SHILAP Revista de lepidopterología, 50 (197) marzo 2022: 5-11 eISSN: 2340-4078 ISSN: 0300-5267
https://doi.org/10.57065/shilap.177

Suhela N. Singh, Ranjan, Kirti & Chandra, gen. n., a new genus for *Conogethes alboflavalis* Moore, 1888 (Lepidoptera: Crambidae, Spilomelinae)

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Abstract

We describe a new genus for the Spilomelinae: *Conogethes alboflavalis* Moore, 1888, known to occur in India and Nepal. We provide diagnostic characters for the new genus and comparison with the closely related genera, *Conogethes* Meyrick, 1884 and *Pycnarmon* Lederer, 1863.
KEY WORDS: Lepidoptera, Crambidae, Spilomelinae, *Suhela, Conogethes,* distribution, diagnosis, India.

***Suhela* N. Singh, Ranjan, Kirti & Chandra, gen. n., un género nuevo para *Conogethes alboflavalis* Moore, 1888 (Lepidoptera: Crambidae, Spilomelinae)**

Resumen

Describimos un nuevo género para el Spilomelinae: *Conogethes alboflavalis* Moore, 1888 que se conoce en India y Nepal. Proporcionamos caracteres diagnósticos para el nuevo género y comparamos con los géneros relativamente próximos *Conogethes* Meyrick, 1884 y *Pycnarmon* Lederer, 1863.
PALABRAS CLAVE: Lepidoptera, Crambidae, Spilomelinae, *Suhela, Conogethes,* distribución, diagnosis, India.

Introduction

Spilomelinae is the largest subfamily of superfamily Pyraloidea with 4,097 described species in 338 genera worldwide (NUSS *et al*., 2003-2020; MALLY *et al*., 2019) and 557 species under 153 genera from India (Singh *et al.* in prep.) representing about 25 % of the total Pyraloidea. Of the 338 genera, 87 are monotypic, many others with a very few species, and only about 20 genera are species rich, heterogeneous (MALLY *et al.,* 2019) and in need of thorough revisions. Many new genera and species are being described as the taxonomic studies on Spilomelinae are conducted (XU & DU, 2016; ZHANG & LI, 2016; SINGH *et al*., 2019; LU *et al*., 2020; XIAO-QIANG *et al.,* 2019; LIU *et al*., 2020; KO *et al*., 2020; JIE *et al.,* 2020). During our studies on the genitalia of *Pycnarmon alboflavalis* (Moore, 1888), we found that this species does not conform to the characterization of *Pycnarmon* Lederer, 1863. Originally, *P. alboflavalis* was described in *Conogethes* Meyrick, 1884. However, the study and interpretation of the genitalia of *Conogethes* also not allow us to place *P. alboflavalis* in its original genus. Therefore, we describe here a new genus *Suhela*, gen. n. for the correct placement of *P. alboflavalis* (Moore).

Adult moths were collected with vertical sheet light traps and Lepi LED fitted in the field. Collected material was processed as per standard techniques in lepidopterology (HOLLOWAY, 2001). Adult moths were photographed using a Canon EOS 1300D digital SLR camera. The detailed microphotography of external male genitalia was conducted with a Leica M165C stereomicroscope

attached with a Leica MC190HD camera and enabled with a Leica Application Suite (LAS). The examined specimens are deposited in the National Zoological Collections, Lepidoptera Section, Zoological Survey of India (ZSI), Kolkata, India.

Taxonomy

Genus *Suhela* N. Singh, Ranjan, Kirti & Chandra, gen. n.

Type species: *Conogethes alboflavalis* Moore, 1888. *Indian Lep. Atk*.: 220

The new genus is described here as a monotypic genus for its type species *Conogethes alboflavalis* Moore, 1888 that was originally described from the collections of Staudinger and Moore collected from Darjiling [Darjeeling], India. Later, HAMPSON (1896) studied this species under *Pycnarmon* Lederer, 1863. YAMANAKA (1998) reported *P. alboflavalis* (Moore) from Nepal as a member of *Pycnarmon* and to date it is considered a member of *Pycnarmon*.

Diagnostic characters: The genus *Suhela,* gen. n. is distinguished on the basis of i) underside of male forewing with a fringe of long scales in cell, arising from subcostal nervure, ii) in male genitalia, uncus is triangular, concavely angled on ventral side, giving the appearance of a petal of a lotus temple; chaetae simple, (non-bifid), iii) valva with costa produced medio-dorsally, iv) sacculus, having an inwardly produced triangular structure with its dorsal edge forming a series of mountain like structures, v) middle area of valva is transparent, vi) cucullus is broad, highly setosed, flap like, with a small, mid-ventral spine, vii) spatulated fibula originating from the inner centre of valva and projecting baso-dorsally (towards costa), vii) vesica with two dagger-shaped spines.

Comparison to *Conogethes* and *Pycnarmon*: The species *Suhela alboflavalis*, comb. nov., was incorrectly described in *Conogethes* because i) in male genitalia of *Conogethes* the uncus is capitate with a bulbous ovate head on a tubular, curved neck, the dorsal side of uncus head is densely covered with deeply bifurcated chaetae, ii) saccus is v-shaped, iii) fibula is spine like with broad base, and iv) the cornutus is long needle shape, stretching through almost entire length of aedeagus (in the genus *Suhela*, gen. n., uncus is triangular and covered with simple, non-bifurcated chaetae, saccus is broad U shaped, fibula is spatulated, and the cornuti are robust, dagger-shaped covering half of the phallus length). Furthermore, the genus *Pycnarmon* does not conform to the characterisation of *S. alboflavalis* based on the following characters: i) in *Pycnarmon* (Figs 4, 7) antennae of the male with the shaft thickened to about one-third length, where there is a cleft fringed with hair on each side, ii) in the male genitalia (Figs 16-19) the uncus has a bifurcated tip with a small base, iii) tegumen robust, iv) valva has a bow-shaped costa, v) fibula comma-shaped with broad base, and v) vesica with a small cornutus.

Remark: *Suhela,* gen. n., belongs to the tribe Agroterini based on the upturned labial palpi, and a truncate uncus with simple, non-bifid chaetae (MALLY *et al*., 2019). There is no other genus in Agroterini or in Spilomelinae which can accommodate *P. alboflavalis*. Therefore, we erect *Suhela*, gen. n., for nomenclatural stability.

Distribution: India, Darjiling [Darjeeling] (MOORE, 1888), Sikkim and Andaman (HAMPSON, 1896), Mizoram, Meghalaya, Jharkhand (present study). Nepal (YAMANAKA, 1998).

Etymology: The generic name is after S. Suhel Singh Gill, a social reformist and the great grandfather of the first author.

Suhela alboflavalis (Moore, 1888), **comb. n.** (Figs 1-3, 5-6, 8-15)
Conogethes alboflavalis Moore, 1888: 220. *Indian Lep. Atk*.: 220

Material examined (4 ♂♂, 9 ♀♀): India: Mizoram, Mamit, 2 ♂♂, 26-IX-2013; Mizoram, Mamit, 4 ♀♀, 28-IX-2013; Mizoram, Mamit, 1 ♀, 29-IX-2013, leg. R. Ranjan (Coll. NZCZSI); Meghalaya, Lailad, 1 ♀, 13-IX-2014, leg. R. Ranjan (Coll. NZCZSI); Mizoram, Thingsul, 1 ♀, 18-X-2009, leg. R. Joshi (Coll. NZCZSI); Jharkhand, Dalma Wildlife Sanctuary, Pindrabera, 1 ♂, 21-X-2013, leg. Navneet Singh & Party (Coll. NZCZSI); Jharkhand, Dalma Wildlife Sanctuary, Makulakocha, 1 ♂, 2 ♀♀, 18-IX-2019, leg. R. Ranjan (Coll. NZCZSI).

Description adult: Wingspan: male 16 mm; female 20 mm. Head with vertex and frons pale white; antennae ciliated in male, simple in female; labial palpi upturned, broadly scaled, reaching up to vertex of head, third segment long, acuminate. Thorax whitish with some black spots, collar and tegulae pale whitish, later with a basal and a medial black spot. In male, forewing whitish at base, medial area pale yellowish, terminal area orange yellow, basal and subbasal black bands interrupted at middle; a medial band from below cell to inner margin; discocellular with black lunule followed by some large and smaller spots beyond cell; postmedial line straight from costa to vein M_3 then bent outward to a fine obsolete marking with a large spot below it on inner margin; a black speck at apex; a double, jointed black spot at submarginal area on vein M_{2-3}; underside with a fringe of long scales in cell, rising from subcostal nervure. Hindwing whitish with terminal area orange yellow, a basal black spot below cell; a double, postmedial series of a few large, conjoined black spots below cell; a submarginal black spot on the vein M_{2-3}; few specks on marginal area. In female, underside of forewing is without any fringe, the discocellular lunule is curved.

Male genitalia (Figs 8-14): Discussed under the diagnostic characters of the genus.

Female genitalia (Fig. 15): With papillae anales broad; posterior apophyses shorter than anterior apophyses; ductus bursae short, sclerotised; corpus bursae large, elongate, membranous, sclerotised proximally; signa absent.

Acknowledgements

The authors thank the Director, Zoological Survey of India for providing the necessary facilities. We thank Dr. Richard Mally for his initial comments on the rough draft of this manuscript, Dr. Alma Solis for suggestions on the final draft; Mr. Mark Sterling (NHM, London) for setting a Lepi LED light trap during the field workshop of the 6th Asian Lepidoptera Conservation Symposium (6th ALCS) at Dalma Wildlife Sanctuary from where some of the specimens were collected. We thank the forest officials of the states of Jharkhand, Mizoram and Meghalaya for granting permission and providing necessary facilities during field visits.

BIBLIOGRAPHY

HAMPSON, G. F., 1896.– *The fauna of British India including Ceylon and Burma. Moths,* **4**: 594 pp. Taylor and Francis Ltd., London.

HOLLOWAY, J. D., KIBBY, G. & PEGGIE, D., 2001.– *The families of Melanasian moths and butterflies*: 455 pp. Brill,.

JIE, L.-L., YANG, J.-B. & LI, W.-C., 2020.– First record of the genus *Tetracona* Meyrick (Lepidoptera, Crambidae) from China, with description of a new species.– *Zookeys,* **941**: 101-105.

KO, J.-H., BAYARSAIKHAN, U., PARK, B.-S., LEE, T.-G., CHA, Y.-B., JANG, C.-M., LEE, J. K. & BAE, Y.-S., 2020.– *Exoasota pursatensis* Ko & Bae, new genus and species of the Spilomelinae (Lepidoptera: Pyraloidea: Crambidae) from Indochina.– *Zootaxa,* **4838**(1): 119-127.

LEDERER, J., 1863.– Beitrag zur Kenntniss der Pyralidinen.– *Wiener Entomologische Monatschrift*, **7**(8): 243-280; (10-12): 331-504.

LIU, P., QI, M. & WANG, S., 2020.– Four new species of the genus *Agrotera* Schrank, 1802 (Pyraloidea: Crambidae: Spilomelinae) from Hainan Island.– *Zootaxa,* **4731**(4): 556-564.

LU, X.-Q. & DU, X.-C., 2020.– Revision of *Nagiella* Munroe (Lepidoptera, Crambidae), with the description of a new species from China.– *ZooKeys,* **964**: 143-159.

MALLY, R., HAYDEN, J. E., NEINHUIS, C., JORDAL, B. H. & NUSS, M., 2019.– The phylogenetic systematics of Spilomelinae and Pyraustinae (Lepidoptera: Pyraloidea: Crambidae) inferred from DNA and morphology Arthropod.– *Systematics & Phylogeny*, **77**(1): 141-204.

MEYRICK, E., 1884.– On the classification of the Australian Pyralidina.– *Transactions of the Entomological Society of London*, **1884**: 277-350.

MOORE, F., 1888.– Descriptions of new Indian lepidopterous insects from the collection of the late Mr. W. S. Atkinson, 3: 199-299, pls 6-8.– *In* W. C. HEWITSON & F. MOORE. *Descriptions of new Indian*

lepidopterous Insects from the collection of the late Mr. W. S. Atkinson, Heterocera (Sphingidae-Hepialidae): XII + 299 pp., 8 pls. Taylor & Francis, Calcutta / London.

NUSS, M., LANDRY, B., MALLY, R., VEGLIANTE, F., TRÄNKNER, A., BAUER, F., HAYDEN, J., SEGERER, A., SCHOUTEN, R., LI, H., TROFIMOVA, T., SOLIS, M. A., DE PRINS, J. & SPEIDEL, W., 2003-2020.– *Global Information System on Pyraloidea*.– Available from http:// www.pyraloidea.org (accessed on 01 December 2020).

SINGH, N., SINGH, J., SINGH, H. & RANJAN, R., 2019.– Two new genera for the *Botyodes* species complex (Lepidoptera: Pyraloidea: Crambidae).– *Zootaxa,* **4623**(2): 387-395.

XIAO-QIANG, L., JI-PING, W. & DU, X.-C., 2019.– Three new species of *Herpetogramma* Lederer (Lepidoptera, Crambidae) from China.– *ZooKeys,* **865**: 67-85.

XU, D. & DU, X.-C., 2016.– A new species of *Patania* from the Hainan Island, China (Lepidoptera, Crambidae).– *ZooKeys,* **614**: 129-135.

YAMANAKA, H., 1998.– Pyralidae of Nepal (II).– *In* T. HARUTA (ed.). Moths of Nepal Part 5.– *Tinea*, **15** (Supplement I): 99-116, pls 141-143.

ZHANG, D. & LI, J., 2016.– Two new species and five newly recorded species of the genus *Udea* Guenée from China (Lepidoptera, Crambidae).– *Zookeys,* **565**: 123-139.

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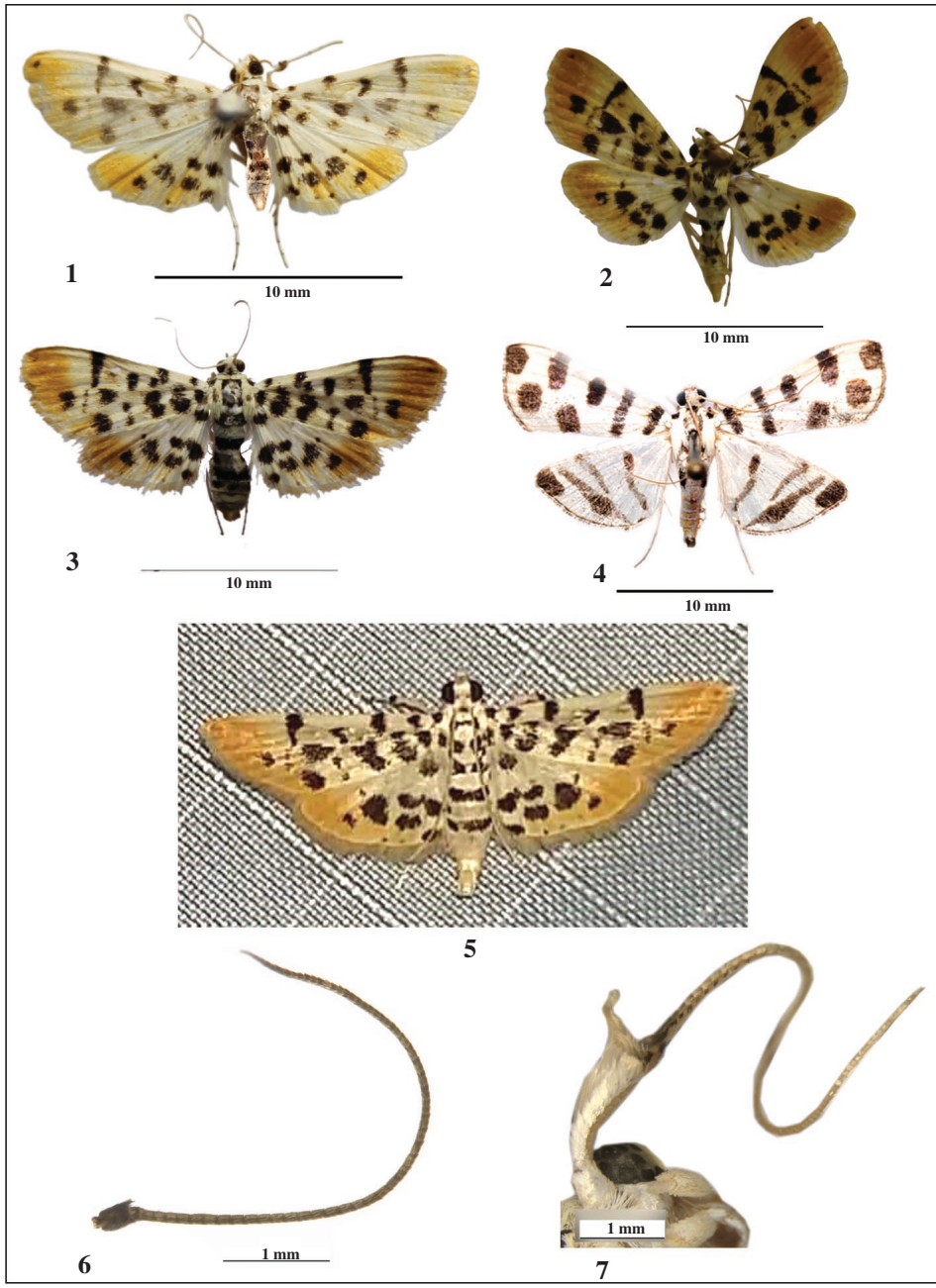
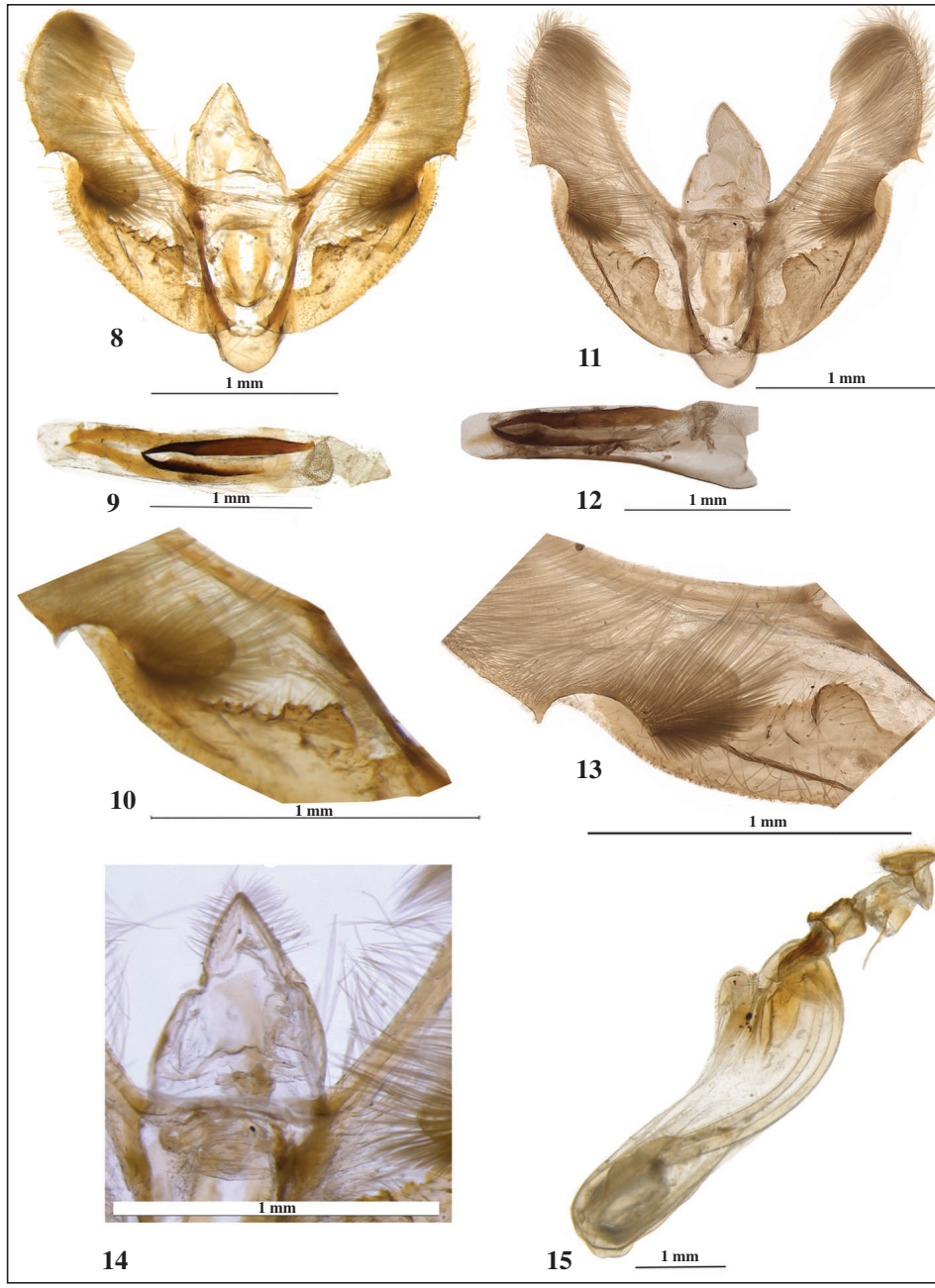
*Autor para la correspondencia / *Corresponding author*

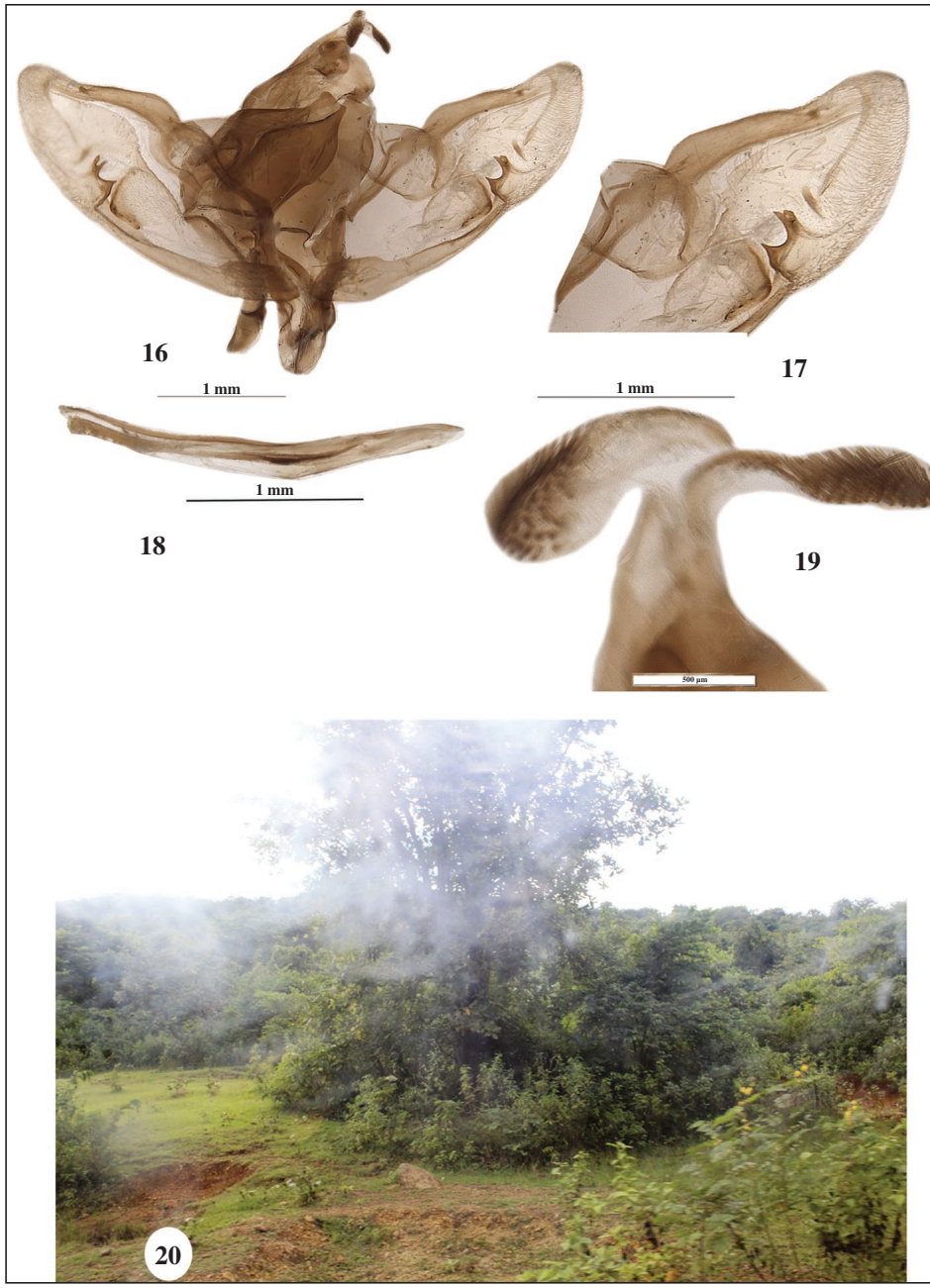
(Recibido para publicación / *Received for publication* 19-I-2021)
(Revisado y aceptado / *Revised and accepted* 6-II-2021)
(Publicado / *Published* 30-III-2022)



Figures 1-7.– *Suhela alboflavalis*, comb. n. (Figs 1-3, 5-6). **1-2.** Imago male. **3.** Imago female. **5.** Sitting posture. **6.** Antennae male. *Pycnarmon jaguaralis* (Figs 4, 7): **4.** Imago male. **7.** Antennae male.



Figures 8-15.– Genitalia of *S. alboflavalis*. **8, 11.** Male genitalia. **9, 12.** Phallus. **10, 13.** Valva. **14.** Uncus. **15.** Female genitalia.



Figures 16-20.– Male genitalia of *P. jaguaralis.* **16.** Genitalia. **17.** Valva. **18.** Phallus. **19.** Uncus. **20.** Habitat of *S. alboflavalis*, comb. n., at DWLS.