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Primary survey of Climbing Flora of Bhandaria Forest area, Dist. - Bhavnagar, Gujarat

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Abstract

The primary survey of wild and ornamental climbing flora of Bhandaria forest area was carried out. Totally 63 climbing plants belonging to 62 species, 48 genera and 20 families were identified. The most dominant families were Convolvulaceae (20%), Cucurbitaceae (17.46%) and Fabaceae (12.69%).Climbers are important for various sectors such as ornamental, horticulture, medicine, agriculture as well as food.

Key-Words: Primary survey, Climbing flora, Bhandaria forest, Bhavnagar

Introduction

This diversity of living creatures forms a support system which has been used by living organism for its growth and development. Climbing plants are one of the most interesting group but a much neglected group of plants. Climbing plants differ from self-supporting plants, such as shrubs and trees, in a range of characteristics; most notable is the mechanical properties of the stem Lianas[1-2], the woody vines are an important, but understudied growth-form, common in most forests throughout the world, particularly in the tropics [3]. The past few decades have brought increasing awareness for the importance of lianas to species diversity [4-7].

Climbers occur in all woody ecosystem of the world although their abundance is considered to be a characteristic of tropical and subtropical forests. Climbers play an important ecological role in the forest ecosystem dynamics and functioning [8], they contribute substantially to the canopy closure after tree fall and helpsto stabilize the microclimate[3]. Early morphologists included these climbers under weak stemmed plants [9]. Climbers are the plants that germinate on floor and grow for part of their life by winding ground, anchoring or adhering to other plants[10] to attain great stature[11]. They rely on other plants for mechanical support. Due to their weak stem, they attach themselves to any neighboring object by means of some special organs of attachment. They show great diversity in their climbing mechanism depending on which they are classified as, root climbers, hook climbers, tendril climbers, leaf or stem climbers or twinner.

In lianas, the shift from self-supporting to non-self-supporting growth is accompanied by remarkable changes in anatomical development [12-13]. A greater number of twinner revolve in a course opposed to that of sun, or to the hands of a watch, than in the reversed course, and consequently the majority as is well known, ascend their supports from left to right [14]. Twining often occurs in one direction, and many show a predisposition to turn to the right. There is a limit to the size of the trunk that most twiners can use, and hardly ever are twiners found around thick trunks [15].

Material and Methods

The Bhandaria forest area is situated 28 kms. away from Bhavnagar city having historical background and unique hilly dry deciduous ecosystem. The forest area is located within geographical co-ordinates of21º35' 056' N longitudes and 072º 06'150º E latitude.The mentioned investigation was carried out during year 2012-2014. Bhandaria forest area was frequently visited, to collect the information about the climbing plant species.A good number of the trips were arranged in accordance with the different seasons throughout these years. The fully grown plants were collected during monsoon and in the later part of the rainy season. The collected plants were brought to the laboratory, identified and classified to their respective species level [16-18]. During the explorations we have taken photographs of the certain species. For convenience, according to Bentham & Hooker all the selected plants species are arranged and scientific names, local names, families are given in the present research paper.

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Results and Discussion

The present survey reveals that angiospermic climbers of the area are represented by 62 species under 47genera belonging to 20 families (19 dicots and 01 monocot family). Some climbers are wild while others are cultivated. Among all families, Convolvulaceae was found to be the most abundant having 13 species followed by family Cucurbitaceae having 11 species and Fabaceae with 08 and Asclepiadaceae- 06, Manispermaceae -04 and Vitaceae – 03, Passifloraceae, Cuscutaceae, and Liliaceae with 02 species. Convolvulaceae is the most dominating family as per number of species and Cucurbitaceae is dominant family as per number of genera. All other families are represented by single species only. [11] reported 746 species of climbers in Upper Guinean forests. [19] recorded 149 species of herbaceous climbers and 79 lianas species from the forest of North Andaman, covering 55 families. [20] had recorded 42 climber species from Fatehpur (U.P) covering 15 families. A total of 175 angiosperm climbing plants in 100 genera and 40 families were recorded from the total of 150 grids of southern Eastern Ghats forests recorded by [7]. [21] studied many climbers in their study of medicinal flora of Gujarat, while 81 climbers were recorded by [22] in Modasa Taluka, District Sabarkantha, Gujarat. Climbers of Urban area of Ahmedabad and Gandhinagar were documented by [2] and Saraswati River and Region of Patan district of North Gujarat were documented by [23] respectively. 41 Climbers species of reserve forest Victoria park was recorded by [24]. Climbers found in field survey are listed in Table-1 along with their botanical name, vernacular (local name) and family as per classification order.

Tribal people use some climbers for decorative, ornamental and horticultural purposes. Tribal people have also a unique knowledge to cure different human diseases and disorders by using these climbers. Fruits of many climbers are used as vegetables. Several species of climbers have more than one kind of uses. Some of the dominant climbers in the various locations of forests area observed during the survey are *Pergularia daemia* (Forsk.) Chiov, *Leptadenia reticulate* (Retz.) W.& A., *Ipomoea pes-tigridis* L., *Cryptostegia grandiflora* R. Br, *Trichosanthes cucumerina* L., *Ipomoea obscura* (L) Ker-Gawl., *Tinospora cordifolia* (Willd.) Miers., *Cardiospermum halicacabum L., Cuscuta reflexa* Roxb., *Asparagus racemosus* Willd. etc. Some following species are cultivated in forest and local peoples like *Bougainvillea spectabilis, Cissus quadrangularis* L., *Gymnema sylvestre* (Retz.) Schult., *Quisqualis indica* L., *Jasminum flexile* Vahl., *Tylophora indica* (Burm.f.) Merill.

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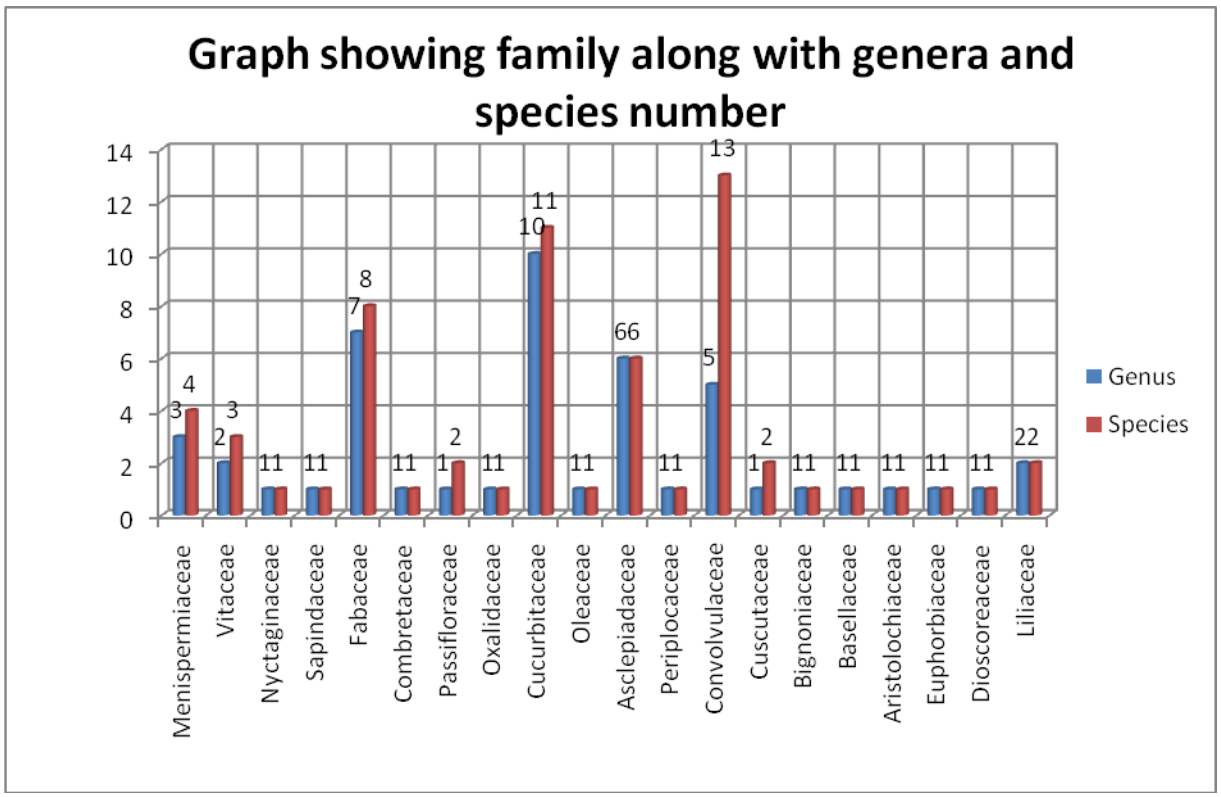
Table 1: Enumeration of Climbers of Bhandaria forest area

Sr. No	Scientific name	Family	Local name	Type
1	*Cissampelos pareira* L.	Manispermaceae	Venivel	W
2	*Cocculus hirsutus* (L.) Diels.	Manispermaceae	Vevdi	W
3	*Cocculus pendulus* (Forst.) Diels.	Manispermaceae	Vevdi	W
4	*Tinospora cordifolia* (Willd.) Miers.	Manispermaceae	Galo	W
5	*Bougainvillea spectabilis*	Nyctaginaceae	Bouganvell	C
6	*Cayratia carnosa* (Lam.) Gagnep.	Vitaceae	Khat-khatombo	W
7	*Cayratia trifolia* (L.) Domin.	Vitaceae	------	W
8	*Cissus quadrangularis* L.	Vitaceae	Had-sankal	W
9	*Cardiospermum halicacabum L.*	Sapindaceae	Kagdolio	W
10	*Butea superb* Roxb.	Fabaceae	Khakhravel	W
11	*Canavalia gladiate* (Jacq.) DC.	Fabaceae	Tarvardi	W
12	*Abrus precatorius* L.	Fabaceae	Chanothi	W
13	*Abrus precatorius* L.	Fabaceae	Safed Chanothi	W
14	*Clitoria ternarea* L.	Fabaceae	Garni	W
15	*Rhynchosia manima* (L.) DC.	Fabaceae	Nani kamalvel	W
16	*Vigna trilobata* (L.)Verdcuort.	Fabaceae	Magamathi	W
17	*Lathyrus odoratus* L.	Fabaceae	Vatana	C
18	*Quisqualis indica* L.	Combretaceae	Madhumalti	C
19	*Passiflora edulis* Sims.	Passifloraceae	Krishna kamal	C
20	*Passiflora foetida* L.	Passifloraceae	Nanu Krishna kamal	W

21	*Oxalis corniculata* L.	Oxalidaceae	Khati-mithi	W
22	*Citrullus colocynthis* L	Cucurbitaceae	Indravarna	W
23	*Coccina grandis* (L.) Voigt.	Cucurbitaceae	Tindora	W
24	*Corallocarpus epigaeus* (Arl) CL.	Cucurbitaceae	Kadvi nai	W
25	*Ctenolepis ceresiformis* (Stocks.) Hk.	Cucurbitaceae	Ankhfutamani	W
26	*Cucumis callosus (Rottl.)* Cogn.	Cucurbitaceae	Kothimdu	W
27	*Diplocylos palmatus* (L.) C. Jeffery.	Cucurbitaceae	Shivlingi	W
28	*Luffa acutangula* (L.) Roxb.	Cucurbitaceae	Turiya	C
29	*Momordica dioca* Roxb. ex. Willd.	Cucurbitaceae	Kantola	W
30	*Momordica charantia* L.	Cucurbitaceae	Karela	W
31	*Mukia maderaspatana* (L.) M. Roem.	Cucurbitaceae	Chanak chibhdi	W
32	*Trichosathes cucumerina* L.	Cucurbitaceae	Jangli Parval	W
33	*Jasminum flexile* Vahl.	Oleaceae	Jui	C
34	*Dregea volubilis* (I.F.) Bth.ex.H.f	Asclepiadaceae	Moti dodi	W
35	*Leptadema reticulate* (Retz.) W & A.	Asclepiadaceae	Kharkodi	W
36	*Pentatropis capensis* (L.f.) Bullock.	Asclepiadaceae	Shingroti	W
37	*Pergularia daemia* (Forsk.) Chiov.	Asclepiadaceae	Negla-dudhli	W
38	*Gymnema sylvestre(Retz) Schuil*	Asclepiadaceae	Madhunashini	C
39	*Tylophora indica* (Burm.f.) Merill.	Asclepiadaceae	Damvel	C
40	*Cryprostegia grandiflora* R. Br.	Periplocaceae	Rubbervel	W
41	*Convolvulus arvensis* L.	Convolvulaceae	Veldi	W
42	*Convoivulus microphyllus* (Roth.) sieb.ex.	Convolvulaceae	Shankhavali	W
43	*Evolvulus alsinoides* (L.) L.	Convolvulaceae	Kali shankhavali	W
44	*Ipomoea cairica* (L.) Sw.	Convolvulaceae	- - - - - -	W
45	*Ipomoea eriocapa* R. Br.	Convolvulaceae	Bodi fudardi	W
46	*Ipomoea fistulosa* Mart.	Convolvulaceae	Nafftvel	W
47	*Ipomoea muricata (L.) Jacq.*	Convolvulaceae	Bhamardi	W
48	*Ipomoea nil (L.) Roth.*	Convolvulaceae	Kaladana	W
49	*Ipomoea obscura* (L.) Ker-Gawl.	Convolvulaceae	Vajvel	W
50	*Ipomoea pes-caprae* (L.) Sw.	Convolvulaceae	Maryadvel	W
51	*Ipomoea pes-tigridis* L.	Convolvulaceae	Waghpadi	W
52	*Merremia gangetica* (L.) Cufod.	Convolvulaceae	Undardi	W
53	*Rivea hypocrateriformis* (Desr.)Choisy	Convolvulaceae	Fang	W
54	*Cuscuta chinensis* Lam.	Cuscutaceae	Chidiyo amarvel	W
55	*Cuscuta reflexa* Roxb.	Cuscutaceae	Amarvel	W
56	*Tecomella undulata* (Smeeth.) Seem.	Bignoniaceae	Ragat rohido	C
57	*Basella rubra* L.	Basellaceae	Poi	C
58	*Aristolochia indica* L.	Aristolochiaceae	Vaysar, Kidamari	W
59	*Dalechampia scandens L.*	Euphorbiaceae	Khajvel	W
60	*Dioscorea bulbifera* L.	Dioscoreaceae	Dukkar kand	W
61	*Gloriosa superb* L.	Liliaceae	Vachhnag	W
62	*Asparagus racemosus* Willd.	Liliaceae	Satavari	W



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