

Two new species of the genus *Evergestis* Hübner, 1825 (Lepidoptera, Crambidae) from the Arabian Peninsula

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ABSTRACT

New taxonomic and faunistic results are presented on the genus *Evergestis* Hübner, 1825 of the subfamily Glaphyriinae on the basis of a sample collected in the province Dhofar in Oman in 2019. Analysis of external characters, of the male and female genitalia resulted in the attribution of the specimens to two different species of the genus *Evergestis* Hübner. Comparison of the species with closely related congeners revealed significant differences in external characters and in the male and female genitalia. These differences result in the descriptions of the new species *Evergestis viridifuscalis* sp.nov. and *Evergestis angularis* sp.nov.. The adults, the tympanal organs, the male and female genitalia are described and figured. The key differential features are listed.

KEYWORDS: Pyraloidea, Glaphyriinae, taxonomy, morphology, Oman.

1. INTRODUCTION

The genus *Evergestis* Hübner, 1825 is distributed in the Palearctic, Neotropical, Indo-Australian and Afrotropical zones and is the genus of the highest diversity in the subfamily of the Glaphyriinae, presently with 71 known species [1, 2].

The distribution of the genus *Evergestis* is centred on the Palearctic zone, with the majority of the species occurring in the Mediterranean Basin and in the Middle East. One of the diversity hotspots

is Iran, with 27 species reported [1]. From the Arabian Peninsula, however, only a total of four species is known till date, with records of *Evergestis desertalis* (Hübner, 1813) [3-6], *Evergestis laristanalis* Amsel, 1961 [3, 7], *Evergestis dusmeti* Agenjo, 1955 and *Evergestis nomadalis* (Lederer, 1870) [8] from the UAE, NE- and NW-Saudi-Arabia and Northern Oman. The genus has not been reported till date from the southern parts of the Arabian Peninsula – Dhofar, Yemen and SW-Saudi-Arabia [9].

Faunistic and taxonomic studies of the species of *Evergestis* in the Middle East with a focus on the fauna of Iran and Afghanistan have been done in [10, 11] and most recently in [1]. Goater gives a comprehensive study of the genus *Evergestis* and the neighbouring genera with a focus on Europe and North Africa [12]. Maes reports recent records of the genus *Evergestis* from Subsaharan Africa with descriptions of two new species [13].

In the present paper, first records of the genus *Evergestis* from the Southern Arabian Peninsula are reported on the basis of a sample collected in the south-western province Dhofar of the Sultanate of Oman. The records are attributed to two species new for science, *Evergestis viridifuscalis* sp.nov. and *Evergestis angularis* sp.nov.

2. MATERIALS AND METHODS

2.1. Sampling

The specimens were collected in a research expedition to Dhofar in February 2019. The specimens were

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captured at night by means of a light-trap equipped with a 20W tube of infra-blue light.

2.2. Macro-preparation and dissection

The adults were photographed with a SONY HX400V after relaxation and subsequent preparation. For examining the genitalia and tympanal organs, dissection, preparation and slide-mounting techniques were applied on the specimens on the basis of the protocol described in [14]. The preparation of the tympanal organs and of the genitalia was done under a Motic stereomicroscope (SMZ-171). The slides were photographed with a ToupCam c-mount camera (ToupTek Inc., Zhejiang, China) under a resolution of 18 megapixels. The images were optimized by means of the imaging software Adobe Photoshop PS, Version 21.0.2.

2.3. Comparison and morphological analyses

The specimens of the sample were compared with images and genitalia drawings in [1, 10-12, 15]. Further comparative material encompasses material from the SMNH (Swedish Museum of Natural History), the BMNH (British Museum of Natural History) and the ZSM (Zoological State Collection Munich). The material was first compared with a broad sample of species ($n = 30$) occurring in the Middle East, in the Mediterranean Basin and in Subsaharan Africa. Subsequently, the species with the closest similarity to the specimens of the sample in external and in genital-morphological characters were selected for diagnosis.

Structural ratios in external characters, genitalia and tympanal organs were calculated on the images by means of the imaging software ToupView, Version 1.0. Mean values and standard deviations were calculated by means of the software MS Excel 2019.

2.4. Terminology and abbreviations

The descriptions of the wing patterns, genitalia and tympanal organs follow the terminology in [16]. The denotations of the veins follow [17]. Descriptions of characters and character states in the male and female genitalia were adopted from [18]. Abbreviations: ZSM = Zoological State Collection Munich, Germany, \pm (SD) = Standard Deviation, n = cardinality of a sample.

3. RESULTS AND DISCUSSION

3.1. *Evergestis viridifuscalis* sp.nov.

Zoobank ID: urn:lsid:zoobank.org:act:3C89ED9E-A2F0-41A0-AD7F-E5743F01A121

Material: Holotype: ♀, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 05-II-2019, leg. M. Seizmair, coll. ZSM, slide no. 20GP008. Paratypes: Oman, Dhofar, 4 km W Dalkuth, 04-II-2019, 6♂, slide no. 20GP001, 20GP006, 20GP013, 20GP015, 20GP016, 21GP032, 10♀, slide no. 20GP009–20GP012, 20GP018–20GP019, 21GP035, 21GP038, 21GP045, 1♂, slide no. 21GP037, same data as holotype, 2♂, slide no. 20GP014, 21GP032, 13♀, slide no. 21GP030, 21GP031, 21GP034, 21GP036, 21GP039-21GP044, Oman, Dhofar, 4 km W Dalkuth, 04-II-2019, leg. et coll. M. Seizmair.

External characters (Figures 1A, 2A, 2B): Wingspan of the holotype: 30.1 mm. Wingspans of the paratypes: 20.0 mm – 28.8 mm (mean value: 24.4 mm \pm (SD) 0.41, $n = 32$). **Head:** Antennae filiform with slight ciliae, flagellum black, ciliae greyish-white. Labial palpus porrect, grey in all segments, sporadically interspersed with darkish-fuscos scales, anterior end stout, equal in length with the diameter of the eye, double as long as the maxillary palpus. Maxillary palpus darkish-grey, broadened in segments 2 and 3, tapered and acuminate in segment 4. Frons darkish-grey. Vertex greenish-fuscos. **Thorax:** Dorsal scaling of the pro- and mesothorax darkish-brown to black, sporadically interspersed with greyish scales, metathorax dorsally yellowish-grey, lateral and ventral scaling of the thorax constantly whitish-grey. Fore- and hindlegs constantly whitish-grey. Tegula darkish-brown to black. **Abdomen:** Dorsally darkish-brown to black, ventrally interspersed with greyish-white scales on the A7 and A8 segments.

Forewing: Sub-triangular shaped, twice as long as wide (mean value of the ratio maximal length/maximal width 2.01 \pm (SD) 0.03, $n = 33$). Costal border straight, apex acute, termen with a slight angle at M2, anal border slightly concave. Ground darkish-grey to fuscous. Basal area interspersed with darkish-brown scales. Postmedial band darkish-brown with bluish iridescence, interspersed with greenish fasciae between M3 and CuA2, the anterior

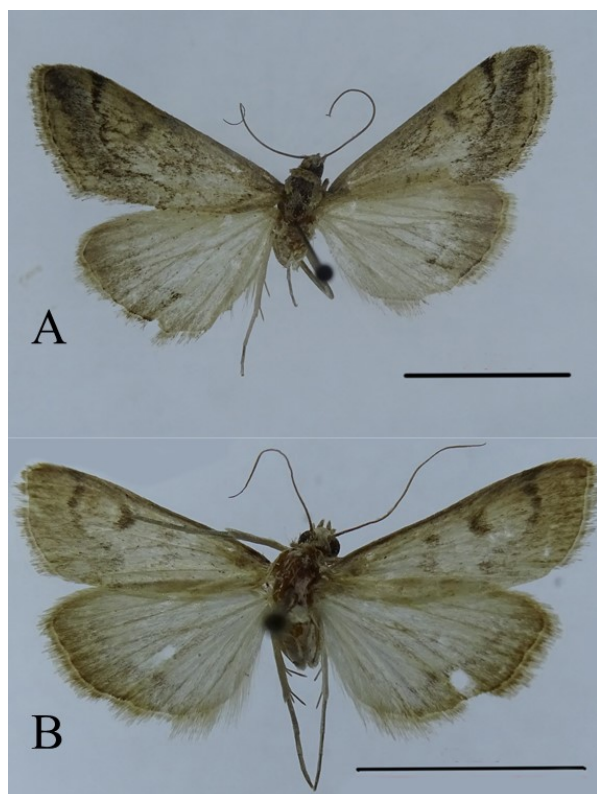


Figure 1. Adults, holotypes, dorsal views. **A:** *Evergestis viridifuscalis* sp.nov., ♀, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 05-II-2019, leg. M. Seizmair, coll. ZSM. **B:** *Evergestis angularis* sp.nov., ♀, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 03-II-2019, leg. M. Seizmair, coll. ZSM. Scale bars = 10 mm.

border delimited by a black line developing from the costa, running parallel to the termen, tapering from R3 onwards, with an angulation at M1 opened towards the termen. Subterminal area greenish-fuscous. Termen with blackish interneural spots. Fringe greenish-brown. Discocellular spot darkish-brown to black, reniform. Area between costa and subcosta from the radix to the medial area darkish-brown and clearly distinct from the lighter ground, from the medium to the apex with greenish scales.

Hindwing: Ground like forewing. Area between costa and Sc+R1 with darkish-green scaling. Postmedial band darkish-grey, fading from M3 onwards. Subterminal area darkish-grey running between the costal border and CuA2. Termen and fringe like the termen and the fringe of the forewing upper side. Undersides of the forewing and the hindwing like the upper sides with the grounds lighter.

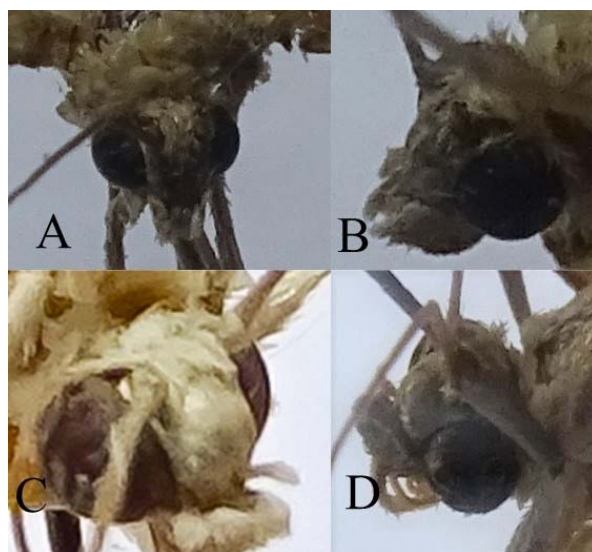


Figure 2. Head profiles, paratypes. **A:** *Evergestis viridifuscalis* sp.nov., frontal view. **B:** *Evergestis viridifuscalis* sp.nov., lateral view. **C:** *Evergestis angularis* sp.nov., frontal view. **D:** *Evergestis angularis* sp.nov., lateral view.

Male genitalia (Figures 3, 4): Basal uncus triangular-shaped, medial area with a strongly developed rod-shaped sclerite extending into the distal area up to the apex, distal uncus strongly enlarged, beak-shaped, dorsally dentate and chaetose, ratio of the maximum length of the longitudinal axis/length of the transversal axis of the beak $0.39 \pm (\text{SD}) 0.04$, $n = 9$. Basal gnathos triangular-shaped. Post-basal gnathos slender, sclerotized and dentate dorso-laterally. Distal gnathos with a membranous thickening, apex rounded. Uncus 1.3 times as long as the gnathos. Transtillum arm triangular-shaped, with an elongate transtillum inferior sensu [18, 19], which is down-curved and pointed anteriorly. The transtillum arms are in contact with each other at the anterior ends of the transtilla inferiora.

Valva double as long as broad, apical area strongly broadened and cuiller-shaped, obliquely rounded towards the costa, with the ventral apical border strongly concave. Costal border straight, basal costa strongly enlarged, with the anterior border strongly sclerotized, post-basal costa tapered. Ventral border concave basally and distally, convex post-basally. Basal sacculus tapered, acute.

Juxta elongate, with the longitudinal axis three times as long as the transversal axis, anterior and

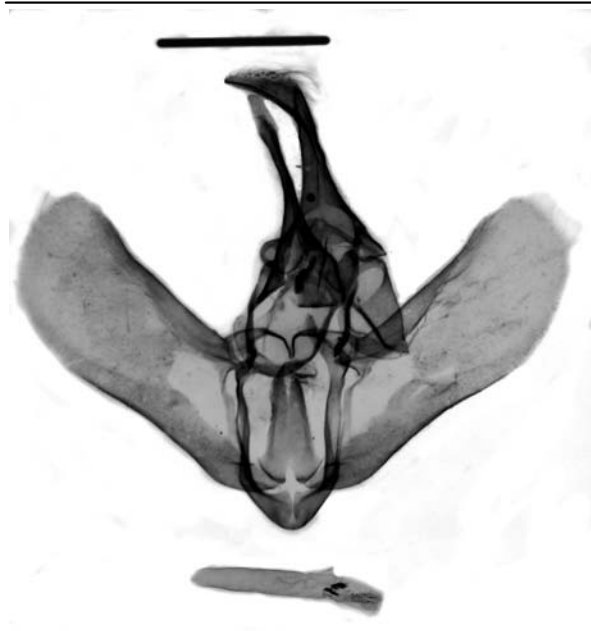


Figure 3. *Evergestis viridifuscalis* sp.nov., paratype, slide no 20GP001, Oman, Dhofar, 4 km W Dalkuth, 04-II-2019, leg., prep., coll. M. Seizmair, male genitalia, scale bar = 1 mm.

posterior ends bifid. The length of the anterior split makes up 14% of the total length of the juxta, with the lobes dilated and rounded and strongly sclerotized at the ventro-anterior borders. The length of the posterior split is equal with 27% of the total length of the juxta, with the lobes acuminate. Saccus u-shaped.

Vesical surface of the phallus apodeme with a spinose sclerotized pad paired with a short, straight, acuminate cornutus. Posterior area with strongly granulated pads.

Female genitalia (Figure 5): Corpus bursae wall with a pair of spinose, dentate, arch-shaped signa each of which is paired with an oviform granulate pad, longitudinal axis three times as long as the transversal axis. Ductus bursae with an elongate, bulbous, slightly sclerotized dilatation anterior from the colliculum. Demarcation between the ductus bursae and the corpus bursae smooth, with a transition from an anteriorly widened ductus bursae to an equally widened posterior corpus bursae. Colliculum strongly sclerotized. Ductus seminalis attached at the anterior end of the dilatation near the colliculum. Antrum partially sclerotized at the anterior end. Ostium membranous.

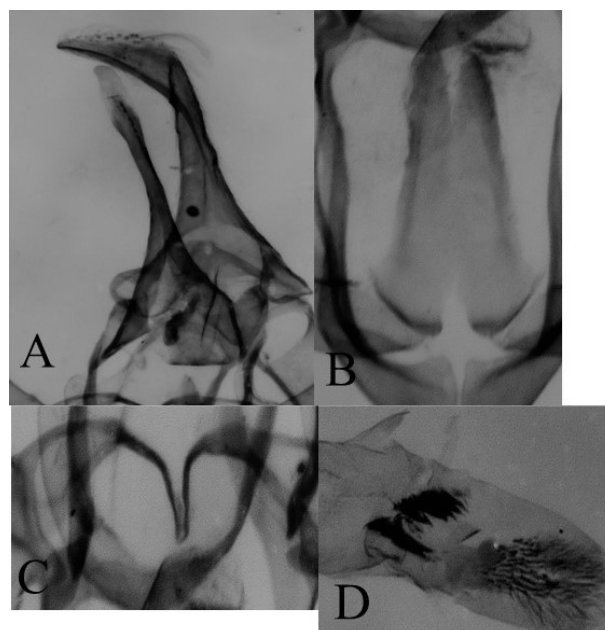


Figure 4. *Evergestis viridifuscalis* sp.nov., paratype, slide no 20GP001, close-up views. **A:** Uncus, gnathos. **B:** Juxta. **C:** Transtilla, transtillum inferior. **D:** Phallus apodeme, vesica.

Papillae anales connected dorsally and strongly setose, the ventral end twice as large as the dorsal end. Apophyses posteriores half as long as the apophyses anteriores. Apophyses anteriores with an elongate triangular shaped projection dorsally at the curvature.

Tympanal organs (Figure 6): Tergo-sternal sclerite elongate, medially with a bulbous dilatation. Pons tympani elongate, slender, acuminate posteriorly. Bulla tympani narrowly invaginated, elongate, with the longitudinal axis three times as long as the transversal axis. Lobuli present, ratio of the longitudinal axis/transversal axis ≈ 1 , equal in length with 40% of the longitudinal axis of the bulla tympani. Venula secunda distinct, strongly sclerotized, with a concave angulation at the connection point to the venula prima. Zona glabra tympani with a pair of short, stroke-shaped sclerites and an extensive granulate area.

Differential diagnosis: The closest species in habitus are *E. desertalis*, *E. laristanalis*, *E. dusmeti*, *Evergestis isatidalis* (Duponchel, 1833), *Evergestis dilutalis* (Herrich-Schäffer, 1848) and *Evergestis atrapuncta* Maes, 2011. The new

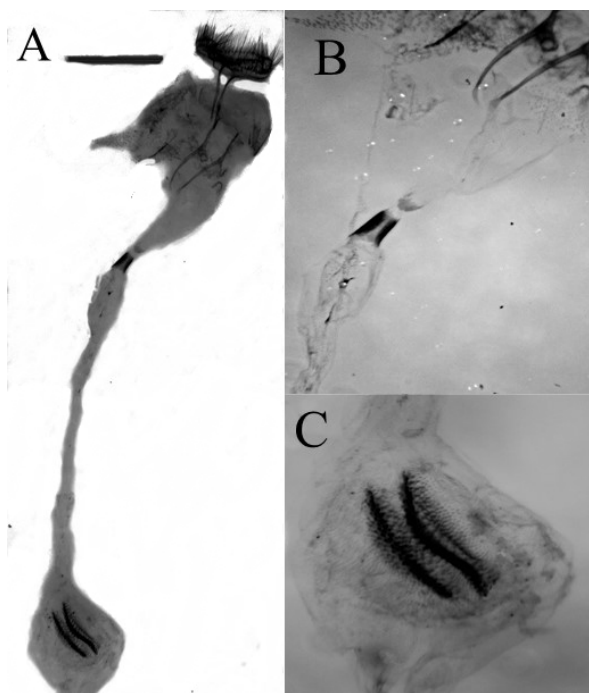


Figure 5. *Evergestis viridifuscalis* sp.nov., paratype, slide no 21GP041, Oman, Dhofar, 4 km W Dalkuth, 04-II-2019, leg., prep., coll. M. Seizmair, female genitalia. **A:** global view. **B:** close-up view: colliculum, antrum. **C:** close-up view: corpus bursae wall (signa).

species is distinguished from these species in external characters and in the male and female genitalia. The male genitalia of *E. atrapuncta* are figured in [13], the male genitalia of *E. desertalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis* in [12] and the male genitalia of *E. laristanalis* in [10]. For the male genitalia of the holotype of *E. laristanalis* only the lateral view is available. The female genitalia of *E. desertalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis* species are figured in [12]. The female genitalia of *E. atrapuncta* and of *E. laristanalis* are unknown.

The new species differs externally from each of the comparative species in the presence of greenish subterminal fasciae and a bluish iridescence in the postmedial band. Further external differential characters are given as follows: Whitish-grey fasciae in the postmedial and subterminal areas of the forewing present in *E. desertalis*, *E. laristanalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis*, absent in the new species and in *E. atrapuncta*. Interneural spots in the termen of the forewing present in the

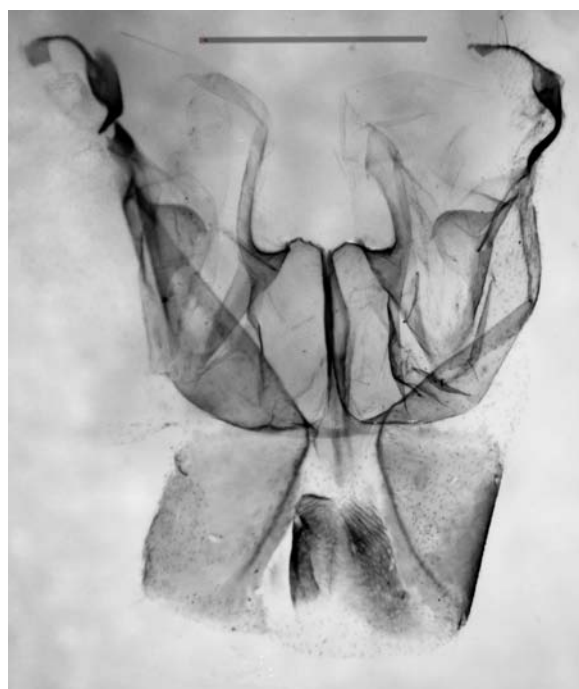


Figure 6. *Evergestis viridifuscalis* sp.nov., paratype, slide no 21GP040, Oman, Dhofar, 4 km W Dalkuth, 04-II-2019, leg., prep., coll. M. Seizmair, tympanal organs, scale bar = 1 mm.

new species, *E. atrapuncta*, *E. laristanalis*, absent in *E. desertalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis*. A reniform subcostal stigma in the postmedial area of the forewing, which is clearly separated and located distad from the discocellular spot is present in *E. atrapuncta*, absent in the new species and in *E. desertalis*, *E. laristanalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis*. The postmedial band is anteriorly bordered by a distinct, angulated black line in the new species and in *E. laristanalis*, which is absent in *E. desertalis*, *E. dusmeti*, *E. dilutalis*, *E. isatidalis* and in *E. atrapuncta*. The opening of the angle at M1 in this line is posteriad-directed towards the termen in the new species, anteriad-directed towards the basis in *E. laristanalis*.

The differences in the male genitalia between the new species and the comparative species are given as follows: Distal uncus with a distinct beak-shaped enlargement in the new species and in *E. laristanalis*, pointed in *E. desertalis*, *E. dilutalis* and in *E. isatidalis*, slightly thickened in *E. dusmeti* and in *E. atrapuncta*. The new species is differentiated in

the distal uncus from *E. laristanalis* in the presence of an elongate sclerite extending from the medial uncus to the apex and in the shape of the beak, which is strongly elongate, flattened in *E. laristanalis* with the ratio length/width of the beak 0.20 in the holotype of *E. laristanalis*. The difference in standard deviations between the length/width ratio of the beak in the holotype *E. laristanalis* and the mean value of the length/width ratio of the beak in the type sample of the new species is thus $(0.39 - 0.20) / 0.04 = 0.19 / 0.04 \approx 4.8$. The statistical probability that the length/width ratio of the beak of the uncus of the type of *E. laristanalis* is within the variation spectrum of the sample of the new species is thus $< 0.063\%$ according to Chebychev's Law of Inequality [20]. Distal gnathos thickened in the new species and in *E. dusmeti*, tapering in *E. laristanalis*, *E. desertalis*, *E. dilutalis*, *E. isatidalis* and *E. atrapuncta*, dentate ventrolaterally in *E. desertalis*, non-dentate in the new species and *E. dusmeti*, *E. laristanalis*, *E. isatidalis*, and *E. atrapuncta*. Transtillum inferior elongate, down-curved and directed anteriorly in the new species, strongly shortened and thorn-shaped in *E. laristanalis*, absent in *E. desertalis*, *E. dusmeti*, *E. isatidalis*, *E. dilutalis* and *E. atrapuncta*.

Shapes of the post-basal, distal ventral borders of the valva convex-concave in the new species, straight-convex in *E. desertalis*, straight-straight in *E. dusmeti* and in *E. isatidalis*, convex-straight in *E. laristanalis* and in *E. atrapuncta*, concave-convex in *E. dilutalis*. Apical area of the valva cuiller-shaped, with a strongly concave apical border in the new species, of sub-triangular shape with a slightly oblique rounding towards the costa in *E. desertalis*, *E. laristanalis*, *E. dilutalis*, *E. isatidalis* and in *E. atrapuncta*, of sub-rectangular shape in *E. dusmeti*.

Ventral phallus apodeme with a longitudinal sclerotized strip in *E. laristanalis* and in *E. atrapuncta*, which is absent in the new species and in *E. desertalis*, *E. dilutalis*, *E. dusmeti* and *E. isatidalis*. Distinct sclerites in the posterior part of the phallus apodeme present in *E. atrapuncta* and in *E. dilutalis*, absent in the new species, in *E. desertalis*, *E. laristanalis*, *E. dusmeti* and *E. isatidalis*. Sclerites on the vesical surface absent

in *E. isatidalis*, and *E. laristanalis*, one pad-shaped sclerite paired with a short, straight cornutus in the new species, one elongate cornutus in *E. atrapuncta*, multiple cornuti in *E. desertalis*, *E. dilutalis* and *E. dusmeti*.

Further differences in the male genitalia between the new species and *E. desertalis*, *E. dusmeti*, *E. dilutalis*, *E. isatidalis* and *E. atrapuncta* are given as follows: Transtillum arms in contact with each other in the new species and in *E. desertalis*, unconnected in *E. dusmeti*, *E. isatidalis*, *E. dilutalis* and *E. atrapuncta*. Fibula present in the valva of *E. desertalis*, *E. dilutalis* and *E. dusmeti*, absent in the valva of the new species, *E. isatidalis* and *E. atrapuncta*. Basal sacculus acute in the new species, *E. dilutalis* and in *E. atrapuncta*, rounded in *E. desertalis*, *E. dusmeti* and in *E. isatidalis*. Anterior juxta split in the new species and in *E. desertalis*, *E. dusmeti*, *E. isatidalis*, unsplit in *E. atrapuncta* and in *E. dilutalis*. Saccus v-shaped in *E. isatidalis*, *E. dilutalis* and in *E. atrapuncta*, u-shaped in the new species and in *E. desertalis* and *E. dusmeti*. Posterior juxta bifid, split in the new species, unifid with split absent in *E. desertalis*, *E. dusmeti*, *E. dilutalis*, *E. isatidalis* and *E. atrapuncta*.

In the female genitalia, the new species is differentiated from *E. desertalis*, *E. dusmeti*, *E. dilutalis* and *E. isatidalis* in the following character states: Signa in the corpus bursae arch-shaped, spinose, dentate, paired with a circular granulate pad in the new species, straight, rod-shaped without granulate pads in *E. isatidalis*, straight, rod-shaped embedded in a granulate pad in *E. desertalis*, circular and spinose in *E. dusmeti*, ovoid and equal in length with the corpus bursae in *E. dilutalis*. Ductus bursae with a bulbous, elongate dilatation anteriorly from the colliculum in the new species, with a small orbicular dilatation anteriorly from the colliculum in *E. desertalis* and *E. dilutalis*, with a strongly widened anterior half in *E. isatidalis*, bare from dilatations, constant in width in *E. dusmeti*. Colliculum absent in *E. isatidalis*, present and strongly sclerotized in the new species, in *E. dilutalis* and in *E. desertalis*, weakly sclerotized in *E. dusmeti*.

Bionomics: The material was collected in a savannah-like meadow interspersed with flowery banks.

Distribution: Known only from the type locality, Dhofar province in southern Oman.

Etymology. The epitheton refers to one of the external differential features, the greenish subterminal fasciae (lat: viridus = green, fuscus = brown).

3.2. *Evergestis angularis* sp.nov.

Zoobank ID: urn:lsid:zoobank.org:act:DD49A300-70A3-4F0E-ABFA-DF7E87122E15

Material: Holotype: ♀, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 03-II-2019, leg. M. Seizmair, coll. ZSM, slide no. 20GP020. Paratypes: 2 ♂, same data as holotype, slide no. 20GP005, 20GP007, leg. et coll. M. Seizmair, 05-II-2019, 4 ♀, slide no. 20GP004, 20GP021, 20GP0023 – 20GP024, leg. et coll. M. Seizmair.

External Characters (Figures 1B, 2C, 2D): Wingspan of the holotype: 22.4 mm. Wingspans of the paratypes: 19.2 mm – 25.8 mm (mean value: 22.1 mm ± (SD) 0.96, n = 6). **Head:** antenna filiform, slightly ciliate, flagellum ochre, ciliae whitish-grey. Labial palpus greyish-fuscous, oblique, directed upwards, anterior end rounded, half as long as the diameter of the eye, 1.3 times long as the maxillary palpus, 1.5 times as long as wide. Maxillary palpus darkish-fuscous, anterior end rounded, 1.5 times as long as wide. Frons greyish-fuscous, strongly protuberant. Protuberance of the frons slanted towards the anterior edge, strongly broadened at the posterior end, narrowed, slightly flattened at the anterior end, ratio of maximum length of the protuberance/diameter of the eye 0.42 ± (SD) 0.04 (n = 7). Vertex concolorous with the frons. **Thorax:** Dorsally darkish-brown to black, irregularly interspersed with greyish-white to black scales, ventrally constantly greyish-white. Tegula greyish-white. Fore- and hindlegs with yellowish-grey scaling on the femur, ochre scaling on the tibia. **Abdomen:** Dorsally yellowish-white, irregularly interspersed with ochre scales, ventrally constantly yellowish-white.

Forewing: Sub-triangular shaped, twice as long as wide, costal border with a slight convexity in the basal area, straight from the basal convexity to the apex, apex acute, termen slightly curved, anal border convex towards the base. Ground yellowish-grey. Basal area with an orbiform, darkish-brown spot. Antemedial band broken into a series of several

strongly diluted darkish-brown spots. Discocellular spot darkish-brown, reniform. Postmedial band darkish-brown, developing from the Sc, terminating at the anal border (A3) with a strong sinus between M3 and CuA1, straight between Sc and M1, CuA1 and A3. Subterminal band darkish-yellow interspersed with darkish-brown scales. Termen yellowish-grey. Fringe greyish-brown. Costa darkish-brown to ochre.

Hindwing: Ground similar to forewing, slightly darker grey, with a broad darkish-brown band extending from the postmedial area to the termen. Termen and fringe like on the forewing upper side. Fore- and hindwing undersides like the upper sides with the grounds lighter.

Male genitalia (Figures 7, 8): Uncus straight, 1.3 times as long as the gnathos, lateral borders sclerotized, dentate with an elongate chaeta on each tooth, distal uncus acute. Basal uncus subtriangular-shaped, arms with a distinct lateral concavity. Transition from the uncus to the tegumen distinct with a convave lateral offset. Gnathos very slender. Distal gnathos dentate, apex pointed. Basal gnathos triangular shaped, arms very slender. Tuba analis present, distal end broad and rounded, with rod-shaped sclerites in the interior. Transtillum arms finger-shaped, basally broadened, tapering distally, connected. Valva 2.4 times as long as broad. Costal border straight. Basal costa with a strong enlargement tapering in the post-basal area, with the anterior border of the enlargement strongly sclerotized. Apex obliquely rounded towards the costal border. Basal ventral border slightly concave, post-basal and distal ventral borders straight up to the sub-apical area. Interior of the valva interspersed with slightly sclerotized and chaetose fields of variable size in the medial area and near the ventral border. Sacculus undifferentiated in width in the post-basal and distal areas, basal sacculus triangular-shaped. Juxta quasi triangular-shaped, posterior juxta sclerotized, spinose, acute, anterior juxta bilobed, with a split equal in length with 17% of the total juxta. Saccus v-shaped. Vesical surface of the phallus apodeme with a falciform cornutus, a cluster of eight small cornuti and several rod-shaped sclerites. Posterior part of the phallus apodeme with several plate-like sclerites of varying shape and with granulated pads.



Figure 7. *Evergestis angularis* sp.nov., Paratype, slide no. 20GP007, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 03-II-2019, leg., prep., coll. M. Seizmair, male genitalia, scale bar = 1 mm.

Female genitalia (Figure 9): Corpus bursae oviform, dilated posterior-laterally at the attachment of the ductus bursae, with a pair of signa, each of them strip-shaped, spinose, granulate, with the longitudinal axis three times as long as the transversal axis. Ductus bursae tapered in the posterior third with a distinct lateral asymmetrical protuberance immediately below the colliculum, and sclerotized strips medially and near the attachment to the corpus bursae. Ductus seminalis inserted on the opposite side of the protuberance. Antrum elongate, dilated, with lateral stroke-shaped sclerites. Ventral end of the papillae anales 1.6 times as wide as the dorsal end. Apophyses anteriores 1.5 times as long as the apophyses posteriores. Apophyses anteriores medially with a triangular-shaped dilatation, from which a short, thorn-shaped process develops.

Tympanal organs (Figure 10): Tergo-sternal sclerite with a quadrangular dilatation making up 75% of its total length. Lobuli present, ratio of longitudinal axis/transversal axis ≈ 1.2 . Pons tympani dilated, acuminate at the anterior and posterior ends. Conjunctivum strongly broadened, anterior border with a distinct sclerite articulating with the posterior end of the pons tympani. Bullae tympani narrowly invaginated, posterior ends interconnected by a distinct sclerite. Puteoli

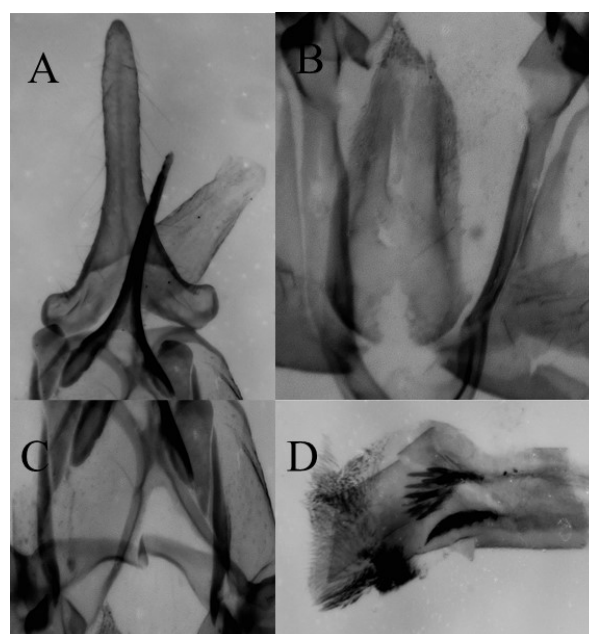


Figure 8. *Evergestis angularis* sp.nov., paratype, slide no. 20GP007, close-up views. A: Uncus, gnathos. B: Juxta, sacculus. C: Transtilla. D: Phallus apodeme, vesica.

present, very small, stroke-shaped. Venula secunda slanted, straight, slightly sclerotized. Zona glabra tympani with a pair of stroke-shaped sclerites.

Differential diagnosis: The species closest in habitus are *Evergestis africalis* (Guenée, 1854) and *Evergestis nomadalis* (Lederer, 1870). The new species differs from the comparative species in the forewing maculation as follows: Postmedial band with a strong sinus at M3 in the new species, postmedial band slanted and bare from angulations in each of the two comparative species. Discocellular spot present in the new species, absent in each of the two comparative species. Antemedial line present in the new species, absent in each of the two comparative species. Frons strongly protuberant in the new species, flattened in each of the comparative species.

The differences in the male genitalia are given as follows: Cornuti present on the vesical surface in the new species, absent in each of the two comparative species. Uncus straight and constantly wide in the new species, tapering in the distal third in *E. nomadalis*, broadened and trough-like in the distal third in *E. africalis*. Shoulders of the basal gnathos very slender in the new species,

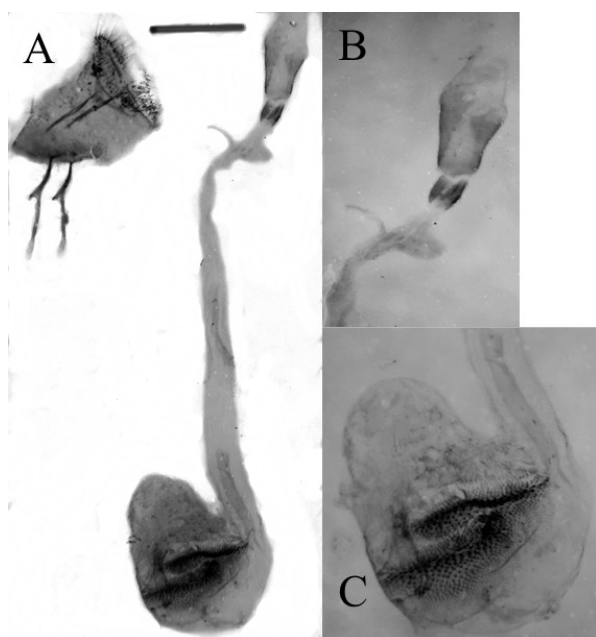


Figure 9. *Evergestis angularis* sp.nov., paratype, slide no 20GP004, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, 03-II-2019, leg., prep., coll. M. Seizmair, female genitalia. A: global view, scale bar = 1 mm. B: Close-up view: colliculum, antrum. C: Close-up view: corpus bursae wall (signa).

strongly broadened in each of the two comparative species. Basal ventral border of the valva slightly convex in the new species, convexity in the ventral border distinct and ranging over the basal and post-basal ventral border in each of the two comparative species. Distal and post-basal sacculus undifferentiated in width in the new species and in *E. nomadalis*, basal sacculus triangular-shaped in the new species, lobe-shaped and rounded in *E. nomadalis*. Post-basal sacculus strongly broadened with regard to the distal and basal sacculus in *E. africalis*. Juxta constantly broad over 80% of its length, in the posterior fifth tapered and acuminate in the new species, broadened over 40% of its length, then tapering posteriorly in *E. nomadalis*, of constant width over its entire length, sub-quadrangular-shaped in *E. africalis*.

The key differences in the female genitalia are given as follows: Lateral protuberance anterior from the colliculum present in the new species, absent in each of the two comparative species. Ductus bursae with sclerotized strips medially and

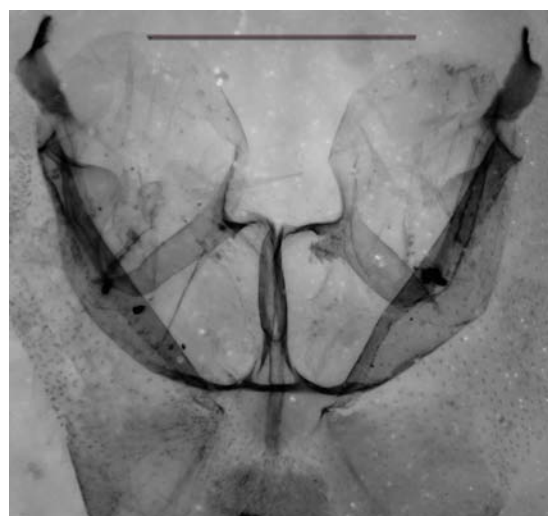


Figure 10. *Evergestis angularis* sp.nov., paratype, slide no. 20GP021, ♀, Oman, Dhofar, Jebel al Qamar, Road 47, 20 km E Sarfait, leg., prep., coll. M. Seizmair, tympanal organs, scale bar = 1 mm.

near the attachment to the corpus bursae in the new species, bare from sclerotization in each of the two comparative species.

The male genitalia of the comparative species are figured in [12], their female genitalia are figured in [1].

Bionomics: The type material was collected in an escarpment interspersed with flowery banks on the southern slopes of the Jabal Al Qamar.

Distribution: Known only from the type locality, Dhofar province in southern Oman.

Etymology: The epitheton refers to one of the external differential features, the angulation, sinus in the postmedial line (lat. angulus = angle, sinus).

4. CONCLUSION

The presence of the genus *Evergestis* on the Arabian Peninsula was reviewed. First records were reported from the southern part of the Arabian Peninsula on the basis of specimens collected in Dhofar near the Yemen border. On the basis of these records, two new species were described, *Evergestis viridifuscalis* sp.nov. and *Evergestis angularis* sp.nov. The new species are unmistakably distinguished from the other congeners in the forewing maculation, the sclerotizations in the vesical surface of the phallus

apodeme and the shape of the ductus bursae arteriad from the colliculum.

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CONFLICT OF INTEREST STATEMENT

The author declares that there are no conflicts of interests. He does not take any benefits from third parties – neither material nor financial – for the results published in the present paper.

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