

## Two New Species of *Apanteles* Foerster from China

(Hymenoptera: Braconidae)

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**Abstract:** Two new species in the *ater*-group of the genus *Apanteles* s. str. (Hymenoptera: Braconidae: Microgastrinae), *Apanteles nixonii* **n. sp.** and *Apanteles brevicarinis* **n. sp.** are described from China (Fujian, Hubei and Jilin Province). The type specimens are deposited in the Beneficial Insects Lab., Fujian Agriculture & Forestry University, Fuzhou, China.

**Key words:** Hymenoptera; Braconidae; Microgastrinae; *Apanteles*; new species; China

### Introduction

*Apanteles* s. l. belongs to the subfamily Microgastrinae of the Braconidae. It might be the most important genus of the family Braconidae not only in numbers with about 1300 described species world-wide (MASON 1981) but also regarding economical aspects because the species attack virtually the entire taxonomic and biological spectrum of Lepidoptera (WHITFIELD 1997). For more than one hundred years, many authors have studied the classification of *Apanteles* s. l. such as REINHARD (1880), MARSHALL (1885), WILKINSON (1932), SHORT (1953) [larvae], NIXON 1965 and MASON 1981. Among them, NIXON's and MASON's systems have been followed by many taxonomists (MAETO 1996, WALKER et al. 1990, YOU et al. 1988). I adopted MASON's system. Both new species described here belong to the genus *Apanteles* s. str. (*ater*-group), there are 25 species of this group recorded from China including Taiwan (CHOU 1979, SONG et al. 2001, YOU 1982).

Abbreviations used:

OOL = ocellar-ocular line (shortest distance between posterior ocellus and eyes.

OD = ocellar diameter (longest diameter of posterior ocellus).

n. st. = metacarp or stigmal vein.

## Description of new species

*Apanteles nixonii* n. sp. (Figs. 1•5)

Holotype: ♀, length of body 3.1 mm, length of forewings 3.6 mm.

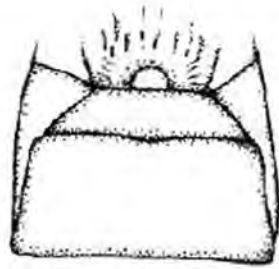
Head: width of head 2.7 times as long as length in dorsal view, the excavation of antennal scrobes are situated near the eye-margin; vertex closely covered with little punctures; median ocellus situated in front of lateral ocelli, OOL:OD = 0.8:0.5; median ocellus posteriorly with a furrow directed towards occiput. Face with parce, big and shallow punctation, only upper 2/5 of median longitudinal carina visible, width: height of face = 3.1:2.7; eye-margin nearly parallel. Antennae slightly longer than body (10.0:9.1), its ratio length: width of the scapus = 1.7:0.9, flagellum gradually thinning towards apical segment, covered with short setae, with length: width of segments 14–17 = 1.7–1.6:1.

Mesosoma: width slightly longer than length of head (6.5:6.1); its length: width: thickness = 9.1:6.5:7.4. Mesoscutum deeply punctate, along imaginary course of the notaulices the punctation terminating into striate-punctation and becoming a trace of striation only towards its posterior end; scutellar sulcus straight, wide and with some cristulae; disc of scutellum narrowed posteriorly in profile with a short, truncate posterior face, sparsely punctured. Propodeum with three fields complete, shining and only sparsely, weakly rugose, areolation being concave, costula being rugose.

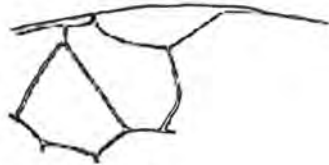
Wings: n. st. 4.7 and 1.4 times as long as its distance from the apex of the radial cell and the width of the stigma, respectively;  $r_1$  rising from median and slightly out of the stigma, slightly curved outwards, longer than  $cu_{q1}$  (1.9:1.3), junction slightly wider between  $r_1$  and  $cu_{q1}$ . Hind wings wide; width:height of the cubital cell = 1.3:1.2; edge of vannal lobe beyond its widest part concave, and the concave edge being completely free from projecting hairs.



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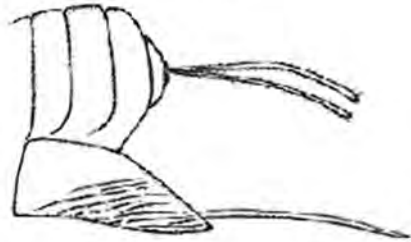
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Figs. 1–5: *Apanteles nixonii* n. sp.: 1. propodeum; 2. tergite 1–2; 3. terga 2–3; 4. apex of metasoma to show female genitalia (lateral view); 5. part of forewing

Legs: hind coxa extending to the end of tergite 3, with its outside sparsely and weak punctured, width:length of femora = 6.9:2.2; outside of tibiae uneven spines are located, its inner and outer spurs extending to 2.4:5 and 1:5 of the length of the hind basitarsus, respectively, tarsi 4 nearly equalling to tarsi 5 in length.

Metasoma: longer than thorax (12.5:9.1). Tergite 1 almost paralle-sided, approaching its base 1:4 retracted-rounded, its basal half hollowed

and shining, horizontal surface bearing a rugose, wide and long median longitudinal furrow, ist mid-end smooth and convex; the width: length of median field of tergite (2+3) = 4.2:1.0, with only extremely fine, granulo-punctures; tergite 3 fine and sparcely punctured along its basal-half, the rest and the following tergites smooth and shiny, the hind-half of these tergites having parce hairs. Ovipositor sheath longer than hind tibiae (9.3:8.0); ovipositor thick and nearly straight.

Colour: black. Antennae deep brown. Stigma brown, n. st. grey brown, n. cost. pale yellow, the remainig vein lyaline with its margin brown. Fore and mid legs yellow, except for reddish-brown coxa and red-yellowish brown mid trochanters and basal 2/3 of the femora; hind coxae, trochanters and femora blackish red, basal-half of both tibiae and basal tarsal segments yellow, the rest deeply infusate.

Variation: median field of tergite (2+3) nearly scalariform, its width: length = 2.55:0.8; ovipositor sheath: hind tibiae = 9.0–9.4:7.9–8.1;  $r_1:cuq_1 = 2.6–2.8:1.4–1.6$ ; tergite 1 constricted from its terminal 1/4 to its end; hind femora yellowish brown. Length of the body 2.55–3.2 mm.

Male: propodeum with three fields smooth, costula smooth without rugosity; the width: length of the median field of tergite (2+3) = 1.7–1.9:0.7; antennae: length of the body = 10:5.3–6; length of the body 1.9–2.1 mm. Other characters as in the female.

Specimen examined: Holotype: ♀, Guadun, Mt. Wuyi, Fujian Prov. [28°N 117°5'E], 1988-7-28, Zhang Xiaobin. – Paratypes: 1♀, Guadun, Mt. Wuyi, Fujian Prov., 1988-7-28, Ge Jianhua; 1♀, Guadun, Mt. Wuyi, Fujian Prov., 1988-8-20, Zhang Xiaobin; 2♀♀, Sangang, Mt. Wuyi, Fujian Prov., 1988-9-6, Shen Tianshun; 2♀♀, Sangang, Mt. Wuyi, Fujian Prov., 1988-7-30, Zhang Xiaobin, Ge Jianhua; 2♀♀, Lushuihe 750m, Mt. Changbaishan, Jilin Prov. [42°-43°N 128°E], 1989-7-31, Yang Jianquan; 1♀, Longdu 680 m, Mt. Wuyi, Fujian Prov., 1988-8-6, Shen Tianshun; 3♀♀, Xianfengling, Mt. Wuyi, Fujian Prov., 1988-7-22, Ge Jianhua; 1♀, Songbei, Shennongjia, Hubei Prov. [32°N 111°E], 1988-7-30, Huang Juchang; 1♂, Guadun, Mt. Wuyi, Fujian Prov., 1988-7-28, Ge Jianhua; 1♂, Dashulan, Mt. Wuyi, Fujian Prov., 1992-9-25, Yang Jianquan.

Distribution: China (Fujian, Hubei and Jilin Province).

Biology: unknown.

Etymology: the specific name is dedicated to the taxonomist NIXON.

Diagnosis: the new species is structurely very close to *Apanteles opacus* (Ashmead) (SHENEFELT 1972:587; ASHMEAD 1905:118; WILKINSON

1928:128; NIXON 1965:44), but differs from it in the following characters:

<i>Apanteles nixon</i> <b>n. sp.</b>	<i>Apanteles opacus</i> (Ashmead, 1905)
Ovipositor sheath longer than hind femora;	Ovipositor about same length as hind femora;

It is also closely related to *Apanteles lyridice* Nixon (NIXON 1965:46; SHENEFELT 1972:562), but differs from the latter in the combination of the following characters:

<i>A. nixon</i> <b>n. sp.</b>	<i>A. lyridice</i> Nixon, 1965
Tergite (2+3) entirely deep red-dish brown.	Large parts of tergite (2+3) yellow except for median field dark brown and a median, obscure patch adjacent posteriorly to median field.
Ovipositor sheath longer than hind tibia (9.3:8).	Ovipositor sheath about two third as long as hind tibia.

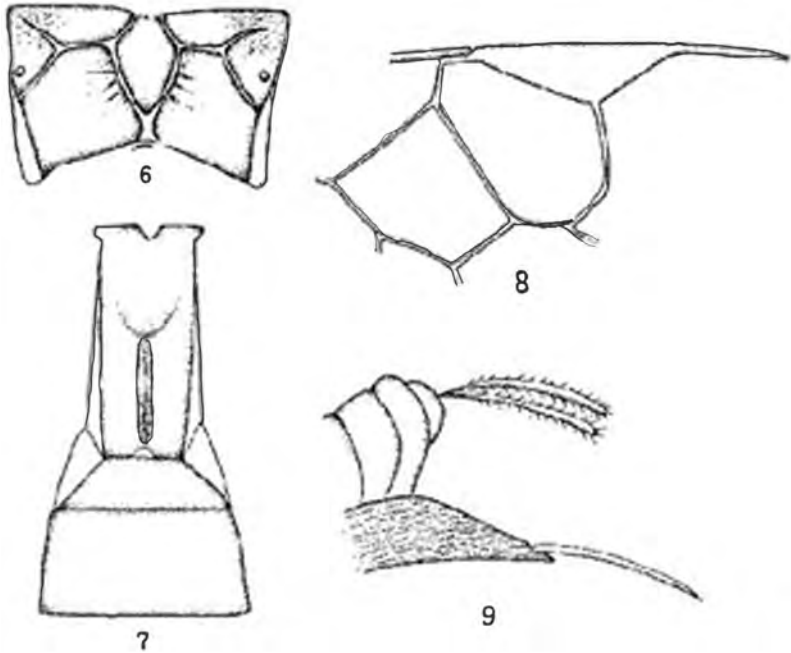
*Apanteles brevicarinis* **n. sp.** (Figs 6–9)

Holotype: ♀, length of body 2.8 mm, of forewings 3.8 mm.

Head: width of head 1.8 times its length in dorsal view. The excavation of antennal scrobes smooth, vertex covered by fine punctulation; the hind tangent of the median ocellus just contacting lateral ocelli, OOL:OD = 0.8:0.6. Face dull, nearly square and its width: height = 2.8:2.7, bearing weak longitudinal punctures, only upper third of median longitudinal carina visible; both fronto-clypeal suture and lower margin of eyes located in the same level, surface of clypeus more convex in lateral view than face. Antennae longer than body (10.0:8.1), and gradually thinning from base to tip, with the length of its scapus 1.4 times its width, the length of 12-15<sup>th</sup> flagellomeres 1.6·1.4 times its width and between these flagellomeres having petioles.

Mesosoma: width slightly longer than that of head (6.3:5.8), and its length: width: thickness = 10.8:6.3:7.4. Mesoscutum bearing small punctures, along imaginary courses of the notauli with punctures indistinguishable because of general rugosity or else smaller and mixed with lon-

itudinal elements to form striate-punctation, and the rest of the mesoscutum with sparse punctures; scutellar sulcus nearly straight, with about 8–10 crenulatus, scutellum weakly and sparsely punctured. Propodeum with its areola slightly depressed, smooth, shiny, opening proximal, with its hind-lateral fields weakly rugose-punctate and cristulate, costula short and small, its forks enclosing the spiracle.



Figs. 6–9: *Apanteles brevicarinis* n. sp.: 6. propodeum; 7. tergite 1–3; 8. part of forewing; 9. apex of metasoma to show female genitalia (lateral view).

Wings: n. st. 5.7 times and 1.5 times as long as its distance from the apex of the radial cell and the width of the stigma, respectively.  $r_1$  longer than  $cu_{1+2}$  (1.9:1.0), forming a weak, even curve at their junction.

Legs: hind coxa with its outside irregular punctured; length of hind femur 2.7 times its width; hind tibia with its inner and outer spur 0.5 and 0.3 times the basitarsus respectively; hind tarsus with segment 4 nearly

equalling to segment 5.

Metasoma: slightly longer than mesosoma (11.6:10.8). Tergite 1 long, side margins subparallel, its length 2.4 times its width at the widest point, its basal half smooth, its apical half rugose-punctate and bearing a long longitudinal furrow; median field of tergite (2+3) nearly scalariform, its width 3.1 times its length, and this tergite and the subsequent tergites smooth, shiny and evenly covered by long sparse hair. Ovipositor sheath shorter than hind tibia (6.9:7.2).

Colour: black. Antennae blackish brown. Stigma and veins brownish hyaline (only n. cost. and n. med. slightly pale). Legs reddish to yellowish brown except for fore and mid coxae reddish brown; hind coxae black; apex of hind femur, the apical third of the hind tibia and hind tarsus infuscatus; the rest of the tibia yellow.

Male: unknown.

Specimen examined: Holotype: ♀, Hongping, Shennongjia, Hubei Province of China, 1988-8-14, Huang Juchang.

Distribution: China (Hubei Prov.).

Biology: unknown.

Etymology: the name is derived from the short costula of the propodeum.

Diagnosis: *Apanteles brevicarinis* n. sp. is placed near *Apanteles mamitus* Nixon (NIXON 1965:45; SHENEFELT 1972:564), but it is distinguishable from the latter by the following characters:

<i>Apanteles brevicarinis</i> n. sp.	<i>Apanteles mamitus</i> Nixon, 1965
Median field of tergite (2+3) blackish brown, similar to the rest of the tergites.	Median field of tergite (2+3)-3 golden-yellow, only median field of tergite (2+3) slightly dull, strongly different from the rest of the tergites.
The costula of the propodeum short and fine.	Length of the costula of the propodeum normal.

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