Mesochorinae Collected by the Hokkaido University Expedition to Nepal Himalaya, 1968* (Hymenoptera: Ichneumonidae)

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Abstract

Four species of the genus *Mesochorus* in the subfamily Mesochorinae collected from Nepal are reported. They are *Mesochorus nepalensis, M. interruptus, M. kumatai,* and *M. parilis,* and are new to science. A key is given to distinguish these Nepalese species.

Key words: Hymenoptera, Parasitica, Ichneumonidae, Nepalese Mesochorinae.

Introduction

This paper is a report on Nepalese ichneumonflies of the subfamily Mesochorinae based on material collected from Central Nepal by the Hokkaido University Expedition to the Nepal Himalaya, 1968. So far as I am aware, no species of the subfamily Mesochorinae has been known to occur in Nepal. In the precise examination of these species, I found four species collected in Nepal which were new to science. The types of these new species are deposited in the collection of the Entomological Institute, Hokkaido University, Sapporo, Japan.

1. *Mesochorus nepalensis* sp. nov. (Figs. 1, 5 & 6)

♀. Face about 1.6 times as wide as high at level of lower margin of antennal socket, strongly and densely punctate, the punctures becoming sparser laterally; upper transverse carina of face strongly dipped downward at the center; clypeus slightly convex centrodorsally, with large, sparse, setiferous punctures, the punctures

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becoming sparser medially, and the apical margin thick and weakly convex ; malar space about 3/8 as long as basal width of mandible ; mandible stout, weakly tapering towards apex, about 1.9 times as long as its basal width, its apical teeth blunt, the upper tooth slightly longer and narrower than the lower one (Fig. 1) ; temple weakly and rather sparsely punctate, 4/7 as long as eye in lateral view ; distance between lateral ocelli and eyes 7/9 as long as diameter of an ocellus ; frons polished, sparsely punctate dorsally, impunctate ventrally, with a small ventromedian concavity with a few longitudinal striae ; occipital carina distinct and complete, evenly rounded on dorsomedian portion. Antennae about 1.2 times as long as forewing, 36-segmented ; 1st flagellar segment 6.3 times as long as wide at apex and 1.4 times as long as the 2nd. Pronotum distinctly and rather densely punctate, the punctures sparser ventrally ; mesoscutum with fine, dense, setiferous punctures ; notaulus obsolete ; prescutellar transverse groove with very fine setiferous punctures ; scutellum moderately strongly convex, very sparsely punctate, its apical portion not specialized ; mesopleurum distinctly and rather densely punctate, the punctures becoming sparser posteriorly ; specullum virtualy bare ; metapleurum with moderately dense, weak setiferous punctures ; prepectus densely and weakly punctate ventrally, very finely and vertically striate dorsally. Propodeum strongly areolated, rather sparsely haired, the areola and basal area incompletely fused ; areola narrow, 2.2 times as long as wide at costula, with costula originating from basal 2/5 ; basal area as long as wide at base, its posterior margin not pointed ; propodeal spiracle rather large, circular, colser to pleural carina than to lateral carina. Hind femur slender, about 5.2 times as long as wide in lateral view; hind basitarsus 2.2 times as long as 2nd tarsal segment ; tarsal claws strongly pectinate, the hind one each with 5 or 7 teeth. Wings as in Figs. 5 and 6 ; nervulus interstitial ; stigma large, 3.0 times as long as wide, with radius emitting from basal 2/3 ; areolet receiving 2nd recurent vein at about basal 1/3 ; 3rd abscissa of discoideus about 1.6 times as long as the 2nd ; nervellus weakly reclivous, 1.7 times as long as intercubitella ; apex of costella with 1 hamulus ; metacarpella with 5 hamuli. Abdomen polished ; 1st tergite 2.7 times as long as wide at apex, with very sparse hairs and weak longitudinal rugulae ; postpetiole 1.3 times as long as its apical width ; 2nd tergite 0.9 time as long as wide at apex and 1.2 times as long as the 3rd, mostly bare, sparsely haired laterally ; 3rd and following tergites very sparsely haired, the median portion of each tergite bare. Subgenital plate largely bare, the ventral side with rather dense hairs ; ovipositor sheath rather wide, 5.5 times as long as wide and 3/8 as long as hind tibia.

Ferrugineous and black. Face blackish, the lower portion weakly tinged with dark reddish brown ; frontal orbit widely tinged with yellowish brown ; malar space, clypeus, mandible except for apical teeth, and palpi yellow to yellowish brown ; mandibular teeth dark reddish brown to blackish ; frontal and tempolar orbits narrowly tinged with yellowish to reddish brown ; scape and pedicell

infuscate; flagellum fuscous. Pronotum ferrugineous, the collar area infuscate; propleurum dark ferrugineous, paler ventrally; mesoscutum, scutellum, post-scutellum, mesopleurum, mesosternum, and metapleurum ferrugineous. Propodeum dark ferrugineous, the areola dark reddish brown. Legs yellowish brown to light ferrugineous, 5th segments of front and middle tarsi, apex of hind tibia, apical 1/3 of hind metatarsus, and 2nd and following segments of hind tarsus fuscous. Abdominal tergite black, light yellowish brown at extreme apex of each tergite. Ovipositor sheath black, yellowish brown at apex. Wings hyaline; stigma pale, the front and hind margins infuscate.

Length: Body 5.1 mm, forewing 5.3 mm.

♂. Unknwon.

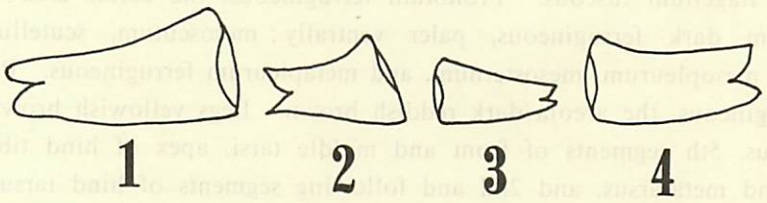
Holotype: ♀, Nepal: Rukuche, Palpa, 9-v-1968, T. KUMATA leg.

Distribution: Nepal.

This species is very closely related to the Formosan *M. rubranotatus* KUSIGEMATI, 1985, in the coloration and general appearance, but is easily distingished from it by the areola which is confused with the basal area, the obsolete notauli, the weakly striate and comparatively slender 1st tergite, and the coloration of the pronotum, mesoscutum, metapleurum, and propodeum.

2. ***Mescohorus interruptus*** sp. nov. (Figs, 2, 7 & 8)

♂. Face about 1.3 times as wide as high at level of lower margin of antennal socket, distinctly and rather sparsely punctate, the punctures becoming sparser laterally; upper transverse carina of face moderately strongly dipped at the center; clypeus weakly convex, with distinct, sparse, setiferous punctures, its apical margin thick and almost truncate; malar space 1/2 as long as basal width of mandible; mandible rather stout, weakly tapering towards apex, weakly swollen on basal portion, about 1.6 times as long as its basal width, its apical teeth sharply pointed and equal in lenght, the upper teeth wider than the lower one (Fig. 2); temple weakly and rather sparsely punctate, about 2/3 as long as eye in lateral view; distance between lateral ocelli and eyes about 1.2 times as long as diameter of an ocellus; frons polished, sparsely punctate dorsally, the punctures becoming sparser laterally, bare ventrally, with a small ventromedian concavity without striae; occipital carina distinct laterally and ventrally, widely absent dorsally. Antennae long and slender, about 1.4 times as long as forewing, 33-segmented; 1st flagellar segment 7.0 times as long as wide at apex, 1.6 times as long as the 2nd. Pronotum almost virtually bare, with weak and sparse punctures on dorsal portion; mesoscutum with distinct, rather sparse, setiferous punctures, the punctures becoming weaker and sparser laterally; notaulus weak, extending to about basal 1/3; prescutellar transverse groove with very fine, very sparse, setiferous punctures; scutellum rather strongly convex, with a few fine punctures, its apical portion



Figs. 1-4. Mandibles : 1, *Mesochorus nepalensis* sp. nov., ♀ ; 2, *M. interruptus* sp. nov., ♂ ; 3, *M. kumatai* sp. nov., ♀ ; 4, *M. parilis* sp. nov., ♀.

not specialized ; mesopleurum weakly and sparsely punctate ; specullum bare ; prepectus weakly and rather sparsely punctate, without striae. Propodeum distinctly and completely areolated, very sparsely haired, the hairs becoming denser laterally; areola bare, about 1.6 times as long as wide at costula, with costula originating from basal 1/3 ; basal area small, about 1.3 times as long as wide at base, its apical margin truncate ; propodeal spiracle small and circular, situated at equal distance of lateral and pleural carinae. Hind femur slender, 4.9 times as long as wide in lateral view ; hind basitarsus about 2.4 times as long as the 2nd ; tarsal claws simple. Wings as in Figs. 7 and 8 ; nervulus interstitial; areolet receiving 2nd recurrent vein at basal 3/8 ; stigma large, 2.9 times as long as wide, with radius emitting from basal 3/5 ; 3rd abscissa of discoideus about 1.6 times as long as the 2nd ; nervellus slightly reclivous, 1.4 times as long as intercubitella ; apex of costella with 1 hamulus ; metacarpella with 4 hamuli. Abdomen polished, virtually bare, with very sparse hairs ; 1st tergite 2.5 times as long as wide at apex, without striae ; postpetiole 1.3 times as long as its apical width ; 2nd tergite about 1.1 times as long as wide at apex and about 1.3 times as long as the 3rd; clasper 3/8 as long as hind tibia, its apex rounded.

Light yellowish brown, with black propodeum and abdomen. Frons except for frontal orbit, ocellar area, dorsal half of temple and postocciput, occiput, and mandibular teeth fuscous to blackish. Scape and pedicel fuscous ; flagellum yellowish brown to fuscous, darker apically. Mesoscutum yellowish brown on median 1/2, dark brown to fuscous on lateral 2/7 ; upper division of metapleurum, propodeum, and metapleurum black, the metapleurum slightly tinged with dark reddish brown. Abdominal tergite and clasper dark brown to black. Apex of hind tibia and last tarsal segment of tarsi fuscous. Wings hyaline ; stigma pale.

Length : Body 4.6 mm, forewing 3.8 mm.

♀. Unknowm.

Holotype : ♂, Nepal : Godavari, Nepal Valley, 20-iv-1968, T. KUMATA leg.

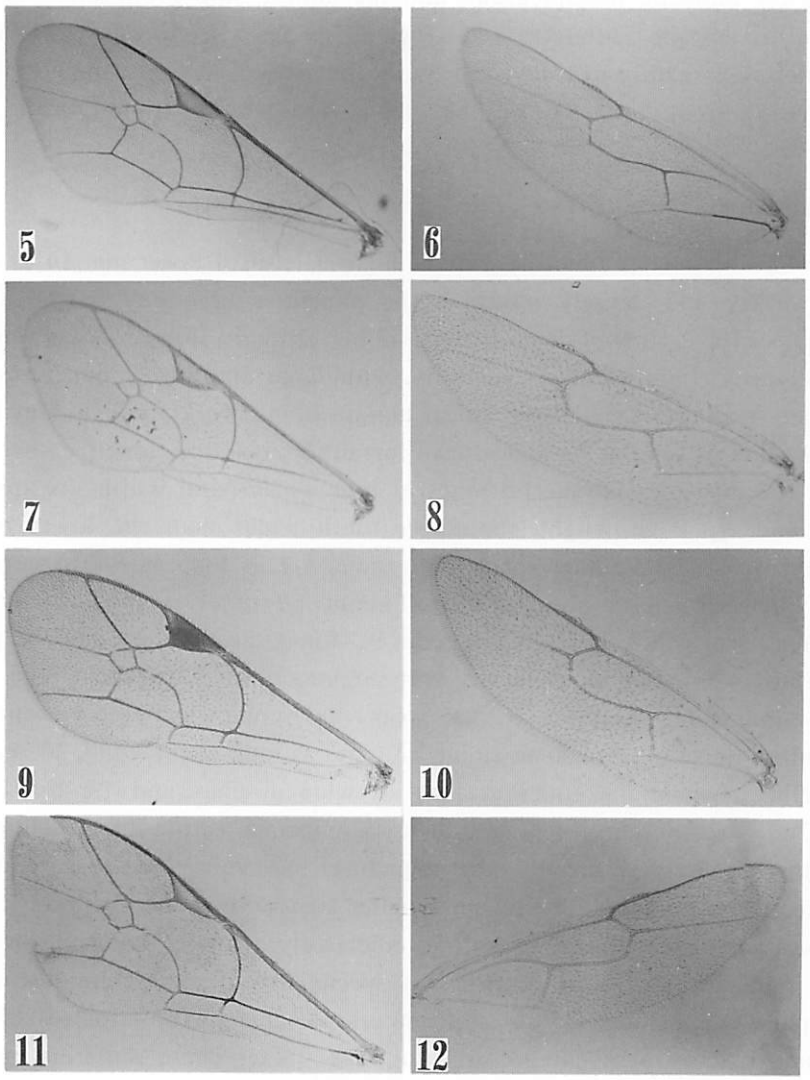
Distribution : Nepal.

This species is similar to the preceding species, *M. nepalensis* sp. nov., but is readily distinguished from it by the absence of the occipital carina on the dorsal protion, the complete areola, the entirely punctate prepectus, the weakly

and sparsely punctate mesopleurum, and the almost bare pronotum. Further, it is also allied to the Holarctic and Oriental species, *M. discitergus* (SAY, 1936), from which it is readily distinguished by the interstitial nervulus, the costula which is originating from basal 1/3 of the areola, and whitish frontal orbit.

3. *Mesochorus kumatai* sp. nov. (Figs. 3, 11 & 12)

♀. Face about 1.3 times as wide as high at level of lower margin of antennal socket, weakly and densely punctate, the punctures becoming sparser laterally; upper transverse carina of face distinct, rather strongly dipped downward at the center; clypeus slightly convex centrally, with large and sparse punctures and an impunctate median area, and the apical margin blunt, weakly convex; malar space long, 0.9 times as long as basal width of mandible; mandible small, rather strongly tapering towards apex, about 1.5 times as long as its basal width, its apical teeth pointed and equal in lenght, the upper tooth wider than the lower one (Fig. 3); temple weakly and rather sparsely punctate, 5/8 as long as eye in lateral view; distance between lateral ocelli and eyes about 1.9 times as long as diameter of an ocellus; frons polished, weakly convex, finely and rather densely punctate, with a short ventromedian concavity without longitudinal striae, and the antennal scrobe impunctate; occipital carina weak but complete, evenly rounded on dorsomedian portion. Antennae about 1.3 times as long as forewing, 30-segmented; 1st flagellar segment 7.8 times as long as wide at apex and 1.6 times as long as the 2nd. Pronotum finely and densely punctate entirely; mesoscutum finely and rather densely punctate, the punctures becoming stronger and denser posterocentrally; notaulus absent; prescutellar transverse groove with very fine and sparse setiferous punctures; scutellum moderately strongly convex, weakly and sparsely punctate, its apical portion not specialized; mesopleurum distinctly and rather sparsely punctate, with a large impunctate area on posteromedian portion; specullum virtually bare; prepectus with weak, rather dense setiferous punctures; metapleurum with weak, rather sparse setiferous punctures. Propodeum distinctly and completely areolated, polished, sparsely haired; areola virtually bare, about 1.4 times as long as wide at costula, with costula originating from about basal 2/5; basal area small, triangular, about 1.3 times as long as wide at base, its apex pointed; propodeal spiracle rather large, circular, closer to pleural carina than to lateral carina. Hind femur slender, 5.0 times as long as wide in lateral view; hind basitarsus 2.6 times as long as the 2nd tarsal segment; tarsal claws not pectinate. Wings as in Figs. 11 and 12; nervulus postfurcal by about 5/8 of its own length; stigma small, 2.4 times as long as wide, with radius emitting from basal 5/7; areolet receiving 2nd recurrent vein at basal 3/8; 3rd abscissa of discoideus 4/9 as long as the 2nd; nervellus weakly reclivous, 1.7 times as long as intercubitella; apex of costella with 1 hamulus; metacarpella with 4 hamuli.



Figs. 5–12. Fore (5, 7, 9 & 11) and hind (6, 8, 10 & 12) wings ; 5 and 6, *Mesochorus nepalensis* sp. nov., ♀ ; 7 and 8, *M. interruptus* sp. nov., ♂ ; 9 and 10, *M. parilis* sp. nov., ♀ ; 11 and 12, *M. kumatai* sp. nov., ♀.

Abdominal tergite polished, virtually bare ; 1st tergite 2.7 times as long as wide at apex ; postpetiole about 1.2 times as long as its apical width ; 2nd tergite 7/8 as long as wide at apex and 1.2 times as long as the 2nd. Subgenital plate very sparsely haired ; ovipositor sheath narrow, very sparsely haired, the hairs a little denser basally, 6.5 times as long as wide and 4/9 as long as hind tibia.

Black. Head light yellowish brown ; frons except for frontal orbit, ocellar area, occiput, dorsal half of postocciput, and apical teeth of mandible dark brown to blackish ; antennae fuscous to infuscate, a little paler ventrobasally. Propleurum,

pronotum except for fuscous dorsal portion, and dorsal portion of mesopleurum light yellowish brown; mesepimeron weakly tinged with yellowish brown; tegula and subtegular ridge pale yellow. Front and middle legs light yellowish brown; tarsi a little darker. Hind leg with coxa yellowish brown, with a large black spot on dorsal side; trochanter and femur light yellowish brown; tibia light yellowish brown, fuscous at both ends; tarsus yellowish brown, darker apically. Abdominal tergite blackish; 1st tergite light yellowish brown on about basal 1/3; 2nd tergite yellowish brown on about apical 1/5; 3rd tergite yellowish brown at base; 3rd to 6th tergites yellow at extreme apex; 6th and following tergites tinged with dark reddish brown; ovipositor sheath light yellowish brown; ovipositor infuscate, paler apically. Wings hyaline; stigma pale.

Length: Body 3.4 mm, forewing 3.1 mm.

♂. Unknown.

Holotype: ♀, Nepal: Godavari, Nepal Valley, 20-iv-1968, T. KUMATA leg.

Distribution: Nepal.

This species is very closely related to the following species, *M. parilis* sp. nov., but is easily distinguished from it by the absence of the notaulus, the simple trasal claws, the comparatively slender hind femur, the short mandible with the equal apical teeth, as mentioned in the key.

4. ***Mesochorus parilis*** sp. nov. (Figs. 4, 9 & 10)

This new species is very similar to the preceding species, *M. kumatai* sp. nov., from which it may be separated by the following characters: —

♀. Face about 1.5 times as wide as high at level of lower margin of antennal socket; apex of clypeus blunt; apical margin of clypeus truncate; malar space 5/6 as long as basal width of mandible; mandible stout, almost parallel-sided, 1.7 times as long as its basal width, its apical teeth pointed and equal in length, and the upper tooth wider than the lower one (Fig. 4); temple weakly and sparsely punctate, the punctures becoming sparser toward eye margin, 5/7 as long as eye in lateral view; distance between lateral ocelli and eyes 1.6 times as long as diameter of an ocellus; frons polished, slightly convex, finely and sparsely punctate dorsally, impunctate ventrally; occipital carina very weak, weakly arched downward, narrowly interrupted on dorsal portion. Flagellum $20 + \alpha$ (apical segments lacking); 1st flagellar segment 5.3 times as long as wide at apex and 1.6 times as long as the 2nd. Pronotum finely and densely puntate dorsally, virtually bare ventrally; mesoscutum finely and rather densely punctate, the punctuation of the posterocentral area stronger and denser than that of the preceding species; notaulus weakly impressed, extending to about basal 2/3; mesopleurum densely and weakly punctate on about dorsal 1/3, elsewhere very sparsely puntate; specullum bare; metapleurum sparsely haired. Propodeum distinctly and completely areolated, polished, very

sparsely haired ; areola bare, 1.6 times as long as wide at costula, with costula originating from basal 3/8 ; basal area small, triangular, about 1.3 times as long as wide at base, with a long stalk on posterior margin. Hind femur 3.8 times as long as wide in lateral view ; hind basitarsus 2.9 times as long as the 2nd tarsal segment ; tarsal claws weakly pectinate at base, the hind claws with 2 or 3 small teeth. Wings as in Figs. 9 and 10 ; nervulus postfurcal by 5/7 of its own length ; stigma large, 2.8 times as long as wide, with radius emitting from basal 2/3 ; areolet receiving 2nd recurrent vein at basal 4/9 ; 3rd abscissa of discoideus 5/9 as long as the 2nd ; nervellus weakly reclivous, 1.8 times as long as intercubitella. Abdominal tergite polished, virtually bare, the 3rd to 5th tergites sparsely haired laterally ; 1st tergite 2.3 times as long as wide at apex ; postpetiole 1.2 times as long as its apical width ; 2nd tergite 1.3 times as long as wide at apex and 1.1 times as long as the 2nd. Ovipositor sheath rather densely haired ventrally, sparsely haired dorsally, narrow, 6.5 times as long as wide and about 1/2 as long as hind tibia.

Apical teeth of mandible dark reddish brwon ; pronotum entirely yellowish brwon ; dorsal side of hind coxa fuscous ; tarsi a little darker ; fuscous area of hind tibia wider and darker ; basal 1/3 of 1st tergite weakly tinged with dirty yellow ; extreme apex of 2nd tergite and extreme base of 3rd tergite yellowish brwon ; ovipositor sheath infuscate, paler apically. Wings with stigma infuscate.

Length : Body 3.5 mm, forewing 3.2 mm.

♂. Unknown.

Holotype : ♀, Nepal : Godavari, Nepal Valley, 20-iv-1968, T. KUMATA leg.

Distribution : Nepal.

This species is very similar to the Indian species, *M. pilicornis* (CAMERON, 1907), but is easily distinguished from it by the very sparsely punctate clypeus with the impunctate large area, the entirely black scutellum, and the coloration of the abdominal tergite.

The four species of Mesochorinae described above may be distinguished from each other by the following key : —

1. Forewing with nervulus interstitial. Pronotum, mesoscutum, scutellum, propleurum, and mesopleurum more or less ferrugineous or light yellowish brwon. 2
— Forewing with nervulus postfurcal. Mesoscutum, scutellum, and mesopleurum black ; propleurum and pronotum light yellowish brown. 3
2. Tarsal claws strongly pectinate. Propodeum with areola confluent with basal area ; propodeal spiracle closer to pleural carina than to lateral carina. Pronotum entirely and weakly punctate ; mesopleurum strongly and rather densely punctate. Mesoscutum entirely ferrugineous. .....
..... 1. *nepalensis* sp. nov.

— Tarsal calws simple. Propodeum with areola separated from basal area by a distinct carina; propodeal spiracle situated at equal distance from lateral and pleural carinae. Pronotum almost bare, weakly punctate dorsally; mesopleurum weakly and very sparsely punctate; mesoscutum yellowish brown medially, fuscous laterally. ..... 2. *interruptus* sp. nov.

3. Occipital carina distinct and complete, its dorsal portion weakly arched; mandible small, weakly tapering towards apex, its apical teeth equal in length. Postmedian area of mesoscutum weakly and densely punctate. Hind femur comparatively slender, 5.0 times as long as wide in lateral view. Stigma pale, narrow, 2.4 times as long as wide (Fig. 11). ..... 3. *kumatai* sp. nov.

— Occipital carina weak, narrowly interrupted and weakly arched downwards on dorsal portion; mandible stout, almost parallel-sided, its apical upper tooth a little longer than the lower one. Postmedian area of mesoscutum strongly and densely punctate. Hind femur comparatively stout, 3.8 times as long as wide in lateral view. Stigma infuscate, wide, 2.8 times as long as wide (Fig. 9). ..... 4. *parilis* sp. nov

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