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Description of two new *Systropha* ILLIGER 1806 (Hymenoptera, Halictidae, Rophitinae)

S. PATINY

A b s t r a c t : Reviewing the *Systropha* ILLIGER 1806, one found 2 new species which are described here: *Systropha norae* sp.nov., from the Nigeria, and *Systropha kazakhstaniensis* sp.nov., from Kazakhstan.

Key words: Rophitinae, *Systropha*, West-Africa, East-Africa, Kazakhstan.

Introduction

Among the Rophitinae (Hymenoptera, Halictidae), *Systropha* ILLIGER 1806 are very typical, well characterized by both, the males' characteristic morphology and the narrow floral choices of most species, strongly directed toward *Convolvulus* L. Currently, the genus includes 24 species distributed in Africa and in a large Southern Part of the Palaearctic, but lacking in Australia. The taxa were partly reviewed in some former synthetic papers. On one hand, EBMER (1994) proposed an annotated checklist of the African species. On the other hand, BAKER (1996) published also such a checklist for the Palaearctic species and proposed a key for the determination of the males.

Studying the genus in the frame of the preparation of an extensive revision, one discovered two not described taxa: *Systropha norae* sp.nov. from Nigeria and *Systropha kazakhstaniensis* sp.nov. from Kazakhstan. These latter species are particularly interesting, on first hand from the systematic point of view, due to their novelty, on second hand, in case of *S. norae*, because only one other species was described from West-Africa. The present paper consists in the descriptions of these two taxa and in a brief discussion of the characteristics of their geographical distributions.

Descriptions of the species

Systropha norae sp.nov.

T y p e m a t e r i a l : Locus typicus and original labelling. H o l o t y p e : 1♂. Nigeria: Ile-Ife W State Oct.1973 J. T. Medler Coll. "Dam site" handwritten mention under locality label; P a r a t y p e s : 1♀. Nigeria: Ile-Ife W State Oct.1973 J.T. Medler Coll. Systropha det RW Brooks. Both specimens are conserved in SEMK (Snow Entomological Museum, Lawrence, Kansas).

E t y m o l o g y : The species is named in honour of my daughter, Nora PATINY.

D i a g n o s i s : Medium sized species (females ca. 9 mm; males ca. 10,5 mm). Females: Cuticle dark, also on antennae flagellum. Head and mesosoma densely covered with pale, short grey-blond hairs. Legs with blackish brown hairs. Metasoma with long strong and dark hairs, notably abundant since T3 (third tergum). Anal fringe and metasoma ventral face densely hairy. Males. Pilosity colouration like in females. Face with typical crests of hairs, beyond the antennal sockets. Flagellum 13-segmented; segments since A9 (ninth antennal segment) orangish, flattened and spiralled. F1 (first femora) and Tb2 (second tibia) enlarged, like in *S. bispinosa*. Mesopleurae with large well-differentiated tubercles, close one of each other (Figure, 2).

F e m a l e s : Head. Clypeus with some large and superficial punctures on the lateral parts; cuticle between punctures, on median line and distal edge, finely sculptured, mat. Labrum without differentiated structure. Mandibles finely punctured; ventrally irregularly fringed with hairs. Glossa quite longer than face; a bit shorter than half of the body length. 3 first segments of the labial palpi large and foliated, the fourth minute. Genae smooth, lesser sculptured, shiny, with much hairs (short) along the eyes outer margin and on the ventral part (longer). Frons and vertex rather regularly punctured; cuticle between punctures finely sculptured, mat. Antennae dark. Face pilosity short and very sparse, greyish blond. Mesosoma. Pronotum smooth and shiny dorsally; the lateral parts with numerous very fine punctures, shiny. Mesonotum and scutellum densely and regularly punctured; distance between punctures at least equal to one diameter. Mesopleurae very fine and sparsely punctured. Cuticle between punctures smooth and strongly shiny. Propodeum sides reticulated, lesser shiny. Propodeal area densely sculptured, rugose, mat. Mesosoma pilosity greyish-blond, short, notably dense and regular on dorsal side. Legs with brownish-black pilosity. Tb2 spur large, strong and angulous with 2 ventral teeth ranks (Figure 1). Wings lightly brownish; veins dark. Metasoma. T1-2 with dark downy pilosity, mainly developed laterally. T3 and following with dark pilosity; the hairs downy on lateral parts, shorter and simpler medially. Anal fringe dark (blackish), well developed. Sterna with notably abundant dark downy pilosity.

M a l e s : Head. Clypeus proximal part regularly marked with large punctures; distal edge unpunctured, finely sculptured, mat. Labrum smooth, slightly shiny. Mandibles like in females, rougher sculptured. Genae smooth, shiny, irregularly punctured; the ventral part with typical, dense, beard-like pilosity. Frons and vertex abundantly finely punctured; cuticle between punctures mat. Scapes densely fine punctured. A3 as long as scape. A9-13 shorter, spiralled, flattened and curved; cuticle orangish. Head pilosity light blond; forming typical crests beyond scapes. Mesosoma. Pronotum like in females with a smooth dorsal part; distal margin with a regular hairs fringe. Mesonotum and scutellum densely and regularly punctured. Propodeal area well developed, densely sculptured, mat. Pleurae and propodeum lateral sides smooth, shiny, very finely and sparse punctured. Mesopleurae with large and well-differentiated ventral tubercles (Figure 2). F1 distinctly inflated. Tb2 enlarged proximally; the intern face concave. Legs pilosity brownish-black. Wings lightly brownish; veins dark. Metasoma. Terga densely sculptured, few shiny. Terga anterior part regularly, fine and sparsely punctured; the margins proximal part likely sculptured. Terga untoothed, nearly entirely glabrous; premarginal lines undifferentiated. T7 laterally toothed, with some long dark hairs. S2&4 (second and fourth sternum) with rounded lateral carinas. S3 with angulous, blade like lateral carinas.

S8 apex a little enlarged. Genital structures. Not observable by the type specimen.

D i s c u s s i o n : *S. norae* is particularly interesting due to several of its characteristics. It is the first species described from Nigeria and also the most Western distributed species in Africa. Only two *Systropha* are known in a geographical frame extending Southern Hoggar and between Chad Lake and Atlantic coast: *S. bispinosa* FRIESE 1914, in Cameroon, and *S. norae*, in Nigeria. If one considers the distribution of the genus in Africa [on the basis of the data reported in former works (BAKER 1996; EBMER 1994; WARNCKE 1976, 1980, 1992)], several groups can be identified: the North Saharian, the West African, the East African and the South African species. Now, from a morphological point of view, *S. norae* displays strong affinities with *S. bispinosa* and some East African species: *S. macronasuta* STRAND 1911, *S. krigei* BRAUNS 1926 and *S. rhodesiensis* FRIESE 1922. The females of *S. norae, S. macronasuta* STRAND 1911, *S. krigei* BRAUNS 1926 and *S. rhodesiensis* share, for instance, an analogous development of teeth ranks along the Tb3 spur ventral edge (Figure 1). On the other hand, the males of *S. bispinosa* and *S. norae* are interestingly characterized by the ventral differentiation of spiny tubercles on the Mesopleurae (Figure 2). On the basis of this character and of the S8 apical development, the latter species can be interestingly compared with *S. ugandensis* COCKERELL 1931.

These observations constitute new elements supporting the hypothesis, previously developed in former papers, of the existence of ancient fauna exchanges between Eastern and Western Africa (PATINY in preparation; PATINY & GASPAR 2000).

Moreover, from the systematic point of view, the morphological affinities described between varied species among the genus, get into the sense of a species groups, and probably subgenera, description as introduced by several previous authors (BATRA & MICHENER 1966; COCKERELL 1936).

***Systropha kazakhstaniensis* sp.nov.**

T y p e m a t e r i a l : Locus typicus and original labelling. H o l o t y p e : 1♂ (with dissected genitalia). Kazakhstan W Mangistau Mts Tusnchibet V. 200 leg. J. Miatleuski. The specimen is conserved in OÖL (Oberösterreichisches Landesmuseum, Linz [Biologiezentrum], Austria).

E t y m o l o g y : The species is named in regard of its geographical origin.

D i a g n o s i s : Medium sized species (ca. 10,5 mm). Males. Looking globally like *S. planidens* GIRAUD 1861 but smaller. Well developed whitish pilosity covering mesosoma and forming bands on terga. S2-3 tubercles developed like in *S. planidens* males. S7 ended in slender curved expansions. S8 with a quadrangular apical enlargement notched medially.

F e m a l e s : Unknown

M a l e s : Head. Clypeus densely punctured on its entire surface. Labrum long (nearly as long as the clypeus). Mandibles short. Glossa nearly as long as the mesosoma. Galeae as long as the maxillary palpus (PMx) 2 first segments. Labial palpus (PL) elongated, not enlarged, nearly as long as the PMx. Genae smooth and shiny, sparsely punctured. Pilosity notably dense on the ventral part of the genae; short and applied along the eyes outer margin. Vertex likely sculptured with abundant erected pilosity. Frons finely and densely punctured, lesser shiny than the genae. Antennae black, ventrally reddish since A4. Flagellum spiralled since A9. Face with abundant whitish pilosity. Mesosoma. Pro-

notum dorsal side smooth, very shiny; lateral sides finely sculptured, mat. Mesonotum finely and densely punctured (space between punctures about equal to one point diameter); cuticle between punctures smooth and shiny. Scutellum sparser punctured. Mesopleurae densely punctured. Propodeal area with a large typical smooth border; the inner part roughly sculptured. Propodeum sides finely punctured. Thorax strongly pilose; pilosity long, erected, whitish. Legs covered of whitish pilosity. Wings clear; veins dark brownish. Metasoma. Terga proximal part smooth and shiny; punctuation regularly distributed, the punctures large and widely spaced. Terga margins unpunctured, very finely sculptured, nearly mat. Pilosity abundant on the terga proximal part. S2-3 with 2 distally flattened tubercles; these structures larger on S2, smaller on S3. Sterna cuticle smooth and strongly shiny. S6 with a median short and weak spine. S7 with narrow distal expansions, curved ventro-dorsally, converging at their apex (Figure 3). S8 apex quadrangular, wider than long, apico-medially notched on its ventral face (Figure 4). Genital structures. Gonobases apex nearly straight. Gonocoxites basis nearly as long as gonobases. Gonostyli wide and flat; the apex very a hairy.

Discussion: *S. kazakhstaniensis* is morphologically close to several other Palaearctic *Systropha*. The position and the development of the first sterna tubercles are very close to these characterizing *S. planidens* GIRAUD 1861. On the contrary, the S7 and S8 shapes are totally distinct and can be compared with these of *S. ruficornis* MORAWITZ 1880.

The discovery of this new species in Kazakhstan, confirm the high diversity of the genus in this area. In Palaearctic, 11 species (among the 24 worldwide known) are distributed in Central Asia. *S. kazakhstaniensis* is consequently the 12th taxa reported from Central Asia.

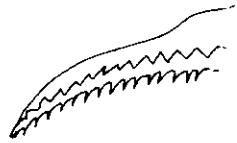

Fig. 1: Development of the Tb2 spur by *S. norae* sp.nov. Right hind tibia spur by the female paratype (SEMK). Scale = 0,33 mm.

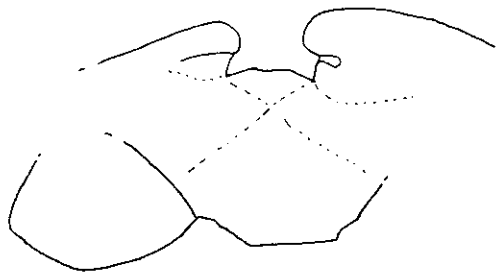

Fig. 2: Mesopleurae tubercles by the male of *S. norae* (mesosoma ventral face). Tubercles drawed in ventral view by the male holotype (SEMK). Scale = 0,17 mm.

Fig. 3: S7 development by *S. kazakhstaniensis*. Ventral (semi profile) view of the sternum by the male holotype (OÖL.), the pilosity was omitted. Scale = 0,17 mm.

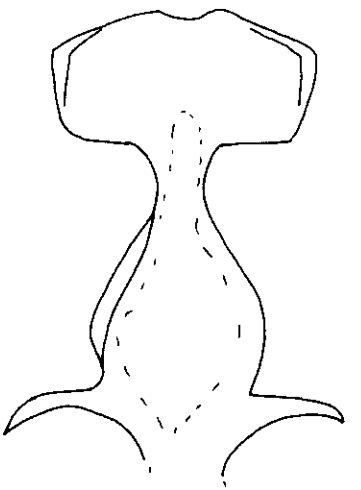

Fig. 4: S8 development by *S. kazakhstaniensis*. Ventral view of the sternum by the male holotype (OÖL.). Scale = 0,33 mm.

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References

BAKER D.B. (1996): Notes on some palaearctic and oriental *Systropha*, with descriptions of new species and a key to the species (Hymenoptera: Apoidea: Halictidae). — Journal of Natural History **30**: 1527-1547.

EBMER A.W. (1994): *Systropha difformis* SMITH, 1879 und *Systropha inexpectata* n.sp., die beiden östlichen Vertreter der altweltlichen Gattung *Systropha* ILLIGER 1806 (Insecta: Hymenoptera: Apoidea: Halictidae: Rophitinae). — Linzer biologische Beiträge **26** (2): 807-821.

PATINY S. & C. GASPAR (2000): Biogéographie des *Melitturga* LATREILLE, 1809, *Melitturgula* FRIESE, 1903 et des genres proches (Hymenoptera: Andrenidae, Panurginae). — Notes fauniques de Gembloux **39**: 3-44.

WARNCKE K. (1976): Beitrag zur Bienenfauna des Iran. 2. Die Gattung *Systropha* ILL. — Bollettino del Museo Civico di Storia Naturale di Venezia **XXVIII**: 93-97.

WARNCKE K. (1980): Die Bienengattungen *Nomia* und *Systropha* im Iran mit Ergänzungen zu den *Nomia*-Arten der Westpaläarktis. — Linzer biologische Beiträge **12** (2): 363-384.

WARNCKE K. (1992): Die Bienengattungen *Systropha* ILL. neu für Israel und Zentralasien. - - Linzer biologische Beiträge **24** (2): 741-746.

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