



## Survey on medico-botanical climbers in Pazhayaru river bank of Kanyakumari District, Tamilnadu

**R. Uma and B. Parthipan**

### Abstract

The total of 25 climbing medicinal plants species collected through folk information from elderly villagers and local medicine men along the river bank of Pazhayaru in Kanyakumari district. The plant species belong to 23 genera with 12 families. Among them Apocynaceae is a dominant family, which has contributed 9 plant species followed the Cucurbitaceae and Menispermaceae 3 species each. Convolvulaceae and Liliaceae are having 2 species each and remaining families have single plant species. Among the five threatened plants, *Ceropegia mannarana* is an endemic and endangered medicinal plant species which is first time report for its medicinal properties. The communication is impressed the preparation of conservation strategies for medicinal species of the area.

**Keywords:** Medicinal climbers, Pazhayaru River, ethnobotany, Kanyakumari district, conservation.

### 1. Introduction

Plant medicines are widely used by all sections of human population either as folk remedies or directly from the codified medicinal systems with modern herbal preparations. Out of nearly 18,500 higher plant species estimated in India, about 7500 species are reported to be medicinal use by rural and tribal communities (Karuppusamy, 2007) [5]. A review of literature revealed that the medico-botanical studies in Kanyakumari District of Tamil Nadu is limited especially the traditional knowledge on the plant use of local people (Kingston *et al.*, 2009; Sukumaran *et al.*, 2014) [3, 6]. Hence, we aimed to document the information on medicinal plants along the river bank of Pazhayaru. The results obtained more interestingly, many numbers of climbing plants as claimed medicinal potential for local health care. We presented the results only on the medicinal climbers of Pazhayaru river banks of Kanyakumari District, Tamil Nadu in the communication.

### 2. Materials and Methods

#### 2.1 Study area

The river Pazhayaru of Kanyakumari District originated at an altitude 1300 m MSL in the western slope of the Mahendragiri hill range and flow into the Arabian sea near Manakudi estuary, which is 12 km in south of Nagercoil. Along the river bank human interference was vast and agriculture is very intense for the past. About 10 check dams were constructed across the river in different places for irrigation management purposes. The vegetation is dense and very lush thickets both the sides of banks, which served the habitat for number of medicinal species.

#### 2.2 Medicinal plant survey

Frequent field surveys were conducted during the March 2012 to October 2014. The floristic inventory were recorded all plant species in the area along the river bank by random sampling method. When floristic documentation of Pazhayaru river, interviews were conducted with local people, medicine men and elderly settlers nearby the river for documenting medico-botanical knowledge of the local people and utilization value of the plant species. The interviews were made particularly for knowing local name of the plant species, medicinal uses, plant part used and other purposes of each plant species. The results were tabulated with all details.

ISSN 2320-3862

JMPS 2015; 3(1): 33-36

© 2015 JMPS

Received: 12-10-2014

Accepted: 30-12-2014

**R. Uma**

*P.G. and Research Department of Botany, S. T. Hindu College, Nagercoil-2, Tamilnadu.*

**B. Parthipan**

*P.G. and Research Department of Botany, S. T. Hindu College, Nagercoil-2, Tamilnadu.*

**Correspondence:**

**B. Parthipan**

*P.G. and Research Department of Botany, S. T. Hindu College, Nagercoil-2, Tamilnadu.*

### 2.3 Preservation and identification of plant materials

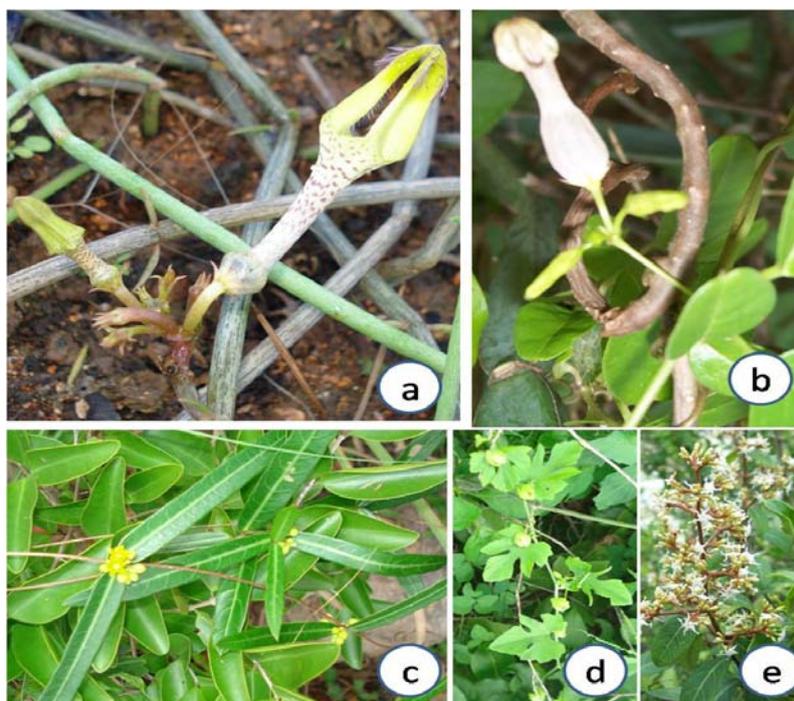
The voucher specimens collected from the field were prepared the herbarium and were deposited in the Department of Botany, S.T. Hindu College, Nagercoil. The primary identification done with help of local Floras (Gamble and Fischer, 1915-1935; Matthew, 1993) and the authentication of the identity of plant species were confirmed by specimens deposited in Botanical Survey of India, Southern Circle, Coimbatore. The valid nomenclature of the plant species was checked with Kew website, The Plant List 2010 online ([www.theplantlist.org](http://www.theplantlist.org)). IUCN threatening category of the plant species were also checked from the IUCN website ([www.iucn.org](http://www.iucn.org)).

### 3. Result and discussion

The results of the medicinal climbers and their botanical families, plant parts used, medicinal uses, IUCN diversity status are given in table 1. The total number of 25 climbing medicinal plants species collected from the study area and they belongs to 23 genera with 12 families. Apocynaceae is dominant climbing medicinal plant family, which has contributed 9 plant species followed the Cucurbitaceae and Menispermaceae 3 species each. Convolvulaceae and Liliaceae are having 2 species each and remaining families have single plant species. Among the uses of medicinal plant parts, leaves are most useful part of climbing medicinal species about 14 species followed by roots (7 species), stem and fruits (2 species each), seeds, flower and latex (one species each). In the mode of administration of the drug mostly about 18 medicinal species by oral application along with milk or other ingredients and 7 plant species applied topically or externally for curing ailments. Analysis of diversity status of climbing medicinal plants collected from the Pazhayaru river bank with

IUCN criteria, 5 plants in threatened category and one species is endangered (Table 1). Among the 25 medicinal climbers, *Ceropegia mannarana* (Fig.1b) is highly restricted its distribution in Kanyakumari district, and their population is very scarce due to it endemism and local uses. Only a few local medicine men were known the value of the species for the medicinal purposes of *C. mannarana* in particularly for antiseptic and external tumours. This species is reported as new to medicinal species first time. The related species, *Ceropegia juncea* (Fig.1a) is ever utilized medicinal climber all over India for curing many ailments due to its chemical principle ceropegia (Murthy *et al.*, 2012) [5]. The same active principle may contain in *C. mannarana* that could be verified. Several of the common medicinal plants and similar medicinal properties were reported in the same district by Sukumaran *et al.* (2014) [6].

Many number of medicinal plants are commonly distributed in this area are *Abrus precatorius*, *Celastrus paniculatus*, *Ichnocarpus frutescens* (Fig.1e), *Mukia maderaspatana*, *Pergularia daemia*, *Pentatropis capensis*, *Tinospora cordata*, *Tylophora indica* etc. Earlier studies were not mentioned these common medicinal plants and their local uses, in particularly for *Asparagus racemosus* and *Tylophora indica* (Sukumaran and Raj, *et al* 2010) [7]. A few medicinal species are in threatening categories such as *Gloriosa superba*, *Ceropegia juncea* and *Celastrus paniculatus* which are frequently distributed in this area, but the same time use value recorded for these species rich. Another threatening factor for the species are uses of medicinal roots, about 7 plant species their useful part are roots and tubers which are highly declining their natural diversity due to continuous uprooting of the plant species for medicinal uses.



**Fig 1:** Medicinal climbers of Pazhayaru river bank. **a-** *Ceropegia juncea* Roxb. **b-** *Ceropegia mannarana* Umam. & Daniel. **c-** *Hemidesmus indicus* R.Br. **d-** *Momordica dioica* Roxb **e-** *Ichnocarpus frutescens* R.Br.

**Table 1:** Enumeration of medicinal climbers and their uses in Pazhayaru river bank of Kanyakumari district (NA = Not assessed).

Name of plant species (local name)	Family	Part(s) used	Medicinal uses	IUCN Diversity status
<i>Abrus precatorius</i> L. (Kundumani)	Leguminosae	Seeds and Roots	Seeds and roots are said to be highly a medicinal for rheumatism and swellings. Small dose taken along with goat milk in empty stomach.	NA
<i>Asparagus racemosus</i> Gaertn. (Thaneervittan kizhangu)	Liliaceae	Root tubers	Tubers are eaten for diuretic condition.	Threatened
<i>Cardiospermum halicacabum</i> L. (Kuthumadakkan)	Sapindaceae	Leaves	Leaves and leaf extracts orally administered for joint pain and joint swellings.	NA
<i>Celastrus paniculatus</i> Willd. (Valuluvai)	Celastraceae	Seeds	Seed oil is used to intake for stomach problems.	Threatened
<i>Ceropegia juncea</i> Roxb. (Vaelipulichan)	Apocynaceae	Succulent stem	Raw stem eaten for improving digestion and stomach problems	Threatened
<i>Ceropegia mannarana</i> Umam. & Daniel (Vaelipachai)	Apocynaceae	Leaves	Leaf paste is applied for external tumours and septic wounds.	Endangered
<i>Cissampelos pariera</i> L. (Appata)	Menispermaceae	Leaves	Boiled leaves are eaten for increasing lactation and body cooling.	NA
<i>Coccinea grandis</i> L. (Kovai)	Cucurbitaceae	Leaves	Leaf paste externally applied for preventing face pimples.	NA
<i>Combretum albidum</i> Gaertn. (Selakakodi)	Combretaceae	Stem bark	Bark extract is taken orally for stomach problems and eject the intestinal worms.	NA
<i>Cryptolepis dubia</i> (Burm.f.) M.R. Almieda (Nagathali)	Apocynaceae	Root bark	Root extract is given orally for snake bite and other venomous bites.	NA
<i>Gloriosa superba</i> L. (Kanthal)	Liliaceae	Rhizome	Rhizome is said to be a poison but small dose along with milk given orally for scorpion stings.	Threatened
<i>Hemidesmus indicus</i> R.Br. (Nannari)	Apocynaceae	Roots	Root extract is said to be a body coolant. It is also given for treating mouth ulcers.	NA
<i>Ichnocarpus frutescens</i> R.Br. (Vaelivalli)	Apocynaceae	Roots and stem bark	Root and stem bark extract is given orally to treat snakebite.	NA
<i>Ipomoea aquatica</i> Forsk. (Neeruvalli)	Convolvulaceae	Leaves	Boiled leaves eaten for laxative and pileous problems.	NA
<i>Ipomoea obscura</i> (L.) Ker Gw. (Nallapachai)	Convolvulaceae	Leaves	Leaf paste applied externally for septic wounds to cure.	NA
<i>Ipomoea pes-tigridis</i> L. (Pulipachilai)	Convolvulaceae	Leaves	Leaf extract taken orally twice a day for treating intestinal worms especially in children.	NA
<i>Luffa cylindrica</i> (L.) Roem. (Nuraipeerku)	Cucurbitaceae	Fruits	Fruit is eaten for body pain and treating burning sensation.	NA
<i>Momordica dioica</i> Roxb. (Kuruvipaavai)	Cucurbitaceae	Leaves and Fruits	Leaves and fruit extract given orally for emetic purpose when consuming poisons.	NA
<i>Mukia maderaspatana</i> (L.) M. Roemer. (Musumusukai)	Cucurbitaceae	Leaves	Leaf extract taken orally to treat stomach problems and indigestion. Boiled extract consumed for treating chest pain and dry cough.	NA
<i>Oxystelma esculentum</i> R.Br. (Kolappalai)	Apocynaceae	Flowers	Fresh flowers eaten for treating intestinal ulcer.	NA
<i>Passiflora foetida</i> L. (Chalipazham)	Passifloraceae	Leaves	Leaf extract with castor oil taken orally for laxative and anthelmintic.	NA
<i>Pentatropis capensis</i> (L.) Bullock (Uppukolli)	Apocynaceae	Leaves	Leaf extract consumed for treating urine infection and kidney problems.	NA
<i>Pergularia daemia</i> (Forsk.) Chiov. (Vaeliparuthi)	Apocynaceae	Leaves	Leaf extract taken orally for treating throat infection and asthmatic eruption.	NA
<i>Thunbergia alata</i> L. (Manipungam)	Acanthaceae	Roots	Root extract applied externally for wasp stings and honey bee stings.	NA
<i>Tiliacora acuminata</i> Miers (Senkoli)	Menispermaceae	Leaves	Leaf paste applied externally for treating cut wounds.	NA
<i>Tinospora cordifolia</i> (Willd.) Miers (Chintilkodi)	Menispermaceae	Leaves and stem bark	Leaf and stem bark extracts administered orally for kidney trouble.	NA
<i>Tylophora indica</i> L. (Nancharuppan)	Apocynaceae	Latex	Latex applied on nosil slits for treating cough and curing throat infections.	Threatened

#### 4. Conclusion

The present study recorded 25 medicinal climbers from the study area with about 5 threatening medicinal plants.

*Ceropegia mannarana* recorded first time for its medicinal properties and it is narrowly endemic to Kanyakumari district at the same the diversity of the plant is vulnerable. The study

impressed to formulate the conservation strategies for rare and endangered medicinal plants species before the diversity is lost.

### 5. Acknowledgement

The authors are thankful to Dr. S. Karuppusamy, Department of Botany, and Centre for Biological Research, The Madura College (Autonomous), Madurai-625011, Tamil Nadu, India for their assistance in identification and authentication of plants. We are thankful to S.T. Hindu College Association, for providing facilities to undertaken this study.

### 6. References

1. Gamble JS, Fischer CEC. Flora of the Madras Presidency. Vol. I-III. Arnold and Sons Limited, London, 1915-1935. IUCN Red List categories, IUCN- Switzerland, www.iucn.org, 2014.
2. Karuppusamy S. Medicinal plants used by Paliyan tribes of Sirumalai hills of southern India. Natural Product Radiance 2007; 6:436-442.
3. Kingston C, Jeeva S, Jeeva GM, Kiruba S, Mishra BP, Kannan D. Indigenous knowledge of using medicinal plants in treating skin diseases in Kanyakumari district, southern India. Indian Journal of Traditional Knowledge 2009; 8:196-200.
4. Matthew KM. The flora of Tamilnadu Carnatic. Vol. I-III. The Rapinat Herbarium, Tiruchirappalli, Tamilnadu, India, 1993.
5. Murthy KSR, Kondamudi R, Reddy MC, Karuppusamy S, Pullaiah T. Check-list and conservation strategies of the genus *Ceropegia* in India. International Journal of Biodiversity and Conservation 2012; 4:304-315.
6. Sukumaran S, Brindha TSS, Subitha P, Sheebha YA, Jeeva S. Use of medicinal plants by two cultural communities of Kanyakumari district, Tamilnadu, south India. Journal of Chemical and Pharmaceutical Research 2014; 6:67-79.
7. Sukumaran S, Raj ADS. Medicinal plants of sacred groves in Kanyakumari district southern Western Ghats. Indian Journal of Traditional Knowledge 2010; 9:294-299.