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Hadula vassilinini (Bang Haas, 1927) (Lepidoptera, Noctuidae) new to the fauna of Iran with description of its female

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In spite of many taxonomic and faunistic publications on the Noctuidae of Iran, still many regions in this country are not well studied and need further intensive faunistic surveys. The number of recorded noctuid species from Iran exceeds 1200 at the moment (Esfandiari *et al.* 2010 & 2011).
The genus *Hadula* Staudinger, 1889 contains seven subgenera *Hadula* Staudinger, 1889, *Cardiestra* Boursin, 1963, *Ptochicestra* Hacker, 1998, *Aglossestra* Hampson, 1905, *Calocestra* Beck, 1991, *Pulchrohadula* Hacker, 1998 and *Discestra* Hampson, 1905 (Hacker, 1998). Hacker (1998) listed six species and one ssp. including *H.* (*Cardiestra*) *vassilinini* in the subgenus *Cardiestra* Boursin, 1963 with an identification key. Three new taxa were added by Gyulai (2002, 2008) to the subgenus *Cardiestra*. Type locality of the ssp. *Hadula vassilinini deserta* Gyulai, 2002 in Iraq is about 450 km westward form where we collected our material in south-west Iran.
In the framework of faunistic studies of noctuid fauna in south-west Iran (Esfandiari *et al.* 2010 & 2011), the present study providing the report of *Hadula vassilinini* (Bang Haas, 1927) as a new species to the fauna of Iran. Furthermore here we describe the unknown female of this species for the first time. This is a third locality record for this species as it was previously only recorded from Azerbaijan (type locality: Elisabethpol [Ganja]) and Turkey (Hacker, 1998).
Sampling was done during 2007-2009, using a generator-driven mercury vapour lamp (150 W) which was placed inside a white tent, about 1.8 m in height. Genitalia of the collected specimens were prepared for the study according to the method cited in Fibiger (1997) with minor modifications. Specimens were compared to the necessary types with help of Dr. László Ronkay and Dr. Péter Gyulai. Materials were deposited in the Insect and Mite Collection of Ahvaz (IMCA), Department of Plant Protection, Shahid Chamran University of Ahvaz, Iran, except a male which was deposited to P. Gyulai's private collection (Hungary).

Material examined: 2 ♂, 1 ♀, Iran, Prov. Khuzestan, 30 km S of Ahvaz, 31°3.9́ N, 48°20́ E, 5.10.2007; 1 ♂ ditto, 30°58́ N, 48°35́ E, 12.11.2007; 1 ♀, ditto, 31°0.0́ N, 49°33́ E, 14.03.2008; Leg. M. Esfandiari, slide no. 2/31.1.2009 ♂, 1/22.1.2009 ♀, Insect and Mite Collection of Ahvaz (IMCA), Shahid Chamran University of Ahvaz, Iran. 1 ♂, Iran, Prov. Khuzestan, 30 km S of Ahvaz, 31°3.9́ N, 48°20́ E, 5.10.2007; Leg. M. Esfandiari, Coll. P. Gyulai.

Diagnosis: Adult habitus of *H. vassilinini* is similar to *H. eremistis* (Püngeler, 1904), but differs from this closely allied species in the more tapered wing and light grayish ground color; whereas *eremistis* has more brownish ground color. The lower and outer side of reniform stigma as well as terminal area of hind wings is more tainted black in *eremistis*. *H. sabulorum* (Alphéraky, 1882) is more reddish brownish and differs from *H. vassilinini* by more quadrangular wings, darker hind wings and more

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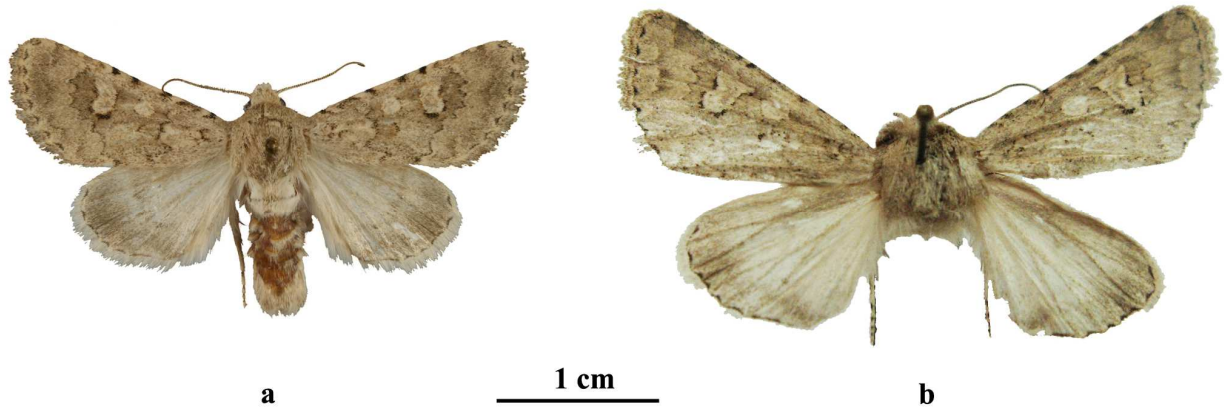

FIGURE 1. Wing pattern of *Hadula vassilinini*, male (a) and female (b).

strong body. The subspecies *H. vassilinini deserta* differs from its nominate subspecies by the form of the postmedial line which has less prominent black border, the light, conspicuous subterminal line, the whitish hind wing, the larger crest of the weaker fultura inferior and the more ample, larger vesica. Crest in the nominate ssp. is smaller with a broad base.

Description of female. (Fig. 1-b); Wingspan 34-38 mm. Antenna more or less filiform with scarce cilia, dorsal grayish with blackish scales, ventral more or less reddish-brown; palpi grayish, laterally covered with dark hairs. Scales of head and thorax ash-gray; legs and tibiae gray, tarsi of all legs with four black rings. Front edge of forewing with a number of dark points. Forewing ground colour pale grayish, stigmata more or less well defined, reniform stigma large, finely encircled with brown line, orbicular stigma rounded and bright, without boundary, filling of both stigmata paler than ground color, claviform stigma finely outlined, apical section dark encircled; antemedial line inconspicuous, postmedial line distinct, slightly arcuated, sinuous, defined on outer side by pale brown. Subterminal line, zigzag, brownish gray with darker ghost at inner side, terminal line represented by black scales; cillia grayish, spotted with darker grey-brown, with fine ochreous line at base. Hindwing whitish, suffused with greyish brown at inner and outer margin, discal spot obsolete, veins covered by dark lines, cilia whitish gray, terminal line as forewing. Underside of wings lighter, almost entirely milky white. Shadows of reniform stigma and terminal line conspicuous. Abdomen similar to cephalothorax in color but paler. Male: (Fig. 1-a); similar to female, smaller in size, with shorter forewing; antenna densely ciliated.

Female genitalia: Ovipositor short, papillae anales small, not sclerotized, heavily hairy and setose. Anterior apophysis medium long, less than twice as long as posterior apophysis. Ostium bursae sclerotized, ductus bursae narrow, strongly sclerotised. Corpus bursae elongated, saccate, with two rounded laminae and with narrow, long, ribbed sclerotized posterior. Appendix bursae conical, small, partly with sclerotized stripes (Fig. 2-a).

Male genitalia: Cucullus only slightly constricted from the valvae and kinked. Digitus and Saccular process not developed. Clasper strongly developed, long and sclerotised, almost straight. Uncus relatively narrow. Juxta only a semicircle, and with relatively developed thorny pointed median proccess. Aedeagus long, tubular, medially curved, vesica spacious, inflated, everted forward, recurved ventrally, with a sack-like convex part, followed by a relatively narrow and rapidly tapered diverticulum with a small endocornutus (Fig. 2-b,c).

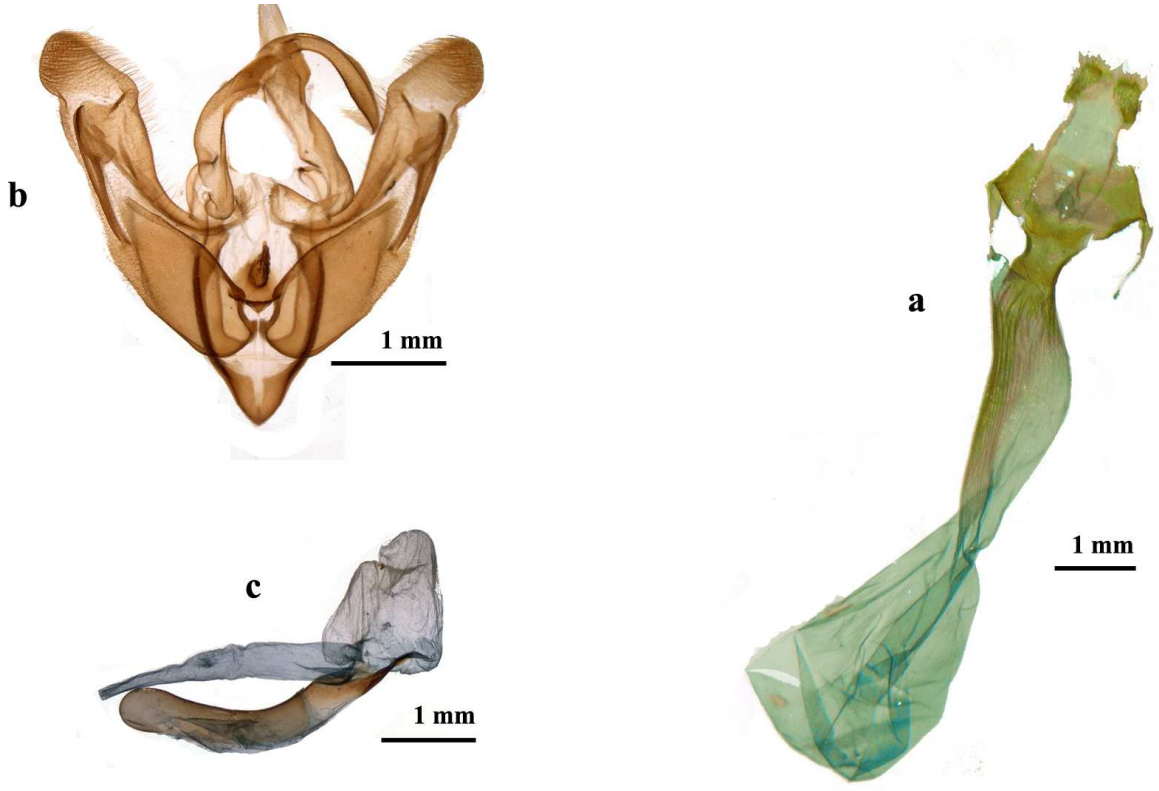

FIGURE 2. Genitalia of *Hadula vassilinini*, female genitalia (a) and male genitalia (b. armature, c. aedeagus with everted vesica).

Bionomics: Vernal and autumnal. Probably bivoltine. We collected this species in sugarcane fields (Fig. 3) of south-west Iran in March, October and November. The adults attract to light. Larvae may feed on weed plants of sugarcane fields. However, the early stages and food plants are still unknown. Hacker (1998) considered this species as an arboreal element, but we collected the species in the eremic halophilic open areas of south-west Iran in sugarcane fields at the altitude ca. 7 m above the see level.

Distribution: Transcaucasian area, Turkey and SW Iran.

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FIGURE 3. Sampling site of *Hadula vassilinini* in sugarcane fields of south-west Iran (the Khuzestan Province). Cropland weeds occur in this habitat may act as host plant for this noctuid species. The white tent, as a light trap, was set up for night sampling.

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