



Short Communication

A New Species and a New Record of the Genus *Stantonia* Ashmead (Hymenoptera: Braconidae) from India and Saudi Arabia

Hamed A. Ghramh^{1,2,3}, Zubair Ahmed^{1,2,4} and Khalid Ali Khan^{1,2,3*}

¹Research Center for Advanced Materials Science (RCAMS), King Khalid University, P.O. Box 9004, Abha 61413, Saudi Arabia.

²Unit of Bee Research and Honey Production, Faculty of Science, King Khalid University, P.O. Box 9004, Abha 61413, Saudi Arabia.

³Biology Department, Faculty of Science, King Khalid University, P.O. Box 9004, Abha 61413, Saudi Arabia.

⁴Biology Department, Faculty of Sciences and Arts, King Khalid University, Dhahran Al Janoub, Saudi Arabia.

Article Information

Received 03 December 2019

Revised 23 January 2020

Accepted 04 February 2020

Available online 02 October 2020

Authors' Contribution

ZA conceived the idea of the project and carried out the sampling. ZA and HAG analysed the data and wrote the initial manuscript. KAK contributed in final preparation of the manuscript and provided suggestions and corrections.

Key words

Braconidae, *Stantonia*, Hymenoptera

ABSTRACT

A new species viz., *Stantonia hayati* Ahmad, sp. nov., is described and illustrated from India, while *S. hammersteini* Enderlein, 1908 is recorded from Saudi Arabia. Affinities of the new taxa with related species have also been discussed. The genus *Stantonia* is also recorded for the first time from Saudi Arabia.

The genus *Stantonia* Ashmead belongs to one of the rarely collected subfamily Orgilinae of the family Braconidae. Members of Orgilinae are solitary koinobiont endoparasitoids of concealed lepidopteran larvae (Shaw and Huddleston, 1991). The known hosts of Orgilinae belong to the lepidopteran families of Coleophoridae, Gelechiidae, Tortricidae, Pyralidae and Oecophoridae (Shaw and Huddleston, 1991; Yu *et al.*, 2016). *Stantonia pallida* Ashmead have been used in the classical biological control programme against *Diaphania hyalinata* and *D. nitidalis*, pests of cucurbit crops in USA (Frank and McCoy, 1993; Yu *et al.*, 2016).

The genus *Stantonia* is nearly cosmopolitan in distribution with 75 valid species of which 31 occur in the Oriental region (Yu *et al.*, 2016; van Achterberg *et al.*, 2017). When compare Oriental fauna with India, the genus *Stantonia* regarded as poorly known group as it is reported by only a single species viz., *Stantonia agroterae* Nixon, 1950. The genus was revised by van Achterberg (1987; Indo-Australian spp.), Braet and Quicke (2004; worldwide), Chen *et al.* (2004; for China) and van Achterberg *et al.* (2017; for Vietnam, China, Japan, and Russia). In the present study one new species *Stantonia hayati* sp. nov., is described and

illustrated from India and *S. hammersteini* Enderlein is recorded from southwestern region of Saudi Arabia.

Materials and methods

The specimens of new species were collected on light traps from northern Uttar Pradesh in order to study the biodiversity and conservation of parasitoid wasps in the northern region of India. Specimens from Saudi Arabia was also collected on light traps from Raidah Protected area which is one of the smallest wildlife reserves in the Kingdom of Saudi Arabia. Raidah is known as the "paradise" of Sarawat, which is the mountain range running parallel to the western coast of the Arabian Peninsula. It is an area of around 9 sq. km, located 20 km northwest of the southern city of Abha on the steep slope below Jabal

Abbreviations

The following abbreviations are used in the text: 1-CU1, first sector of Cubitus; 3-CU1, third sector of Cubitus; CU1b, the second divergent vein from 3-CU1; cu-a, transverse cubito-anal vein; F, antennal flagellomere; 1-M, first sector of medial vein; M+CU, Medial vein overlaid with Cubitus; OD, diameter of posterior ocellus; OOL, ocular-ocellar line; POL, posterior ocellar line; r, transverse radial vein; r-m, transverse radio-medial vein; SMC2, second submarginal cell of forewing; 1-SR, first sector of radial vein; 1-SR+M, first sector of section radial vein over layed with Medial vein; 2-SR, second sector of sectio radii; SR1, section-radial vein; T, metasomal tergite; BDKKU, Biology Department, King Khalid University, Abha, KSA; ZDAMU, Zoology department Aligarh Muslim University, India.

* Corresponding author: khalidtalpur@hotmail.com
0030-9923/2021/0001-0001 \$ 9.00/0
Copyright 2021 Zoological Society of Pakistan

Saudah. The steep slopes of the region are densely covered with plants and trees, especially juniper trees, and there are several streams flowing from the height of the mountain and down to various parts of Raidah.

Terminology and identification

Sampling was done by means of light trapping. Photo of body profile was taken by a Nikon SMZ 1000 zoom stereomicroscope with attached camera. Measurements of the different parts were made with the help of an ocular micrometer fitted in Nikon SMZ stereomicroscope. Morphological terms, including wing venation, are based on van Achterberg (1993). Body sculpture terminology follows Harris (1979). Identification to the subfamily based on van Achterberg (1993), to the genus follows van Achterberg (1987) and the species level on Braet and Quicke (2004) and van Achterberg *et al.* (2017). The type specimens of the new species are deposited in ZDAMU, while material pertaining to the new record from Saudi Arabia is housed in BDKKU.

Stantonia Ashmead, 1904

Stantonia hammersteini Enderlein, 1908; Braet and Quicke, 2004.

Microtypus hammersteini Granger, 1949: 364; Shenefelt, 1970: 265.

Material examined: 3 ♀♀: Saudi Arabia: Abha, Raidah 10.VII.2013, light trape, coll. ZA (BDKKU).

Diagnosis (Female)

Body colour is yellow to yellowish brown; antennae 52 segmented; temple punctate-coriaceous; OOL: OOD: POL= 6.0: 3.0: 2.0; frons smooth medially, laterally punctate-coriaceous; vertex convex, coarsely punctate-granulose; face somewhat punctate, smooth between punctures; clypeus punctate; length of malar space equal to basal width of mandible; mesopleuron sculptured below precoxal sulcus and with some horizontal grooves near tegula; precoxal sulcus crenulate, but punctate anteriorly; mesoscutum coarsely punctate; scutellum convex and punctate; propodeum coriaceous with small transverse rugae posteriorly; mid-longitudinal carina of propodeum present anteriorly; forewing: r: SR1:3-SR=10: 40; 2-SR: r-m:11: 6; second submarginal cell sessile; hind coxa coriaceous, with some rugae dorsally; lengths of hind femur, tibia and basitarsus 4.8, 7 and 9.3 times their widths, respectively; hind femur coriaceous, somewhat rugulose ventrally; tibial spurs 0.57 and 0.43 times basitarsus. Metasomal first tergite coriaceous, 2.5x as long as wide, second tergite coriaceous; second suture straight; ovipositor sheath 0.17x as long as forewing.

Distribution

Botswana, Cameroon, Comores, Democratic Republic of Congo, Gabon, Kenya, Madagascar, Malawi, Nigeria, Rwanda, Saudi Arabia (Present Record), South Africa and Uganda

Host record

Unknown.

Stantonia hayati Ahmad, sp. nov. (Fig. 1)

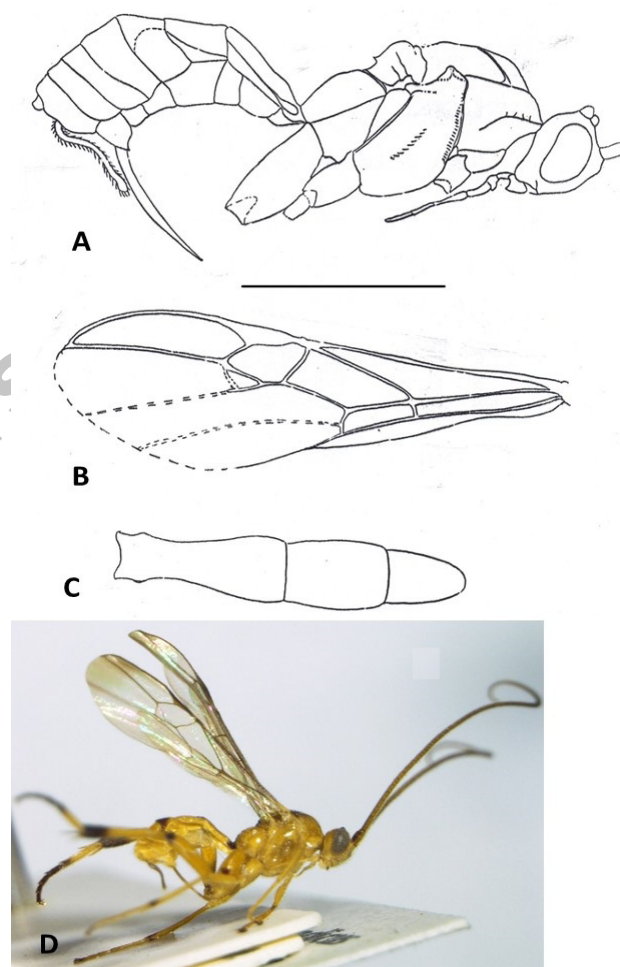


Fig. 1. *Stantonia hayati* Ahmad, sp. nov., A, body profile, lateral view; B, forewing; C, metasomal tergites, dorsal view; D, body profile, lateral view. Scale line: 1.0 mm.

Type material

Holotype, ♀: India: Uttar Pradesh, Aligarh: 24.X.2003 on light Coll. Zubair Ahmad (ZDAMU); Paratypes, 5 ♀, 2 ♂, with same data as holotype (ZDAMU).

Description

Female, holotype: Body length 3.00 mm; Forewing length 3.05 mm.

Head: Antenna 45 segmented; length of third segment as long as fourth segment; terminal segment 1.3x as long as penultimate segments; length of maxillary palp 2.2x height of head; length of eyes 2.3x as long as temple in dorsal view. OOL: AOL: POL: OD= 13: 3: 3: 6; vertex setose rather convex and punctulate; occipital carina interrupted medially; face rather flat and punctulate; clypeus punctulate; length of malar space about as long as basal width of mandible.

Mesosoma: Length of mesosoma about 2x its height; sides of pronotum crenulate medio-anteriorly and striate posteriorly. precoxal sulcus completely impressed and crenulate; rest of mesopleuron smooth but ventrally punctulate; mesoscutum punctuate to punctulate with hairs; notauli deeply impressed, complete and crenulate; scutellar sulcus deep with one carina; scutellum slightly convex and punctulate; surface of propodium coarsely reticulate rugose, anteriorly sparser than posteriorly. Forewing vein r: 3-SR+SR1=16: 82; 2-SR: r-m =22:12. Hind coxa punctate with few transverse carinae dorso-posteriorly; length of femur, tibia, and basitarsus of hind leg 87: 110: 103; hind tarsal claw rather robust; length of hind tibial spurs 0.45x as long as hind basitarsus.

Metasoma: Length of first tergite 2.8x as long as apical width, smooth except finely coarse/granulate posteriorly, second tergite granulate; length of ovipositor sheaths 0.17x as long as forewing and about 0.5x as long as hind basitarsus.

Colour: Yellowish to yellowish brown; median and lateral lobes of scutum, first tergite near petiole and apically, second tergite apically, third tergite entirely, hind femur apically, hind tibia apically, hind tarsi except basitarsus blackish; antennae and ovipositor sheaths brown; forewing infusate apically.

Male

Similar as female except genital organ.

Variation

Female: length of body 3.0–4.1 mm and of forewing 3.1–4.2 mm; length of first tergite 2.7–3.0 times its apical width; length of ovipositor sheath 0.15–0.20 times forewing.

Remarks

The new species resembles with *S. chaoi* Chen *et al.*, 2004 on the basis of its overall body coloration and nearly smooth ventral surface of hind femur. However, it differs

from *S. chaoi* in having: frons yellowish (frons with pair of dark brown spots posteriorly in *S. chaoi*); median lobe of scutum dark brown (median lobe of scutum yellowish brown in *S. chaoi*); propodium coarsely reticulate rugose, anteriorly sparser than posteriorly (propodeum rugose medially and remainder nearly smooth in *S. chaoi*); length of forewing 3 mm (length of forewing 4–6 mm in *S. chaoi*); Vein r-m of forewing omitted comparatively low from vein 2-SR (Vein r-m almost omitted near connection of vein r and 3-SR+SR1 in *S. chaoi*).

Distribution

India, Uttar Pradesh.

Host record

Unknown

Etymology

The new species is named after Dr. Mohammed Hayat, a well-known Chalcidologist from India.

Acknowledgements

The authors would like to extend their appreciation to the Research Center for Advanced Materials Science (RCAMS), King Khalid University, Abha, KSA. The second author (ZA) extends his gratitude to the Research Center for Advanced Materials Science (RCAMS), King Khalid University for funding through research program (RCAMS/KKU/04/20).

Statement of conflict of interest.

The authors have declared no conflict of interest.

References

- Ashmead, W.H., 1904. *Proc. U.S. Nat. Mus.*, **28**: 127–158. <https://doi.org/10.5479/si.00963801.28-1387.127>
- Braet, Y. and Quicke, D.L.J., 2004. *J. nat. Hist.*, **38**: 1489–1589. <https://doi.org/10.1080/0022293031000155313>
- Chen, X.X., He, J.H. and Ma, Y., 2004. *Fauna Sin.*, **37**: 351–353. <https://doi.org/10.1186/1742-4690-1-37>
- Enderlein, G., 1908. *Stett. Ent. Z.*, **69**: 110–112.
- Frank, J.H. and McCoy, E.D., 1993. *Fla. Entomol.*, **76**: 1–53. <https://doi.org/10.2307/3496012>
- Granger, C., 1949. *Mem. Inst. Scient., Madagascar A*, **2**: 1–428.
- Harris, R.A., 1979. *Occ. Pap. Ent.*, **28**: 1–31. <https://doi.org/10.2307/3219465>
- Nixon, G.E.J., 1950. *Ann. Mag. nat. Hist.*, **12**: 453–474. <https://doi.org/10.1080/00222935008654071>
- Shaw, M.R. and Huddleston, T., 1991. *Handb. Ident. Br. Insects*, **7**: 1–126.

- Shenefelt, R.D., 1970. *Hymenopterorum Catalogus (nova editio)*. Pars **5**: 177–306.
- van Achterberg, C., 1987. *Zool. Verh. Leiden.*, **242**: 1–111.
- van Achterberg, C., 1993. *Zool. Verh. Leiden*, **283**: 1–189.
- van Achterberg, C., Long, K.D. and Chen, X.X., 2017. *ZooKeys*, **723**: 61–119.
- Yu, D.S.K., van Achterberg, C. and Horstmann, K., 2016. *Taxapad 2016, Ichneumonoidea 2015*. Database on flash-drive. www.taxapad.com, Nepean, Ontario, Canada.

Online First Article