

Checklist of butterfly host plants from Nashik District, Maharashtra, India

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ABSTRACT

Total 91 butterfly species comprising 65 genera, along with their host plants were recorded from Nashik District. Plants belonging to families Cupressaceae, Menispermaceae, Fabaceae, Malvaceae, Solanaceae, Convolvulaceae, Tiliaceae, Euphorbiaceae, Mimosaceae, Ebenaceae, Sapotaceae, Sapindaceae, Brassicaceae, Asteraceae, Poaceae, Linaceae, Chenopodiaceae; with subsequent less proportion of plants from families Myrtaceae, Rutaceae, Rhizophoraceae, Periplocaceae, Combretaceae, Thymeliaceae, Fagaceae, Santalaceae were recorded as butterfly host plants from Nashik District. Several adaptations for escaping threats like camouflage, unpalatability and mimicry were also recorded in certain butterfly species.

Key words: Butterfly, Host plants, Nashik district, Camouflage, Unpalatability, Mimicry

Introduction

About 18,000 species of butterflies are recorded from the world of which India hosts 1,501 species (Kunte, 2007; Kehimkar, 2008). All butterflies are good botanists as they are host specific. This makes them excellent indicators of environmental conditions. When habitats are destroyed, butterflies are among the first species to disappear, often because of their host plants disappearance. The larvae have a well-developed head with chewing mouthparts. Adults feed on nectar of flowers for nutrients. Adults are good pollinators, so assist for good yield of crops. Butterfly conservation without knowledge of host plants will be very difficult. Host plants play crucial role in maintaining the rich diversity of butterflies. During 2009 to 2015 total 91 species of butterflies are recorded from Nashik district, Maharashtra. In the Present investigation host plants record of these 91 butterfly species from Nashik District is given.

Materials and Methods

Butterfly diversity data was collected through two sampling methods, Random Survey and Line Transact Method. Random survey was done to record butterfly species and line Transact method was used to study diversity of butterflies. Most of the butterfly species were readily identified in the field itself. Kunte (2007), Kehimkar, (2008) and Singh, (2011) were used for authentic identification.

Butterfly host plants were recorded during random survey as well as transact method.

Ajravelu (1990); Deshpande *et al.* (1993); Sharma *et al.* (1993); Sasidharan (1997); and Sivarajan and Mathew (1997) were used for plant identification.

Observation

Family: Papilionidae – Swallowtails

1. *Atrophaneura aristolochiae* Fabricius (Common Rose): *Aristolochia bracteolate*, *A. elegans*, *A. indica*, *A. tagala*, *Thottea siliquosa*

2. *Atrophaneura hector* Linnaeus (Crimson Rose): *Aristolochia bracteolata*, *A. indica*, *Thotteasiliquosa*
3. *Graphium agamemnon* Linnaeus (Tailed Jay): *Annona discolor*, *A. squamosa*, *A. reticulata*, *Artabotrys hexapetalus*, *Cinnamomum* spp. *Michelia champaca*, *Miliusa tomentosum*, *Polyalthia cerasoides*, *P. logifolia*
4. *Graphium doson* C. & R. Felder (Common Jay): *Annona lawii*, *Cinnamomum macrocarpum*, *Mangolia grandifolia*, *Micheliachampaca*, *Miliusa tomentosum*, *Poltalthialongifolia*
5. *Papilio demoleus* Linnaeus (Lime Butterfly): *Citrus aurantifolia*, *C. grandis*, *C. limon*, *C. sinensis*, *Murrayakoenigii*, *Limoniacrenulata*. In forest on *Aegle marmelos*, *Atalatia recemosa*, *Chloroxylon swietenia*, *Glycosmis arborea*, *Murrayapaniculata*
6. *Papiliopolytes* Linnaeus (Common Mormon): *Atalatiarecemosa*, *Aegle marmelos*, *Citrus aurantifolia*, *C. limon*, *C. sinensis*, *Glycosmis arborea*, *Murrayapaniculata*, *Murrayakoenigii*,
7. *Papiliopolymnestor* Cramer (Blue Mormon): *Atalantiaracemosa*, *A. wightii*, *Glycosmis arborea*, *Paramigynameonophylla*, *Citrus grandis*, *C. lemon*

Family: Pieridae – Yellows and whites

1. *Catopsilia pomona* Fabricius (Common Emigrant): *Cassia fistula*, *C. siamea*, *C. tora*, *Butea frondosa*, *Bauhinia recemosa*
2. *Catopsilia pyranthe* Linnaeus (Mottled Emigrant): *Cassia auriculata*, *C. fistula*, *C. tora*, *C. occidentalis*, *Sesbania bispinosa*.
3. *Eurema brigitta* Cramer (Small Grass Yellow): *Polyphagous*. *Mimosaceae* plants.
4. *Eurema hecabe* Linnaeus (Common Grass Yellow): *Cassia kelinii*
5. *Eurema laeta* Boisduval (Spotless Grass Yellow): *Cassia pumila*
6. *Eurema blanda* Boisduval (Three Spot Grass Yellow): *Cassia* spp. *Delonix regia*
7. *Delias eucharis* Drury (Common Jezebel): *Dendrophthoe falcata*, *Helicanthus elastica*, *Scurrular parasitica*
8. *Leptosianina* Fabricius (Psyche): *Capparis rheedii*, *C. spinosa*, *C. zeylanica*, *Cleome viscosa*, *Crateva adasonii*
9. *Pieris canidia* Linnaeus (Indian Cabbage White): *Rorippa dubia*, *Brassica oleracea*
10. *Ceporanerissa* Fabricius (Common Gull): *Cabada fruticosa*, *Capparis deciduas*, *Capparis rheedii*, *Capparis sepiaria*, *C. zeylanica*, *Maerua oblongifolia*
11. *Hebomoia glaucippe* Linnaeus (Great Orange Tip): *Capparis sepiaria*, *C. zeylanica*, *C. spinosa*
12. *Ixias Marianne* Cramer (White Orange Tip): *Capparis decidua*, *Capparis grandis*, *Capparis sepiaria*
13. *Ixias pyrene* Linnaeus (Yellow Orange Tip): *Capparis sepiaria*
14. *Colotis danae* Fabricius (Crimson Tip): *Cabada fruticosa*, *Capparis divaricata*, *Capparis sepiaria*, *Maerua oblongifolia*
15. *Calotis amata* Fabricius (Small Salmon Arab): *Salvadorapersica*, *S. oleoides*
16. *Pareroniavalera* Cramer (Common Waderer): *Capparis rheedii*, *C. zeylanica*
17. *Anaphaeis aurota* Fabricius (Pioneer): *Capparis deciduas*, *Capparis rheedii*, *C. zeylanica*, *C. spinosa*, *Capparis sepiaria*, *Capparis pyrofolia*, *Maerua oblongifolia*, *Cabada fruticosa*
18. *Appia salbina* Boisduval (Common albatross): *Drypetes oblongifolia*, *Drypetes rox burghii*, *Drypetes venusta*

Family: Nymphalidae – Brush-footed Butterfly

1. *Melanitis leda* Linnaeus (Common Evening Brown): *Cyrotococcum* spp., *Oplismenus composites*, *Oryza sativa* *Panicum* spp, *Sorghum* spp, *Zea mays*
2. *Melanitis phedima* Cramer (Dark Evening Brown): *Cyrotococcum* spp., *Oplismenus composites*, *Oryza sativa* *Panicum* spp, *Sorghum* spp, *Zea mays*
3. *Lethe europa* Fabricius (Bamboo Treebrown): *Bambusa* spp
4. *Mycalesis perseus* Fabricius (Common Bushbrown): *Oryza* spp.
5. *Ypthimabaldus* Fabricius (Common Five-ring): *Grasses*
6. *Ypthimahuebneri* Kirby (Common Four-ring): *Grasses*
7. *Ypthima asterope* (Common three-ring): *Grasses*
8. *Elymnias hypermnestra* Linnaeus (Common palmfly): *Areca catechu*
9. *Acraea violae* Fabricius (Tawny Coster): *Passiflora edulis*, *Passiflora foetida*, *Passiflora subpeltata*
10. *Phalanta phalantha* Drury (Common Leopard): *Flacourtia montana*, *Flacourtia indica*, *Salix*
11. *Euthalianais* Forster (Baronet): *Diospyros melanoxylon*, *Shorear busta*
12. *Neptishylas* Moore (Common Sailor): *Bombax ceiba*, *Canavalia gladiata*, *Corchorus* spp., *Flemingia* spp
13. *Athyma perius* Linnaeus (Common Sergeant): *Glochidion lanceolarum*, *G. velutinum*

14. *Euthaliaaconthea* Cramer (Common Baron): *Mangifera indica*
15. *Ariadne ariadne* Linnaeus (Angled Castor): *Ricinus communis*
16. *Ariadne merione* Cramer (Common Castor): *Ricinus communis*
17. *Bybliailithyia* Drury (Joker): *Tragia involucrate*, *T. plukentii*
18. *Tirumala limniace* Cramer (Blue Tiger): *Wattakakavolubilis*, *Calotropis gigantia*, *Asclepias curassavica*, *Tylophora indica*
19. *Tirumala septentrionis* Butler (Dark Blue Tiger): *Wattakakavolubilis*, *Calotropis gigantia*, *Asclepiascurassavica*, *Tylophora indica*
20. *Danaus chrysippus* Linnaeus (Plain Tiger): *Calotropis gigantia*, *Asclepiascurassavica*
21. *Danaus genutia* Cramer (Striped Tiger): *Asclepias curassavica* *Ceropegia intermedia*, *Tylophora indica*
22. *Euploea core* Cramer (Common Indian Crow): *Ficus racemosa*, *Nerium odorum*, *Ficus bengalensis*, *Ficus religiosa*, *Tylophora indica*
23. *Paranticaaglea* Stoll (Glassy Tiger): *Calotropis spp*, *Tylophora indica*
24. *Charaxes solon* Fabricius (Black Rajah): *Tamarindus indica*, *Bauhinia racemosa*
25. *Kallimahorsfieldii* Kollar (Blue Oakleaf): *Carviacallosa*, *Elanthemum*, *malabricum*
26. *Cynthia cardui* Linnaeus (Painted Lady): *Zornia gibbosa*
27. *Junonialemonias* Linnaeus (Lemon Pansy): *Barleriaspp*, *Cannabis sativa*, *Corchorus capisularis*, *Hygrophila auriculata*, *Nelsoniacanescens*, *Sidarhombifolia*
28. *Junonia almanac* Linnaeus (Peacock Pansy): *Hygrophila auriculata*, *Barleriaspp*
29. *Junoniaatlites* Linnaeus (Gray Pansy): *Hygrophila auriculata*, *Barleriaspp*
30. *Junoniaorithya* Linnaeus (Blue Pansy): *Hygrophila auriculata*, *Barleriaspp*
31. *Junoniahierta* Fabricius (Yellow Pansy): *Hygrophila auriculata*, *Barleriaspp*
32. *Precisiphita* Cramer (Chocolate Pansy): *Hygrophila auriculata*, *Carviacallosa*
33. *Hypolimnasmisippus* Linnaeus (Danaid Eggfly): *Portulaca oleracea*, *Asystacialawiana*, *Abelmoschus spp*, *Abutilon spp*, *Barleria cristata*, *Hibiscus spp*
34. *Hypolimnasbolina* Linnaeus (Great Eggfly): *Laportaeinterrupta*, *Portulaca oleracea*, *Hibiscus spp*
- Zizipusmaurtiana*, *Z. Rugosa*
2. *Caletacaleta* Hawiston (Angled Pierrot): *Zizipusmaurtiana*, *Z. Rugosa*
3. *Tarucusnara* Kollar (Rounded Pierrot): *Zizipusmaurtiana*, *Z. Rugosa*
4. *Jamides celeno* Cramer (Common Cerulean): *Abruspreparatorius*, *Pongamina pinnata*, *Fabaceae*, *Meliaceae*, *Mimosaceae*
5. *Antheneemolus* Godart (Common Ciliated Blue): *Saracaasoca*, *Terminalia paniculata*
6. *Anthelycaenina* C. and R.Felder (Pointed Ciliated Blue): *Saracaasoca*, *Terminalia paniculata*
7. *Chiladeslarius* Stoll (Lime Blue): *Atalantiaracemosa*, *Atalantiawightii*, *Citrus limon*, *Citrus sinensis*, *Naringicrenulata*
8. *Pseudozizeeriamaha* Kollar (Pale Grass Blue): *Oxalis corniculata*, *Tethrosias pp.*, *Strobilanthes spp.*,
9. *Zizulahylax* Fabricius (Tiny Grass Blue): *Lantana camara*, *Hygrophila auriculata*, *Nelsoniacanescens*, *Phaulopsisdorsiflora*, *Strobilanthes spp .*, *Vicia spp*
10. *Zineeriakarsandra* Moore (Dark Grass Blue): *Amaranthus spinosus*
11. *Talicaa nyseus* Guerin Meneville (Red Pierrot): *Kalanchoe laciniata*, *K. Pinnata*
12. *Freyeriatrochylus* Freyer (Grass Jewel): *Pisum sativum*, *Goniogynahirta*, *Rhyncosia minima*, *Vicia spp.*
13. *Euchrysoptismcnejus* Fabricius (Gram Blue): *Acacia spp.*, *Butea menosperma*, *Bean & grain spp*, *Pisum Sativum*
14. *Jamidesbochus* Stoll (Dark cerulean): *Abruspreparatorius*, *Pongamina pinnata*, *Fabaceae*, *Meliaceae*, *Mimosaceae*
15. *Jamidesalecto* C. and R. Felder (Metallic cerulean): *Abruspreparatorius*, *Pongamina pinnata*, *Fabaceae*, *Meliaceae*, *Mimosaceae*
16. *Prostasnora* C. Felder (Common lineblue): *Abruspreparatorius*, *Pongamina pinnata*, *Fabaceae*, *Meliaceae*, *Mimosaceae*
17. *Chiladespandava* Horsfield (Plains cupid): Cultivated varieties of grams and beans, *Acacia spp.*
18. *Lampidesboeticus* Linnaeus (Pea blue): *Butea monosperma*, *bean and gram species*. *Pisum sativum*, *Vigna sinensis*, *Crotalaria spp.*
19. *Abisaraecherius* Stoll (Plum Judy): *Embeliarobusta*, *Ardisia spp.*
20. *Curetis thetis* Drury (Indian Sunbeam): *Pongamia pinnata*
21. *Curetis bulis* Westwood (Bright Sunbeam): *Pongamia pinnata*

Family: Lycaenidae – Blues

1. *Castaliusrosimon* Fabricius (Common Pierrot):

22. *Tajuriajehana* Moore (Plains Blue Royal): *Dendrophthoe* spp
23. *Spindasisvulcanus* Fabricius (Common Silverline): *Cabadafruticosa*, *Zizyphusmauritiana*
24. *Sinadasiselima* Moore (Scarce shot silverline): *Cabadafruticosa*, *Zizyphusmauritiana*
25. *Rapala jarbus* Fabricius (Indian Red flash): *Zizyphus. Rugosa*
26. *Deudorisisocrates* Fabricius (Guava Blue): *Tamarindus indica*, *Punica granatum*

Family: HesperIIDae – Skippers

1. *Borbocinnara* Wallace (Rice Swift): *Oryza and Setariaspp*, *O. sativa*, *S. glauca*, *S. pumila*.
2. *Udaspesfolus* Cramer (Grass Demon): *Curcuma aromatic*, *C. deciepien*, *Zingeberspp*.
3. *Telicota ancilla* Mabillae (Common Grass Dart): *Oryza sativa*
4. *Telicota ancilla* Herrich-Schaffer (Dark Palm Dart): *Bamboo spp*, *Oryza spp*.
5. *Hasorachromus* Cramer (Common Banded Awl): *Pongamia pinnata*, *Ricinus communi*, *Trichiliaconnaroides*
6. *Sarangesadasahara* Moore (Common small flat): *Asystasia spp.*, *Blepharisperima*.

Results and Discussion

Total 91 butterfly species comprising 65 genera, along with their host plants were recorded from Nashik District.

Plants belonging to families Cupressaceae, Menispermaceae, Fabaceae, Malvaceae, Solanaceae, Convolvulaceae, Tiliaceae, Euphorbiaceae, Mimosaceae, Ebenaceae, Sapotaceae, Sapindaceae, Brassicaceae, Asteraceae, Poaceae, Linaceae, Chenopodiaceae; with subsequent less proportion of plants from families Myrtaceae, Rutaceae, Rhizophoraceae, Periplocaceae, Combretaceae, Thymeliaceae, Fagaceae, Santalaceae were recorded as butterfly host plants from Nashik District.

During present investigation several adaptations for escaping threats like camouflage, unpalatability and mimicry were also recorded. Pansys, Bushbrowns and Evening browns and Blue Oakleaf were found to camouflage themselves among dry

leaves. Some butterfly species in their larval stage feeds on certain alkaloids which makes them unpalatable for their predator. In Peninsular India nearly 20 unpalatable species are recorded by Kunte (2007). During present investigations ten unpalatable species have been recorded from Nashik district namely: Common Jezebel, Common Rose, Crimson Rose, Blue Tiger, Dark Blue Tiger, Glassy Tiger, Plain Tiger, Striped Tiger, Common Indian Crow and Tawny Coster. Batsian Mimicry among butterflies was recorded during present investigation. Danaid eggfly female mimics Plain Tiger, Common Palmfly female mimics striped tiger, Common wanderer female mimics Blue Tiger, Great Eggfly female mimics Common Indian Crow, *Stichius* form of Common Mormon female mimics Common Rose, *Roumulus* form of Common Mormon female mimics Crimson Rose and Two clusters of Mullerian butterflies were recorded during present investigation namely: Tawny tiger cluster which include Plain Tiger, Striped Tiger and Blue Tiger cluster which include Blue Tiger, Dark Blue Tiger and Glassy Tiger. Kunte (2007), Kehimkar, (2008) and Singh, (2011) were used for authentic identification.

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