with 3 ridges. *D. nakamurai* (UCHIDA): upper tooth of mandible distinctly longer than lower tooth; tergites 2-4 longer

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than their own apical wide; their tubercles strong; dorsal lobe of ventral valve of ovipositor with 4 ridges.

It can be distinguished from *D. splendidus* SHENG by: frons punctured sidely; upper front part of Mesopleurum with relative dense punctures; nervellus intercepted a little above its middle.; tubercles of tergites 3-5 very weak; Dorsal lobe of ventral valve of ovipositor with 3 strong ridges. *D. splendidus* SHENG: Frons without puncture; upper front part of Mesopleurum smooth; nervellus intercepted about at its upper 0.33; each of tergites 3-5 with 2 big tubercles; Dorsal lobe of ventral valve of ovipositor with 4 relative weak ridges.

Dolichomitus atratus **(RUDOW 1881)**

New record for China.

Specimen examined: 1♀, Baiyunshan Natural Reserve, 1500 m, Songxian County, Henan Province, May 20, 1999. Mao-Ling Sheng.

Dolichomitus diversicostae **(PERKINS 1943)**

New record for China.

Specimen examined: 7♀♀, 2♂♂, Tuqian, Mohe County, Heilongjiang Province, July 18-29, 1989. Mao-Ling Sheng.

Dolichomitus dux **(TSCHEK 1869)**

New record for China.

Specimen examined: 1♀, 6♂♂, Tuqian, Mohe County, Heilongjiang Province, July 15-29, 1989. Mao-Ling Sheng.

Dolichomitus mandibularis **(UCHIDA 1932)**

New record for China.

Specimen examined: 1♀: Baotianman Natural Reserve, 700 m, Neixiang County, Henan Province, July 18, 1998. Mao-Ling Sheng.

Dolichomitus mesocentrus **(GRAVENHORST 1829)**

New record for China.

Specimen examined: 1♀, Daan County, Jilin Province, June 15, 1987. Ge Wang. 1♀, Shenyang, Liaoning Province, May 23, 1990. 1♀, Shenyang, Liaoning Province, Sep. 24, 1991. 1♂, Shenyang, Liaoning Province, May 9, 1993. 2♂♂, Shenyang, Liaoning Province, May 1, 1994. 1♀, Shenyang, Liaoning Province, May 8, 1994. Mao-Ling Sheng. 2♀♀, Qingyuan County, Liaoning Province, June 12, 1996, Xu Zhang. 1♀, Xinbin County, Liaoning Province, June 28, 1998. Qing-Jun Liu. 1, Xinbin County, Liaoning Province, June 20, 1998. 3♀♀, Xinbin County, Liaoning Province, June 10, 1999, Mao-Ling Sheng.

Hosts: bores in trunks and branches of *Crataegus pinnatifida* cr. *major.* (Rosaceae).

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Dolichomitus messor **(GRAVENHORST 1829)**

Specimen examined: 12♀♀, Xinmin County, Lioaning Province, Sep. 15 1984, Zhong-Yu Dang. 2♀♀, Huocheng County, Xinjiang, April 21, 1991. Xi-Yuan Bian. 1♂, Huinan County, Jilin Province, June 17, 1992. 1♀, Huocheng County, Xinjiang, April 25, 1995. 1♀, Qingyuan County, Liaoning Province, June, 1996. You-Wen Song.

Hosts: *Saperda populnea* L., *Cryptorrhynchus lapathi* L.

Dolichomitus nakamurai **(UCHIDA 1928)**

New record for China.

Specimen examined: 1♀, Longyuwan Natural Reserve, 1050 m, Songxian County, Henan Province, May 22, 1999. Mao-Ling Sheng.

Dolichomitus populneus **(RATZEBURG 1848)**

Specimen examined: 7♀♀, Shuoxian County, Shanxi Province, June 15, 1983, Yu-Zhi Niu. 6♀♀, 3♂♂, Siping County, Jilin Province, June, 1986. Yu-Lin Cheng.

Host: *Saperda populnea* L.

Dolichomitus pterelas **(SAY 1829)**

New record for China.

Species examined: 1♀, Xiaodonggou, Benxi County, Liaoning Province, June 10, 1994. Zhen-Lu Liu. 1♀, Baishilazi Natural Reserve, 400 m, Kuandian County, Liaoning Province, June 1, 2001. Su-Ping Sun.

Variability: all coxae black, but the European's are brown.

Key to species known in North China

1 Dorsal lobe of ventral valve of ovipositor with 2 distinct ridges. Stigma yellow. Basal centre of second tergite smooth, without puncture; tergites 3-5 with strong tubercles and punctures. Front wing 12-15 mm. ..... *D. pterelas* (SAY)

- Dorsal lobe of ventral valve of ovipositor with 3 or more distinct ridges 2

2 Ovipositor sheath 2.5-3 times as long as front wing. Legs light brown to red. Dorsal lobe of ventral valve of ovipositor with 7 ridges. Front wing 14-20 mm. *D. atratus* (RUDOW)

- Ovipositor sheath not more than 2 times as long as front wing. 3

3 Dorsal lobe of ventral valve of ovipositor with 5 or more ridges. 4

- Dorsal lobe of ventral valve of ovipositor with 3-4 ridges. 5

4 Dorsal lobe of ventral valve of ovipositor with 6-7 ridges, all of them strongly inclivous evenly. Ovipositor sheath about 1.2 times as long as front wing. Legs light brown (apexes of hind tibiae and its tarsi sometimes dark). ..... *D. populneus* (RATZEBURG)

- Dorsal lobe of ventral valve of ovipositor with 5-6 ridges, lower parts of basal ones nearly vertical. Other characters similar to the former. ..... *D. messor* (GRAVENHORST)

5 Dorsal lobe of ventral valve of ovipositor with 3 ridges. Stigma light brown. Tubercles of tergites 3-4 very weak. Tergite 2 about as long as its apical width. Nervellus intercepted a little above its middle. ..... *D. debilis* SHENG

- Dorsal lobe of ventral valve of ovipositor with 4 ridges. Tubercles of tergites 3-4 strong. 6

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6 Palpi dark brown. Tegulae yellow, hind margins blackish brown. Stigmata ,front coxae (at least parts) and apexes of hind femora black. Median longitudinal carinae of propodeum distinctly divergent backward. Tergites 2-4 square or transverse. Front wing 7-15 mm..... *D. diversicostae* (PERKINS)

- Not all the same as the former. Palpi yellow, or tergites 2-4 longer than their own apical width, or median longitudinal carinae of propodeum parallel, or without median longitudinal carina. 7

7 Tergites 3-4 longer than its own apical width..... 8

- Tergites 3-4 square or transverse..... 10

8 Stigmata yellow. Outside of hind coxa of male, about at its middle, with a tooth. Front wing 10-22 mm..... *D. mesocentrus* (GRAVENHORST)

- Stigmata dark. Hind coxa of male without a tooth 9

9 Upper tooth of mandible distinctly longer than lower tooth. Nervellus intercepted distinctly above its middle. Median longitudinal carinae of propodeum short, but distinct. Hind femora black. Front wing 15-19 mm..... *D. mandibularis* (UCHIDA)

- Upper tooth of mandible distinctly shorter than lower tooth. Nervellus intercepted about at its middle. Propodeum without median longitudinal carinae. Hind femora brown. Front wing about 12 mm..... *D. nakamurai* (UCHIDA)

10 Tergite 2 about as long as its apical width. Only front margin of upper half of mesopleurum with very sparse and fine punctures. Front and middle coxae yellow. Front wing about 10 mm..... *D. splendidus* SHENG

- Tergite 2 longer than its apical width. Front part of upper half of mesopleurum with relative dense punctures. Coxae brown or black..... 11

11..Coxae brown or nearly brown entirely. Median longitudinal carinae of propodeum distinct. Tergite 2 distinctly longer than its apical width. Front wing 10-17 mm. ..... *D. dux* (TSCHEK)

- Coxae black. propodeum without median longitudinal carina. Tergite 2 as long as or a little longer than its apical width. Front wing 12-14.5 mm..... *D. fortis* SHENG

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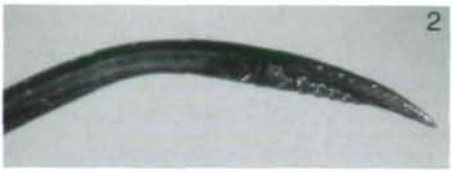

Figs 1-7: 1-2 – *Dolichomitus splendidus* SHENG, sp. nov. **3-5** – *Dolichomitus fortis* SHENG sp.nov. **6-7** – *Dolichomitus debilis* SHENG, sp.nov. 1, 3, 6. lateral side of thorax; 4. Lateral side of propodeum; 2, 5, 7. apical part of ovipositor.

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