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**Climber Plant Diversity of Angiosperm from Sabarmati river  
of Gujarat, India.**

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**Abstract**

The present study provides checklist and enumeration of plant species which have habit like Climbers, Twiners and Creepers grow in the area of Sabarmati riverbed and riverside. Plant exploration was conducted to determine plant species of various form of growing, mode of Climbing etc. These species grow with hook, spines, tendrils, twine on stem or other objects; help of tree trunk. Creepers grows horizontally on land area. Climbers and other plant species of Sabarmati riverbed-riverside area have been listed systematically which counts 87 species of 60 genera belongs to 21 various families, these plants species grow wild as well as cultivated.

**Key-Words:** Climber , Diversity, Sabarmati river

**Introduction**

Climbers are a group of plants that germinate within or on the ground and grow their life by winding ground, anchoring or adhering to other plants. Climbers are constituted with more than 110 families which share nearly one-quarter of the total vascular plants. Climbing plants show a great diversity in their climbing mechanism, depending on which they are classified as root climbers, hook climbers, tendril climbers, leaf or stem climbers or twiners. Few studies on climbers have distinguished three categories of climbing plants, namely woody climbing lianas, herbaceous climbing plants vines and climbing shrub. Climbers play important ecological roles in the River ecosystem and functioning. Its providing a valuable food resource for animals, physically linking trees together, thereby providing canopy-to-canopy access for arboreal animals<sup>[5]</sup>. Climbers often play important roles during forest succession after natural and anthropogenic disturbances that act as the catalysts. Earlier, The Plants of Northern Gujarat published by Saxton, and Sedgwick (1918)<sup>[10][11]</sup>, Bhatt, et.al (1969) reported A study of the vegetation and flora of Khedbrahma region<sup>[1]</sup>. Sabnis, et.al (1975) reported the forest vegetation of Khedbrahma<sup>[9]</sup>. Shah, G.L. (1978) published the flora of Gujarat<sup>[12]</sup>. Yogi (1970) submit thesis of the flora of North Gujarat<sup>[14]</sup>. Earlier many research workers<sup>[3][7][8]</sup> explore the North Gujarat region but not much explore the river Sabarmati.

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**Study area**

The geographical situation of the Sabarmati river is between 22° 30' to 24° 30' North latitude and 72° 30' to 73° 30' East longitude. It originates from Arvalli hills, near Vekaria in Rajasthan State and enters in the Gujarat state at the boundary of the Sabarkantha district. It passing through across the Northern to central part of the Gujarat state. It flows through seven districts of the Gujarat state, namely Banaskantha, Sabarkantha, Mehsana, Gandhinagar, Ahmedabad, Kheda and Anand and finally enters into the Gulf of Khambhat (Cambay). Sabarmati river is one of the longest river in the state and its length is about 418 km. It has total 5475 sq.km catchments area<sup>[6]</sup>.

**Material and Methods**

The study on angiosperms of from the Sabarmati river of Gujarat, India is based on the results obtained from extensive studies of the vegetation of an area. Field survey was carried out for collection of plants. Identification of plant species during field work was done by compiling different floras available<sup>[2][4][10][11][12][13]</sup> and authenticated by experts from University department and research institutes. The photographs of all the plant species were taken during field trip. This piece of work is survey based. Surveys were made for a two years (2013-2014) to collect and identify the flowering plants. The collected plants were categorized according to their Family, Scientific name, Vernacular name and Habit represent in description.

### Results and Discussion

The list of collected Climbers etc. plants is given in Table 1 [Cl-Climber, Tw-Twiner, Li-Lianas, Cr-Creepers, W- wild, C- cultivated.] The analysis of the Climber and other plant species in area gives result that the total Climbers Angiosperm flora including naturalized and indigenous plants comprises of about 87 species belong to 60 genera of the various family. Climber from the studied sites of 82 (94.25%) of these species were dicotyledones, 5 (05.75%) were monocotyledones. The family Cucurbitaceae with 21 species was found as the most abundant which was followed by, Convolvulaceae with 18 species, Fabaceae with 11 species, Asclepeadaceae with 10 and Menispermaceae with 4 species. 65 (65.51%) climber species, 15 (17.24%) Twiners species, 12 (13.79%) Creeper species, 03 (03.44%) Lianas species were found.

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Table1: The list of collected Climbers

No	BOTANICAL NAME	LOCAL NAME ( In Gujarati )	FAMILY	CL / W	HABIT
01	<i>Abrus precatorius L.</i>	Chanothi	FABACEAE	W	Tw
02	<i>Abrus precatorius L. var alba</i>	Safed chanothi	FABACEAE	W	Tw
03	<i>Asparagus racemosus Willd.</i>	Shatavari	LILIACEAE	W	Tw
04	<i>Antigonon leptopus Hook.&amp;Arn.</i>	Icecream vel	POLYGONACEAE	W	Cl
05	<i>Aristolochia indica L. Bracteata</i>	Kidamari	ARISTOLOCHACEAE	W	Cl
06	<i>Argyrea nervosa (Burm.f.) Boj.</i>	Samudrasok	CONVOLVULACEAE	C	Cl
07	<i>Bignonia unguis Cati Rehd.</i>	Nakhvel	BIGNONIACEAE	C	Cl
08	<i>Bougainvillea glabra ( Willd.)</i>	Boganvel	NYCTAGINACEAE	C	Li
09	<i>Bougainvillea peruviana willd.</i>	Boganvel	NYCTAGINACEAE	C	Li
10	<i>Bougainvillea spectabilis</i>	Boganvel	NYCTAGINACEAE	C	Li
11	<i>Butea superba Roxb.</i>	Khakharvel	FABACEAE	W	Cl
12	<i>Canavalia gladiata (Jacq.) Dc.</i>	Abbo	FABACEAE	W	Cl
13	<i>Cardiospermum helicacabum L.</i>	Kagdoliyo	SAPINDACEAE	W	Tw
14	<i>Cayratia carnosia (Lam.) Gagnep.</i>	Khat khatumbo	VITACEAE	W	Cl
15	<i>Celastrus paniculatus Willd.</i>	Malkangani	CELASTRACEAE	W	Cl
6	<i>Ceropegia bulbosa Roxb.</i>	Kaparikand	ASCLEPIADACEAE	W	Cl
17	<i>Cissampelos pareira L</i>	Venivel	MENISPERMACEAE	W	Cl
18	<i>Cissus quadrangularis L.</i>	Hadsankal	VITACEAE	C	Cl
19	<i>Cissus repanda Vahl</i>	Hadsankal	VITACEAE	C	Cl
20	<i>Citrullus colosynthis L.</i>	Indravarna	CUCURBITACEAE	W	Cr
21	<i>Citrullus lanatus (Thunb.) Mats. &amp; Nak.</i>	Tarbuch	CUCURBITACEAE	W	Cr
22	<i>Clitoria ternatea L.</i>	Garni bibari	FABACEAE	W	Cl
23	<i>Cocculus hirsutus (L.) Diels.</i>	Vevadi	MENISPERMACEAE	W	Cr
24	<i>Cocculus pendulus (Forst.) Diels.</i>	Vevadi	MENISPERMACEAE	W	Cr

25	<i>Corallocarpous epigaeus (Arl.)Cl.</i>	Kadvi nai	CONVOLVULACEAE	W	Cl
26	<i>Coccinia grandis (L.) Voigt.</i>	Ghiloda	CUCURBITACEAE	W	Cl
27	<i>Combretum coccineum Lam.</i>	Madhvel	COMBRETACEAE	C	Cl
28	<i>Cryptostegia grandiflora R.Br.</i>	Rubervel	PERIPLOCACEAE	W	Cl
29	<i>Ctenolepis cerasiformis (L.) Cl.</i>	Ankhfutamani	CUCURBITACEAE	W	Cl
30	<i>Cucurbita maxima Duch.</i>	Kolu	CUCURBITACEAE	C	Cr
31	<i>Cucumis callosus (Rottl.) Cogn</i>	Kothimdu	CUCURBITACEAE	W	Cl
32	<i>Cucumis profetarum L.</i>	Kantala indrana	CUCURBITACEAE	W	Cl
33	<i>Cucumis sativus L.</i>	Kakadi	CUCURBITACEAE	C	Cl
34	<i>Cuscuta reflexa Roxb.</i>	Amarvel	CUSCUTACEAE	W	Cl
35	<i>Dalechampia scandense L.</i>	Khoti khajavani	EUPHORBIACEAE	W	Cl
36	<i>Diplocylos palmatus(L.) C.Jeffery</i>	Shivlingi	CUCURBITACEAE	W	Cl
37	<i>Dolichos falcatus L. Fabaceae</i>	Valor	FABACEAE	C	Cl
38	<i>Dregea volubilis (L.F.) Bth.ex.H.f.</i>	Malti	ASCLEPIADACEAE	W	Cl
39	<i>Gloriosa superba L.</i>	vachhnag	LILIACEAE	W	Cl
40	<i>Gymnema sylvestre (Retz)</i>	Madhunashini	ASCLEPIADACEAE	C	Tw
41	<i>Holostemma annularium (Roxb.) .Schum</i>	Khirdodi	ASCLEPIADACEAE	W	Tw
42	<i>Hemidesmus indicus (L.) R.Br.</i>	Anantmul	ASCLEPIADACEAE	W	Cl
43	<i>Ipomoea aquatica Forsk.</i>	Naela ni vel	CONVOLVULACEAE	W	Cr
44	<i>Ipomoea batatas (L.) Lam.</i>	Shakkariya	CONVOLVULACEAE	C	Cr
45	<i>Ipomoea cairica (L.) Sw.</i>	Gandivel	CONVOLVULACEAE	W	Cr
46	<i>Ipomoea eriocarpa R.Br.</i>	Bodi fudardi	CONVOLVULACEAE	W	Cr
47	<i>Ipomoea fistulosa Mart.</i>	Besharmi	CONVOLVULACEAE	W	Cr
48	<i>Ipomoea muricata (L.) Jacq.</i>	Bhamaradi	CONVOLVULACEAE	W	Cr
49	<i>Ipomoea nil (L.) Roth.</i>	Kaladana	CONVOLVULACEAE	W	Cl
50	<i>Ipomoea obscura (L.) Ker-Gawl.</i>	Vad fudardi	CONVOLVULACEAE	W	Cl
51	<i>Ipomoea palmata L.</i>	Kaladana	CONVOLVULACEAE	W	Cl
52	<i>Ipomoea pes-caprae (L.) Sw.</i>	Maryadvel	CONVOLVULACEAE	W	Cl

53	<i>Ipomoea pes-tigridis L.</i>	Vaghpad	CONVOLVULACEAE	W	Cl
54	<i>Ipomoea sepiaria Koenig</i>	Hanumanvel	CONVOLVULACEAE	W	Cl
55	<i>Ipomoea quamoclit L.</i>	Kamini	CONVOLVULACEAE	C	Cl
56	<i>Jacquemontia violacea</i>	Jaxini	CONVOLVULACEAE	C	Tw
57	<i>Jasminum multiflorum (Burm.f)Andrews.</i>	Jui	OLEACEAE	C	Cl
58	<i>Lablab purpureus (L.) Sweet.</i>	Val	FABACEAE	W	Cl
59	<i>Lagenaria sinereria Standly.</i>	Doodhi	CUCURBITACEAE	C	Cl
60	<i>Leptadenia reticulata (Retz.) W. &amp; A.</i>	Kharkhodi-Dodi	CUCURBITACEAE	W	Cl
61	<i>Luffa amara (L.) Roxb.</i>	Kadva turiya	CUCURBITACEAE	W	Cl
62	<i>Luffa acutangula (L.) Roxb.</i>	Turiya	CUCURBITACEAE	C	Cl
63	<i>Luffa cylindrica (L.) M.J.Roen.</i>	Galka	CUCURBITACEAE	C	Cl
64	<i>Luffa echinata Roxb.</i>	kukadvel	CUCURBITACEAE	W	Cl
65	<i>Merremia emerginata(Burm.f.)Hall.F.</i>	Underkani	CONVOLVULACEAE	W	Cr
66	<i>Momordica charantia L.</i>	Karela	CUCURBITACEAE	C	Cl
67	<i>Momordica dioica Roxb.</i>	Kantola	CUCURBITACEAE	C	Cl
68	<i>Mucana prurita HK.f.</i>	Kuvaich	FABACEAE	W	Cl
69	<i>Mukia maderaspatana (L.) M.Roem.</i>	Chanakchibhadi	CUCURBITACEAE	W	Cl
70	<i>Oxystelima esculentum R.Br.</i>	Jaldudhi	ASCLEPIADACEAE	W	Tw
71	<i>Passiflora edulis Sims.</i>	Krushnakamal	PASSIFLORACEAE	C	Tw
72	<i>Passiflora foetida L.</i>	Jangli krushnakamal	PASSIFLORACEAE	W	Tw
73	<i>Pentatropis spiralis (Forsk.) Decne.</i>	Singhroti	ASCLEPIADACEAE	W	Cl
74	<i>Pergularia daemia (Forsk.) Chior</i>	Nagli dhudheli	ASCLEPIADACEAE	W	Cl
75	<i>Pisum sativum L. Fabaceae Vatana</i>	Vatana	FABACEAE	C	Cl
76	<i>Pothos scandens L.,</i>	Money plant	ARACEAE	C	Tw
77	<i>Quisqualis indica L.</i>	Madhumalti	COMBRETACEAE	C	Cl
78	<i>Rhynchosia minima (L.) Dc.</i>	Nani kamalvel	FABACEAE	W	Tw
79	<i>Rivea hypocrateriformis (Desr.) Choisy</i>	Fangvel	CONVOLVULACEAE	W	Cl
80	<i>Smilax zeylanica L.</i>	Sararaparila	SMILICACEAE	C	Tw

81	<i>Trichosanthes cucumerina L.</i>	Kadva parval	CUCURBITACEAE	W	Cl
82	<i>Trichosanthes dioica Roxb.</i>	Parval	CUCURBITACEAE	C	Cl
83	<i>Trichosanthes palmata L.</i>	Rata indrana	CUCURBITACEAE	W	Cl
84	<i>Teramnus labialis (L.f.)</i>	Vanio velo	FABACEAE	W	Cl
85	<i>Telosma pallida (Roxb.) Craib</i>	Varshadodi	ASCLEPIADACEAE	W	Cl
86	<i>Tinospora cordifolia (Willd) Miers.</i>	Galo	MENISPERMACEAE	W	Tw
87	<i>Tylophora indica (Burm.F.)Merill.</i>	Dumvel	ASCLEPIADACEAE	C	Tw

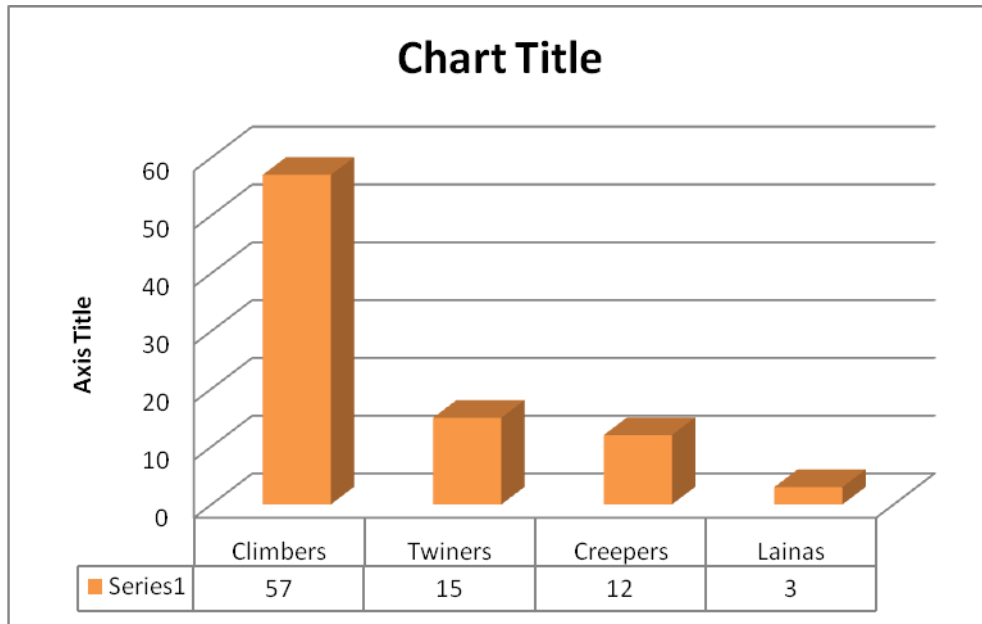
**Table :2 STATISTICAL ANALYSIS OF GENERA & SPECIES**

Genera	60
Species	87

**Table :3 ANALYSIS OF HABIT**

Climbers	Twiners	Creepers	Lainas
57	15	12	03

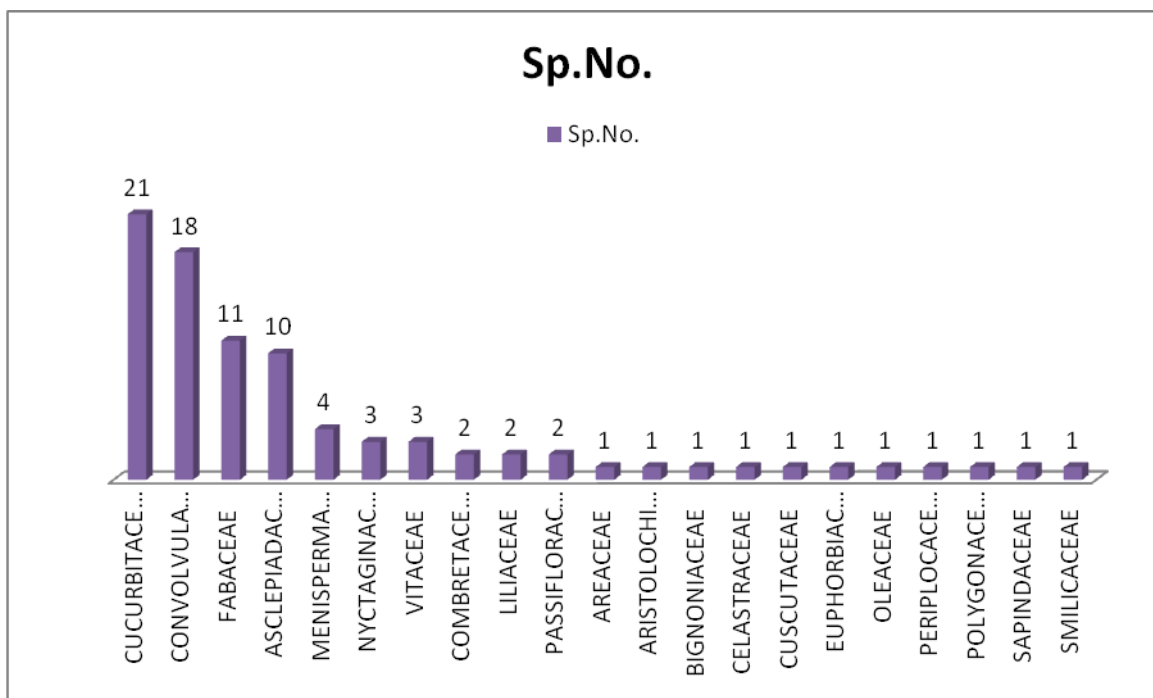
**Graph-1: ANALYSIS OF HABIT**



**Table-4: STATISTICAL ANALYSIS OF FAMILY**

Sr. No	Family	Sp. No	Sr. No	Family	Sp. No.	Sr. No.	Family	Sp. No.
1	ARACEAE	1	8	CUCURBITACEAE	21	15	OLEACEAE	1
2	ARISTOLOCHIACEAE	1	9	CUSCUTACEAE	1	16	PASSIFLORACEAE	2
3	ASCLEPIADACEAE	10	10	EUPHORBIACEAE	1	17	PERIPLOCACEAE	1
4	BIGNONIACEAE	1	11	FABACEAE	11	18	POLYGONACEAE	1
5	CELASTRACEAE	1	12	LILIACEAE	2	19	SAPINDACEAE	1
6	COMBRETACEAE	2	13	MENISPERMACEAE	4	20	SMILICACEAE	1
7	CONVOLVULACEAE	18	14	NYCTAGINACEAE	3	21	VITACEAE	3

**Graph-2 : Families and Species**





Graph-3 : Families and Species

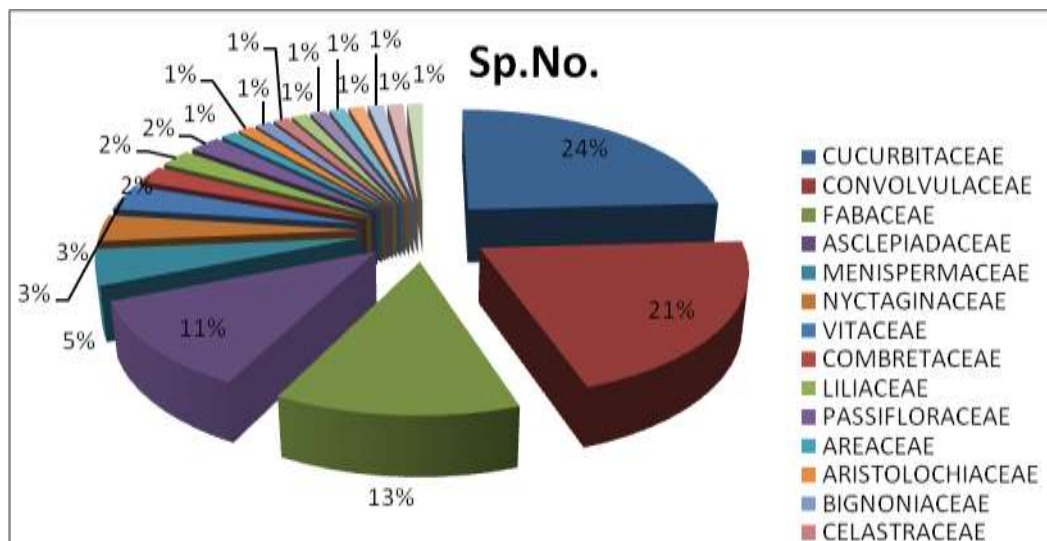
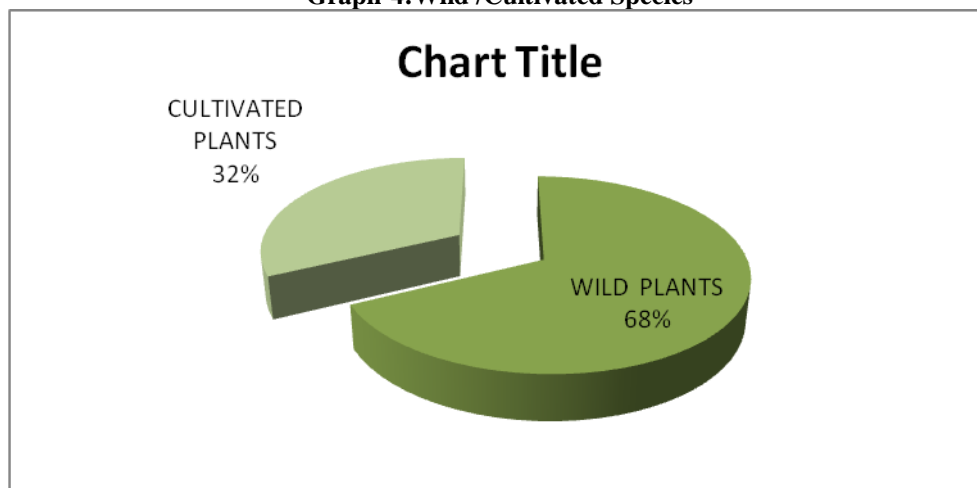


Table-5: ANALYSIS OF CULTIVATED / WILD PLANTS

WILD PLANTS	CULTIVATED PLANTS
59	28

Graph-4: Wild /Cultivated Species



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