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Butterflies and Their Floral Hosts: A Survey from Alathur, Palakkad

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Abstract: ***The present study on Documentation Of Butterfly- Plant Diversity In Alathur Area Near Palakkad documented 28 plant species which are belonging to 17 families and 29 genera were pollinated by various kinds of butterflies were observed. Among the 17 families documented the family Poaceae being attracted by higher number of butterflies with five species of butterfly followed by Rutaceae with 4 species Apocynaceae and Acanthaceae with 3 species Aristolachiaceae Asclepiadaceae, Zingerberaceae and Euphorbiaceae with 2 species and Rhamnaceae ,Arecaceae , Malvaceae ,Dioscoreaceae , Portulacaceae and Lauraceae with one species respectively. Life cycle of selected butterflies are also studied.***
Keywords: Host Plants, Ecology, Biological Indicators.

I. INTRODUCTION

Insects have always strong interactions with plants and other biotic components of any ecosystem. They often visit flowers for nectar or pollen may or may not pollinate the plant species. Butterflies takes part in the significant ecological process of pollination. The interaction between butterflies and flowers is so strong that the availability of nectar resources invariably appears as one of the main factors explaining the butterfly abundance in semi-natural or natural habitats.

Insects have unrivalled supremacy among living organisms constituting, as they do, the largest faunal component inhabiting the earth, occupying almost all ecological niches, from the frozen Arctic and Antarctica, to dry deserts, hot springs and high mountains. Among insects, butterflies have proved to be invaluable flagship species for conservation (Thomas 2005).

Most of the studies indicates that insect abundances are highly correlated with the abundance of floral nectar sources. Butterflies and flowers are in close relation with regard to pollen dispersal for plant propagation. Majority of insects, especially butterflies has strong ecological relationships with the flowering plants which are available in particular habitats. Mutualistic interactions such as plant–pollinator interactions at a community level are known to provide this structure and stability to biotic communities.

Butterflies are good biological indicators of habitat quality as well as general environmental health as many species are strictly seasonal and prefer only particular set of habitats. Because of their dependence on the plants, butterfly diversity may reflect overall plant diversity in the given area. Thus, change in land use pattern may lead to landscape changes that can reflect into change in butterfly diversity and distribution. Kerala has rich and diverse butterfly fauna because of the availability of wide range of habitats. Among the 1501 species so far recorded from India, 327 species are found in Kerala region. In our state detailed studies have been done only in some specific habitats. Butterflies were systematically studied and 220 butterfly species were recorded from Travancore area in 1891. The present study is mainly aims to document the plants which are pollinated by butterflies and also document the butterfly diversity in Alathur area near Palakkad.

II. MATERIALS AND METHODS

The present study was based on an extensive field observation during the year july 2024-January 2024. In this study an attempts were made to document the interaction between Plants and Butterflies at Alathur area belogs to Palakkad District. The documentation was mainly based on the field observation, photographs as well as scrutinizing the literature review. During the field visits, observations are made based on butterflies that interact with different plants and photographs were taken .

The collected photographs of plants and butterflies were identified taxonomically with the help of available literature and online sources. Mainly the identification of butterflies was done with the help of experts like from Kerala Forest Research Institute (KFRI) and also the photo field guide of The Butterflies of Kerala,Butterflies of Peninsular India and Ifound butterflies. Plants were identified with help of existing Floras and Literature.

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The nomenclature of each species has been brought up to data as per the rules given in the International Code of Nomenclature (ICN). The lifecycle of certain butterflies was studied by collecting larva from various plants and kept in boxes and documented.

III. RESULTS AND DISCUSSION

The present study on Butterfly host plant Interactions and their diversity in Alathur region near palakkad district of Kerala was analysed. In our present study we documented about 17 host plant species were observed which are pollinated by different kinds of butterflies . Among the 17 families documented the family Poaceae being attracted by higher number of butterflies ,(Mycalesis perseus , Melantis leda, Taractrocera ceramas, Ypthima baldus, Orsotriaena medus) followed by Rutaceae (Papilio polytes,Papilio agenor,Papilio polymenstor,papilio demoleus,)Apocynaceae (Euploea core, Danaus chrysippus,Mimonia aculeta)Acanthaceae (junonia iphita,junonia atlites,Junonia lemonias)Aristolachiaceae (Pachliopta hector,Triodes helena)Asclepiadaceae (Tirumala limniace,Parantica aglea)Fabaceae (Pyristia nise, Jamidies celeno aelianus) Zingerberaceae (Ancistroides folus,Udaspeus folus) Euphorbiaceae (Neptis hylas, Ariadne merione) Rhamnaceae (Casyalius rosimon)Arecaceae (gangara thyrsis) Malvaceae (Delias eucharis) Dioscoreaceae (Tigiadus gana) Portulacaceae (Hypolimnas bolina)Lauraceae (Graphium agamenon).

Butterflies are drawn to host plants either by their vibrant flowers or other plant parts in search of nectar and pollen for nourishment. As they visit these plants, they inadvertently collect pollen on their bodies. When they move to another plant of the same species nearby, some of this pollen is transferred, facilitating cross-pollination. This natural process enhances genetic diversity within the species and contributes to the reproductive success of the plants in the study area.

The present study also revealed that butterflies are initially attracted to flowers based on their vibrant colors (Leppik 1953). Only after landing do they determine the presence or absence of nectar. This observation aligns with previous research, which found no direct correlation between flower size and visitation rates. However, several studies have reported that insect foragers, including butterflies, tend to visit longer flowers more frequently .

Insect foragers tend to visit longer flowers more frequently, as flower size is often linked to pollen and nectar production. Research suggests that butterflies can remember and associate specific stimuli, such as the taste of nectar, with the shape and color of flowers (Weiss 1997,2003). Butterflies have strong capabilities to recognize the plant source of food that each of the vegetation type can make unique contribution to the measured butterfly diversity and the butterflies for the plant diversity(N. Suzuki ,1987, T.J. Stohlgren,1997) Due to lack of suitable management, unsustainable utilization of natural resources, deforestation and urbanization, uncontrolled use of pesticides and in-organic manures, environmental pollution may adversely affect the existence of both insects and floral diversity of the area.

Table :1

Sl No.	Name of the plant sps.	Family	Name of Butterfly
1	Murraya koenigii (L.)Spreng	Rutaceae	Papilio polytes
2	Atalantia racemosa	Rutaceae	Papilio agenor
3	Cardamine hirsuta	Brassicaceae	Leptosia nina
4	Murraya koenigii	Rutaceae	Papilio demoleus
5	Aristolochia indica	Aristolochiaceae	Pachliopta hector
6	Nerium oleander	Apocynaceae	Euploea core
7	Ziziphus jujuba	Rhamnaceae	Castalius rosimon
8	Calotropis gigantea	Asclepiadaceae	Tirumala limniace
9	Oryza sativa.	Poaceae	Mycalesis perseus
10	Citrus limon	Rutaceae	Papilio polymenstor
11	Catharanthus roseus	Apocynaceae	Danaus chrysippus
12	Mimosa pudica	Fabaceae	Pyristia nise
13	Justica procumbens	Acanthaceae	Junonia iphita
14	Stephanotis volubilis	Apocynaceae	Mimonia aculeta
15	Hevea brasiliensis	Euphorbiaceae	Neptis hylas
16	Oryza sativa.	Poaceae	Melantis leda
17	Cocus nucifera	Arecaceae	Gangara thyrsis

18	Calotropis gigantea	Asclepiadaceae	Parantica aglea
19	Abelmoschus moschatus	Malvaceae	Delias eucharis
20	Ricinus communis	Euphorbiaceae	Ariadne merione
21	Oryza sativa.	Poaceae	Taractrocera ceramas
22	Cynodon dactylon	Poaceae	Ypthima baldus
23	Saccharum officinarum	Poaceae	Orsotriaena medus
24	Dioscorea alata	Dioscoreaceae	Tagiadus gana
25	Nelsonia canescens	Acanthaceae	Junonia atlites
26	Pueraria phaseoloides	Fabaceae	Jamidies celeno aelianus
27	Nelsonia canescens	Acanthaceae	Junonia lemonias
28	Portuluca oleracea	Portulacaceae	Hypolimnas bolina
29	Ruellia tuberosa	Acanthaceae	Junonia almana
30	Curcuma aromatica	Zingerbaceae	Ancistroides folus
31	Aristolochia indica	Aristolochiaceae	Troides helena.
32	Cinnamomum zeylanicum	Lauraceae	Graphium agamenon
33	Curcuma aromatica	zingerbaceae	Udaspeus folus

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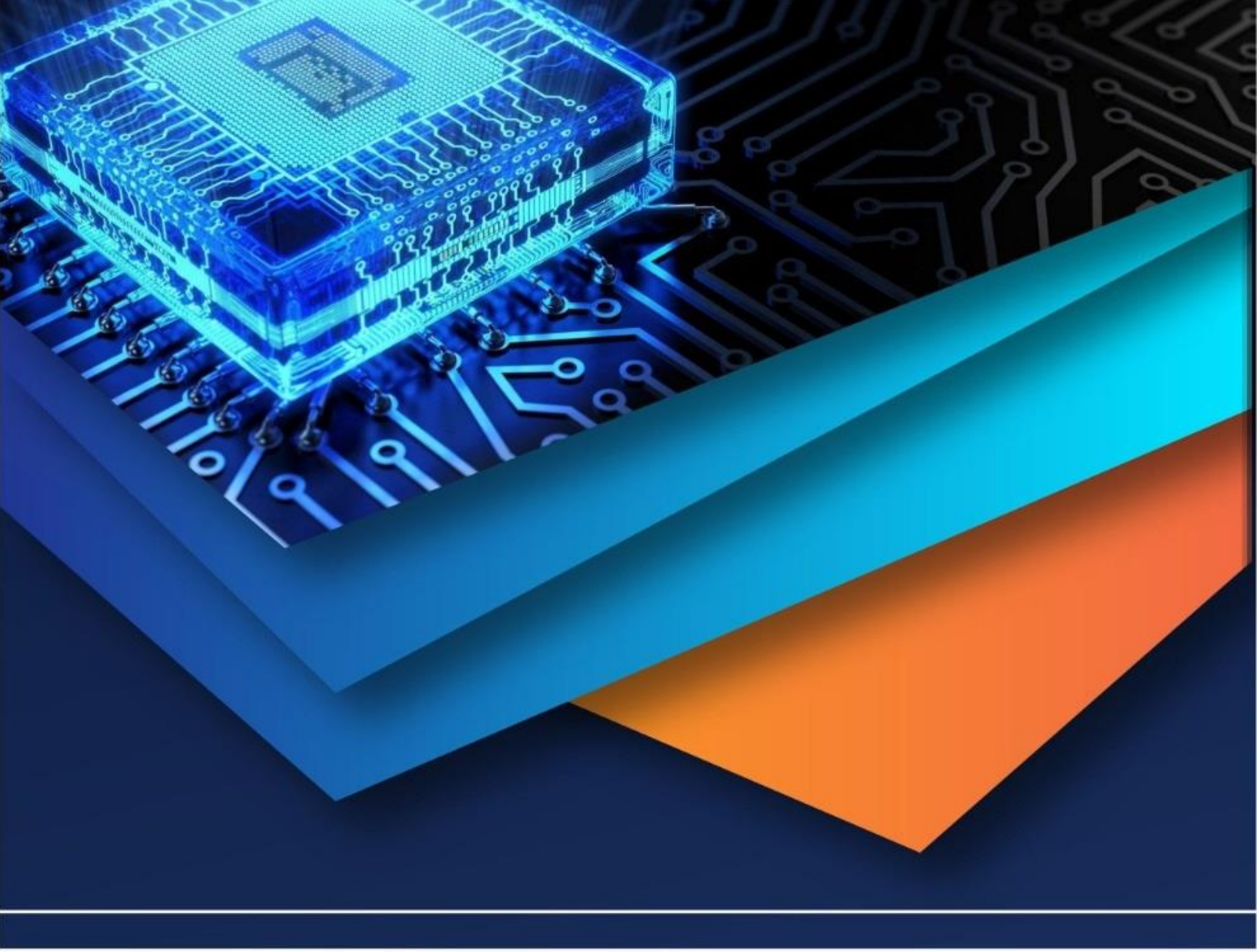

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