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Description of the Male of *Ophion internigrans* Kokujev, 1906 (Hymenoptera: Ichneumonidae: Ophioninae) with a Key to the Turkish *Ophion* Fabricius, 1798 Species

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ABSTRACT

The male of *Ophion internigrans* Kokujev, 1906 (Hymenoptera: Ichneumonidae: Ophioninae) is described and figured for the first time. The description of the female is added. Also, a key to the Turkish *Ophion* species is proposed.

Keywords: Ophion internigrans Kokujev, 1906, male, description, key, Turkey, *Ophion*.

INTRODUCTION

The biggest hymenopteran family is the Ichneumonidae with some 40 generally recognized subfamilies and more than 23331 described species (Yu *et al*., 2005). However, it should be emphasized that every year many new species are added to this number. The real number of species was estimated by Townes (1969) to be far higher, with probably up to 60 000 species (Gauld, 1991). Many species are important as biological control agents, parasitizing larvae and pupae of various groups of insects. The most usual insect groups of hosts are Lepidoptera, Coleoptera and Diptera to a less extend spiders and the egg sacs of spiders and pseudoscorpions (Laurenne, 2008). There are also many species of Ichneumonidae attacking Hymenoptera (Shaw and Askew, 1979). The biology of ichneumonids is very variable in general, and all forms of parasitism are represented, but common to all ichneumonids is that they kill their host (Laurenne, 2008).

Ophion Fabricius, 1798 is a very large genus of worldwide distribution except for the Afrotropical region. The most species are in the Holarctic region. The Palaearctic fauna comprises about 80 species (Yu and Horstmann, 1997). They are koinobiont endoparasitoids mostly of Noctuidae, but some other Lepidoptera are attacked too (Gauld, 1988). One species parasitizes Scarabaeidae (Coleoptera) (Townes, 1971).

The Turkish *Ophion* fauna is weakly known. Until now there are known only 13 species (Kolarov, 1995; Kolarov *et al*., 2000). *Ophion internigrans* Kokujev, a new

record for Turkey, is reported here. The newly discovered male of this species is described and figured and a key to the Turkish *Ophion* species is presented. With this study the number of Turkish *Ophion* species increases to 14.

MATERIAL AND METHODS

Study site

This study area includes two collecting sites: Erzurum and Kars.

Samples were collected along with Aras valley (Kars-Erzurum province). One sample was collected from west part of the valley (Erzurum-Horasan: 40º 15' 01.4" N, 42º 16´ 52.5" E, at an altitude of 1618 m), the other samples were collected opposite side of this direction (Kars-Sarıkamış-Karakurt-TCK Fountain: 40° 07' 543" N, 42° 20' 941" E, at an altitude of 1500 m).

The places are boundary line between steppe belt (with characteristic plants *Astragalus* sp., *Acantholimon* sp., *Thymus* sp., *Artemisia* sp., *Stipa lagascae* R., *Senecio vernalis* Waldst. et Kit) and mountains steppe belt (represented by *Aster alpinus* L., *Thymus fallax* F., *Hieracium spurium* L., *Falcaria vulgaris* F., *Poa longifolia* Trin., *Cirsium arvense* (L.), *Eryngium campestre* L., *Mentha longifolia* L.). Dominate plants of the localities are *Prunus mahaleb* L., *Populus nigra* L., *P. tremula* L. and different herbaceous species: *Eryngium* sp., *Verbascum* sp., *Anchusa leptophylla* Roem. and Schult.

Sampling method

The *Ophion* specimens are obtained from Malaise trap and sweep net in Aras valley (Erzurum-Kars provinces) during 2000-2005. Samples were collected from June to July. All materials are preserved in the collection of the University of Plovdiv.

RESULTS

***Ophion internigrans* Kokujev, 1906** (Figs. 1-6)

Ophion internigrans Kokujev, 1906. Revue Russe d'Entom. № 3-4, p. 168.

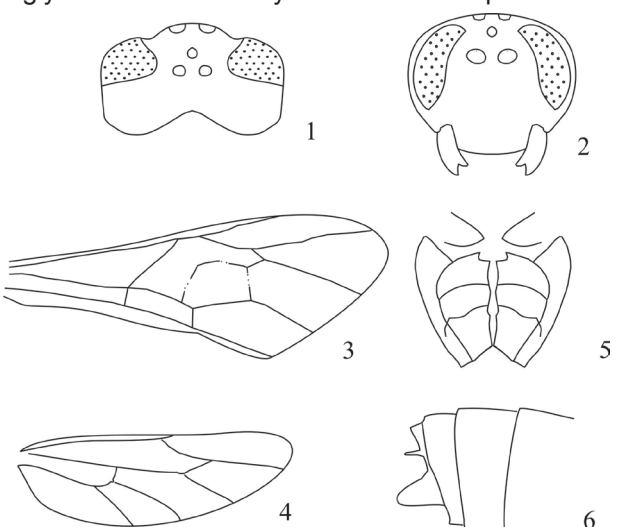
Description

Until now the species was only known by a single female specimen from Georgia (Kokujev, 1906; Schmiedeknecht, 1908; Meyer, 1935, 1937).

Diagnosis: Head weakly widened behind eyes, temple swollen. Frons concave and very short. Flagellum with 51 segments. Face divergent downwards. Base of radial cell of hind wing hairless. Propodeum with developed basal and apical transverse carinae. Wings strongly darkened and hairy. Metasomal segments V-VII black.

Male: Front wing 14.0 mm long. Head widened behind eyes, temple swollen (Fig. 1). Distance between lateral ocellus and eye as long as ocellus diameter. Frons

concave in the middle and very short. Flagellum with 51 segments, postannellus 3.6 times as long as its depth, all segments of flagellum elongated. Occipital carina well developed, connecting hypostomal carina behind base of mandible at the distance of the maximal depth of postannellus. Inner eye orbitae divergent downwards (Fig. 2). Eye not enlarged. Face at the middle 2.3 times as wide as high. Malar space 0.7 times as long as basal width of mandible. Clypeus convex in the middle, lower margin sharp and regularly curved. Face with dense and fine punctures. Notaulus moderately deep, reaching to the middle of mesoscutum. Scutellum carinated laterally at the basal 0.3. Prepectal carina ending near lower third of pronotum. Postpectal carina lamelliform, developed only laterally. Front wing with vertical and interstitial nervulus. Discocubital vein without ramulus. Radius originating from basal half of pterostigma and undulating apically. Discoidal vein connecting postnervulus a little above its middle (Fig. 3). Nervellus in hind wing reclivous intercepted a little above its middle, radius basally strongly curved (Fig. 4). Hind wing with 9 hamuli. Mesopleurum shining, moderately dense and finely punctured. Legs slender, hind femur 5.6 times as long as its depth, hind tibia 8.5 times as long as its depth apically. Length ratio of hind tarsomeres are 49:22:17:11:14. Tarsal claws densely pectinate. Propodeum with conspicuous basal and apical transverse carinae. Median longitudinal carinae developed from basal transverse carina to apex of propodeum. Area superomedia and apical area well defined (Fig. 5). Submetapleural carina strong, lamelliform, prominent in front as a tooth. Propodeal spiracle large, elongate, more than 3.0 times as long as wide and prominent laterally. First metasomal segment 3.6-3.7 times as long as wide apically. First sternite ending at the level of spiracle. Paramere triangular in lateral view (Fig. 6). Body orange; apical 0.25 of flagellum, pterostigma and metasomal segments V-VII black; wings strongly darkened and hairy. The male corresponds well with the female.



Figs. 1-6. *Ophion internigrans* Kokujev. 1) Head from above; 2) Head in front; 3) Front wing; 4) Hind wing; 5) Propodeum; 6) Last metasomal segments laterally.

Female. Front wing 15.0-15.5 mm long. Flagellum with 52-56 segments. Scutellum carinate near to the middle. Nervulus antefurcal to interstitial. Propodeum areolate, but area superomedia not well defined. Hind tarsal claws with 17-18 teeth. Metasomal terga with exception of petiolus densely and finely punctured. Ovipositor sheath shorter than apical depth of metasoma. Ovipositor with a dorsal apical notch. In the rest as in male.

Material Examined: Erzurum-Horasan-Aras Valley, 1618 m, 40º 15' 01.4" N, 42º 16' 52.5" E, 1 ♂. Kars-Sarıkamış-Karakurt-TCK Fountain, 1500 m, 40° 07' 543" N, 42° 20' 941" E, 10-19.VI.2003, 1 ♀; the same place, 8-23.VI.2005, 3 ♀♀; the same place, 14.VI-1.VII.2004, 1 ♀.

The species is a new record for the Turkish fauna.

Key to the Turkish species of the genus *Ophion* Fabricius

1 Notaulus absent or weak, head reddish, frons, malar space and middle of face black, metasoma black, terga II-III red colored….....*Ophion similis* Szepligeti

- Notaulus distinct on at least 0.4 of mesonotum, coloration not as above..... 2

2 Body usually shorter than 11.0 mm, rarely up to 15.0 mm long, with abundant yellow marks, propodeum either without carinae or with only weak traces of lateral carinae, radius of front wing originating from pterostigma on 45º degree, flagellum with no more than 47 segments.. ……..*Ophion minutus* Kriechbaumer

- Body longer than 15.0 mm, either with or without yellow marks, propodeum either with carinae or with obvious traces of carinae, radius of front wing originating from pterostigma on 40º degree…….……..……...…….....3

3 Head weakly widened behind eyes and wings dark brown, eyes not enlarged, metasomal segments V-VII black …….....*Ophion internigrans* Kokujev

- Head narrowed behind eyes, or if widened, wings colorless or yellowish, eyes enlarged. metasomal segments V-VII usually reddish ……...……..4

4 Ocellar triangle and propodeum in front of apical transverse carina black, wings with intensive yellow tinge, body with abundant black marks, hind ocellus considerable separated from eye ……..*Ophion ventricosus* Gravenhorst

- Ocellar triangle and propodeum entirely yellow orange, wings either colorless or weakly yellowish ……..……...…….……5

5 Mesosoma with visible pale yellow spots at least on scutellum, usually with yellow longitudinal stripes on mesoscutum……...……...……..6

- Mesosoma without pale yellow spots, except sometimes on epimera..... 7

6 Front part of scutellum with 2 distinct yellow spots, lateral ocellus touching eye, antenna shorter than body, with 59-60 segments ……..……*Ophion bipictor* Aubert

- Scutellum without yellow spots, lateral ocellus separated from eye, antenna with 51-56 segments ……..……..…..*Ophion obscuratus* Fabricius

7 Lateral ocellus separated from eye by more than 0.8 of annellus length ……. 8

- Lateral ocellus almost touching eye, the distance between lateral ocelli not more than 0.7 annellus length ……..……..……10

8 Length of second trochanter of middle legs from above not more than 0.7 of its maximal width, brachial cell irregularly hairy, malar space shorter than 0.5 of basal width of mandible, inner spur of middle tibia shorter than 0.8 of 4th tarsal segment.....
.....*Ophion luteus* Linnaeus

- Length of second trochanter of middle legs no more than 0.6 of its maximal width, brachial cell uniformly hairy or malar space longer than 0.5 of maximal width of mandible.....9

9 Scutellum without lateral carinae except basally, fifth segment of first tarsus only 1.4 times or less longer than 4th segment, base of first radius of front wings weakly thickened, malar space at least 0.5 times as long as basal width of mandible, postannellus with only a few sensilae on apical 0.6 of its length.....
.....*Ophion brevicornis* Morley

- Scutellum with lateral carinae at least on basal 0.4, fifth segment of first tarsus at least 1.5 as long as fourth segment, base of first radius of front wing visible thickened, malar space of female 0.4-0.5 (of male 0.7-0.9) as long as basal width of mandible, postannellus almost without sensilae .....*Ophion longigena* Thomson

10 Tenth flagellar segment of female 1.8 times or less, of male 1.7 times or less as long as its depth. Sensilae of male postannellus occupied all its surface, those of female occupied only its apical half. Brachial cell uniformly hairy. Scutellum without lateral carinae, except on basal 0.1. 11

- Tenth flagellar segment of female at least 1.9 times, of male at least 1.8 times as long as its depth. Sensilae on male postannellus not reaching base, in female occupying only its apical half. Brachial cell in upper half usually with few hairs. Scutellum with or without lateral carinae 12

11 Nervellus intercepted distinctly above the middle, front wing at least 15 mm long, wings yellowish, ...*Ophion costatus* Ratzeburg

- Nervellus intercepted near or below the middle, front wing shorter than 15 mm, wings colorless .....*Ophion mocsaryi* Brauns

12 Radius of front wing uniformly curved or almost straight apically, scutellum carinated laterally only on basal 0.1, submetapleural carina narrow, not widened in front .....*Ophion parvulus* Kriechbamer

- Radius of front wing wavy apically, scutellum carinated at least on its basal 0.3, submetapleural carina widened in front.....*Ophion pteridis* Kriechbaumer

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