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Research Article

Thaumatorymus Ferrière and Novicky, 1954 (Hymenoptera: Torymidae), a rare and monotypic genus discovered in Iran

Hossein Lotfalizadeh[1*], Babak Gharali[2] and Jean-Yves Rasplus[3]

1. Plant Protection Research Department, East-Azarbaijan Agricultural and Natural Resources Research & Education Center, AREEO, Tabriz, Iran.
2. Department of Plant Protection, Qazvin Agricultural and Natural Resources Research and Education Center, AREEO, Qazvin, Iran.
3. CBGP, Univ. Montpellier, CIRAD, INRA, IRD, Montpellier SupAgro, Montpellier, France.

Abstract: The monotypic genus *Thaumatorymus* Ferrière and Novicky, 1954 (Hymenoptera: Torymidae) is endemic of the West Palaearctic subregion. *Thaumatorymus notanisoides*, a species rarely sampled, is recorded for the first time from Iran, expanding its known distribution range in the subregion. A brief diagnosis, illustrations and geographical distribution are provided.

Keywords: Hymenoptera, Chalcidoidea, new record, Chalcimerinae, Iran

Introduction

Ferrière and Novicky (1954) originally diagnosed the monotypic genus, *Thaumatorymus*, based on a few specimens sampled in Tunisia, named the new species *Thaumatorymus notanisoides* and placed it in the subfamily Monodontomerinae. Later Peck *et al.* (1964) defined the new subfamily Thaumatoryminae for the genus, Grissell (1995) treated it as an *incertae sedis* in his phylogenetic analysis and Jansta *et al.* (2018) assigned it to the subfamily Chalcimerinae based on molecular and morphological phylogenetic analyses.

The subfamily Chalcimerinae includes three genera: *Exopristoides*, *Thaumatorymus* and *Chalcimerus* (Jansta *et al*., 2018), all of them monotypic, of which *Exopristoides*, with the species *Exopristoides hypecoi* Zerova and Stojanova, 2004 is known from Iran (Zerova *et al*., 2008, Fallahzadeh *et al*., 2009).

Thaumatorymus can easily be distinguished from all other genera of Torymidae by a long petiole; horizontal propodeum; maculated wing; rather short marginal vein; convex head, with distinct occipital carina; whorled long hairs of the male antenna (Grissell, 1995; Jansta *et al*., 2018).

Here, we record the genus *Thaumatorymus* based on two specimens collected in northern Iran. Photographs of diagnostic morphological characters, and a key to the species of subfamily Chalcimerinae occurring in Iran are provided.

Materials and Methods

Specimens were collected using pan traps in a mountainous area of the Qazvin province. Specimens were dried using HMDS (Heraty and Hawks, 1998) and glued on grey cards to be photographed. Images were acquired using a Keyence digital microscope (VHX-5000 Camera color CMOS and the VH-Z100UT lens) and edited in Adobe Photoshop CS4©. Specimens were identified by comparison to the description and illustrations of Ferrière and Novicky (1954).

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* **Corresponding author**: lotfalizadeh@gmail.com
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Specimens are preserved in the insect collection of Plant Protection Research Department, East Azarbaijan Agricultural and Natural Resources Research & Education Center, Tabriz, Iran.

Results

The study of the two specimens collected in Qazvin province allowed us to identify them as *Thaumatorymus notanisoides* Ferrière and Novicky, 1954, adding a new distribution record for this species of Chalcimerinae.

Genus *Thaumatorymus* Ferrière and Novicky, 1954 (Figs. 1-2)

Diagnosis. The characters separating *Thaumatorymus* from the two other genera of Chalcimerinae (*Exopristoides* and *Chalcimerus*) are: Occipital carina dorsally arched (Fig. 2B), situated closer to posterior ocelli than to the occipital foramen; all funicular segments longer than broad, clava distinctly acuminate (Fig. 2A); fore wing with two transversal dark bands (Fig. 1D), marginal vein longer than postmarginal and stigma veins (Fig. 1B).

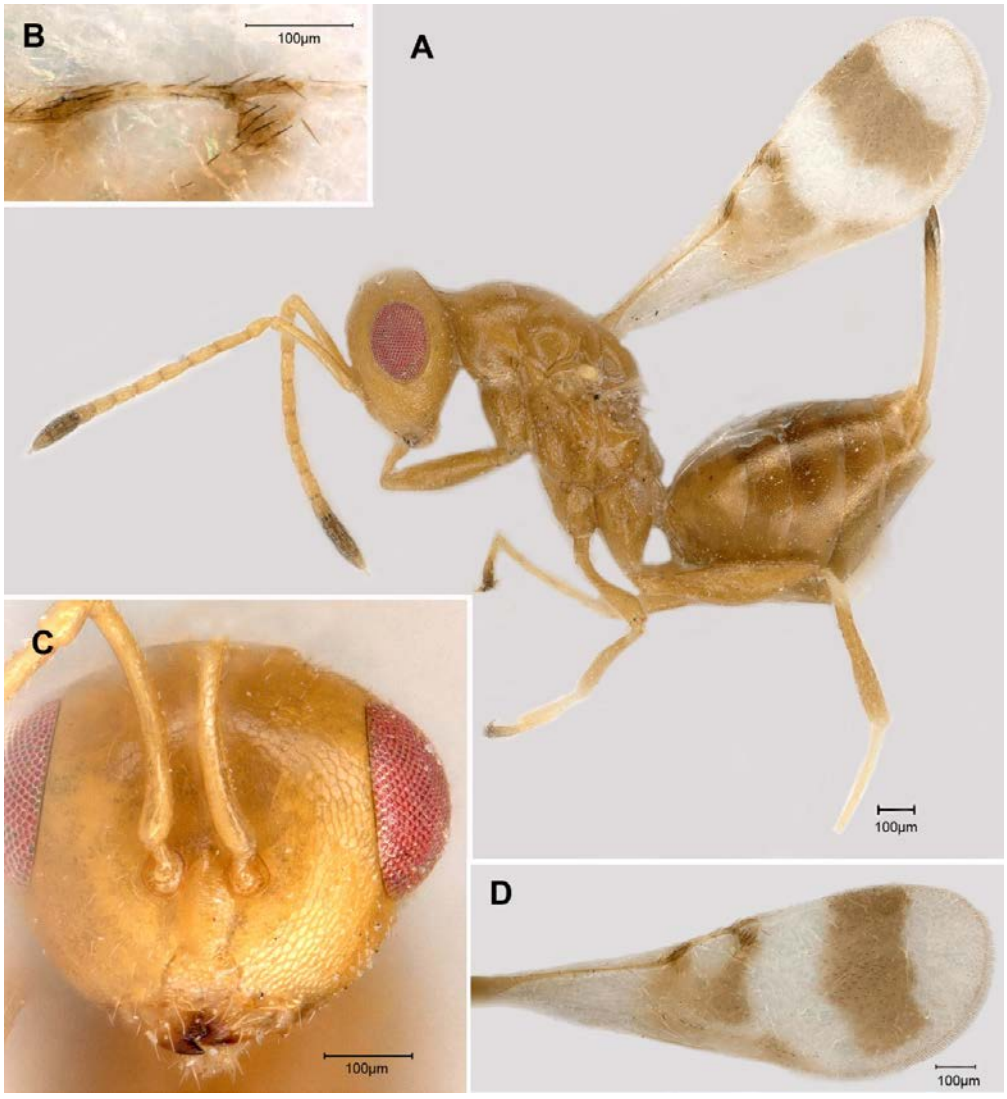

Figure 1 *Thaumatorymus notanisoides*, female: A-Lateral habitus, B- Fore wing venation. C- Head in frontal view, D- Fore wing.

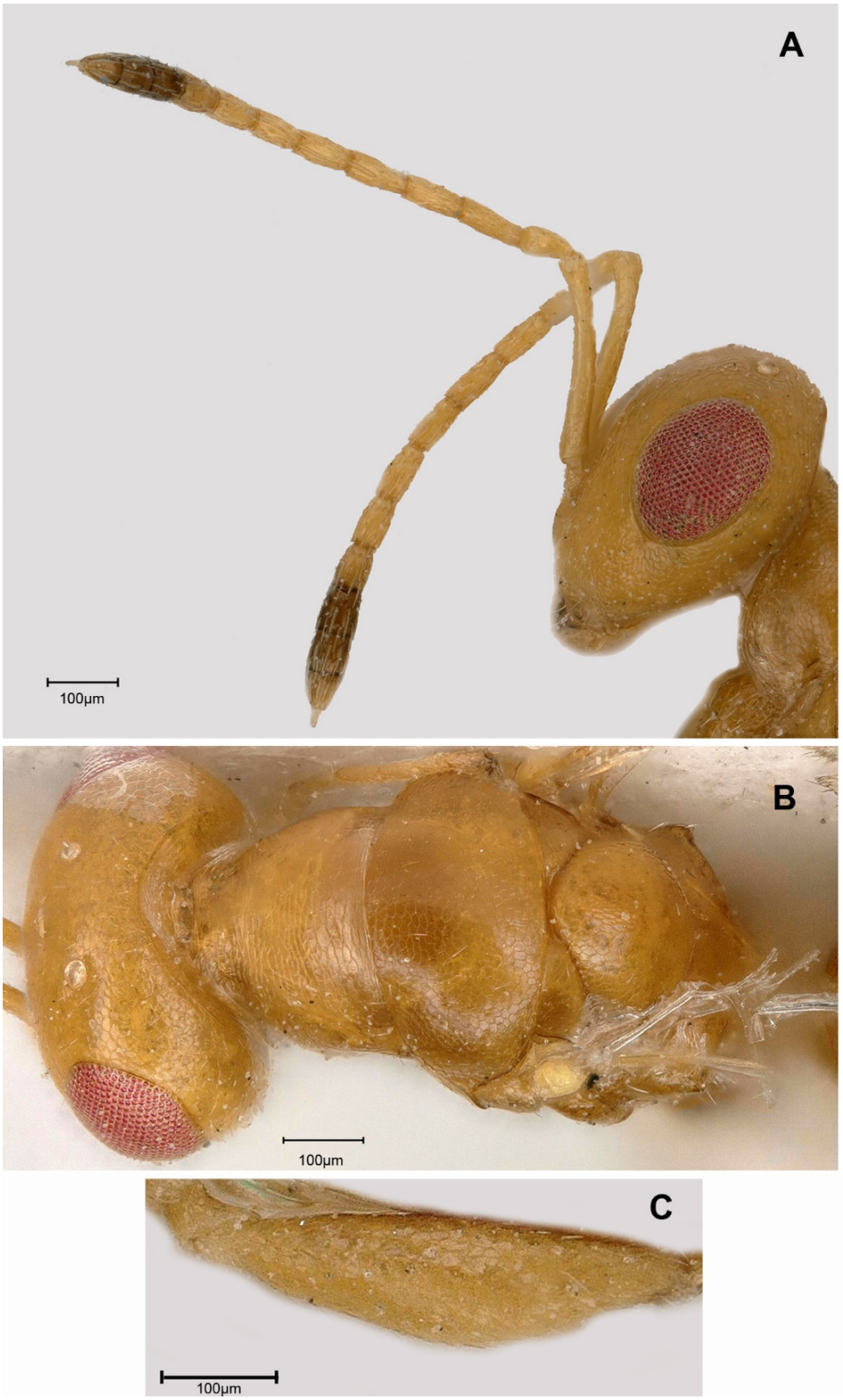

Figure 2 *Thaumatorymus notanisoides*, female: A- Head and antennae in lateral view, B- Head and mesosoma in dorsal view, C- Hind femur.

***Thaumatorymus notanisoides* Ferrière and Novicky, 1954** (Figs. 1-4)

Material examined: Iran, Qazvin province, Alamut (50°31'55"E & 36°21' 50"N, 2250m), pan trap, viii.2010, B. Gharali leg., 1♀ & 1♂.

Note. Ferrière and Novicky (1954) described the female and male of this species in detail, the Iranian specimens correspond well to this description. The body length of Iranian female and male are 2.00 and 1.72 mm long, respectively. According to Ferrière and Novicky (1954): 1.8–2.2 and 1.4-2.0 mm, respectively.

The main diagnostic characters are (Figs. 1-3): Body entirely rusty yellow with weak bluish-green metallic tint on mesonotum; clava and apical part of the ovipositor in female (Fig. 1A) and flagellum of male brown to dark-brown (Fig. 3B). Fore wing with two transversal bands, the male (Fig. 3A) have clearer band than the female (Fig. 1D). Head, mesosoma and sides of gaster superficially reticulated as mentioned by Ferrière and Novicky (1954), with hexagonal and sometimes pentagonal reticulation (Fig. 4), except the frontal area of pronotum dorsally (Fig. 4C), that is mostly strigose transversally and latero-ventral part of gaster (Fig. 4H) very finely and densely reticulate. In female, scape long, 9 × as long as broad; pedicel 2 × as long as broad; F1-3 about 3 × as long as broad, F4-6 about 2.5 × as long as broad, F7 about 2 × as long as broad, F4-7 about 2 × as long as broad; clava about 3 × as long as broad. Marginal vein longer than postmarginal (2.4 ×) and stigmal (2.7 ×) veins. Ovipositor shorter than gaster (about 0.7 ×), slightly longer than hind tibia (about 1.27 ×).

Distribution. Southern Palaearctic (Algeria, Azerbaijan, Bulgaria, Croatia, Spain and Tunisia) (Ferrière and Novicky, 1954; Bouček, 1977; Noyes, 2020), Iran (**New record**).

Biological association. In the Palaearctic region, *T. notanisoides* is parasitoid of the gall wasps *Aulacidea hypochoeridis* (Kieffer) and *Phanacis hypochoeridis* (Kieffer) (Hym.: Cynipidae, Aylacini) on *Hypochaeris* spp. (Asteraceae) (Bouček, 1977; Herting, 1977; Askew *et al*., 2006).

Discussion

This is the first record of the genus *Thaumatorymus* from Iran, represented by *T. notanisoides*. Taking into account the new records, the number of genera and species of Iranian Torymidae (Lotfalizadeh and Gharali, 2005; Fallahzadeh *et al*., 2009; Madjdzadeh *et al*., 2013; Ghahari and Doganlar, 2017) is raised to 15 and 71, respectively. The recently erected subfamily Chalcimerinae was represented in Iran by *Exopristoides hypecoi* Zerova and Stojanova, 2004 only (Zerova *et al*., 2008, Fallahzadeh *et al*., 2009; Ghahari and Doganlar, 2017). Therefore, *T. notanisoides* represents the second genus and species of this subfamily in Iran.

Thaumatorymus notanisoides is endemic of the West Palaearctic subregion (Ferrière and Novicky, 1954; Noyes, 2020) but is rarely sampled. Therefore, it exhibits a scattered geographical distribution in the southern parts of the subregion, from Spain to Iran. The recent samplings of *T. notanisoides* extends its geographical distribution eastward (Fig. 5). Further samplings are required to better define its exact distribution.

We illustrated the tegumental sculpture of the species (Fig. 4). Exoskeleton sculpture have shown to be diagnostic in several groups of chalcid wasps and can be useful for future morphological comparison with new sampled specimens. This may be helpful to ascertain the existence of only one species of *Thaumatorymus* in the West Palearctic subregion, or to discover putative new species in this genus.

Figure 3 *Thaumatorymus notanisoides*, male: A- Lateral habitus, B- Antenna.

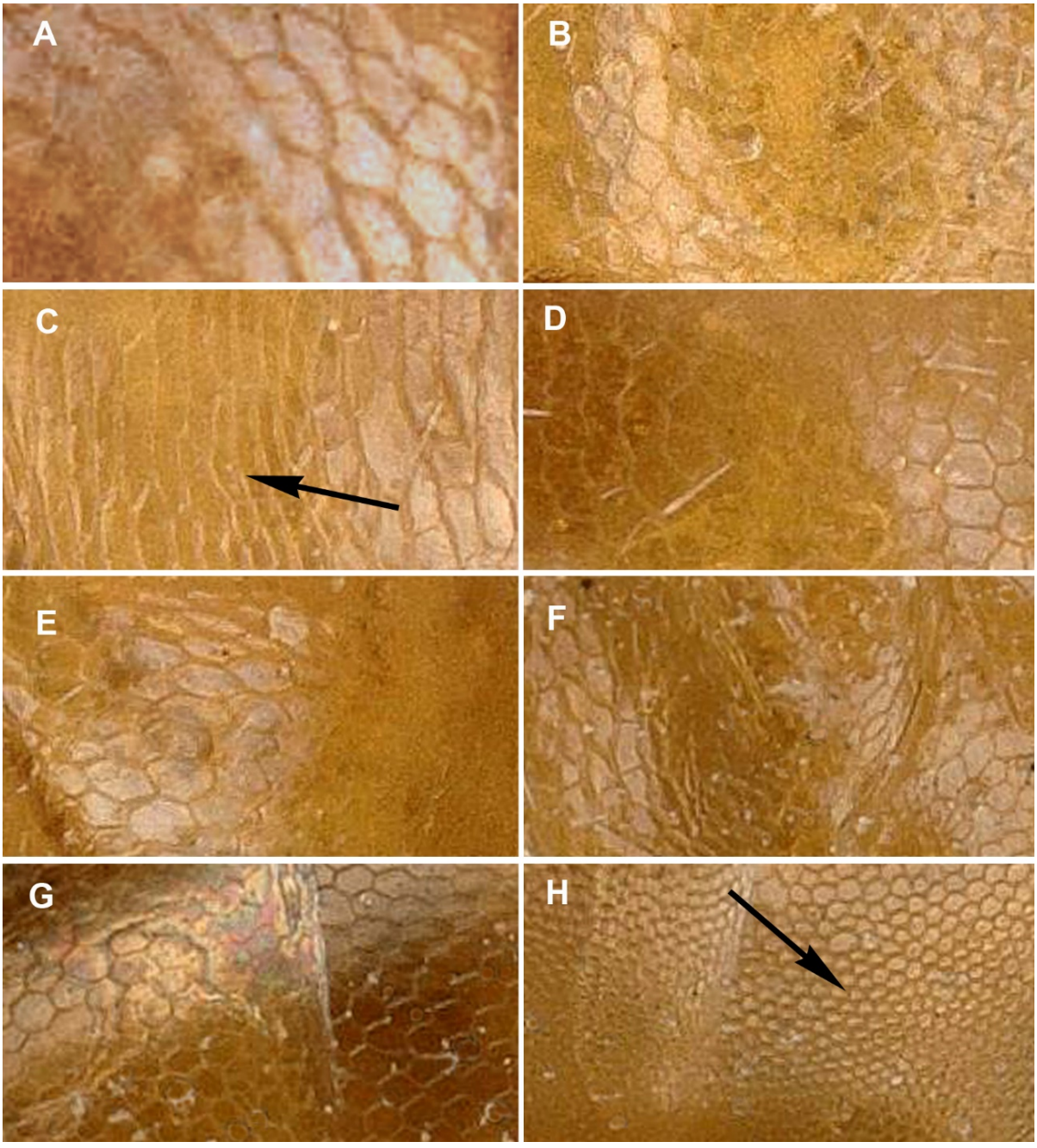

Figure 4 *Thaumatorymus notanisoides*, sculpture of different parts of body: A- Head, frontal part, B- Head, dorsal part, C- Pronotum dorso-medial part, D- Mesonotum median part, E- Scutellum median part, F- Mesopleuron, G- Gaster latero-dorsal part, H- Gaster latero-ventral part.

Figure 5 Geographical distribution map of *Thaumatorymus notanisoides.*

Key to species of Chalcimerinae known from Iran

1- Antennal clava distinctly acuminate, bearing a narrow spicula (Figs. 2A, 3B); hind tibia enlarged medially slightly angulated but not toothed (Fig. 2C); marginal vein 2.4 × as long as postmarginal and 2.7 × as long as stigma veins (Fig. 1B) …….….. *Thaumatorymus notanisoides* Ferrière and Novicky

- Antennal clava without spicula; hind femur with distinct teeth; Marginal vein 1.3 × as long as postmarginal and 2.2 × as long as stigma veins ……..…. *Exopristoides hypecoi* Zerova and Stojanova

Disclosure statement

No potential conflict of interest was reported by the authors.

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حضور زنبور نادر و منوتیپ *Thaumatorymus* Ferrière and Novicky, 1954 متعلق به خانواده Torymidae در ایران

حسین لطفعلی‌زاده[1*]، بابک قرالی[2] و ژان-ایو راسپلوس[3]

۱- بخش تحقیقات گیاه‌پزشکی، مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی آذربایجان‌شرقی، سازمان تحقیقات، آموزش و ترویج کشاورزی، تبریز، ایران.
۲- بخش تحقیقات گیاه‌پزشکی، مرکز تحقیقات و آموزش کشاورزی و منابع طبیعی قزوین، سازمان تحقیقات، آموزش و ترویج کشاورزی، قزوین، ایران.
۳- مرکز تحقیقات بیولوژی و مدیریت جمعیت‌ها، مون‌پلیه، فرانسه.
پست الکترونیکی نویسنده مسئول مکاتبه: lotfalizadeh@gmail.com
دریافت: ۱۳ فروردین ۱۳۹۹؛ پذیرش: ۲۷ اردیبهشت ۱۳۹۹

چکیده: جنس منوتیپ *Thaumatorymus* Ferrière and Novicky, 1954 اندمیک ناحیه غرب پالئارکتیک است. گونه *T. notanisoides*، گونه نادری است که برای نخستین بار از ایران گزارش می‌گردد. بدین‌ترتیب دامنه آن در این ناحیه گسترش پیدا کرد. مشخصات تشخیصی مهم به‌صورت خلاصه، اشکال مربوطه و پراکنش جغرافیایی آن فراهم گردید.

واژگان کلیدی: بال غشاییان، بالاخانواده Chalcidoidea، گزارش جدید، زیرخانواده Chalcimerinae، ایران