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**Addition to the knowledge of the
Palearctic species of *Misetus* WESMAEL [1845]
(Hymenoptera, Ichneumonidae, Ichneumoninae, Phaeogenini)**

J. SELFA & E. DILLER

Abstract: The Palearctic species of genus *Misetus* WESMAEL [1845], are revised. A new key for *Misetus* WESMAEL is given. Two new species are described: *Misetus hispanator* SELFA 1995 from Spain and *Misetus nordicator* SELFA 1995 from Sweden.

Introduction

The genus *Misetus* WESMAEL [1845], belongs to the subtribe Notosemina (SELFA & DILLER 1994) and can be well characterised by the following features: Clypeus with a clearly defined median apical tooth; head clearly restricted behind the eyes; occipital carina well developed; genal carina meeting oral carina at base of mandibulae; frons polished, scarcely punctate; notauli well developed; last gastral tergite at hind edge concave, distinctly marked in females; ovipositor sheaths very short and recurved; thyridia large, especially in the male, placed far from the base of second tergite.

At present four *Misetus*-species are known, 3 from the Western Palearctic (WESMAEL 1845; KOLAROV 1985) and 1 from the Eastern Palearctic (KUSIGEMATI 1974). This number is now increased by the description of two new species, *Misetus hispanator* spec. nov. and *Misetus nordicator* spec. nov.

Misetus oculatus WESMAEL var. *obscurus* BERTHOUMIEU 1896 in 1894-1896: 345 is infrasubspecific (DILLER & HORSTMANN 1994).

The material of the new species is present in several European Institutions: Universitat de València (Spain) (*Misetus hispanator* spec. nov.), collection Horstmann Würzburg (Germany) (*Misetus hispanator* spec. nov.), and Zoologische Staatssammlung München (Germany) (*Misetus hispanator* spec. nov. and *Misetus nordicator* spec. nov.).

Autor of *Misetus hispanator* spec. nov. and *Misetus nordicator* spec. nov. is SELFA 1995.

The Palearctic species of *Misetus* WESMAEL (1845)

Misetus oculatus WESMAEL [1845]

Misetus oculatus WESMAEL [1845] - Nouv. Mém. Acad. Sci. Belg. Bruxelles **18**: 212. Lectotypus ♂, designated by Aubert.

Misetus oculatus var. *obscurus* BERTHOUMIEU 1896 - Ann. Soc. entomol. Fr. **65**: 345.

Distribution: Europe.

Misetus borealis KUSIGEMATI 1974

Misetus borealis KUSIGEMATI 1974 - Mem. Fac. Agric. Kagoshima Univ. **10/19**: 57. Holotypus ♀.

Distribution: Japan.

Misetus nigrutilus KOLAROV 1985

Misetus nigrutilus KOLAROV 1985 - Entomofauna **6/6**: 61. Holotypus ♂.

Distribution: Bulgaria.

Misetus tyloidalis KOLAROV 1985

Misetus tyloidalis KOLAROV 1985 - Entomofauna **6/6**: 60. Holotypus ♂.

Distribution: Bulgaria.

Description

Misetus hispanator SELFA 1995 spec. nov. (Figs. 1, 2, 4, 6, 8, 10, 12).

♀: Head black; dark reddish brown colour sometimes on supraclypeal area, or fascial orbitae at the side of the base of flagella, clypeus rarely centrally, mandibulae (except the black or dark brown teeth), and the palpi more yellowish brown. Flagella tricoloured, dorsally black, ventrally reddish with the first 4-5 flagellar segments dark brown or reddish brown, with a dorsal white ring on flagellar segments 5(6)-9, scapi and pedicelli rarely ventrally bright red-brown.

Thorax black; reddish brown colour on collare (rarely the central part of collare white), hind corner of pronotum, subtegular ridge and apical part of area metapleuralis, and third pleural area of propodeum; tegulae and base of wings whitish. Legs reddish brown; hind coxae black, apex reddish brown; femora and tibiae sometimes more or less dark brown dorsally or on the complete distal part. Pterostigma brown or black.

Gaster reddish brown or dark brown; apex of postpetiolus base of tergite 2(3) and apical edges of tergites light red, sometimes yellowish; gastral tergites 2-3 centrally dark brown.

Head rounded, sublineally narrowed in frontal view (Fig. 1a); frons weakly swollen; lateral ocellus-eye distance 5,3-6,3 times (5,8 in holotype) shorter than eye length; temples roundly narrowed in lateral view (Fig. 1b); temples and genae punctulate (Fig. 1b); facies 1,5 times as wide as long and clypeus weakly convex, the base scarcely impressed, strongly polished and more or less punctulate, with a small central tooth hardly separated from distal edge; malar space microstructured, 1,15-1,3 times (1,25 in holotype) shorter than base of mandibulae; genal carina meeting oral carina at base of mandibulae; mandibulae 1,9-2,1 times (2 in holotype) as long as base width, with unequal teeth. Flagella with 25-28 segments (27 in holotype); first flagellar segment 1,6-2,0 times (2,0 in holotype) longer than wide.

Thorax polished, punctate on mesoscutum, scutellum, upper part of pronotum; notauli clearly defined; sternauli deep covering almost half of mesopleura length; scutellum weakly convex; prescutellar carinae cover scutellum base; mesopleura strongly strigose and sparsely punctate; propodeum long, rugose with distinct carinae, lateral and pleural areas strongly rugose, metapleura partially strigose with a polished front part; area superomedia subpentagonal (Fig. 2), 1,3-1,7 times (1,3 in holotype) longer than wide, rugose and curved before the costulae. Coxae punctulate; hind femora 3,0-3,4 times (3,0 in holotype) longer than wide.

Gaster polished and narrowed from base of tergite 3 to apex; postpetiolus punctate less striate (Fig. 4); gastral tergite 2 trapezoidal, 1,3-1,9 times (1,6 in holotype) longer than wide, its base strigose (Fig. 6); thyridia separated from tergite base, to a distance as long as its width; interthyridial space rugose-punctate, 1,1-1,5 times (1,5 in holotype) narrower than thyridium width, the remaining of gastral tergite 2 more or less punctate being more weakly on distal part; gastral tergite 3 less punctulate; remaining gaster without punctures; ovipositor short and upcurved, 3,0-3,3 times (3,3 in holotype) shorter than hind basitarsus length; hypopygium covering the ovipositor base.

Body length: 4-7 mm (6 mm in holotype). Forewing length: 3-5 mm (4 mm in holotype).

♂ black: Mandibular teeth yellow, red or dark brown and sometimes the facial orbitae white spotted; flagella ventrally dark brown, scapi sometimes brightly brown.

White spots on central part of collare, more or less on subtegular ridge and tegulae, base of wings; colouring of the legs like female but sometimes white in ventral part of front and middle coxae, trochanter and trochantelli ventrally sometimes yellowish and most of the hind coxae black. Pterostigma dark brown.

Gaster black to blackish brown; thyridia, and distal corner of tergites yellowish red.

Lateral ocellus-eye distance 4,2-5,85 times shorter than eye length; facies 1,2-1,4 times as wide as long; malar space 1,2-1,5 times shorter than base of mandibulae; mandibulae 1,65-2,15 times as long as base width. Flagella with 24-29 segments,

tylloidae on segments (7)8-14(15); first flagellar segment 2,0-2,85 times longer than wide, 1,05-1,4 times longer than flagellar segment 2.

Notauli clearly defined; area superomedia 1,1-2 times longer than wide (Fig. 8). Hind femora 3,3-4,2 times longer than wide.

Gastral tergite second 1,4-2,1 times longer than wide; postpetiolus (Fig. 10) and base of gastral tergite 2 (Fig. 12) strigose; interthyridial space weakly sunken (Fig. 12), strigose, 1,0-2,0 times narrower than thyridium width; the basal half of gastral tergite 3 distinctly punctate, the remaining tergite polished and punctulate. Remaining structures like female.

Body length: 4-7 mm. Forewing length: 3-5 mm.

Material examined:

H o l o t y p e : ♀, Spain, València, Porta-coeli, 10-25/VIII/1992, Malaise trap, Luna leg., (In coll. Zoologische Staatssammlung München)

P a r a t y p e s : 1 ♀, Spain, Alacant, Alcoi, Font Roja, 17-VI/1-VII/1992, Malaise trap, Luna leg., (In coll. València); 1 ♂, Spain, Alacant, Dénia, Montgó, 7-15/V/1992, Malaise trap, Luna leg., (In coll. ZSM München); 2 ♂♂, 1 ♀, Spain, Alacant, Dénia, Montgó, 22-V/5-VI/1992, Malaise trap, Luna leg., (1 ♀ in coll. ZSM München, 2 ♂♂ in coll. València.); 8 ♂♂, Spain, Alacant, Dénia, Montgó, 5-11/VI/1992, Malaise trap, Luna leg., (2 ♂♂ in coll. ZSM München, 6 ♂♂ in coll. València.); Spain, Alacant, Moraira, garrigue, 90 m, 1 ♂, 6-14/IV/1989, 2 ♂♂, 14-22/V/1989, 18 ♂♂, 29-V/3-VI/1989, 24 ♂♂, 1 ♀, 3-11/VI/1989, 1 ♂, 12-18/II/1990, R. Wahis leg., Malaise trap, (In coll. Horstmann); 1 ♂, Spain, Castelló de la Plana, Benafigos, 9-18/IV/1992, Malaise trap, Luna leg., (In coll. València); 3 ♂♂, Castelló de la Plana, Benafigos, 18-30/IV/1992, Malaise trap, Luna leg., (1 ♂ in coll. ZSM München, 2 ♂♂ in coll. València); 1 ♂, 1 ♀, Castelló de la Plana, Benafigos, 30-IV/13-V/1992, Malaise trap, Luna leg., (In coll. València); 1 ♂, Castelló de la Plana, Benafigos, 13-20/V/1992, Malaise trap, Luna leg., (In coll. València); 1 ♂, Castelló de la Plana, Benafigos, 27-V/10-VI/1992, Malaise trap, Luna leg., (In coll. València); 4 ♂♂, Spain, València, Porta-coeli, 16-30/VI/1992, Malaise trap, Luna leg., (In coll. València).

This species is closely related to *Misetus oculatus* WESMAEL [1845] (Figs. 3,5,7,9,11,13). The two species can be distinguished by the following characters:

M. hispanator ♀

Facies black, sometimes with reddish brown parts.

Mesopleurum black.

Scutellum black.

Hind coxae extensively black.

Hind femora with black.

Gaster extensively black.

Head weakly narrowed in frontal view.

Facies extensively punctulate.

Flagellar segment 1 at most 2 times longer than wide.

Postpetiolus punctate and less striate.

Base of tergite 2 strigose.

M. oculatus ♀

Facies and clypeus with yellow colour.

Mesopleurum with red.

Scutellum with yellow.

Hind coxae extensively red.

Hind femora totally red.

Gaster extensively red.

Head strongly narrowed in frontal view.

Facies shining, weak and indistinctly punctulate.

Flagellar segment 1 more of 2 times longer than wide.

Postpetiolus with punctures and rugae apically.

Tergit 2 distinctly coriaceous.

***Misetus hispanator* ♂**

Scapi black or brightly brown.
 Facial orbitae with small white spots.
 Scutellum and postscutellum black.
 Hind coxae black.
 Gastral tergites 2-3 extensively black.
 Area superomedia irregular.
 Postpetiolus strigose or punctate.

***Misetus oculus* ♂**

Scapi with yellow.
 Facial orbitae completely white.
 Scutellum and postscutellum extensively white.
 Hind coxae extensively white.
 Gastral tergites 2-3 extensively red.
 Area superomedia regular.
 Postpetiolus weakly rugulose

***Misetus nordicator* SELFA 1995 spec. nov. (Figs. 14,15,16)**

♀: Head black; dark brown on supraclypeal area and clypeus; labrum and mandibulae dark reddish brown. Palpi reddish brown. Flagella dorsally dark brown and ventrally reddish brown; dorsal white ring on flagellar segments 5-9.

Thorax black; dark brown on scutellum, tegulae and hind corner of pronotum and subtegular ridge. Legs yellowish brown; coxae, trochanter, trochantelli and femora dark brown except a small yellowish brown apical part; fore and middle femora ventrally light brown; hind tibiae bright brown on distal part. Pterostigma dark brown.

Gaster dark brownish black on petiolus and tergite 4; yellowish brown on thyridia, distal edge of gastral tergites 2-3, gastral tergites 6-7 except the dark brown lateral part; gastral tergite 5 centrally more dark reddish brown.

Head shining, rounded; roundly narrowed on frontal view (Fig. 1a); occiput punctulate; lateral ocellus-eye distance 4,75 times shorter than eye length; temples sublineally narrowed in lateral view (Fig. 1b); temples and genae punctulate (Fig. 1b); facies 2 times wider than long, supraclypeal area punctulate, facial orbitae coriaceous with punctures; clypeus convex, polished, scarcely punctate at the base with a distinct notch, its distal edge rounded with a very weak central tooth; malar space microstructured, as long as base of mandibulae; mandibulae 1,7 times as long as base width, with unequal teeth; genal carina meeting oral carina far from base of mandibulae. Flagella long with 27 segments; first flagellar segment 2,5 times longer than wide.

Thorax shining punctate; distinctly strigose on pronotum, propleura, mesopleura, and metapleura; notauli deep; sternauli weakly covering half mesopleura length; scutellum weakly convex, scarcely punctate; prescutellar carinae cover scutellum base; propodeum rugose and weakly punctate with distinct carinae; area superomedia subhexagonal (Fig. 15), 1,4 times longer than wide, curved before the costulae and rugose. Front and middle coxae coriaceous; hind coxae rugulose and punctulate; hind femora 3,6 times longer than wide.

Gaster narrowed starting from segment 5; dorsolateral carinae of postpetiolus weakly marked; middle field of postpetiolus strigose (Fig. 16); second gastral tergite 1,25

times longer than wide; gastral tergites 2-3 with abundant, dull leather-like structures; gastrocoeli weakly deep, with evident keels; thyridia large, separated from base to a distance as long as width; interthyridial space as wide as thyridium width; base of gastral tergite 2 rugose; distal part of gastral tergite 3 and remaining tergites polished and weakly punctulate; gastral tergites 5(apically)-6-7 concave; hypopygium short; ovipositor 3,5 times shorter than hind basitarsus length, weakly upcurved.

Body length: 6 mm. Fore wing length: 4 mm.

Material examined:

Holotype: ♀, Sweden, Gällivare, 16/VII/1963, (In coll. Zoologische Staatssammlung München).

Misetus nordicator spec. nov. is closely related to *Misetus borealis* KUSIGEMATI 1974. The next characters are useful to distinguish them:

***Misetus nordicator* ♀**

Hind tibiae mostly red.
Genal carina meeting oral carina far from base of mandibulae.
Flagella with 27 segments.
Area basalis delimited.
Gaster concave on tergites 5-7.
Postpetiolus strigose.

***Misetus borealis* ♀**

Hind tibiae completely blackish brown.
Genal carina meeting oral carina near to base of mandibulae.
Flagella with 31-33 segments.
Area basalis not delimited.
Gaster concave on tergites 3-7.
Postpetiolus punctate.

Key to the Palearctic species of *Misetus* WESMAEL (1845)

♀ ♀

- 1(4) Gaster with tergites strongly concave.
- 2(3) Gaster with tergites 3-7 concave apically. Genal carina meeting oral carina near base of mandibulae. Area basalis not delimited. Middle field of postpetiolus punctate. Flagella with 31-33 segments. Hind tibiae completely blackish brown. Male unknown. *M. borealis* KUSIGEMATI 1974
- 3(2) Gaster with tergites 5(apically)-6-7 concave. Genal carina meeting oral carina far from base of mandibulae. Area basalis delimited. Middle field of postpetiolus strigose. Flagella with 27 segments. Hind tibiae mostly red. Male unknown.
..... *M. nordicator* SELFA 1995
- 4(1) Gaster with tergites weakly concave. 5
- 5(6) Head strongly narrowed in frontal view. Postpetiolus with punctures and rugae apically. Base of gastral tergite 2 rugose. Scutellum with yellow. Hind femora totally red. Gaster extensively red. *M. oculatus* WESMAEL (1845)

- 6(5) Head weakly narrowed in frontal view. Postpetiolus punctate and less striate. Base of gastral tergite 2 strigose. Scutellum black. Hind femora with black. Gaster extensively black. *M. hispanator* SELFA 1995

♂♂

- 1(2) Tyloidae absent. Thyridia separated from tergite base to a distance shorter than its width. Costulae strong. Area superomedia as long as wide. Dorsolateral carinae of postpetiolus very distinct. Gastral tergite 2 quadrangular and dull, its base rugose. Tegulae black. Female unknown. *M. nigrutilus* KOLAROV 1985
- 2(1) Tyloidae present. Thyridia separated from tergite base to a distance longer than its width. Costulae weak. Area superomedia longer than wide. Dorsolateral carinae of postpetiolus weakly distinct. Gastral tergite 2 long, with another look. Tegulae red or yellow. 3
- 3(4) Area superomedia not well defined. Tyloidae on flagellar segments 4-18. Temple as long as eye width. Hind femora mostly blackish brown. Female unknown. *M. tyloidalis* KOLAROV 1985
- 4(3) Area superomedia well defined. Tyloidae on flagellar segments 7(8)-14(15). Temple shorter than eye width. Hind femora for the greatest part red. 5
- 5(6) Gaster narrowed starting from tergite 3. Area superomedia irregular. Middle field of postpetiolus strigose or punctate. Scutellum black. Hind coxae black. Gastral tergites 2-3 mostly black. *M. hispanator* SELFA 1995
- 6(5) Gaster not narrowed. Area superomedia regular. Middle field of postpetiolus weakly rugulose. Scutellum with white. Hind coxae with white. Gastral tergites 2-3 mostly red. *M. oculatus* WESMAEL (1845)

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Zusammenfassung

Es werden zwei neue Arten der Gattung *Misetus* WESMAEL [1845], beschrieben: *Misetus hispanator* SELFA 1995, aus Spanien und *Misetus nordicator* SELFA 1995, eine in Schweden beheimatete Art. Neben Differentialdiagnosen zu den Neubeschreibungen wird ein Bestimmungsschlüssel für die paläarktischen Arten veröffentlicht.

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Adresses of authors:

Jesús SELFA,
Laboratori d'Entomologia i Control de Plagues,
Departament de Biologia Animal, Universitat de València,
Dr. Moliner 50, E-46100 Burjassot, València, Spain.

Erich DILLER,
Zoologische Staatssammlung,
Münchhausenstraße 21, D-81247 München, Germany.

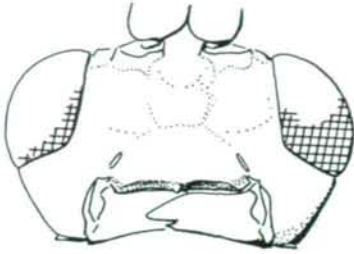


Fig. 1a. *Misetus hispanator* spec. nov. ♀. Holotype. Head in frontal view.

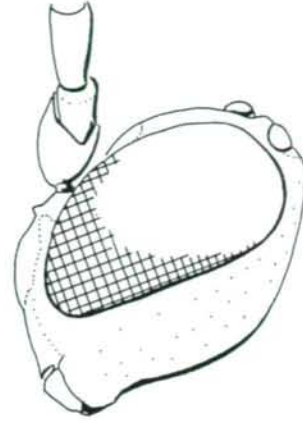


Fig. 1b. *Misetus hispanator* spec. nov. ♀. Holotype. Head in lateral view.

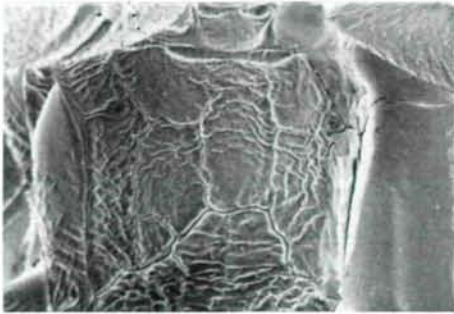


Fig. 2. *Misetus hispanator* spec. nov. ♀. Paratype. Propodeum.

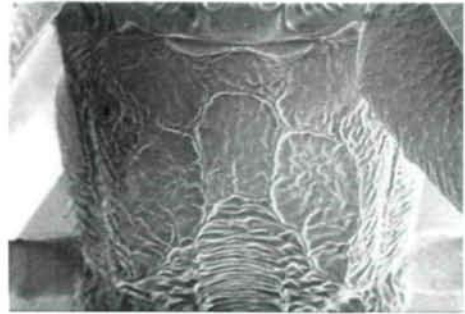


Fig. 3. *Misetus oculatus* WESMAEL. ♀. Propodeum.

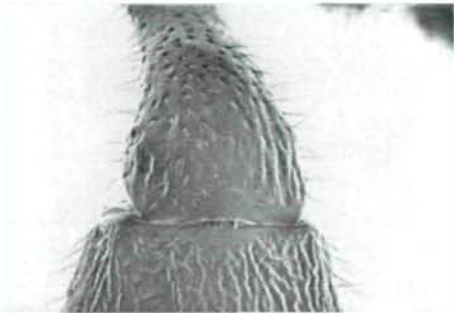


Fig. 4. *Misetus hispanator* spec. nov. ♀. Paratype. Postpetiolus.

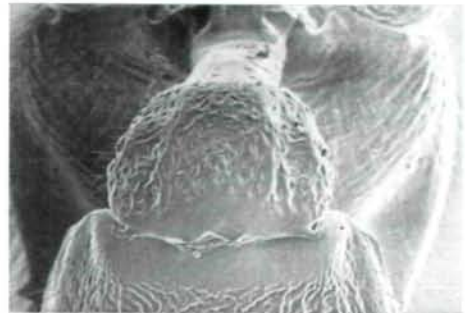


Fig. 5. *Misetus oculatus* WESMAEL. ♀. Postpetiolus.



Fig. 6. *Misetus hispanator* spec. nov. ♀. Paratype. Base of gastral tergite 2.

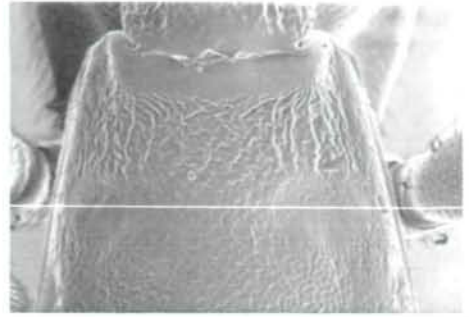


Fig. 7. *Misetus oculatus* WESMAEL. ♀. Base of gastral tergite 2.

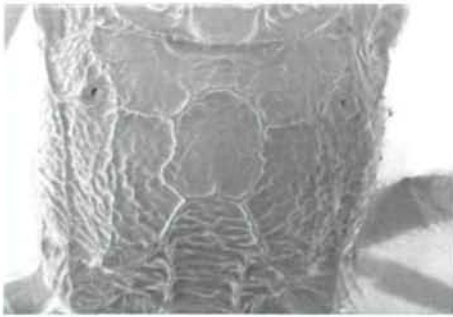


Fig. 8. *Misetus hispanator* spec. nov. ♂. Paratype. Propodeum.

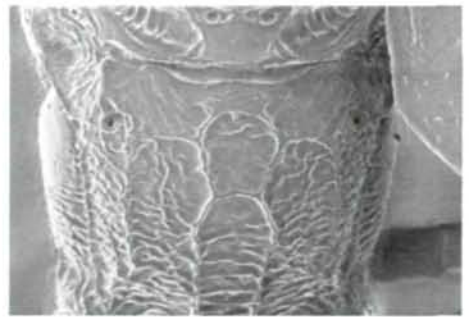


Fig. 9. *Misetus oculatus* WESMAEL. ♂. Propodeum.

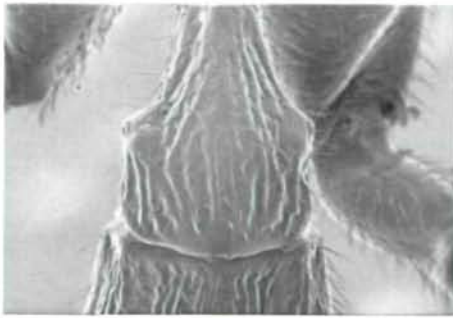


Fig. 10. *Misetus hispanator* spec. nov. ♂. Paratype. Postpetiolus.

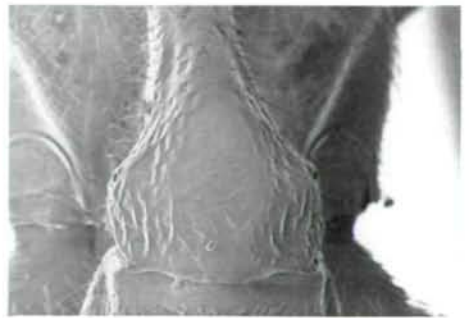


Fig. 11. *Misetus oculatus* WESMAEL. ♂. Postpetiolus.

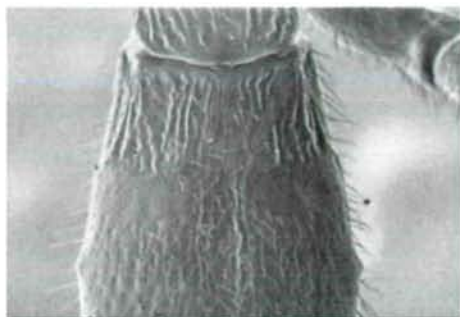


Fig. 12. *Misetus hispanator* spec. nov. ♂. Paratype. Base of gastral tergite 2.

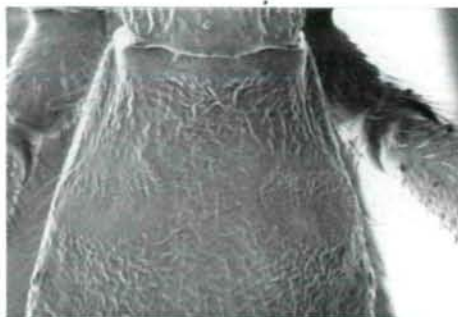


Fig. 13. *Misetus oculatus* Wesmael. ♂. Base of gastral tergite 2.

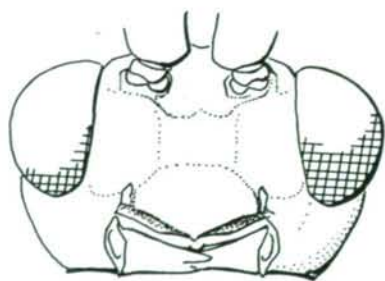


Fig. 14a. *Misetus nordicator* spec. nov. ♀. Holotype. Head in frontal view.

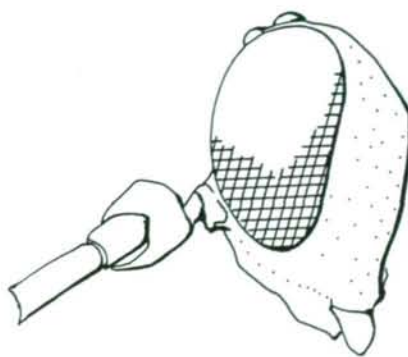


Fig. 14b. *Misetus nordicator* spec. nov. ♀. Holotype. Head in lateral view.



Fig. 15. *Misetus nordicator* spec. nov. ♀.
Holotype. Propodeum.

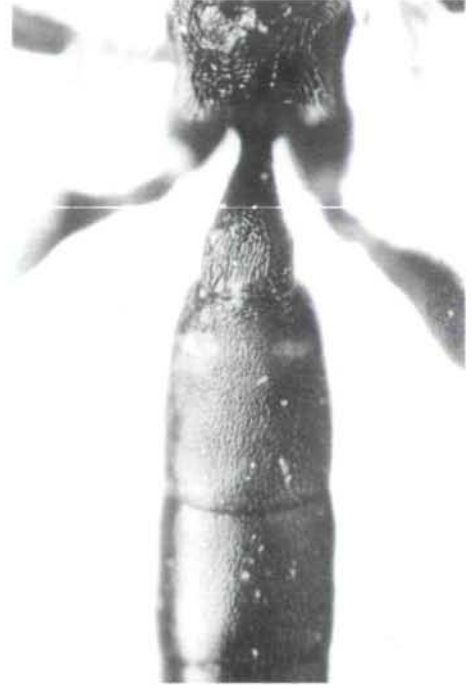


Fig. 16. *Misetus nordicator* spec. nov. ♀.
Holotype. Postpetiolus.

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Autor(en)/Author(s): Selfa Jesus, Diller Erich H.

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