THE GENUS *NEOPROUTISTA* YANG & WU (HOMOPTERA: DERBIDAE) FROM CHINA

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ABSTRACT. Four new species of *Neoproutista* Yang & Wu (Homoptera: Derbidae) are described from China, viz., *N. furva* Wu & Liang, sp. nov.; *N. bisaccata* Wu & Liang, sp. nov.; *N. spinellosa* Wu & Liang, sp. nov.; and *N. acutata* Wu & Liang, sp. nov. *N. pullata* (Distant), comb. nov. is newly recorded from China. A key to all the species is provided.

Key words: Homoptera, Derbidae, Neoproutista, new species, new combination, China.

The genus *Neoproutista* was erected by Yang & Wu (1994) for *Paraproutista pseudoalbicosta* Muir, 1915 from Taiwan. Until now, only the type species was known. We describe 4 new species of the genus from China and transfer *Phenice pullata* Distant to *Neoproutista* (new combination). All the specimens studied are deposited in the Institute of Zoology, Chinese Academy of Sciences (IZCAS).

Genus Neoproutista Yang & Wu

Neoproutista Yang & Wu, 1994: 14. Type species: Paraproutista pseudoalbicosta Muir, 1915.

Generic diagnosis: Head including eyes narrower than pronotum. Vertex triangular, frons in profile rounded, lateral carinae approximate at middle, diverging to both ends, area between eyes narrower than width of an eye. Postclypeus shorter than frons, 3-carinate. Antennae extremely short, arista terminal. Ocelli present, rudimental. Mesono-tum convex, 3-carinate. Tegmina with nearly straight inner margin, longer than widest part (about 3.5: 1), longer than wings (about 1: 0.45), with 6 median sectors, third one branched, anal lobe small, R, M, and veins near them often reddish. Female genitalia reduced. Spinal formula of hind legs 5-5-4, 5-4-4, 5-6-4, 5-7-4, 5-5-6, 5-5-7, 5-4-6, 5-4-8, 5-4-7.

Distribution: China: Taiwan, Yunnan.

Key to species of Neoproutista

1.	Style bifurcate	N. pullata (Distant)
	Style integrated	ź
2.	Pygofer with dorsocaudal margin protruding caudad	N. acutata, sp. nov.
	Pygofer with dorsocaudal margin not protruding caudad	
3.	Body darker, aedeagus with process nearly reaching base of a	aedeagus4
	Body lighter, aedeagus with process not reaching base of aed	leagus 5
4.	Body blackish brown, anal segment long	N. furva, sp. nov.
	Body reddish brown, anal segment short	. pseudoalbicosta (Muir)
5.	Anal segment long, aedeagus spinous	N. spinellosa, sp. nov.
	Anal segment short, aedeagus without spine	N. bisaccata, sp. nov.

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1. Neoproutista furva Wu & Liang, sp. nov. (Figs. 1-11)

Length: \mathcal{J} 10.3 mm, \mathcal{Q} 11.6 mm.

Male: General color blackish brown. Vertex and frons light yellow. Face dark brown. Frons (Figs. 1, 2) with lateral carinae more divergent near postclypeus. Ocelli light yellow. Eyes black. Antennae with 2nd segment short, about 2 times as long as wide, about 2/5 times as long as frons. Mesonotum blackish brown, convex, with carinae light brown. Tegmina (Fig. 3) brown and translucent, costal margin whitish and semitransparent, the area near cross veins brown; outer margin whitish and semitransparent; veins brown. Wings brown and translucent. Legs yellow, spinal formula of hind leg 5-4-4, 5-5-4.

Male genitalia: Anal segment (Figs. 5, 6) rather long, inclined ventrad, apex slightly curving downwards, basal 1/3 of ventral part triangularly convex, anal style about in the middle of anal segment. Pygofer (Figs. 5, 7) narrow in profile, ventral 1/3 quadrangular with medioventral margin slightly produced. Style (Figs. 5, 7, 8) with basal 1/3 narrow in profile, apical 2/3 broad and convex, apex of the dorsal area angled, curving entad, with a dorsal process near middle, upper margin of dorsal process extending horizontally and with some short setae, its center concave and protruding cephalad. Aedeagus (Figs. 9-11) asymmetric, 2-valved at apex, left valve with a dorsocaudal finger-like process at apex, with a broad lamella nearly reaching base of aedeagus, a horny process in its inner side near apex protruding dorsocephalad; the inner side of right valve with a cephalic finger-like process protruding leftward near apex.

Female: Body dark brown, abdomen blackish brown. Spinal formula of legs: 5-5-4, 5-6-4.

Holotype: ♂, P. R. CHINA: Southeast Yunnan: Pingbian: Daweishan, (22°54' N, 103°36' E), 1350 m, 21.vi.1956, Coll. Banfilov. *Paratype:* 1♀, same as holotype.

Distribution: China: Yunnan.

Remarks: This species is similar to N. *pseudoalbicosta* (Muir, 1915), but can be separated from the latter by the body longer, anal segment long (Fig. 5), and the different aedeagus (Fig. 9-11).

Etymology: The species name is derived from the Latin *furvus*, referring to the color of the mesonotum which is blackish brown.

2. Neoproutista bisaccata Wu & Liang, sp. nov. (Figs. 12-21)

Length: \mathcal{J} 8.9 mm, \mathcal{Q} 9.6 mm.

Male: General color brown. Vertex and frons light tan. Face brown. Ocelli light tan. Eyes black. Postclypeus with upper 1/2 of middle ridge light yellow. Antennae tan, about 2 times as long as wide, about 1/2 times as long as frons. Pronotum and mesonotum brown, mesonotum with carinae yellowish brown. Abdomen black. Tegmina (Fig. 14) brown and translucent, costal region whitish and semitransparent, the area near cross veins brown; veins brown. Wings (Fig. 15) light brown and translucent. Spinal formula of hind leg 5-6-4, 5-7-4.

Male genitalia: Anal segment (Figs. 16, 17) very short, its apex inclined ventrad, its middle part angularly protruding ventrad, anal style almost in the middle of anal segment. Pygofer (Figs. 16, 18) narrow, its medioventral edge slightly protruding, ventral 1/3 quadrangle in profile. Style (Figs. 16, 18) with basal 1/3 slim, apical 2/3 broad and convex, with a pilose process protruding dorsad near apex. Aedeagus (Figs. 19-21) tubular and slightly 2-valved at apex, in profile the right valve higher and the left valve lower, each valve with one saccate process with sharp apex.

Female: Body lighter, abdomen blackish brown. Spinal formula of legs: 5-5-4.

Holotype: ♂, P. R. CHINA: Yunnan: Xishuangbanna: Mengzhe (22° N, 100°12′ E), 1200 m, 4.ix.1958, Coll. F. J. Pu. Paratype: 1♀, P. R. China: Yunnan: Xishuangbanna: Mengzhe (22° N, 100°12′ E), 1200 m, 30.viii.1958, Coll. F. J. Pu.

Distribution: China: Yunnan.

Remarks: This species is similar to *N. pseudoalbicosta* (Muir, 1915), but can be separated from the latter by the anal segment straight, with ventral edge convex (Fig. 16) and the shape of aedeagus (Figs. 19-21).

Etymology: The species name is derived from the Latin prefix *bi*- and word *saccatus*, referring to the two saccate processes of aedeagus.

3. Neoproutista spinellosa Wu & Liang, sp. nov. (Figs. 22-32)

Length: \mathcal{J} 8.9 mm, \mathcal{Q} 9.5 mm.

Male: General color yellowish brown. Vertex and frons light tan. Face brown. Frons (Figs. 22, 23) with lateral carinae more divergent near vertex. Antennae light tan, about 2 times as long as wide, about 1/2 times as long as frons. Ocelli light tan. Eyes blackish brown. Mesonotum light tan, central carina and lateral areas brown. Abdomen blackish brown, tergites with yellow spots arranged in column. Color of tegmina and wings almost same as *N. bisaccata*, sp. nov. but lighter, left wing (Fig. 24) of holotype with Cu₁ 3-branched and right wing with Cu₁ 2-branched. Spinal formula of hind leg 5-6-4.

Male genitalia: Anal segment (Figs. 25-27) long, apical 1/4 curving ventrad, apical margin (Fig. 27) slightly concave and lightly bifurcate, anal style in the middle of anal segment. Pygofer (Fig. 25) relatively broad, with dorsocaudal angle slightly produced caudad, ventrocaudal margin nearly straight, without distinct medioventral process. Style (Figs. 25, 28, 29) with apical 3/5 broad, left and right styles asymmetric, left style (Figs. 25, 28) with apical 3/5 saccate, its dorsal edge expanded and membranous and with a hooked process protruding outwards; right style (Figs. 28, 29) with apical 1/5 saccate. Aedeagus (Figs. 30-32) stout, apex round; in left side view (Fig. 30), its back with a spinous process, the lower part of the process extending rightward and cone-shaped, with a ventral membranous vesicle; in right side view (Fig. 31), the apical 1/2 of dorsal edge of the shaft extending dorsad and laterad, forming a triangular membranous lamella covering apex of shaft, with a fork-like process on inner side of the lamella.

Female: Color as in male, abdomen blackish brown. Spinal formula of hind legs: 5-6-4, 5-7-4.

Holotype: \mathcal{J} , P. R. CHINA: Yunnan: Xishuangbanna: Meng'a (22°6′ N, 99°18′ E), 1050-1080 m, 6.viii.1958, Coll. F. J. Pu. *Paratypes:* 2 \mathcal{Q} , same data as holotype.

Distribution: China: Yunnan.

Remarks: This species is similar to *N. bisaccata* Wu & Liang, sp. nov., but can be separated from the latter by the body color lighter; anal segment long (Fig. 25) and the shape of the style and aedeagus (Figs. 28-32).

Etymology: The species is derived from the Latin *spinellosus*, referring to the spinous process of aedeagus.

4. Neoproutista acutata Wu & Liang, sp. nov. (Figs. 33-44)

Length: 3 9.3 mm.

Male: General color yellowish brown. Vertex, frons, antennae, face under antennae light yellow, the rest of face brown. Frons (Figs. 33, 34) with lateral carinae more divergent near postclypeus. Ocelli light tan. Antennae about 2 times as long as wide, about 1/2 times as long as frons. Pronotum brown, lateral areas yellow, mesonotum convex, brown, carinae light yellow. Tegmina brown and translucent, costal and outer margins with whit-

ish and translucent spots, veins brown. Wings light brown and translucent. Spinal formula of hind leg 5-5-6.

Male genitalia: Anal segment (Figs. 37-39) very short, apex blunt and slightly curving ventrad, anal style about in the middle of anal segment. Pygofer (Figs. 37, 40) narrow, ventral 1/3 nearly quadrangular, dorsocaudal edge protruding caudad beyond apex of style, nearly triangular, ventrocaudal edge (Fig. 40) triangularly protruding at middle. Style (Figs. 37, 40) with basal 1/4 slender, middle 1/2 broad, extending ventrad, apical 1/4 narrow, curving entad, with sharp apex, dorsal side with a pilose process protruding dorsad. Aedeagus (Figs. 41-44) with 3 lamellar processes protruding cephalad, the middle one with some setae at apex.

Female: Unknown.

Holotype: ♂, P. R. CHINA: Southeast Yunnan: southwest 20km from Jinping (22°42' N, 103°12' E), 1200 m, 28.v.1956, Coll. Banfilov.

Distribution: China: Yunnan.

Remarks: The species is similar to *N. bisaccata* Wu & Liang, sp. nov., but can be separated from the latter by the body color lighter; carinae on mesonotum yellow and obvious; and the male genitalia.

Etymology: The species is derived from the Latin *acutatus*, referring to the acute apex of style.

5. Neoproutista pullata (Distant), comb. nov. (Figs. 45-54)

Phenice pullata Distant, 1911: 639.

Pamendanga pullata: Muir, 1918: 175; Muir, 1922: 341, figs. 6a-b.

Length: \Im 8.7 mm, \Im 10.3 mm.

Male: General color dark brown. Vertex and frons light tan. Face brown. Antennae light yellow (antennae tan in one male specimen), about 2 times as long as wide, about 1/2 times as long as frons. Eyes dark brown. Ocelli light yellow. Pronotum and mesonotum brown, central carina darker. Tegmina (Fig. 46) dark brown and translucent, costal, outer and inner margins with some whitish and translucent spots; veins brown. Wings (Fig. 47) brown and translucent, the area near inner margin whitish and translucent, veins brown [Wings in one male specimen with M 3- branched (Fig. 48)]. Spinal formula of hind leg 5-5-7; 5-4-6, 5-4-8.

Male genitalia: Anal segment (Figs. 49-51) rather long, apical 3/5 curving ventrad, anal style in the middle of anal segment. Pygofer (Figs. 49, 52) in profile with dorsocaudal margin angular, ventrocephalic edge protruding cephalad. Style (Figs. 49, 52) with basal 1/2 slender, central area convex and membranous, protruding ventrad, apical 1/2 bifurcate, the dorsal branch broad and tubular, its external surface with some setae, its dorsal edge with a pilose process near apex; the ventral branch slender and tubular. Aedeagus (Figs. 53, 54) narrowed to apex, with a horny process protruding dorsocephalad at apex, left side with a thin lamella near apex.

Female: Body blackish brown. Spinal formula of hind legs: 5-5-8; 5-4-7; 5-4-8.

Specimens examined: P. R. CHINA: Yunnan: Xishuangbanna: Meng'a (22°6' N, 99°18' E), 1050-1080 m, 1 $^{\circ}_{\circ}$, 8.viii.1958, Coll. F. J. Pu. China: Yunnan: Xishuangbanna: Mengzhe (22° N, 100°12' E), 1080 m, 1 $^{\circ}_{\circ}$, 7.vii.1958, Coll. F. J. Pu; China: Yunnan: Xishuangbanna: Meng'a (22°6' N, 99°18' E), 1050-1080 m, 2 $^{\circ}_{\circ}$, 16.viii.1958, Coll. S. Y. Wang.

Distribution: China: Yunnan (new record); India: United Provinces, Assam.

Remarks: This species can be separated from other species of the genus by its male genitalia. We transfer *pullata* from *Pamendanga* to *Neoproutista* on the basis of the fol-

lowing characters: tegmina with 3rd sector branched, antennae very short, ocelli present, and frons with lateral carinae approximate.

6. Neoproutista pseudoalbicosta (Muir)

Paraproutista pseudoalbicosta Muir, 1915: 130. Neoproutista pseudoalbicosta: Yang & Wu, 1994: 14.

Distribution: China: Taiwan.

Remarks: This species was recorded from Taiwan. No specimens were available for the present study.

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Figs. 1-11. Neoproutista furva Wu & Liang, sp. nov.: 1, head (excl. clypeus, ventral view); 2, head (dorsal view); 3, tegmen; 4, wing; 5, male genitalia (lateral view); 6, anal segment (dorsocaudal view); 7, male genitalia (ventral view); 8, style (dorsal view); 9, aedeagus (left view); 10, aedeagus (right view); 11, aedeagus (dorsal view). Scale bar: Figs. 1, 2, 5-11 = 0.2 mm, Figs. 3, 4 = 1 mm



Figs. 12-21. Neoproutista bisaccata Wu & Liang, sp. nov.: 12, head (excl. clypeus, ventral view); 13, head (dorsal view); 14, tegmen; 15, wing; 16, male genitalia (lateral view); 17, anal segment (dorsal view); 18, male genitalia (ventral view); 19, aedeagus (left view); 20, aedeagus (right view); 21, aedeagus (dorsal view). Scale bar: Figs. 12, 13, 16-21 = 0.2 mm, Figs. 14, 15 = 1 mm.



Figs. 22-32. Neoproutista spinellosa Wu & Liang, sp. nov.: 22, head (excl. clypeus, ventral view); 23, head (dorsal view); 24, wing; 25, male genitalia (lateral view); 26, anal segment (dorsal view); 27, apex of anal segment (caudal view); 28, style (ventral view); 29, right style (lateral view); 30, aedeagus (left view); 31, aedeagus (right view); 32, apex of aedeagus (dorsal view). Scale bar: Figs. 22, 23, 26-32 = 0.2 mm, Fig. 24 = 1 mm, Fig. 25 = 0.25 mm.



Figs. 33-44. Neoproutista acutata Wu & Liang, sp. nov.: 33, head (excl. clypeus, ventral view); 34, head (dorsal view); 35, tegmen; 36, wing; 37, male genitalia (lateral view); 38, anal segment (dorsal view); 39, apex of anal segment (caudal view); 40, male genitalia (ventral view); 41, base of aedeagus (dorsal view); 42, aedeagus (left view); 43, aedeagus (right view); 44, aedeagus (caudal view). Scale bar: Figs. 33, 34, 37-39, 41-44 = 0.2 mm, Figs. 35, 36 = 1 mm, Fig. 40 = 0.25 mm.



Figs. 45-54. Neoproutista pullata (Distant): 45, head (excl. clypeus, lateroventral view); 46, tegmen; 47, wing; 48, wing, 49, male genitalia (lateral view); 50, anal segment (dorsal view); 51, anal segment (caudal view); 52, male genitalia (ventral view); 53, aedeagus (left view); 54, aedeagus (right view). Figs. 45, 49-54 = 0.2 mm, Figs. 46-48 = 1 mm