

Research Article

New record of Common Owlet Moth *Spirama helicina* (Hubner, 1831) (Lepidoptera: Erebididae: Catocalinae) from Aligarh (Uttar Pradesh) with systematic account, distribution, host plants and biological control

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ABSTRACT

The present communication deals with the new record of *Spirama helicina* (Hubner, 1831), the Common Owlet Moth from Aligarh (Uttar Pradesh) and its systematic account, distribution, life cycle, host plants and biological control.

Keywords: New Record, Common Owlet Moth, Aligarh

INTRODUCTION

Moth fauna of Aligarh (Uttar Pradesh) is very little known. Husain *et al.* (2020) recorded *Spoladea recurvalis* (Fabricius, 1775) with its systematic account, distribution, host plants and control measures. Ahmad *et al.* (2009), Ahmad & Ansari (2010), Ali & Choudhury (2009) and Muslim *et al.* (2017) dealt with other aspects of some moths, viz. *Earias vitella*, *Helicoverpa armigera*, *Spodoptera littoralis*, *S. litura* and *Plutella xylostella*.

Recently, a brightly coloured moth was sighted at Hayat Manzil, Qila Road, Aligarh which on examination found to be *Spirama helicina* (Hubner, 1831), the Common Owlet Moth, belonging to family Erebididae and being not recorded earlier, is reported here for the first time from Aligarh (Uttar Pradesh).

Study site: Hayat Manzil, Aligarh

Location: Aligarh is located at co-ordinates 27.88° N 78.08° E with an elevation of ca. 178 m between rivers Ganga and Yamuna in western Uttar Pradesh. Hayat Manzil is a residential kothi / bungalow (near AhmadI Blind School and Flyover Shamshad Market), Qila Road, Aligarh.

Climate: Humid subtropical. Summers (April-June) hot with maximum temperature reaching 47° C in May, winters (December-February) cool with minimum temperature 0° C in January and thick fog; monsoon season starts late June and continue till early September with high humidity 75% in August and av. annual rainfall 728 mm with maximum 235 mm in August.

Flora: In and around the study site (Husain *et al.*, 2020; Saddam *et al.*, 2017; personal communication from Er. T. R. K. Sherwani and others, Aligarh):

Trees: *Annona squamosa* (Custard Apple), *Araucaria columnaris* (Cook Araucaria), *Artocarpus heterophyllus* (Jackfruit), *Azadirachta indica* (Neem), *Citrus limon* (Lemon), *Citrus maxima* (Pomelo), *Cordia mixa* (Lasura), *Cycas revoluta* (Sago Palm), *Dalbergia sissoo* (Indian Rosewood), *Delonix regia* (Flame of Forest, Gulmohar), *Dypsis lutescens* (Areca Palm), *Ficus carica* (Fig), *F. elastica* (Rubber Tree), *F. religiosa* (Peepal), *Limonia acidissima* (Wood Apple), *Mangifera indica* (Mango), *Mimusops elengi* (Maulshree), *Morus alba* (White Mulberry), *Musa* sp. (Banana), *Carica papaya* (Papaya), *Phoenix dactylifera* (Date Palm), *Phyllostachys aurea* (Golden Bamboo), *Pithecellobium dulce* (Manila Tamarind), *Psidium guajava* (Guava), *Punica granatum* (Pomegranate), *Saraca asoca* (Asoka), *Vachellia nilotica/Acacia arabica* (Babool), *Wodyetia bifurcata* (Fox-tail Palm), *Ziziphus mauritiana* (Jujube) etc.

Flowering Plants: *Bougainvillea* sp., *Lilium* sp. (Day Lily, Spider Lily, Monsoon Lily, Ball Lily), *Calendula* sp., *Catharanthus roseus* (Sada-bahar), *Cestrum nocturnum* (Raat-Rani), *Chrysanthemum* sp., *Combretum indicum* (Rangoon Creeper), *Geranium* spp. (Geranium), *Helianthus annuus* (Sunflower), *Hibiscus rosa-sinensis* (Gurhal), *Ipomoea cairica* (Railway Creeper), *Jasminum sambac* (Bela), *Lawsonia inermis* (Hina), *Plumeria alba* (Pagoda or Wood Rose), *Pyrostegia venusta* (Flaming Trumpet), *Rosa* sp. (Rose), *Tabernaemontana divaricata*

(Crape Jasmine), *Tagetes* sp. (Marigold), *Viola* sp. (Pansy) etc.

Vegetables: *Abelmoschus esculentus* (Lady-finger, Okra), *Allium cepa* (Onion), *A. sativum* (Garlic), *Beta vulgaris* (Beet), *Brassica oleracea botrytis* (Cauliflower), *B. oleracea italic* (Broccoli), *B. oleracea* var. ? (Cabbage), *Brassica rapa* (Turnip), *Capsicum annuum* (Chilli), *Coriandrum sativum* (Coriander), Cucurbits (*Cucurbita pepo*- Pumpkin), *Cucumis sativus*- Cucumber, Kheera or Kakri; *Lagenaria siceraria*- Bottle Gourd; *Luffa acutangula*- Ribbed Gourd; *L. cylindrica* - Sponge Gourd; *Mormodica charantia*- Bitter-gourd), *Colocasia esculenta* (Arvi), *Curcuma longa* (Turmeric), *Daucus carota sativus* (Carrot), *Mentha spicata* (Mint), *Murraya keonigii* (Curry-patta), *Ocimum tenuiflorum* (Basil), *Phaseolus vulgaris* (Beans), *Raphanus sativus* (Radish), *Solanum melongena* (Brinjal), *S. lycopersicum* (Tomato), *S. tuberosum* (Potato), *Spinacia oleracea* (Spinach), *Trigonella foenum-graecum* (Methi), *Zingiber officinale* (Ginger), etc.

SPIRAMA HELICINA (HUBNER, 1831)

Common Owlet Moth

Systematic Account, Distribution and Life Cycle

Synonymy:

Speiredonia helicina Hubner, 1831 (1824). *Zutr. Samml. exot. Schmett.*, 3: 14, pl. 76, figs.437, 438 (type-locality: Berbic [error]).

Spirama japonica Guenee, 1852. *Hist. nat. Ins., Spec. gen. Lepid.*, 7 (Noct. 3): 195 (type-locality: Japan).

Spirama aegrota Butler, 1881. *Trans. Ent. Soc. Lond.*, 1881: 197 (type-locality: Tokyo, Japan).

Spirama retorta, Hampson, 1894 (*partim*, bright form), *Faun. Brit. India, Moths*, 2: 553-554.

Spirama retorta, Gurule, 2013 (*partim*, light form). *Taxonomic studies of moths (Lepidoptera: Heterocera) from Maharashtra, India* (Ph. D. Thesis, University of Pune, India).

Spirama helicina, Moore, 1878. *Proc. Zool. Soc. Lond.*, 1878 (4): 849; Kyoun-Sik *et al.*, 2005. *J. Ecol. Field. Biol.*, 29 (4): 377; Gurule *et al.*, 2010. *Flora and Fauna*, 16 (2): 297, 302, fig. 56; Gurule & Nikam, 2011. *Flora and Fauna*, 17 (1): 172; Sivasankaran *et al.*, 2012. *Check List*, 8 (4): 761-762; Sivasankaran & Ignacimuthu, 2014. *J. Bombay nat. Hist. Soc.*, 111 (3): 208; Sivasankaran *et al.*, 2017. *Check List*, 13 (6): 1106; Paul *et al.*, 2017. *International Journal of Current Research*, 9 (8): 56211.

Spirama cf. retorta, Sondhi & Sondhi, 2016. *Journal of Threatened Taxa*, 8 (5): 8762, 8772, fig. 162 (bright colour).

Spirama sp. cf. *helicina*, Shubhlaxmi, 2018. *Birdwing Field Guide to Indian Moths*: 55, fig. 2 female.

Sighting: 1 example (female), 11.vi.2020, Hayat Manzil, Qila road, near Aligarh Muslim University Campus, Aligarh, by Er. T. R. K. Sherwani.

Classification: Class Insecta, order Lepidoptera Linnaeus, 1759, superfamily Noctuoidea Latreille, 1809, family Erebiidae Leach, 1815, subfamily Catocalinae Boisduval, 1828, tribe Hypopyrini Guenee, 1852, genus *Spirama* Guenee, 1852. (followed Zahir *et al.*, 2011, as based on molecular phylogeny).

Note: The classification of the genus has been dealt differently by various workers. Hampson (1894), listed under family Noctuidae (subfamily Quadrifinae). Kyoun-Sik *et al.* (2006), animaldiversity, discoverlife and morebooks also tread under Noctuidae. Gurule & Nikam (2011, 2013), Shubhlaxmi *et al.* (2011), Shubhlaxmi (2018), Sivasankaran & Ignacimuthu (2014), Mishra *et al.* (2016), Sondhi & Sondhi (2016), Sivasankaran *et al.* (2017), Singh *et al.* (2018), mothsofindia, nic.funet.fi and taxonomicon considered it under family Erebiidae (subfamily Erebiinae). Paul *et al.* (2016, 2017) and Singh & Ranjan (2016) also considered in family Erebiidae but not mentioned the subfamily. Pathre *et al.* (2019) placed under subfamily Arctinae (family Erebiidae). Sajap *et al.* (1997), Sajap & Samad (2000), Gurule *et al.* (2010), Kirti *et al.* (2011), Sivasankaran *et al.* (2012), Kirti & Singh (2013), Sanyal *et al.* (2013), Uniyal *et al.* (2013), Sekhon & Singh (2015) and indiabiodiversity kept in family Noctuidae (subfamily Catocalinae).



Figure 1. *Spirama helicina*, the Common Owlet Moth (Courtesy: Er. T. R. K. Sherwani)

Distribution:

Aligarh (Uttar Pradesh): Hayat Manzil, Qila road, Aligarh (new record).

Rest of India: Assam, Delhi, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Nagaland, Odisha, Punjab, Sikkim, Tamil Nadu, Tripura, Uttarakhand and West Bengal.

Elsewhere: Bangladesh, Cambodia, China, Hong Kong, Indonesia, Japan, Korea, Laos, Malaysia, Myanmar, Nepal, Philippines, Russia, Singapore, Sri Lanka, Taiwan, Thailand and Viet Nam.

Altitudinal Range: Vellagavi 1343- Doddabetta 2624 m in Western Ghats, Tamil Nadu part (Sivasankaran *et al.*, 2012); Nilgiri Hills, Nilgiri dist. 2280-2623 m; Kodaikanal, Dindigul dist. 1343-2295 m (Sivasankaran *et al.*, 2017).

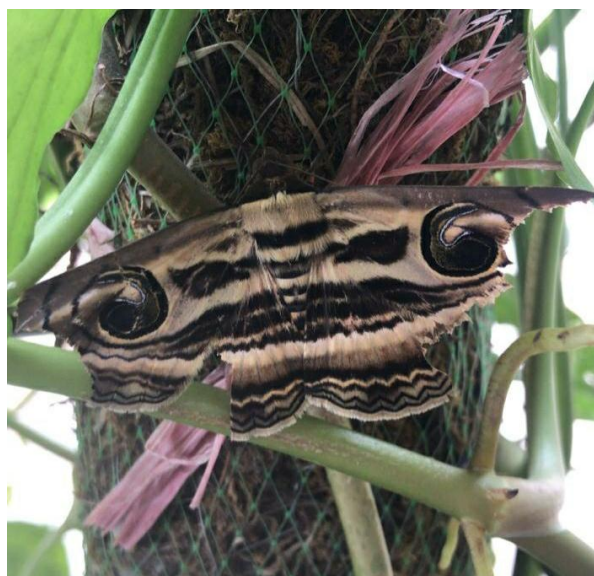


Figure 2. *Spirama helicina*, the Common Owlet Moth

(Courtesy: Er. T. R. K. Sherwani)

Diagnostic Features:

Male: Yellowish-brown with characteristic colour pattern; antennae fasciculate; head and collar dark chestnut brown; thorax paler with dark bands; abdomen crimson with black medial stripe; fore-wing with a large 'inverted comma' mark, having ochreous and black edges and some white on inner edge of 'tail', centre fuscous black, looking like an eye; a curved line passing round the stigma; another excurved line below costa; two crenulated sub-marginal black lines and two more prominent lines within the margin; hind-wing with a fold on inner area, containing an erectile ridge of long hair, with indistinct sub-marginal lines; underside suffused with dull reddish-orange with sparsely distributed lines.

Female: Brighter and with little larger 'inverted comma' mark; crimson abdomen with black cross bands and triangular black marks; both wings with prominent crenulated black sub-marginal lines; underside bright reddish-orange with lines.

Wing-span: Male 64-76 mm, female 66-88 mm (as *S. retorta* including *helicina*, Hampson, 1894; projectnoah.org); male 68 mm, female 63 mm (as *S. retorta*, Gurule, 2013); 60-70 mm (as *S. helicina*, Wikipedia; as *S. retorta*, thehindu.com); male 64-76 mm, female 66-88 mm (as *S. cf. helicina*, Shubhlaxmi, 2018).

Life-span: 36-37 days (as *S. retorta*, thehindu.com).

Deimatic Display: The colour pattern on the wings at resting stage, looking like that of snake head with big eyes and slightly opened mouth, is perhaps indented as a device to scare off or momentarily distract or giving an opportunity to escape to its potential predators.

LIFE CYCLE: Since *Spirama helicina* and *S. retorta* have been considered synonyms, the life cycle of former has not been studied separately. Sajap & Samad (2000) studied the development of *S. retorta* on different food plants under laboratory conditions and found 412 and 255 eggs, 22.10 and 24.83 days for larval period, 10.51 and 11.32 days for pupal period and 36.51 and 37.94 days for adult life-span when fed on *Acacia auriculiformis*, the Ear-leaf Acacia and *A. mangium*, the Black Wattle, respectively. However, when fed on *Acacia crassicaarpa*, the Red Wattle and *Falcataria moluccana* (= *Paraserianthes falcateraria*), the Muluccan Albizia larvae did not survive.

HOST PLANTS: (Sajap *et al.*, 1997; Sajap & Samad, 2000; Shubhlaxmi, 2018).

The caterpillars / larvae feed on *Acacia auriculiformis* (Ear-pod Wattle), *A. crassicaarpa* (Red Wattle), *A. mangium* (Black Wattle), *Albizia lebbeck* (Lebbeck), *Falcataria moluccana* (= *Paraserianthes falcateraria*) (Muluccan Albizia), *Senegalia pennata* (= *Acacia pennata*) (Climbing Wattle) and *Senna surattensis* (Glossy Shower) belonging to family Fabaceae.

BIOLOGICAL CONTROL: Sajap *et al.* (1997) found *Eocanthecona furcellata* (= *Cantheconidea furcellata*) and *Sycanus leucomesus* (Hemiptera), *Vespa affinis indosinensis* (Hymenoptera) and *Mallada basalis* (Neuroptera) feeding on soft-bodied arthropods including *Spirama retorta*. These predators may also be attacking *S. helicina* as both these species mostly co-exist.

Natural enemies generally play an important role in controlling the population of insect pests. The tachinid flies (Diptera), *Blepharella* sp., *Carcelia* sp. and *Exorista* sp. parasitize larvae and pupae of insect pests (Sajap *et al.*, 1997). The tachinids, being less host specific than hymenopteran parasitoids (Kalshoven, 1981), are likely to parasitize *S. helicina* too.

REMARKS: Hampson (1894) though considered *Speiredonia helicina* Hubner, 1831 a synonym of

Spirama retorta (Clerck, 1764) but remarked 'The *helicina* form is more brightly coloured; female with the ochreous submarginal line of hind wing crenulate'. Presently, *helicina* is treated as a valid species on the basis of these characters and other differences (Kyoung-Sik *et al.*, 2006; Gurule *et al.*, 2010; Gurule & Nikam, 2011; Sivasankaran *et al.*, 2012; Sivasankaran & Ignacimuthu, 2014; Paul *et al.*, 2017; Sivasankaran *et al.*, 2017 and others) and the same has been followed here.

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