Eco. Env. & Cons. 30 (August Suppl. Issue) : 2024; pp. (S236-S240)
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ISSN 0971–765X

DOI No.: http://doi.org/10.53550/EEC.2024.v30i05s.037

A floristic study on climbing plants at Khanpur taluka of Mahisagar District, Gujarat, India

Kunjana N. Patel[1] and P.K. Patel[2]

[1, 2]Department of Botany,
S.P.T. Arts & Science College, Godhra 389 001, Gujarat, India

(Received 11 February, 2024; Accepted 16 April, 2024)

ABSTRACT

According to environmental conditions, plants show their presence in different ways there is considerable variation in their habits and habitats according to different ecological zones. Some plants species with climbing tendency are known as climbing plants. Climbing plants include tendrils and creepers that are adventitious the roots on the nodular part of the stem are helpful for their climbing and creeping on any substratum. Climbing plants are one of the foremost fascinating group however a much-neglected group of plants. A study on floristic diversity of climber plants occurring in Khanpur taluka, Mahisagar district, Gujarat was carried out. A total of 46 climbing species with 36 genera and 17 families were recorded. Climbing plants are groups of plants that often show unique horticultural use due to their beauty-offering features. Plants are a significant source of various valuable products such as food, fodder, fuel, medicine etc. Used by humans for various purposes. The specific objectives of the present study is to determine the diversity and distribution of climbing plants in the area and to characterize rare as well as endemic species.

Key words *: Climbers, Diversity, Floristic, Khanpur taluka, Mahisagar district*

Introduction

Climbing plants are found ecologically in tropical and subtropical regions and one of the most economically important floristic elements. Since the stem is weak, this plant various climbing devices have been developed to support growth and development. Climbers use other plants as support and it has active and passive climbing mechanism with many variations (Dixena and Patel, 2020). Climbers are plants that climb large plants and various objects with the help of their tendrils. Tendrils are specialized structures present in climbers that provide support for climbing others. Climbers, creepers, vines and lianas are some distinct groups of plants, distinguished by their climbing habit and nature of stem organization. Twiners are specialized climbers that use their stems and leaves as tendrils and coil around plants. The stems are slender and because of their twining habit, they are called twiners or stem climbers. Climbers are weak-stemmed plants that differ from trees and shrubs that are self-supporting plants (Patel *et al.,* 2013). These differ in their mechanical character as well as being adapted to climb any base like large trees. Many of the natural as well as man-made causes are largely responsible for the loss of species such as destruction of natural habitats, forest fires, environmental pollution etc. In forests, climber exhibit diverse mechanisms of pollination, dispersal and phenological systems in addition to providing several material resources and play a crucial role in maintaining biological diversity.

([1]Research Scholar)

Climbers are a wonderful part of every woody ecosystem and play a variety of roles in the way the ecosystem creates a microclimate for growers following functional and dynamic floristic, structural, functional diversity. Food for animals, providing arboreal shelter and carbon budgeting (Ghosh, 2014).

Materials and Method

The Khanpur taluka is situated in the Mahisagar district between 23.28° N latitude and 73.18° E longitude. Lunawada, Modasa, Sagwara, Godhra are the nearby cities to Khanpur. The main aim of the present study is to provide information about the climber diversity of Khanpur taluka. The area was frequently visited according to the different seasons in the forest of the area to study the floristic diversity, so that the vegetation diversity could be studied according to the season. This survey was conducted during the period April 2021- November 2023. The study included photographs taken during the plant survey as well as identification and classification by collecting the plants and observing them in the laboratory. The collected specimens were identified using different floras (Hooker, 1872–1897; Cooke, 1901; Bhatt, 1975; Shah, 1978; Raghavan *et al.*, 1981).

Results and Discussion

The present study revealed the diversity of the useful climbing plant resources of Khanpur taluka of Mahisagar district of Gujarat. A total of 46 species were collected and identified. The species are spread over 36 genera under 17 families. Among the families, Convolvulaceae has the highest number

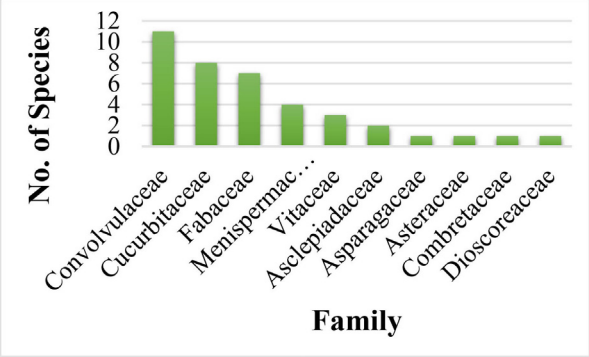

Fig. 1. Ten most dominant families of climbers species

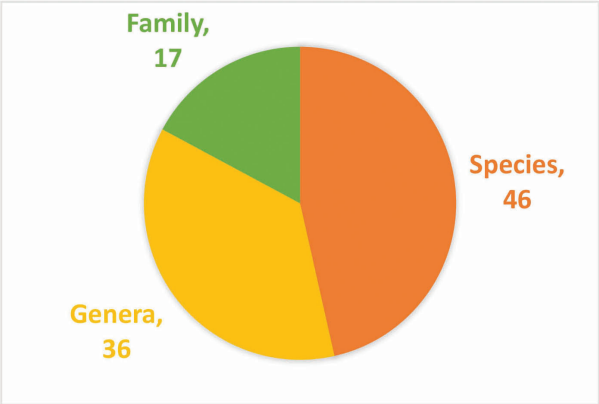

Fig. 2. Floristic studies with class of climbers species

representation comprising 11 species followed by Cucurbitaceae with 8 species and Fabaceae with 7 species (Fig. 1). The list of all the recorded species with their family, scientific name, vernacular name and IUCN status is presented in Table 1.

Conclusion

The present study shows a proper understanding of the available diversity and its conservation can play an important role in the planning and sustainable use of available natural resources for mankind, health and the economy. Over-exploitation of climbing species causes great damage especially due to collection of roots and underground parts leading to gradual decline of plant population. Climber species are found to play an important role in medicinal fulfilment and provides the nutritional needs of local people. So there is a need to create awareness among the local people for the conservation of these plants so that their survival can be maintained in the long run.

Conflict of Interest- None

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Table 1. List of climbers species at Khanpur taluka of Mahisagar district, Gujarat.
(C- Climber, NE- Not evaluated, LC – Least Concerned)

Sr. No.	Scientific Name	Family	Vernacular Name	Habit	Habitat	IUCN Category wise
1	*Abrus precatorius L.*	Fabaceae	Chanothi	C	Loamy	NE
2	*Ampelocissus latifolia* (Roxb.) Planch.	Vitaceae	-	C	Rocky	NE
3	*Asparagus racemosus* Willd.	Asparagaceae	Shatavari, Ekalkanto	C	Loamy	NE
4	*Aspidopterys cordata* (Heyne ex Wall.) A. Juss.	Malpighiaceae	Ghati vel	C	Rocky	NE
5	*Canavalia gladiata* (Jacq.) DC.	Fabaceae	-	C	Rocky	LC
6	*Cayratia carnosa* (Wall.) Gagnep.	Vitaceae	Khat khatumbo	C	Loamy	NE
7	*Celastrus paniculatus* Willd.	Celastraceae	-	C	Rocky	NE
8	*Cissampelos pareira L.*	Menispermaceae	Karandhiu, Venivel	C	Loamy	NE
9	*Citrullus colocynthis* (L.) Schrad.	Cucurbitaceae	-	C	Loamy	NE
10	*Clitoria ternatea L.*	Fabaceae	-	C	Loamy	NE
11	*Coccinia grandis* (L.) Voigt	Cucurbitaceae	Ghilodi	C	Rocky	NE
12	*Cocculus hirsutus* (L.) W.Theob	Menispermaceae	Vevdi	C	Loamy	NE
13	*Cocculus villosus* Dc.	Menispermaceae	Vevadi	C	Rocky	NE
14	*Cucumis sativus L.*	Cucurbitaceae	Kakadi	C	Loamy	NE
15	*Cuscuta reflex* Roxb.	Cuscutaceae	Amar vel	C	Silty	LC
16	*Dioscorea bulbifera L.*	Dioscoreaceae	Wild yam varakand, Jagli Kanda	C	Rocky	NE
17	*Diplocyclos palmatus* (L.) C.Jeffrey	Cucurbitaceae	-	C	Loamy	NE
18	*Dregea volubilis* (L. f.) Bth. ex. Hk. f.	Asclepiadaceae	-	C	Rocky	NE
19	*Gloriosa superba L.*	Liliaceae	Dudhio, Vacchonag	C	Rocky	LC
20	*Hemidesmus indicus* (L.) R.Br.	Periplocaceae	Dudhvel, Dudhli, Anantmul	C	Loamy	NE
21	*Ipomoea alba L.*	Convolvulaceae	-	C	Silty	LC
22	*Ipomoea aquatica* Forsk.	Convolvulaceae	-	C	Loamy	LC
23	*Ipomoea cairica* (L.) Sweet	Convolvulaceae	Narvel, Swairini	C	Silty	LC
24	*Ipomoea dichroa* (R & S.) Choisy	Convolvulaceae	-	C	Loamy	NE
25	*Ipomoea hederifolia L.*	Convolvulaceae	Ganesh vel	C	Loamy	NE
26	*Ipomoea nil* (L.) Roth.	Convolvulaceae	-	C	Rocky	NE
27	*Ipomoea obscura* (L.) Ker Gawl.	Convolvulaceae	Gumbadavel, Vaad kudaradi, Vajavel	C	Loamy	NE
28	*Ipomoea pes-tigridis* L.	Convolvulaceae	Vaghpadi	C	Silty	NE
29	*Ipomoea quamoclit*	Convolvulaceae	Kamlata, Ganesh pushpa	C	Loamy	NE
30	*Ipomoea triloba L.*	Convolvulaceae	-	C	Loamy	LC
31	*Lablab purpureus* (L.) Sw.	Fabaceae	Val papadi	C	Loamy	NE
32	*Luffa acutangula* (L.) Roxb. Var. amara (Lam.) cl.	Cucurbitaceae	Dodki , Kadvi ghishodi, Jungli turiya	C	Loamy	NE
33	*Merremia aegyptia L.*	Convolvulaceae	-	C	Rocky	NE
34	*Momordica balsamina L.*	Cucurbitaceae	-	C	Silty	NE
35	*Momordica dioica* Roxb.	Cucurbitaceae	Kankoda	C	Rocky	NE
36	*Passiflora edulis* Sims.	Passifloraceae		C	Loamy	NE

Table 1. *Continued ...*

Sr. No.	Scientific Name	Family	Vernacular Name	Habit	Habitat	IUCN Category wise
37	*Pergularia daemia* (Forssk.) chiov.	Asclepiadaceae	Chamar dudheli, nagla dudheli, utaran	C	Loamy	LC
38	*Quisqualis indica L.*	Combretaceae	Madhu Malti	C	Loamy	NE
39	*Rhynchosia minima* (L.) DC.	Fabaceae	-	C	Rocky	LC
40	*Terannus labialis* (L.f.) Spreng.	Fabaceae	-	C	Loamy	NE
41	*Tinospora cordifolia* (Willd.) Miers.	Menispermaceae	Gado	C	Silty	NE
42	*Trichosanthes cucumerina* L.	Cucurbitaceae	-	C	Loamy	NE
43	*Ventilago denticulata* Willd.	Rhamnaceae	-	C	Rocky	NE
44	*Vernonia elaeagnifolia DC.*	Asteraceae	Parda vel	C	Loamy	LC
45	*Vigna radiata* (L.) R.Wilczek	Fabaceae	Mag	C	Rocky	LC
46	*Vitis cinerea* var. *helleri*	Vitaceae	-	C	Rocky	NE

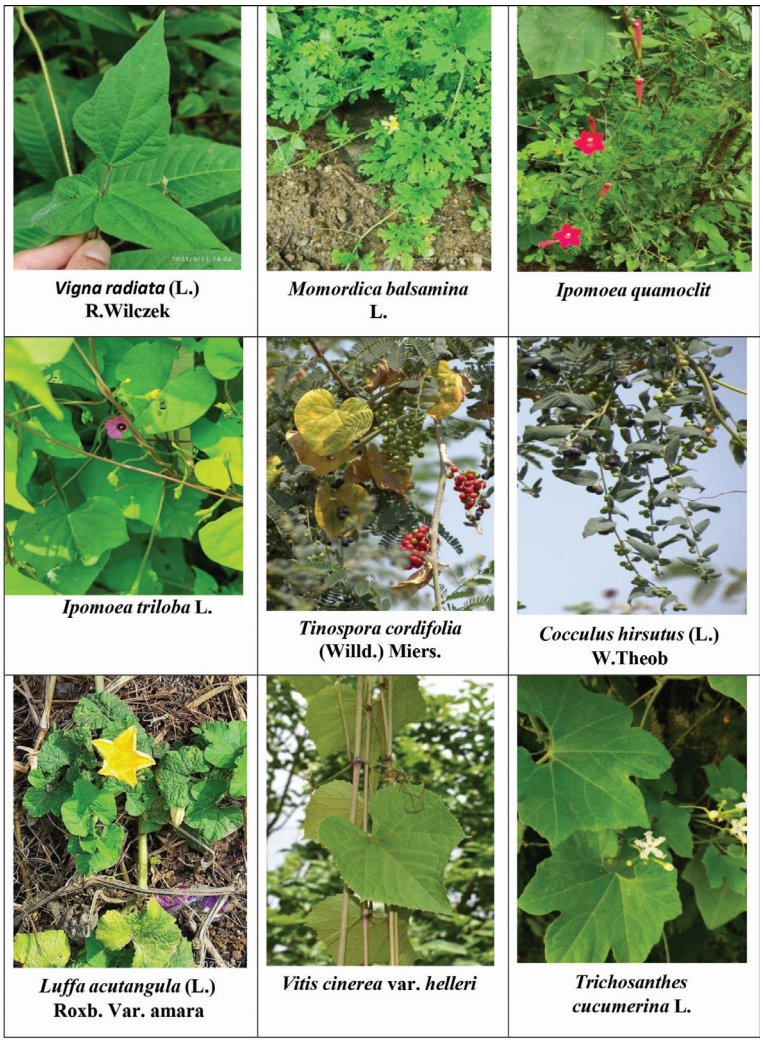

Fig. 3. Climber photographs

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