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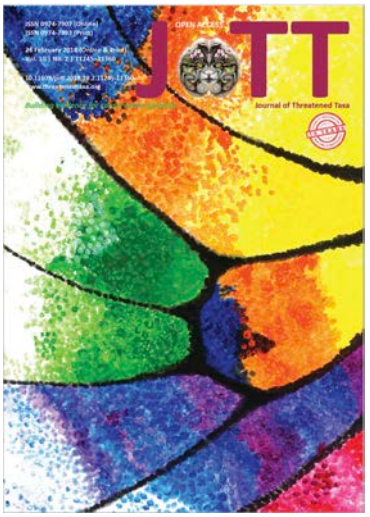

Short Communication

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SHORT COMMUNICATION

Records of new larval host plants of some common butterflies of Bangladesh

Tahsinur Rahman Shihan

Department of Zoology, Jahangirnagar University, Savar, Dhaka 1342, Bangladesh
Permanent Address: Belgachi Railgate Para, Chuadanga, Bangladesh
shihanrahman87@gmail.com

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Abstract: This paper presents the record of *Clausena heptaphylla* (Roxburgh) Wright & Arn. (Rutaceae) as a new larval host plant for *Papilio polytes* Linnaeus, 1758 and *Papilio demoleus* Linnaeus, 1758 (Papilionidae). *Ravenia spectabilis* Engl. (Rutaceae) for *Papilio demoleus* Linnaeus, 1758 (Papilionidae). *Hemigraphis hirta* (Vahl) T. Anders. (Acanthaceae) is the new recorded host for *Junonia almana* (Linnaeus, 1758) and *Junonia lemonis* (Linnaeus, 1758) (Nymphalidae) from Chuadanga, Bangladesh.

Keywords: *Clausena heptaphylla*, Chuadanga, *Hemigraphis hirta*, *Junonia almana, Junonia lemonias*, *Papilio demoleus*, *Papilio polytes*, *Ravenia spectabilis*.

No extensive survey work has been carried out so far to find out the diversity of butterfly species in Bangladesh in relation to the associated plants, and records of larval host plants of butterflies are not so well documented in Bangladesh (Larsen 2004; Bashar et al. 2006; Chowdhury & Hossain 2013; Bashar 2014). The main documentation was done by Bell (1911–1927), Kunte (2000, 2006) and (Mathew 2011) in the Indian region and it is followed for Bangladesh, so an opportunistic survey was conducted from February 2016 to November 2016 to document the larval host plants of butterflies in Chuadanga, Bangladesh (23.631262^{0}N & 88.848302^{0}E). This district is situated in the southwestern part of Bangladesh.

During the survey period, the egg laying behavior of female butterflies on host plants and their immature stages were observed. Many of the immature stages were collected and reared indoors in plastic containers under a controlled environment. The boxes were covered with a thin cloth to allow for air movement and to protect the larvae from parasitoids. The larvae were supplied with fresh young leaves and the containers were cleaned daily. The plants were just provided with water within the glass box. No food supplement was added. The eggs and larvae were reared till pupation and to adulthood. Additionally, immature stages were also observed in the natural environment. Immature stages and adult butterflies were identified according to: Tan 2011; Saji 2016; Saji et al. 2016a,b; and Saji & Karmakar 2016. Food plants were identified by the personal communication of Mr. Tapash Bardhan and Dr. Ahsan Habib and classification following ''The Plant List'' website (http://www.theplantlist.org).

The results and discussion about the records of new larval host plants of butterflies are given below:

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1. *Papilio polytes* Linnaeus, 1758 (Papilionidae)

Papilio polytes is found commonly throughout Bangladesh including urban areas. It inhabits gardens and other well-wooded areas, deciduous forests, semi-evergreen and evergreen forests. It is abundant in the monsoon and post-monsoon season, but is known to occur throughout the year. It occurs throughout the Oriental region (Kunte 2000; Varshney & Smetacek 2015). The caterpillars eat a wide variety of plants of many genera, but they are all either large shrubs or small trees of the family Rutaceae (Kunte 2000). Previously recorded larval host plants of this species are given in Table 1.

On 10 February 2016, a female *Papilio polytes* laid a single egg (Images 1 & 2) on the underside on a leaf of *Clausena heptaphylla* in a nursery in Islam Para, Chuadanga (23.630810^{0}N & 88.845383^{0}E). On 6th April 2016, the author observed a 4th instar larva (Images 3 & 4) feeding on the upperside on a leaf of *C. heptaphylla* of the same plant at the same place. The larva was collected and reared. The life cycle on *C. heptaphylla* is given in Images 1–7.

Clausena heptaphylla (Images 6 & 7) is a small bushy shrub growing 1–4m tall that grows in the forest and sometimes harvested in nurseries as an ornamental plant. It has been recorded as a larval host plant of Red Helen (*Papilio helenus*) (Mathew 2011). Although other species of the genus *Clausena*, viz., *C. excavata* and *C. lansium*, were recorded as larval host plants of *P. polytes* in Australia (http://en.butterflycorner.net/papilio-polytes), it is the first time that *C. heptaphylla* is recorded as a larval host plant.

2. *Papilio demoleus* Linnaeus, 1758 (Papilionidae)

Papilio demoleus is perhaps found in more diverse habitats than any other swallowtail (Kunte 2000). It is found in savannahs, fallow lands and gardens and in semi-evergreen and evergreen forests. It is found in large numbers along streams and river-banks. It occurs throughout the year, but more commonly during the monsoon and post-monsoon months. It is distributed in India, Pakistan, Afghanistan, Sri Lanka, Nepal, Bhutan and Myanmar (Kehimkar 2008; Varshney & Smetacek 2015). It mainly prefers plants belonging to family Rutaceae as a larval host plant but is also known to feed on other plant families such as Rhamnaceae and Fabaceae (Kunte 2000; Kehimkar 2008). The previously recorded larval host plants of this species are given in Table 1.

On 14 April 2016, two eggs were found on the underside of a mature leaf and buds of *Clausena heptaphylla* at Belgachi Railgate Para, Chuadanga (23.631454^{0}N & 88.849959^{0}E). Another newly laid egg (Image 8) on the upperside of leaf and four 1st instar larvae (Image 9) on young foliages were found on 18 April 2016 and a new egg were observed on the following day on the plant in the same place. On 19 May 2016, one 2nd instar larva (Image 10) on the upperside of a mature leaf and on 21 May 2016, four 1st instar larvae were found on leaves of the same plant (Images 6 & 7). The life cycle on *Clausena heptaphylla* is given in Images 8–19.

On 12 March 2016, a female was observed laying an egg (Image 21) on the young leaf of a young *Ravenia spectabilis* plant (Image 20) in the author's house in Belgachi Railgate Para, Chuadanga (23.631454^{0}N & 88.849959^{0}E). Since then the author regularly observed the plant and from 22-25 May 2016 five larvae were found on the plant. The larvae were kept on the plant in its natural condition and on 2 June 2016, only one 5th instar larva was left on the plant. The larva successfully pupated and the adult emerged in a few days. The life cycle on *Ravenia spectabilis* is given in Images 21–27.

3. *Junonia almana* (Linnaeus, 1758) (Nymphalidae)

Junonia almana is a very common butterfly distributed throughout the country. It inhabits the plains and hilly forests. It is most common on the plains and in forests up to an altitude of 4,000m. The dry season form camouflages and blends very well with its surroundings when it settles among dry, fallen leaves with the underside of the wings exposed (Mathew 2011). It is distributed in India, Nepal, Bhutan, Sri Lanka, Myanmar and Pakistan (Kehimkar 2008). Earlier recorded larval host plants of this species are given in Table 1.

On 17 May 2016, a female was seen laying eggs (Image 28) on the underside of leaves and young stem of *Hemigraphis hirta* (Images 37, 38 & 39) at Belgachi Railgate Para, Chuadanga (23.631471^{0}N & 88.849934^{0}E). Immediately, two out of five eggs with the host plant were collected and placed in a plastic pot with water. The eggs hatched after three days and took 19 days to complete their larval stage. The adults emerged 10 days after pupation. The lifecycle on *Hemigraphis hirta* is given in Images 28–36.

***4. Junonia lemonias* (Linnaeus, 1758) (Nymphalidae)**

Junonia lemonias is a common butterfly distributed in India, Nepal, Bhutan, Myanmar, Thailand, western Malaysia, Philippines, India, Hong Kong, Taiwan and Japan (Kehimkar 2008). It is seen in gardens, besides open farmlands and forest clearings. It is on its wing throughout the year. It is found up to 2000m in the hills. (Kehimkar 2008). Previously recorded larval host plants

of this species are given in Table 1.

A female was observed laying eggs on the underside of leaves of *Hemigraphis hirta* on 15 July 2016 at Belgachi Railgate Para, Chuadanga (23.631471^{0}N & 88.849934^{0}E). This time nine eggs were found and after a few minutes, the same female also laid eggs on the leaves, stem and flower buds of *Ruellia prostrata* (Acanthaceae). Two eggs were collected with plants from *Hemigraphis hirta* and reared in a plastic pot with water. Both eggs hatched after three days and pupated after 18 days. Adult emerged nine to 10 days after pupation. The lifecycle on *Hemigraphis hirta* is given in Images 39–42.

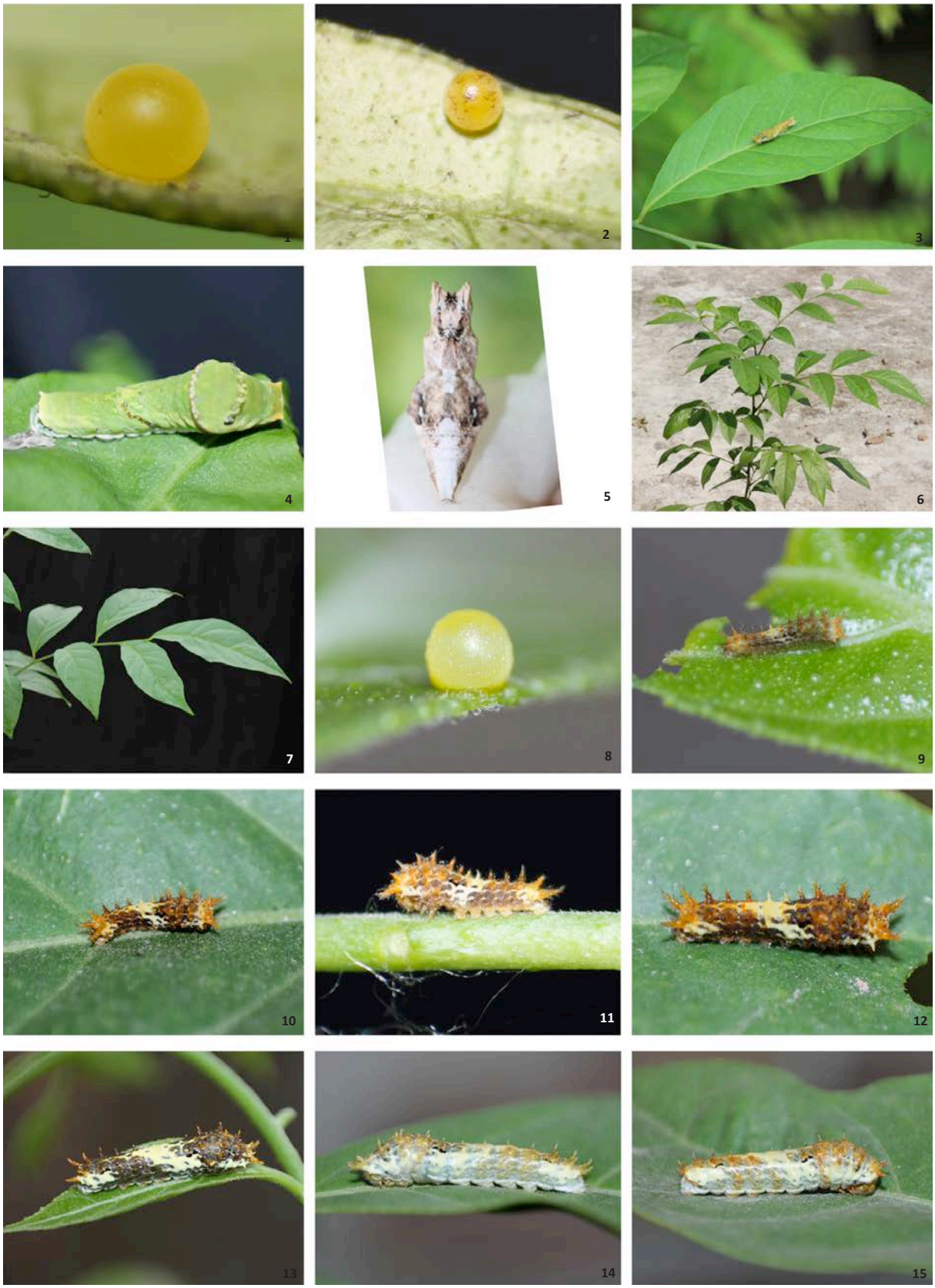
The new recorded larval host plants of *Papilio polytes* and *P. demoleus* indicate that these two species take on new larval food plants to extend and adapt to different habitats. It is also true for *Junonia almana* and *J. lemonias*. In this study, it clearly indicates that it could also be due to the fact that larval host plants are not properly recorded in Bangladesh and therefore, one might expect to find more host plants which have

Table 1. Earlier recorded larval host plants of *Papilio polytes, Papilio demoleus, Junonia almana* and *Junonia lemonias*

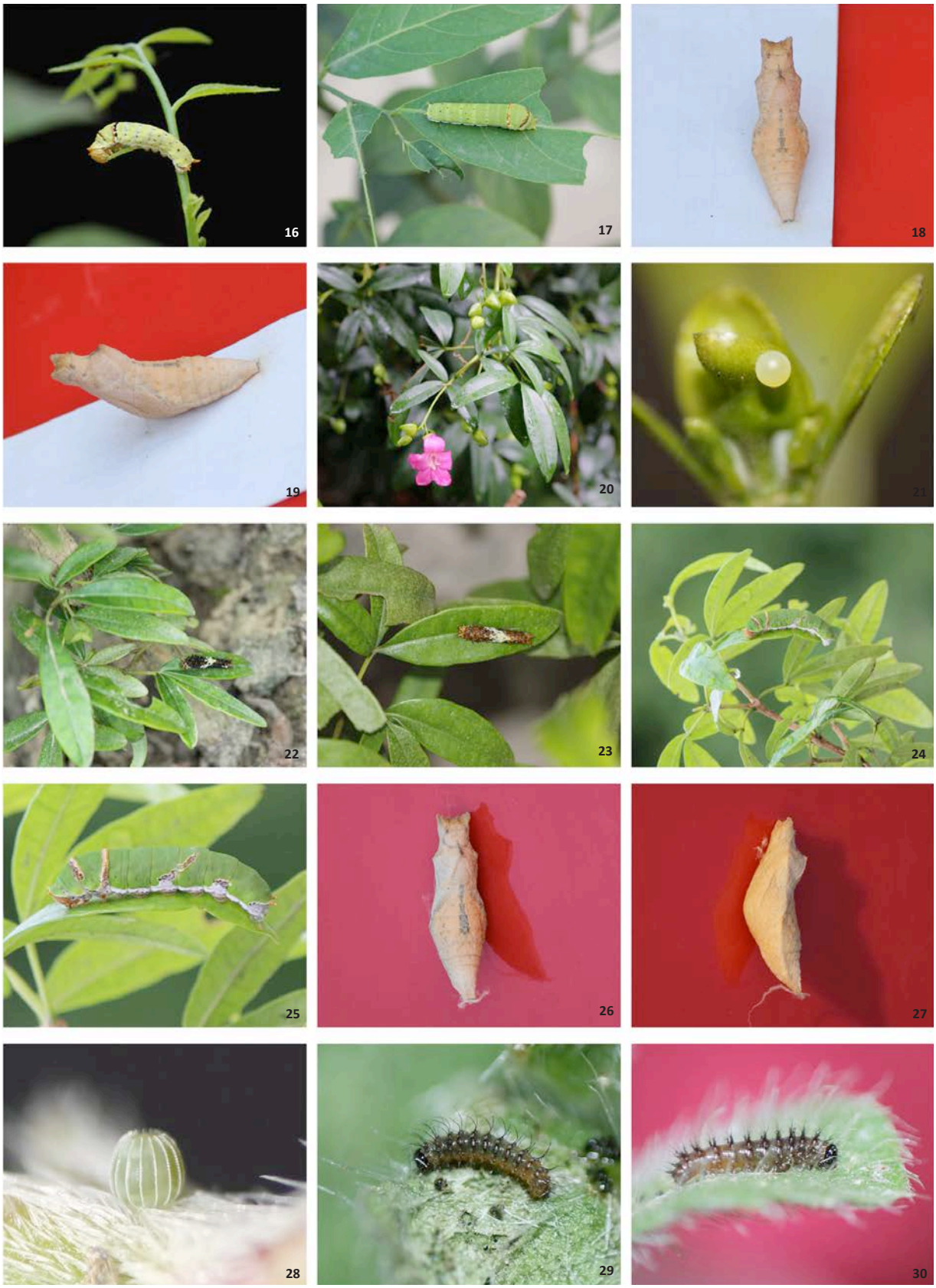
Butterfly name	Larval host plant name	Families	References
Papilio polytes	*Aegle marmelos* (L.) Corrêa	Rutaceae	Robinson et al. 2010; Mathew 2011; Tan 2011; Saji & Karmakar 2016
	Atalantia ceylanica (Arn.) Oliv.	Rutaceae	van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Atalantia monophylla DC.	Rutaceae	Robinson et al. 2010
	Atalantia racemosa Wight ex Hook.	Rutaceae	Kunte 2006; Mathew 2011
	Citrus aurantifolia (Christm.) Swingle	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Citrus aurantium L.	Rutaceae	Robinson et al. 2010
	Citrus hystrix DC.	Rutaceae	Robinson et al. 2010
	Citrus limon (L.) Osbeck	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Citrus maxima (Burm.) Merr.	Rutaceae	Robinson et al. 2010; Jayasinghe et al. 2014
	Citrus medica L.	Rutaceae	Robinson et al. 2010; Saji & Karmakar 2016
	Citrus reticulate Blanco	Rutaceae	Robinson et al. 2010
	Citrus sinensis (L.) Osbeck	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Citrus trifoliata L.	Rutaceae	Robinson et al. 2010
	Clausena excavata Burm. f.	Rutaceae	Robinson et al. 2010
	Clausena lansium (Lour.) Skeels	Rutaceae	Robinson et al. 2010
	Euodia meliifolia (Hance ex Walp.) Benth.	Rutaceae	Robinson et al. 2010
	Glycosmis angustifolia Lindl. Ex Wight & Arn.	Rutaceae	Robinson et al. 2010; Mathew 2011; Jayasinghe et al. 2014
	Glycosmis cochinchinensis (Lour.)	Rutaceae	Robinson et al. 2010
	Glycosmis mauritiana (Lam.) Tanaka	Rutaceae	Jayasinghe et al. 2014
	Glycosmis parviflora (Sims) Little	Rutaceae	Robinson et al. 2010
	Glycosmis pentaphylla (Retz.) DC	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014; Saji & Karmakar 2016
	Limonia acidissima Groff	Rutaceae	Jayasinghe et al. 2014
	Murraya koenigii (L.) Spreng.	Rutaceae	Robinson et al. 2010; Mathew 2011; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014; Saji & Karmakar 2016
	Murraya paniculata (L.) Jack	Rutaceae	Robinson et al. 2010; Jayasinghe et al. 2014; Saji & Karmakar 2016
	Pleiospermium alatum (Wight & Arn.)	Rutaceae	van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Ravenia spectabilis Engl.	Rutaceae	Saji & Karmakar 2016
	Atalantia buxifolia (Poir.) Oliv. ex Benth.	Rutaceae	Robinson et al. 2010
	Toddalia asiatica (L.) Lam.	Rutaceae	Woodhouse 1949; Robinson et al. 2010; Jayasinghe et al. 2014
	Triphasia trifolia (Burm.f.) P. Wilson	Rutaceae	Robinson et al. 2010
	Zanthoxylum armatum DC.	Rutaceae	Robinson et al. 2010; Saji & Karmakar 2016
	Zanthoxylum avicennae (Lam.) DC.	Rutaceae	Robinson et al. 2010

Butterfly name	Larval host plant name	Families	References
	Zanthoxylum culantrillo Kunth	Rutaceae	Robinson et al. 2010
	Zanthoxylum nitidum (Roxb.) DC.	Rutaceae	Robinson et al. 2010
	Zanthoxylum ovalifolium (Tutcher)	Rutaceae	Robinson et al. 2010
Papilio demoleus	*Acronychia pedunculata* (L.) Miq.	Rutaceae	Robinson et al. 2010
	Aegle marmelos (L.) Corrêa	Rutaceae	Woodhouse 1949; Robinson et al. 2010; van der Poorten & van der Poorten 2011; Mathew 2011; Jayasinghe et al. 2014; Saji et al. 2016b
	Atalantia buxifolia (Poir.) Oliv. ex Benth..	Rutaceae	Robinson et al. 2010
	Atalantia ceylanica (Arn.) Oliv.	Rutaceae	Jayasinghe et al. 2014
	Chloroxylon swietenia DC.	Rutaceae	Robinson et al. 2010; Mathew 2011; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014; Saji et al. 2016b
	Citrus aurantiifolia (Christm.) Swingle	Rutaceae	Woodhouse 1949; Robinson et al. 2010; Mathew 2011; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Citrus aurantium L	Rutaceae	Robinson et al. 2010
	Citrus hystrix DC.	Rutaceae	Robinson et al. 2010
	Citrus limon (L.) Osbeck	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Citrus maxima (Burm.) Merr.	Rutaceae	Robinson et al. 2010
	Citrus medica L.	Rutaceae	Robinson et al. 2010; Saji et al. 2016b
	Citrus japonica Thunb.	Rutaceae	Kunte 2000
	Citrus reticulata Blanco	Rutaceae	Robinson et al. 2010
	Citrus sinensis (L.) Osbeck	Rutaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Clausena anisata (Willd.) Hook.f. ex Benth.	Rutaceae	Robinson et al. 2010
	Clausena dentata (Willd.) Roem.	Rutaceae	Saji et al. 2016b
	Clausena excavata Burm. f.	Rutaceae	Robinson et al. 2010
	Cullen corylifolium (L.) Medik.	Fabaceae	Robinson et al. 2010; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014
	Fagraea crenulata Maingay ex C.B. Clarke	Loganiaceae	Robinson et al. 2010
	Flindersia brayleyana F. Muell.	Rutaceae	Robinson et al. 2010
	Glycosmis parviflora (Sims) Little	Rutaceae	Robinson et al. 2010
	Glycosmis pentaphylla (Retz.) DC.	Rutaceae	Woodhouse 1949; Robinson et al. 2010; Mathew 2011, Jayasinghe et al. 2014; Saji et al. 2016a
	Limonia acidissima Groff	Rutaceae	Woodhouse 1949; van der Poorten & van der Poorten 2011; Jayasinghe et al. 2014; Saji et al. 2016b
	Magnolia champaca var. *pubinervia* (Blume) Figlar & Noot.	Magnoliaceae	Robinson et al. 2010
	Murraya koenigii (L.) Spreng.	Rutaceae	Robinson et al. 2010; Mathew 2011; Saji et al. 2016b
	Pamburus missionis (Wight) Swingle	Rutaceae	Jayasinghe et al. 2014
	Psoralea leucantha F. Muell.	Leguminosae	Robinson et al. 2010
	Psoralea patens Lindl.	Leguminosae	Robinson et al. 2010
	Psoralea pinnata L.	Leguminosae	Robinson et al. 2010
	Psoralea tenax Lindl.	Leguminosae	Robinson et al. 2010
	Ruta angustifolia Pers.	Rutaceae	Robinson et al. 2010
	Ruta graveolens L.	Rutaceae	Robinson et al. 2010; Tan 2011; Mathew 2011
	Toddalia asiatica (L.) Lam.	Rutaceae	Robinson et al. 2010
	Zanthoxylum nitidum (Roxb.) DC.	Rutaceae	Robinson et al. 2010
	Zanthoxylum culantrillo Kunth	Rutaceae	Robinson et al. 2010
	Ziziphus jujuba Mill.	Rhamnaceae	Woodhouse 1949; Robinson et al. 2010; Saji et al. 2016b
Junonia almana	*Alternanthera philoxeroides* (Mart.) Griseb.	Amaranthaceae	Robinson et al. 2010
	Antirrhinum majus L.	Scrophulariaceae	Robinson et al. 2010

Butterfly name	Larval host plant name	Families	References
	Barleria cristata L.	Acanthaceae	Robinson et al. 2010; Saji 2016
	Blechum pyramidatum (Lam.) Urb.	Acanthaceae	Robinson et al. 2010
	Dyschoriste repens (Nees) Kuntze	Acanthaceae	Robinson et al. 2010
	Hygrophila auriculata (Schumach.) Heine	Acanthaceae	Mathew 2011; Jayasinghe et al. 2014; Saji 2016
	Hygrophila costata Nees	Acanthaceae	Robinson et al. 2010
	Hygrophila ringens var. *ringens*.	Acanthaceae	Robinson et al. 2010
	Lindernia anagallis (Burm.f.) Pennell	Linderniaceae	Jayasinghe et al. 2014
	Lindernia antipoda (L.) Alston	Linderniaceae	Robinson et al. 2010
	Lindernia ciliata (Colsm.) Pennell	Linderniaceae	Robinson et al. 2010
	Lindernia microcalyx Pennell & Stehlé	Linderniaceae	Robinson et al. 2010
	Lindernia pusilla (Willd.) Bold.	Linderniaceae	Jayasinghe et al. 2014
	Mimosa pudica L.	Leguminosae	Robinson et al. 2010; Mathew 2011
	Mimulus gracilis R.Br.	Phyrmaceae	Robinson et al. 2010
	Pennisetum glaucum (L.) R.Br..	Gramineae	Robinson et al. 2010
	Phyla nodiflora (L.) Greene	Verbenaceae	Robinson et al. 2010; Mathew 2011;Jayasinghe et al. 2014; Saji 2016
	Plantago major L.	Plantaginaceae	Robinson et al. 2010
	Ruellia repens L.	Acanthaceae	Tan 2011
	Ruellia tuberosa L.	Acanthaceae	Robinson et al. 2010; Jayasinghe et al. 2014
	Stachytarpheta jamaicensis (L.) Vahl	Verbenaceae	Robinson et al. 2010
	Strobilanthes japonica (Thunb.) Miq.	Acanthaceae	Robinson et al. 2010
	Strobilanthes oliganthus Miq.	Acanthaceae	Robinson et al. 2010
	Strobilanthes schomburgkii (Craib) J.R.I.Wood	Acanthaceae	Robinson et al. 2010
Junonia lemonias	*Alternanthera sessilis* (L.) R.Br. ex DC.	Amaranthaceae	Robinson et al. 2010
	Barleria cristata L.	Acanthaceae	Robinson et al. 2010; Saji et al. 2016a
	Barleria prionitis L.	Acanthaceae	Robinson et al. 2010, Jayasinghe et al. 2014; Saji et al. 2016a
	Blechum pyramidatum (Lam.) Urb.	Acanthaceae	Robinson et al. 2010
	Cannabis sativa L.	Cannabaceae	Mathew 2011; Saji et al. 2016a
	Dyschoriste repens (Nees) Kuntze	Acanthaceae	Robinson et al. 2010
	Eranthemum pulchellum Andrews	Acanthaceae	Robinson et al. 2010
	Hygrophila costata Nees	Acanthaceae	Robinson et al. 2010
	Hygrophila auriculata (Schumach.) Heine.	Acanthaceae	Mathew 2011; Jayasinghe et al. 2014; Saji et al. 2016a
	Hygrophila ringens var. *ringens*	Acanthaceae	Robinson et al. 2010
	Justicia procumbens L.	Acanthaceae	Saji et al. 2016a
	Lepidagathis formosensis C.B. Clarke ex Hayata	Acanthaceae	Robinson et al. 2010
	Lepidagathis incurva Buch.-Ham. ex D. Don	Acanthaceae	Robinson et al. 2010
	Lindernia rotundifolia (L.) Alston	Linderniaceae	Jayasinghe et al. 2014
	Nelsonia canescens (Lam.) Spreng.	Acanthaceae	Robinson et al. 2010; Mathew 2011
	Ophiorrhiza japonica Blume	Rubiaceae	Robinson et al. 2010
	Phyla nodiflora (L.) Greene	Verbenaceae	Robinson et al. 2010
	Ruellia tuberosa L.	Acanthaceae	Robinson et al. 2010
	Ruellia simplex C.Wright	Acanthaceae	Saji et al. 2016a
	Sida rhombifolia L.	Malvaceae	Robinson et al. 2010; Mathew 2011
	Strobilanthes formosanus S. Moore	Acanthaceae	Robinson et al. 2010
	Strobilanthes schomburgkii (Craib) J.R.I.Wood	Acanthaceae	Robinson et al. 2010



Images 1–15. *Papilio polytes* (1 - new egg; 2 - mature egg; 3 - 4th instar larva; 4 - 5th instar larva; 5 - pupa); *Clausena heptaphylla* (6 - Plant; 7 - Mature leaves); *Papilio demoleus* (8 - new egg; 9 - 1st instar larva; 10 - 2nd instar larva; 11 - 2nd instar larva; 12 - 3rd instar larva; 13–15 - 4th instar larva) © Tahsinur Rahman Shihan



Images 16–30. ***Papilio demoleus*** **(16–17 - 5th instar larva; 18–19 - Pupa);** ***Ravenia spectabilis*** **(20 - Flower with leaves);** ***Papilio demoleus*** **(21 - new egg; 22 - 3rd instar larva; 23 - 4th instar larva; 24–25 - 5th instar larva; 26–27 - Pupae);** ***Junonia almana*** **(28 - egg; 29 - 1st instar larva; 30 - 2nd instar larva) © Tahsinur Rahman Shihan**

Images 31–42. *Junonia almana* (31 - 3rd instar larva; 32 - 4th instar larva; 33 - 5th instar larva; 34 - 6th instar larva; 35–36 - pupae); *Hemigraphis hirta* (37 - plants; 38 - flowers); *Junonia lemonias* (39 - 2nd instar larva; 40 - 6th instar larva; 41–42 - pupae) © Tahsinur Rahman Shihan

not been reported earlier. Extensive field surveys might help in understanding the dietary breadth of butterflies locally.

References

Bashar, M.A. (2014). *Butterflies of Bangladesh. A Broad Approach for Nature Lovers, Vol. 1. (Papilionidae, Nymphalidae, Pieridae, Danaidae and Lycaenidae)*. Biodiversity Conservation Trust Foundation, University of Dhaka, Bangladesh, 514pp.

Bashar, M.A., M.A. Mamun, A.F.M. Aslam & A.K. Chowdhury (2006). Biodiversity maintenance and conservation of butterfly-plant association in some forests of Bangladesh. *Bangladesh Journal of Zoology* 34(1): 55–67.

Bell, T.R. (1911–1927). The common butterflies of the plains of India (including those met with in the hill stations of the Bombay presidency) Part 1–23. *Journal of the Bombay Natural History Society* 20(4)–26(3): 750–759.

Chowdhury, S.H. & M. Hossain (2013). *Butterflies of Bangladesh-A Pictorial Handbook (Revised and enlarged version I)*. Skylark

Printers, Dhaka, Bangladesh, 260pp.

Jayasinghe, H.D., S.S. Rajapaksha & C. de Alwis (2014). A compilation and analysis of food plants utilization of Sri Lankan butterflies larvae (Papilionoideae). *Taprobanica* 6(2): 110–131; http://doi.org/10.4038/tapro.v6i2.7193

Kehimkar, I. (2008). *The Book of Indian Butterflies*. Bombay Natural History Society and Oxford University Press, Mumbai, India, 497pp.

Kunte, K. (2000). *Butterflies of peninsular India*. Indian academy of Sciences and Universities Press, Hyderabad, 254pp.

Kunte, K. (2006). Addition to known larval host plants of Indian butterflies. *Journal of Bombay Natural History Society* 103(1): 119–122.

Larsen, T.B. (2004). *Butterflies of Bangladesh - An Annotated Checklist*. IUCN, Bangladesh, 158pp.

Mathew, G. (2011). *A Handbook on the Butterflies of Nilgiri Biosphere Reserve*. Kerala Forest Research Institute. Thrissur, Kerala, India, 218pp.

Robinson, G.S., P.R. Ackery, I.J. Kitching, G.W. Beccaloni & L.M. Hernández (2010). HOSTS - A Database of the World's Lepidopteran Hostplants. Natural History Museum, London. http://www.nhm.ac.uk/hosts. Accessed 20 November 2016

Saji, K. (2016). *Junonia almana* Linnaeus, 1758 - Peacock Pansy. In: Kunte, K., P. Roy, S. Kalesh and U. Kodandaramaiah (eds.). Butterflies of India, v. 2.24. Indian Foundation for Butterflies. http://www.ifoundbutterflies.org/sp/527/Junonia-almana Accessed 23 November 2016

Saji, K., A. Soman & S. Mazumder (2016a). *Junonia lemonias* Linnaeus, 1758 - Lemon Pansy. In: Kunte, K., P. Roy, S. Kalesh and U. Kodandaramaiah (eds.). Butterflies of India, v. 2.24. Indian Foundation for Butterflies. http://www.ifoundbutterflies.org/sp/772/Junonia-lemonias Accessed 23 November 2016

Saji, K., H. Ogale, A. Bora & P. Manoj (2016b). *Papilio demoleus* Linnaeus, 1758 - Lime Swallowtail. In: Kunte, K., P. Roy, S. Kalesh and U. Kodandaramaiah (eds.). Butterflies of India, v. 2.24. Indian Foundation for Butterflies. http://www.ifoundbutterflies.org/sp/602/Papilio-demoleus Accessed on 23 November 2016

Saji, K. & T. Karmakar (2016). *Papilio polytes* Linnaeus, 1758 - Common Mormon. In: Kunte, K., P. Roy, S. Kalesh and U. Kodandaramaiah (eds.). Butterflies of India, v. 2.24. Indian Foundation for Butterflies. http://www.ifoundbutterflies.org/sp/603/Papilio-polytes

Tan, H. (2011). Life History of the Peacock Pansy (*Junonia almana javana*) http://butterflycircle.blogspot.com/2011/05/life-history-of-peacock-pansy.html Accessed on 23 November 2016.

The Plant List (2013). http://www.theplantlist.org Accessed on 10 April 2017

van der Poorten, G. & N. van der Poorten (2011). New and revised descriptions of the immature stages of some butterflies in Sri Lanka and their larval food plants (Lepidoptera: Papilionidae). *The Journal of Research on the Lepidoptera* 44: 111–127.

Varshney, R.K. & P. Smetacek (eds.) (2015). *A Synoptic Catalogue of the Butterflies of India*. Butterfly Research Centre, Bhimtal and Indinov Publishing, New Delhi, ii+261pp.

Woodhouse, L.G.O. (1949). *The Butterfly Fauna of Ceylon, Second Complete Edition*. The Colombo Apothecaries' Co. Ltd., Colombo, 231pp.

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