



Diversity Of Some Angiospermic Climbers Along With Their Record Of Flowering And Fruiting Periods: Special Reference Of Damoh District, (M. P.) India.

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Abstract

Present study is based on the some angiosperm climbing plants in the flora of Damoh district reflects the diversity of 65 species and 22 families. The highest number of species recorded in the family Fabaceae (16). Out of recorded species few of them are considered as potential weeds, viz. *Lantana camara* and *Mimosa pudica*. One rare climber *Bauhinia vahlii* have been recorded from this area. Out of 65 species, 30 species are Twiners, 21 species are Tendril climbers, 04 species are Scramblers, 04 species are Lianas, 04 species are Hook climbers, 01 species is Ramblers and 01 species is Root climbers. There are 57 species in **Magnoliopsida** and 08 species in **Liliopsida**. From biodiversity point of view the vegetation survey is very much important for the research of database from this region which ultimately can be utilized for medicinal experts, plants explorers, researches etc. for their further studies. Flowering and Fruiting is one of the important phenomena in the life of plants because it is responsible for change in the pattern of plants growth and development along with the effects of the environmental factors over it. That period is called “study of Phenology.”

Climbers and creepers are diverse in their growth habits, climbing mechanisms, and species. The main objectives of the present study are formulation of database of diversity of some angiospermic climbers along with records of their flowering and fruiting periods.

Keywords

Angiospermic, Diversity, Pollination, Flowering, Fruiting, Climbers,

Introduction

From distribution point of view climbers are very common in tropical and subtropical counties in the world but better distributed in tropics than temperate regions (Richard, 1996). But the frequencies of climbing plants increasing due to climate change (Malhi and Wright, 2004). On the basis of the modifications of plant organs, climbers are of different types as twiners, tendril climbers, hook climbers, lianas, root

climbers, including ramblers and scramblers (Agarwal, 2013). Generally climbers are considered as weak plants and they are usually well adopted to grow in forest in the shade of tall trees as they able to utilize the available light while the expenditure of material informing a strong stem is avoided (Ganguly et al.; 1984). From incentive literature surveys it was observed that most of the work were done from the vegetation point of view expects some noted work on climbers from many parts of India (Saini et al. 2021).

Works on angiospermic climbing plants from Damoh district has not yet been published still now. So the paper has been taken to record the comprehensive data regarding the diversity of angiospermic climbers in general along with flowering and fruiting periods in particular.

Materials and Methods: Study area and field survey –

Present study reveals that Damoh district of Madhya Pradesh has rich flora and fauna especially Jabera, Singrampur, Singaurgarh, Tendukheda, Rani Durgawati National Sanctuary and (Nauradehi National Sanctuary) Taradehi – Jhalon region. There is a dense forest including Saal and Teak plants. Climate and Geographical convolution are applying this territory as biodiversity hub to produce and conserve the desired for many researches of flora and fauna. Damoh is a part of **Bundelkhand** region, it is situated between 23.50° north latitude and 79.33° east longitude. Its forest area is 4135sq KM. Climate is warm and temperate.

Climbers and creepers are diverse in their growth habits, climbing mechanisms, and species. The specimens or data were collected from different part of the Damoh district in different season (Pre-Monsoon, Monsoon and Post-Monsoon) and for the preparation of comprehensive data base of angiospermic climbers. The collected specimens were accordingly identified with help of literatures. Field survey and Herbarium methods were followed according to Jain S.K. and Rao, 1977 and Jain 1963. Finally these specimens were confirmed at Central National Herbarium (CAL). For updating species names the website of the plants list (<http://www.plantlist.org>) was consulted. The list of accepted plants names were arranged alphabetically, along with their family, local name, type of climbers, mode of pollination, flowering and fruiting periods were presented in tabulated form (table : 1).

Table (1): List of climbing species along with their Botanical name, family, local name(s), types of climbers, mode of pollination, flowering and fruiting periods.

S. no.	name of the plant	Family	Local name(s)	Type of climbers	Mode of pollination	Flowering period	Fruiting period
	Magnoliopsis da						
1	<i>Abrus precatorius L.</i>	Fabaceae	Lal gunja	Twiner	E	Sep - Oct	Nov - Dec
2	<i>Acacia sinuata (Lour.) Merr.</i>	Fabaceae	Ban ritha	Hook-climber	E	Jan - Jul	Sep - Feb
3	<i>Aganosma dichotoma (Roth) K. Schum.</i>	Apocynaceae	Malti	Twiner	E	Jul - Oct	Oct - Feb
4	<i>Ampelocissus latifolia (Roxb.) Planch.</i>	Vitaceae	Katti bel	Tendril climber	E	Aug - Oct	Oct - Jun
5	<i>Argyreia nervosa (Burm.) Bojer</i>	Convolvulaceae	Bvidhara	Twiner	E	Jul - Oct	Oct - Dec
6	<i>Artobotrys hexapetalous (L. f.) Bhandari</i>	Annonaceae	Kanteli champa	Hook-climber	E	Apr - Aug	Sep - Jan
7	<i>Basella alba L.</i>	Basellaceae	Poi	Twiner	E	Sep - Oct	Dec - Feb
8	<i>Bauhinia vahlii Wight & Arn.</i>	Fabaceae	Maljan	Lianas	E	Apr - Sep	Oct - Feb
9	<i>Benincasa hispida (Thunb.) Cogn</i>	Cucurbitaceae	Konhada	Tendril climber	E	May - Dec	Aug - Dec
10	<i>Boerhavia diffusa L.</i>	Nyctaginaceae	Punarnava	Rambler	E	Jun - Aug	Sep - Dec
11	<i>Beutea superba Roxb.</i>	Fabaceae	Palash lata	Lianas	E	Mar - Aug	Sep - Oct
12	<i>Cajanus goensis Dalzell.</i>	Fabaceae	Ban Bichatee	Twiner	E	Oct - Nov	Nov - Dec
13	<i>Cajanus scarabaeoide s L.</i>	Fabaceae	Banarhar	Twiner	E	Aug - Oct	Oct - Apr
14	<i>Capparis zeylanica L.</i>	Capparaceae	Ban kera	Scrambler	E	Mar - Sep	Sep - Oct
15	<i>Cayratia</i>	Vitaceae	Kitmari	Tendril	E	Aug -	Nov -

	<i>pedata</i> (Lam.)			climber		Nov	Dec
16	<i>Cayratia trifolia</i> (L.) Domin	Vitaceae	Amarbel	Tendril climber	E	Apr - Sep	Oct - Dec
17	<i>Cissus adnata</i> Roxb.	Vitaceae	Paniyalata	Lianas	E	Mar - Aug	Aug - Sep
18	<i>Cissus quadrangularis</i> L.	Fabaceae	Hadjod	Tendril climber	E	May - Aug	Sep - Nov
19	<i>Citrulus lanatus</i> (Thunb.) Nakai	Cucurbitaceae	Tarbij	Tendril climber	E	Apr - Jun	Jun - Jul
20	<i>Clitoria ternatea</i> L.	Fabaceae	Aparajita	Twiner	E	Mar - Aug	Jul - Dec
21	<i>Coccinea grandis</i> (L.) Voigt	Cucurbitaceae	Kundaru	Tendril climber	E	Mar - Oct	Sep - Dec
22	<i>Combretum album</i> Pers.	Combretaceae	Madumalti	Hook-climber	Am	May - Sep	Nov - Jan
23	<i>Cucurbita maxima</i> Duchesne	Cucurbitaceae	Green kumhara	Tendril climber	E	Mar - Jun	May - Aug
24	<i>Cucurbita pepo</i> L.	Cucurbitaceae	Safed Kumhara/ Kadu	Tendril climber	A	Jul - Aug	Aug - Oct
25	<i>Cucumis melo</i> L.	Cucurbitaceae	Kakadi	Tendril climber	E	May - July	Jul - Oct
26	<i>Cucumis sativa</i> L.	Cucurbitaceae	Khira	Tendril climber	E	May - Aug	Jul - Aug
27	<i>Dalbergia volubilis</i> Roxb.	Leguminosaceae	Bankhara	Lianas	E	Aug - Oct	Nov - Jan
28	<i>Dregea volubilis</i> (L.f.) Benth.	Asclepiadaceae	Tatakunji	Twiner	E	Apr - Oct	Oct - Dec
29	<i>Gymnema sylvestre</i> (Retz.) R. Br. Ex Schult.	Asclepiadaceae	Gurmar	Twiner	E	Aug - Oct	Oct - Mar
30	<i>Holmskioldia sanginea</i> Retz.	Verbenaceae	Kapni	Scrambler	A	Oct - Jan	Feb - Apr
31	<i>Ipomoea aquatica</i> Forssk.	Convolvulaceae	Kalmi saag	Twiner	E	Jun - Oct	Oct - Dec
32	<i>Ipomoea batatas</i> L. Lam.	Convolvulaceae	Shakarkand	Twiner	E	Oct - Nov	Oct - Dec
33	<i>Ipomoea nil</i> (L.) Roth.	Convolvulaceae	Kaladana	Twiner	E	Aug - Sep	Oct - Feb

34	<i>Ipomoea purpurea (L.) Roth.</i>	Convolvulaceae	Morning glory	Twiner	E	Jul - Oct	Oct - Jan
35	<i>Jasminum sambac (L.) Action</i>	Oleaceae	Mongra	Twiner	E	Apr - Jul	Jul - Aug
36	<i>Lablab purpureus L.</i>	Fabaceae	Sem/Semi	Tendril climber	E	Mar - Jun	May - Jun
37	<i>Legenaria siceraria (Molina)</i>	Cucurbitaceae	Lauki	Tendril climber	E	Jun - Aug	Nov - Jan
38	<i>Lantana camara L.</i>	Verbenaceae	Baramasi	Scrambler	E	Apr - Oct	Oct - Mar
39	<i>Lathyrus sativus L.</i>	Fabaceae	Tiwara	Tendril climber	E	Feb - Apr	Jun - Aug
40	<i>Luffa cylindrical (L.) Roem.</i>	Cucurbitaceae	Gilki	Tendril climber	E	Jun - Nov	Nov - Dec
41	<i>Merremia tridentata (L.) Hallier</i>	Convolvulaceae	prasarani	Twiner	E	Aug - Oct	Oct - Dec
42	<i>Mimosa pudica (L.)</i>	Fabaceae	Lajwanti	Scrambler	E	Jan - Oct	Nov - Dec
43	<i>Momordica charantia (L.)</i>	Cucurbitaceae	Karela	Tendril climber	E	Jul - Oct	Sep - Nov
44	<i>Mucuna pruriens (L.) DC.</i>	Fabaceae	Alkushi/Ke nwach	Twiner	E	Sep - Oct	Nov - May
45	<i>Muia maderaspata na (L.) M. Roemer</i>	Cucurbitaceae	Agnakhi/bilari	Tendril climber	E	Jul- Oct	Nov - Dec
46	<i>Operculina turpenthum (L.) Silwa Manso</i>	Convolvulaceae	Nisoth	Twiner	E	Jul - Oct	Nov - Jan
47	<i>Paederia foetida L.</i>	Rubiaceae	Gandhali	Twiner	E	Jul - Oct	Oct - Dec
48	<i>Passiflora edulis Sims</i>	Passifloraceae	Passion phal	Twiner	E	Aug - Sep	Dec - Jan
49	<i>Piper betle L.</i>	Piperaceae	Pan	Root-Climber	A	Jul - Aug	Nov - Feb
50	<i>Quisqualis indica plena (L.)</i>	Combretaceae	Madhunala	Hook-climber	Am	Apr - Aug	Dec - Feb
51	<i>Rivea hypocrateriformis (Desr.) Choisy</i>	Convolvulaceae	Ban poi/phang	Twiner	E	Mar - May	May - Jun
52	<i>Teramnus labialis (L. f.)</i>	Fabaceae	Rangoon ki bel	Twiner	E	Oct - Nov	Nov - Feb
53	<i>Tinospora cordifolia</i>	Menispermaceae	Giloy	Twiner	E	Jul - Aug	Sep - Feb

	(Willd.) Thoms.						
54	<i>Trichosanthes tricuspidata</i> Lour.	Cucurbitaceae	Lal indrayan	Tendril climber	E	Jul - Sep	Oct - Dec
55	<i>Vigna trilobata (L.)</i> Verdc.	Fabaceae	Mungan	Twiner	E	Aug - Oct	Oct - Dec
56	<i>V. unguiculata (L.) Walp.</i>	Fabaceae	Ban Mung	Twiner	E	Jul - Oct	Oct - Dec
57	<i>Vitis vinifera</i> L.	Vitaceae	Angur	Tendril climber	E	Oct - Dec	Dec - Apr
	Liliopsida						
58	<i>Asparagus adscendens</i> Roxb.	Asparagaceae	Maha satbari	Twiner	A	Sep - Oct	Oct - Nov
59	<i>A. racemosus</i> Willd.	Asparagaceae	Satamuli	Twiner	A	Aug - Sep	Oct - Jan
60	<i>Dioscorea alata</i> L.	Dioscoreaceae	Chiparialu	Twiner	A	Aug - Sep	Oct - Dec
61	<i>D. Esculenta</i> (Lour.)	Dioscoreaceae	Suthani alu	Twiner	A	Oct - Nov	Nov - Dec
62	<i>D. Bulbifera</i> L.	Dioscoreaceae	Ban alu	Twiner	A	Sep - Oct	Oct - Dec
63	<i>D. pentaphylla</i> L.	Dioscoreaceae	Kant alu	Twiner	A	Sep - Nov	Nov - Feb
64	<i>Gloriosa superba</i> L.	Liliaceae	Kalihari	Tendril climber	A	Aug - Jun	Oct - Dec
65	<i>Smilax zeylanica</i> L.	Smilacaceae	Kumarika	Tendril climber	A	Apr - Jun	Jul - Oct

(Symbols used: E = Entemophilous, Am = Amphiphilous, A = Anemophilous)

Table (2): Types of climbers and their numbers

S. No.	Types of climbers	Total number
1	Twiners	30
2	Tendril climbers	21
3	Lianas	04
4	Hook-climbers	04
5	Ramblers	01
6	Scramblers	04
7	Root-climbers	01
TOTAL		65

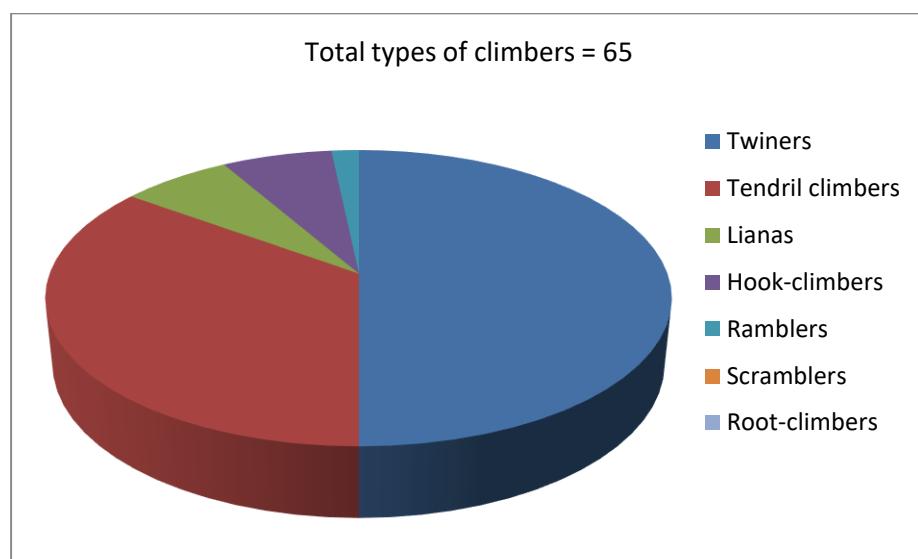


Figure [1]: Types of climbers and their numbers from table-1

Table (3): Month wise Flowering and Fruiting plants number

Month	No. of flowering plants	No. of fruiting Plants
January	2	24
February	3	16
March	11	4
April	18	2
May	21	4
June	29	6
July	34	8
August	47	9
September	36	14
October	31	36
November	5	40
December	2	45

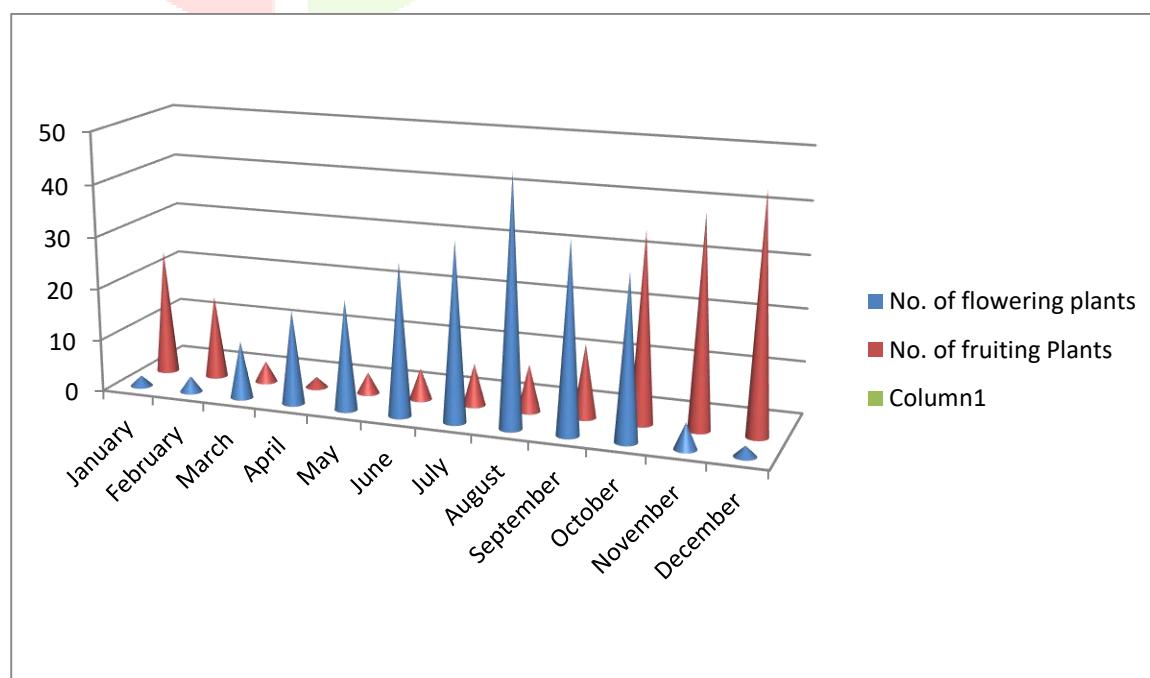


Figure [2]: Month wise Flowering and Fruiting plants number from table -2

Results and Discussion

Recent study of climbing plants in the flora of Damoh district reflects the diversity of 65 species and 22 families from table – (1).

With the keen review it was revealed that out of 65 species, 30 species are Twiners, 21 species are Tendril climbers, 04 species are Scramblers, 04 species are Lianas, 04 species are Hook climbers, 01 species is Ramblers and 01 species is Root climbers (Table-2).

Regarding the flowering and fruiting periods, 3 seasons have been selected i.e. Pre-monsoon (February - May), Monsoon (June- September) and Post-monsoon (October - January).

Discussion from the Table – (1) was found that in Pre-monsoon season total 29 species show flowering activities, in the Monsoon season there are total 53 species show flowering activities, and total 26 species show flowering activities in Post-monsoon. From the above observation Table – (3), it was concluded that the species show highest flowering activities in Monsoon season followed by Pre-monsoon and Post-monsoon.

Regarding fruiting periods from above discussion Table – (1), it was found that in the Pre-monsoon season total 15 species show fruiting activities. There were total 23 species show fruiting activities in the Monsoon season, and same manner total 52 species show fruiting activities in Post-monsoon season. From the above discussion Table – (3), it can be concluded that species showing highest fruiting periods in Post-monsoon season followed by Monsoon and Pre-monsoon. Regarding the pollination type, Entomophilous is highest (80%) followed by Anemophilous (16.92%) and Amphiphilous (3.276%) from Table – (1).

Conclusion

Climbers play a role in forest Eco-system (Banger et al 2002). Climbers are also the important part of vegetation. This vegetation is very much important from biodiversity point of view. Biodiversity is the major source of raw materials for the stability of the ecosystem, fodder, herbal medicine, source of food etc. the vegetation structure of study area is gradually changing due to anthropogenic activities as well as over exploitation of bio resources, which in turn threatens existence of many rare and vulnerable species (Vivek P. and Naveen B. K.; 2022). In the vegetation structure mainly the climbers are very sensitive to the changes in their habitat structure and ultimately eliminated first from their habitat structure. So care should be taken on priority basis in view of the conservation of these dwindling, disappearing, keystone, species as well as sustainable development for the future generation.

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