



Diversity of ornamental climbers in Kattathurai Panchayath, Kanyakumari district, Tamil Nadu, India

Mary Kensa V

PG Department of Botany and Research Centre, ST Hindu College, Nagercoil, Tamil Nadu, India

Abstract

Plants are remarkable source of valuable substances for human beings. These are showing variation in their habitat as well as their habit. As per climatic conditions, the plants are showing their presence in different sites. Climbing plants account for a significant component of plant evolution, diversity and abundance and play a major role in forest communities and ecosystems. The survey of angiospermic ornamental climbers from Kattathurai panchayath recorded total 48 species under 27 genera belonging to 17 families. Maximum number of 11 species was recorded for dicotyledonous family Convolvulaceae (*Ipomea*-11) followed by *Jasminum* (3), *Passiflora* (3), *Clerodendrum* (3), *Allamanda* (2); *Campis* (2); *Clematis* (2); *Clytostoma* (2); *Solanum* (2). Climbers in different parts of India suggest that the climbers are the main components of ecosystem, and their conservation is important to establish their appropriate utilization. The abundance of climbing plants in this study area was directly related to their capacity to intercept light efficiently but not to their potential carbon gain. The most abundant climbers in this ecosystem match well with a shade-tolerance syndrome in contrast to the pioneer-like nature of climbers observed in tropical studies.

Keywords: diversity, plants, climbing plants, *Jasminum*

Introduction

Climbing plants are ubiquitous but their abundance and diversity in species and climbing mechanisms are remarkable in both tropical and temperate rainforests (Putz and Mooney, 1991; Schnitzer and Bongers, 2002) [18, 8, 22]. Many climbers only reproduce under high light (Putz, 1984; Ray, 1992) [20] and shading elicits architectural responses that enhance climbing probability in these species (Gianoli, 2010; Gonzalez-Teuber and Gianoli, 2008) [11, 12]. Both climbing and searching for high light typically involve stem elongation at the cost of leaf surface area to escape the understory (French, 1977; Pen alosa, 1983; Franklin, 2008; Isnard and Silk, 2009) [6, 5, 13], which makes immediate light capture less efficient. Climbers and creepers are important components of plant diversity and are also valuable for their medicinal uses, nutrient recycling, etc. (Schnitzer and Bongers, 2002) [22]. The climbers are rooted in soil but need for a support to their weak stem (Richards, 1952) [21]. *Ex-situ* conservation of climbing plants is very much needed with reference to their roles that they play. Recent study conducted at University of Agricultural Sciences, Bangalore, and Karnataka is an example of *ex-situ* conservation of climbing plants (Rajkumar and Rajanna, 2011) [19].

They also play a part in historical importance of our ancient buildings which owe their attraction to the green veil which covers up their architectural or structural defects making them assume perfect beauty in our eyes. Early morphologists like Dutta (1689) [4] included these climbers under weak stemmed plants. Climbers are the plants that germinate on floor and grow for part of their life by winding ground, anchoring or adhering to other plants to attain great stature. They rely on other plants for mechanical support. No comprehensive work is available for climbers in the study area. Therefore, the

objective of the present study was to document the angiospermic climbers of Kattathurai panchayath.

Materials and Methods

Study Area

The study area Kattathurai panchayath is situated in Kalkulam taluk, Kanyakumari district Tamil Nadu, India. In an average, the temperature is does not exceed 30^oc. The heat is very severe in May, but the nights are much cooler. In the late May and in June there are thunder storms. They are due to depressions coming over from the Bay of Bengal and crossing the district. The rainfall is due to South West monsoons and also due to return monsoons and from the Bay of Bengal. It is obvious that the flora here is very rich containing dry deciduous, semi-evergreen and some moist evergreen species. An extensive field survey was conducted from July 2014 to July 2015 to record the angiospermic climbers growing on different parts of Katathurai panchayath. One visit was made after every three months. Thus a total of six visits were made for the field observations in a year. During the process of observation visits were made to all the practically possible places in search of climbers. The periodical trips were undertaken to the different parts of the study area to get information about climbers. The identification of plant species was done using taxonomic literatures and with the help of experts. The identified plant species were confirmed by using standard taxonomic floras proposed by Mathew (1991) and Gamble (1936) [7].

Result and Discussion

The survey of angiospermic climbers from Kattathurai panchayath recorded total 48 species under 27 genera belonging to 17 families. Maximum number of 11 species was

recorded for dicotyledonous family Convolvulaceae (*Ipomea*-11) followed by *Jasminum* (3), *Passiflora* (3), *Clerodendrum* (3), *Allamanda* (2); *Campis* (2); *Clematis* (2); *Clytostoma* (2); *Solanum* (2) (Table-2). Convolvulaceae is the most dominating family species as well as genera wise. Climbers found in field survey are listed in Table-1 along with their botanical name, vernacular /local name, family.

Climbing plant taxa have greater species richness than their non-climbing sister groups. It is considered that highly diversified clades should show increased among-population genetic differentiation. Climbing plant taxa have greater species richness than their non-climbing sister groups. The majority of lianas are restricted to tropical forests, where they can contribute up to 35 % of the total number of woody plant species and up to 45 % of woody stems present (Gentry, 1991; Putz, 1983; Balachandran and Rajendiran, 2014 ; DeWalt,

2004)^[17, 8, 1, 3].

Some important studies on diversity of climbers in different parts of India by Ghosh and Mukherjee (2006)^[10], and, Jangid and Sharma (2011)^[14] suggest that the climbers are forming main components of ecosystem. Danial (1994)^[2] studied the ethno botany of Weedy vines of Florida while diversity and distribution of climbers in semi deciduous rain forest, Ghana and Perak, Malasiya were worked out by Ghollasimood *et.al.* (2012)^[9]. In India, Pandey *et.al.* (2005)^[15] studied many climbers in their study of medicinal flora of Gujarat while 81 climbers were recorded by Jangid and Sharma (2011)^[14] in Taluka Moasa District, Gujarat. Climbers of Urban area of Ahmadabad and Gandhinagar and Saraswati River Region of Patan district of North Gujrat were documented by Seliya and Patel (2009)^[23] respectively.

Table 1: List of climbers of in Kattathurai Panchayath, Kanyakumari district, Tamil Nadu, South India.

S. No	Botanical Name	Common Name	Family
1.	<i>Allamanda blanchetii</i>	Purple Allamanda	Convolvulaceae
2	<i>Allamanda cathartica</i>	Allamanda	Convolvulaceae
3	<i>Antigonon leptopus</i>	Antigonon	Polygonaceae
4	<i>Aristolochia elegans</i>	Calico Flower	Aristolochiaceae
5	<i>Argyreia nervosa</i>	Woody Morning Glory	Convolvulaceae
6	<i>Beaumontia grandiflora</i>	Nepal Trumpet Creeper	Apocynaceae.
7	<i>Bougainvillea spectabilis</i>	Bougainvillea	Nyctaginaceae
8	<i>Campis grandiflora</i>	Campis	Bignoniaceae
9	<i>Campis radicans</i>	Trumpet Climber	Bignoniaceae
10	<i>Canavalia rosea</i>	Bay Bean	Fabaceae
11	<i>Clematis flammula</i>	-	Ranunculaceae
12	<i>Clematis gouriana</i>	-	Ranunculaceae
13	<i>Clerodendron incrm</i> e	Clerodendron	Verbenaceae
14	<i>Clerodendrum splendens</i>	Clerodendrum	Verbenaceae
15	<i>Clerodendrum thomsoniae</i>	Bleeding Heart	Verbenaceae
16	<i>Clitoria ternatea</i>	Clitoria	Fabaceae
17	<i>Clytostoma callistegiodes</i>	-	Bignoniaceae
18	<i>Clytostoma purpureum</i>	-	Bignoniaceae
19	<i>Cryotostegia grandiflora</i>	India Rubber Vine	Asclepiadaceae
20	<i>Derris scandens</i>	Jewel vine	Fabaceae
21	<i>Hiptage madablota</i>	Hiptage	Malpighiaceae
22	<i>Ipomoea batatas</i>	Blackie Sweet Potato	Convolvulaceae
23	<i>Ipomoea bonanox</i>	Moon Flower	Convolvulaceae
24	<i>Ipomoea campanulata</i>	Spotted Heart	Convolvulaceae
25	<i>Ipomoea indica</i>	Morning Glory	Convolvulaceae
26	<i>Ipomoea learii</i>	Blue Dawn Flower	Convolvulaceae
27	<i>Quamoclit lobata</i>	Spanish Flag	Convolvulaceae
28	<i>Ipomoea cairica</i>	Railway Creeper	Convolvulaceae
29	<i>Ipomoea purpurea</i>	Common Morning Glory	Convolvulaceae
30	<i>Ipomoea quamoclit</i>	Star glory	Convolvulaceae
31	<i>Ipomoea rubro-caerulea</i>	Morning Glory	Convolvulaceae
32	<i>Ipomoea tuberosa</i>	Wood Rose	Convolvulaceae
33	<i>Ipomoea tricolor</i>	Morning Glory	Convolvulaceae
34	<i>Jacquemontia violacea</i>	Jacquemontia	Convolvulaceae
35	<i>Jasminum multiflorum</i>	Downy Jasmine	Oleaceae
36	<i>Jasminum polyanthum</i>	Winter Jasmine	Oleaceae
37	<i>Jasminum Sambac</i>	Arabian Jasmine	Oleaceae
38	<i>Passiflora incarnate</i>	Maypop	Passifloraceae
39	<i>Passiflora edulis</i>	Passion Fruit	Passifloraceae
40	<i>Passiflora violacea</i>	Purple Passion Flower	Passifloraceae
41	<i>Petrea volubilis</i>	Purple Wreath	Verbenaceae
42	<i>Plumbago capensis</i>	Sky Flower	Plumbaginaceae
43	<i>Quisqualis indica</i>	Rangoon creeper	Combretaceae

44	<i>Solanum jasminoides</i>	Potato vine	Solanaceae
45	<i>Solanum wendlandii</i>	Giant Potato	Solanaceae
46	<i>Thunbergia alata</i>	Black – Eyed Susan	Acanthaceae
47	<i>Tristellateia australis</i>	Australian gold vine	Malpighiaceae
48	<i>Wisteria sinensis</i>	Chinese Wisteria	Fabaceae

Table 2: Genus wise distribution of plants

S. No	Genus	Number of plants
1	<i>Allamanda</i>	2
2	<i>Campis</i>	2
3	<i>Clematis</i>	2
4	<i>Clerodendrum</i>	3
5	<i>Clytostoma</i>	2
6	<i>Ipomoea</i>	11
7	<i>Jasminum</i>	3
8	<i>Passiflora</i>	3

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