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PHYTOSOCIOLOGICAL OBSERVATIONS ON ECONOMICALLY IMPORTANT PLANTS IN A DRY DECIDUOUS FOREST OF MARUTHAMALAI HILLS, COIMBATORE, TAMIL NADU

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ABSTRACT

The present investigation was carried out in a dry deciduous forest of Maruthamalai hills to know the changes in species composition according to altitude and ecology of economically important plants. A total number of 128 plant species were identified and 112 of them are recognized as economically important. Based on importance value index, the species like *Acacia torta*, *Chloris barbata*, *Eragrostis viscosa*, *Erythroxylon monogynum Pterolobium indicum* and *Zizyphus oenoplia* are ecologically well established plants in the study forest. On the other hand the spices such as *Polygala Jacobi*, *Portulaca guadrifida*, *Ruellia patula*, *Sida rhomboidea*, *Waltheria indica*, *Calotropis gigantean*, *Solanum torvum*, *Acacia leucophloea*, *Acacia nilotica*, *Acacia trotitis*, *Agave Americana*, *Bambusa arundinacea*, *Cassia fistula*, *Chloroxylon swietenia*, *Peltophorum pterocarpum*, *Pithecellobium dulce*, *Pongamia pinnata*, *Prosopis juliflora*, *Samanea saman*, *Thespesia populnea*, *Canavalia mollis*, *Leptadenia reticulata*, *Rivea hypocrateriformis* etc., are considered as ecologically weaker species in the community. Hence priorities must be given to these species so as to protect the genetic stock and species as well.

Keywords: Psychological Observation, Maruthamalai hills, dry deciduous forest.

1. INTRODUCTION

Maruthamalai, the shrine of lord muruga, is situated in the Western Ghats of Coimbatore District, Tamil Nadu. It is also called as Karumalai, Maruthuvamalai and Marundhumalai. In the past 3 yugas of the age of the world, it is well known for its herbal wealth and for the history of Pambatti Siddhar, one of the 18 Siddhars who established the temple at a height of 1175 m above msl. According to Champion and Seth (1968) the vegetation of the Maruthamalai hills comes under the dry deciduous forest. Ramachandran and Nair (1981) documented nearly 66 medicinal plant species in this area. However since last few decades the floristic wealth of Maruthamalai hills is depleted at an alarming rate due to the influence of heavy biotic pressure. In this juncture, the present ecological investigation was aimed to determine the ecological position, the level of establishment and the fitness to the habitat for all component species.

2. MATERIALS AND METHODS

2.1. Study area

The present study was carried out in a dry deciduous forest of Maruthamalai hills, which is situated in the Western Ghats, 15 km away from Coimbatore city. The geographical location of Maruthamalai lies between 76° – 45' and 76°– 55' E longitude and 11° – 0' and 11° – 5' N latitude and forms the western boundary to Coimbatore district. The hill area raises up to 1699 m high, forms scrub jungle up to 700 m with dry rocky soil from the foot hill and evergreen vegetation with grasslands above 700 m height. The trees in this region are small with stunted growth.

2.2. Phytosociological analysis

Phytosociological studies were carried out during the dry month of March, 2011 in a dry deciduous forest of Maruthamalai hills to obtain the quantitative characters such as frequency, density, basal cover and their relative values and importance value index. A one ha plot was established in each of three study plots and it was divided into 20 x 20 m workable units (quadrat). The species and their individuals' occurring in each quadrat were recorded. The basal areas at the point of emergence were measured for all the species. The quantitative characters of the constituent species were calculated as per the following formulae of Cottam and Curtis, (1956).

$$\text{Frequency} = \frac{\text{Number of quadrats in which the species present}}{\text{Total number of quadrats studied}} \times 100$$

$$\text{Density} = \frac{\text{Total number of individuals of the species in all quadrats}}{\text{Total number of quadrats studied}}$$

Since most of the stems are cylindrical, the basal area was calculated by using the formulae:

Basal area = $\pi(r)\ 2$

Where, $\pi = 3.14$ and r is the radius of the stem at the point of emergence.

$$\text{Relative Frequency} = \frac{\text{Number of occurence of the species}}{\text{Number of occurence of all species}} \times 100$$

$$\text{Relative density} = \frac{\text{Number of individuals of the species}}{\text{Number of individuals of all species}} \times 100$$

$$\text{Relative dominance} = \frac{\text{Total basal area of the species}}{\text{Total basal area of all species}} \times 100$$

Importance value index (IVI) is the sum of quantities of the relative frequency, relative density and relative dominance expressed per 300.

3. RESULTS AND DISCUSSION

The vegetation of each study plot (1ha) sorted out into four compartments viz., herbs, shrubs, trees and climbers. In all the three studied plots, a total number of 128 species has been enlisted. Off which a high number of 119 species was recorded in the study plot II followed by 117 species in the study plot I and 88 species in the study plot III. Out of 128 species available in three studied plots, 112 species are recognized as medicinally and economically important. The utilization value of the studied plots in a dry deciduous forest of Maruthamalai hills was found to be higher because of the presence of large number of plant species (87.50% of the total flora) as economically important. Paulsamy (2005) also identified a great percentage of economically important species in the floristic list of Nilgiri sholas, adjacent mountain range to the present study area.

The distribution of some of the economically important plants like, *Acacia torta*, *Erythroxylon monogynum*, *Fluggea leucopyrus* and *Zizyphus oenoplia* was even in all three studied plots. It may be explained that the factors like suitability of microhabitat, dispersal mechanism of seeds, germination efficiency, degree of survivability of seedlings and many other intrinsic characters are playing major role for their successful distribution. Many species in three studied plots like *Calotropis gigantean*, *Solanum torvum*, *Acacia nilotica*, *Acacia torta*, *Delonix regia*, *Eucalyptus globules*, *Peltophorum pterocarpum*, *Samanea saman*, *Tectona grandis* etc., have showed restricted distribution. The external factors like topography, soil conditions and biotic disturbances and some intrinsic factors like dispersal mechanism, seed longevity, dormancy period and germination efficiency are some of the environmental variables generally determine the degree of distribution of many plant species (Belsky, 1988).

The density of economically important plants was higher in all three studied plots. The species such as *Acacia torta*, *Eragrostis viscosa*, *Chloris barbata*, *Erythroxylon monogynum*, *Euphorbia hirta*, *Zizyphus oenoplia* etc., were showed high density during the time of sampling. Tansley (2003) stated that in the slopes of mountains where the subtropical and temperate vegetations are available, many local climates are existing which result the variation in the population size of many plant species in the communities. On the other hand, many species like *Calotropis gigantea*, *Solanum torvum*, *Acacia trotitis*, *Agave americana*, *Cassia fistula*, *Eucalyptus globulus*, *Pithecellobium dulce*, *Pongamia pinnata*, *Samanea saman*, *Tectona grandis, Terminalia arjuna, Thespesia populnea, Leptadenia reticulata* etc., were present with low densities in all studied plots may also be due to their poor reproductive potential with less seed output and weaker competitive ability (Chandrasekaran and Swamy, 1995).

Similarly, a high number of economically important plants occupied higher basal area in three studied plots. This may be due to the presence of suitable climate and soil conditions for the growth of such economically important plants in Maruthamalai hills. In addition, the shade provided by the trees also enhancing the growth of these species which naturally being a shade tolerance. Padmavathy (2005) reported in a similar fashion that the forest understories of Nilgiri contained more number of economically important plants with greater density and basal area.

In all the three studied plots of Maruthamalai hills, the ecological picture of economically important plants is highly notable. Among the 112 species of economically important plants, many species like *Acacia torta*, *Chromolaena odorata*, *Euphorbia hirta*, *Erythroxylon monogynum*, *Fluggea leucopyrus*, *Mollugo pentaphylla*, *Pterolobium indicum*, *Tarenna asiatica*, *Zizyphus oenoplia* etc., were determined as well established species on basis of their higher IVI values in comparison to other species. Suitability of habitat, dispersal mechanism of seeds, seed output, reproductive efficiency, longer viability, less demand, rapid regeneration and development of adaptive features according to seasons are accounted to be the reasons for their success in the environmental of present study area (Ramakrishnan, 1991; Paulsamy, 2005).

Table 1. The presence of constituent species in a dry deciduous forest of Maruthamalai hills with their economic importance.

Sl. No.	Species	Family	Parts used	Medicinal/other economic importance	Mode of administration
	HERBS				
1	*Acalypha indica*	Euphorbiaceae	Whole plant	Anti-diabetic activity, Ulcers, bronchitis	Leaf juice, paste, powder
2	*Acanthospermum hispidum*	Asteraceae	Leaves	Cure yellow fever	Leaf juice
3	*Achyranthes aspera*	Amaranthaceae	Whole plant	Antidote, piles, asthma, hydrophobia	leaf paste, root paste
4	*Aerva lanata*	Amaranthaceae	Whole plant	Diuretic, diabetics applied on fresh cuts-burns	Decoction of plant,
5	*Alternanthera pungens*	Amaranthaceae	Whole plant	Diuretic	Decoction of plant
6	*Amaranthus viridis*	Amaranthaceae	Whole plant	Antidote, snakebite, diuretic, inflammations,	Juice, paste
7	*Barleria buxifolia*	Acanthaceae	Leaves, roots	Cough, inflammations	Leaf powder
8	*Barleria prionitis*	Acanthaceae	Leaves, roots	Tooth ache, cough, fever, glandular swelling	Leave juice, root paste
9	*Blepharis mederaspatensis*	Acanthaceae	Entire plant	Venereal diseases	power
10	*Boerhaavia diffusa*	Nyctaginaceae	Whole plant	Asthma, jaundice, antidote, abdominal pain	Leaf juice, paste
11	*Borreria ocymoides*	Rubiaceae	Roots	Tooth warm	Decoction of root
12	*Borreria hispida*	Rubiaceae	Leaves, roots	Tooth warm	Decoction of root
13	*Cassia occidentalis*	Caesalpineaceae	Leaves, roots, fruits	Rheumatism, digestive, diabetes, wheezing, ringworm, saliva secretion, scorpion sting	Decoction of leaves, leaf paste, root power
	Cenchrus ciliaris	Poaceae	-	-	-
14	*Chloris barbata*	Poaceae	-	-	-
15	*Chloris roxburghiana*	Poaceae	-	-	-
16	*Cleome viscosa*	Capparidaceae	Whole plant	Diarrhea, stimulant, cardiac disorders	Leaf juice, powder
17	*Corchorus tridens*	Tiliaceae	-	-	-
18	*Crotalaria verrucosa*	Fabaceae	Leaves	Blood impurities, fever, dyspepsia scabies	Leaf juice, Leaf paste
19	*Croton sparciflorus*	Euphorbiaceae	Seeds	Dyspepsia	powder
20	*Cynodon dactylon*	Poaceae	Whole plant	Diuretic, antidote, stomach trouble	Leaf juice, paste
21	*Desmodium triflorum*	Fabaceae	Whole plant	Cough, antidote, dysentery, diarrhea	Leaf juice, paste
22	*Eragrostis viscosa*	Poaceae	-	-	-
23	*Euphorbia hirta*	Euphorbiaceae	Whole plant	Antidote, asthma, diarrhea, kidney disorders	Plant extract,paste
24	*Evolvulus alsinoides*	Convolvulaceae	Whole plant	Asthma, anthelmintic, bronchitis	Plant juice, power
25	*Gomphrena decumbens*	Amarathaceae	-	-	-
26	*Heteropogon*	Poaceae	Culms of grass	Thatching, stimulant, diuretic, rheumatism	Powder

	contortus				
27	*Hibiscus micranthus*	Malvaceae	Fruits	Febrifuge	Powder
28	*Indigofera enneaphylla*	Fabaceae	Whole plant	Diuretic, anti scorbutic, boiled	plant juice, powder
29	*Indigofera viscosa*	Fabaceae	-	-	-
30	*Justicia tranquebariensis*	Acanthaceae	Leaves	Cooling aspirant, small pox in children	Leaf juice
31	*Leucas aspera*	Lamiaceae	Whole plant	Head ache, cough, cold, chronic rheumatism	Leaf juice, paste
32	*Malvastrum coromandelianum*	Malvaceae	Leaves, flowers	Dysentery, inflamed, scores, antidote,	Decoction of plant
33	*Mariscus cyperinus*	Cyperaceae	-	-	-
34	*Mariscus paniceus*	Cyperaceae	-	-	-
35	*Mollugo pentaphylla*	Aizoaceae	Leaves	Antiseptic, stomachic, ant periodic, earache	Leaf juice
36	*Oldenlandia umbellata*	Rubiaceae	Leaves, roots	Asthma, bronchitis, respiratory tract	Leaf juice, paste
37	*Parthenium hysterophorus*	Asteraceae	Whole plant	Dysentery, scabies, antidote, ulcer, fever	Decoction of root
38	*Pavonia zeylanica*	Malvaceae	roots	Hernia, febrifuge, anthelmintic	Powder
39	*Peristrophe bicalyculata*	Acanthaceae	Whole plant	Eye ailments, bone fracture- sprains	Leaf juice, powder
40	*Perotis indica*	Poaceae	-	-	-
41	*Phyllanthus maderaspatensis*	Euphorbiaceae	Infusion of leaves	Head ache, diuretic, dysentery, jaundice	Leaf juice
42	*Polygala bulbothrix*	Polygalaceae	Leaves, roots	Asthma, chronic, bronchitis, fever	Decoction of root
43	*Polygala jacobi*	Polygalaceae	Roots	Purgative, cold, cough, head ache	Decoction of root
44	*Portulaca guadrifida*	Portulaceae	Leaves	Antiscorbutic, ulcer, gonorrhoea	Decoction of leaves
45	*Rothia indica*	Fabaceae	Leaves, pods	Scarcity	Boiled leaves
46	*Ruellia patula*	Acanthaceae	Whole plant	Psoriasis	Dried powder
47	*Sida acuta*	Malvaceae	Whole plant	Demulcent, diuretic, rheumatism swellings, chest pain, diaphoretic, ulcer, antidote	Leaf juice, root juice, decoction of root, paste
48	*Sida cordata*	Malvaceae	Whole plant	Fever, arthritis, hyper dieresis, diarrhea	Powder
49	*Sida cordifolia*	Malvaceae	Leaves, roots,	Antidote, elephantiasis, dysentery, piles	Plant juice, root powder
50	*Sida rhomboidea*	Malvaceae	Leaves, roots, stem	Rheumatism, emollient, diuretic, febrifuge	powder
51	*Tephrosia purpurea*	Fabaceae	Whole plant	Liver diseases, diarrhea, rheumatism, vomiting, urinary disorders, asthma	Decoction of whole plant, paste, tonic
52	*Tephrosia villosa*	Fabaceae	Leaves, fresh roots	Dropsy, hypoglycemic properties	Paste
53	*Tridax procumbens*	Asteraceae	Leaves	Dysentery, diarrhea, antidote	Paste
54	*Vernonia cinerea*	Asteraceae	Whole plant	Indigestion, piles, malaria, fever,	Leaf juice, paste

55	*Waltheria indica*	Sterculiaceae	Leaves, root	Skin eruption, cleaning wounds, cough	Leaf juice, root powder
	SHRUBS				
56	*Acacia torta*	Mimosaceae	Fresh leaves, bark	Menstrual disorders	Decoction of plant
57	*Acalypha fruiticosa*	Euphorbiaceae	Leaves, roots	Antidote, stomachic, gonorrhoea	Leaf juice, powder
58	*Bougainvillaea spectabilis*	Nyctaginaceae	-	-	-
59	*Calotropis gigantea*	Asclepiadaceae	Whole plant	Bite of dog, snake and rat, cough, asthma, healing of wounds and boils, scorpion sting	Powder and paste
60	*Capparis brevispina*	Capparidaceae	Fruits	To reduce body temperature	Decoction of fruit
61	*Capparis roxburghii*	Capparidaceae	-	-	-
62	*Capparis zeylanica*	Capparidaceae	Leaves, roots, bark	Stomachic, fever, body ache, piles	Paste of root bark
63	*Carissa carandas*	Apocynaceae	Fruits, roots	Stomachic, anti scorbutic, digestive	Paste and powder
64	*Carissa spinarum*	Apocynaceae	Whole plant	Purgative, cardiotonic activity	Extract of leaves, tonic
65	*Cassia auriculata*	Caesalpiniaceae	Whole plant	Diabetes, dysentery, tumors, skin, diseases,	Leaf juice, flower powder
66	*Chromolaena odorata*	Asteraceae	Leaves	Antiseptic agent, cure deep cuts and wounds	Leaf juice, leaf paste
67	*Dodonaea viscosa*	Sapindaceae	Aerial part, leaves, roots, bark, seeds	Rheumatism, swellings, cough, backache, sprain, fish poison, wounds and swelling	Boiled leaves, root paste, powder
68	*Erythroxylon monogynum*	Erythroxylaceae	Wood, bark	Fever, dysentery, skin diseases	Ash of the plant
69	*Fluggea leucopyrus*	Euphorbiaceae	Leaves	To destroy worms	Leaf juice
70	*Jatropha glandulifera*	Euphorbiaceae	Roots, fresh bark	Skin diseases, cold, rheumatism, purgative	Paste, oil
71	*Lantana camara*	Verbinaceae	Whole plant	Diaphoretic, dysentery, tumors, piles and rheumatism, fever, ulcers, swellings	Decoction of root, root juice, paste
72	*Phyllanthus reticulates*	Euphorbiaceae	Whole plant	Diuretic, diarrhea, stomachic, burns	Leaf juice, paste
73	*Pterolobium indicum*	Mimosaceae	Dried flower	Fever	Powder
74	*Randia dumetorum*	Rubiaceae	Internal bark, roots, fruits	Dysentery, rheumatism, borne-ache, fever, diaphoretic, asthma ulcers, tumors	Extractions of root and bark, paste
75	*Solanum torvum*	Solanaceae	Leaves, fruits, roots	Digestive, cold, cough, liver diuretic, blood pressure	Decoction of fruit, leaf extract, root paste
76	*Strobilanthes* sp.	Acanthaceae	-	-	-
77	*Tarenna asiatica*	Rubiaceae	Fruits, leaves	skin diseases	Paste
78	*Tecoma stans*	Bignoniaceae	Roots	Diuretic, antidote, vermifuge	Powder and paste
79	*Toddalia asiatica*	Rutaceae	Whole plant	Digestive, stimulant, intermittent fever, cough,, cold, malaria, diarrhea, bronchitis, wounds, ulcers	Leaf juice, paste, flower, juice
80	*Zizyphus oenoplia*	Rhamnaceae	Root bark, fruits	Digestive, antiseptic, healing of wounds	Decoction of root, paste

	TREES				
81	*Acacia leucophloea*	Mimosaceae	Leaves, bark, gum	Stomach ache, fever, anthelmintic, dental caries, oral ulcers, skin diseases, wounds, dysentery, diarrhea	Leaf juice, decoction of bark
82	*Acacia nilotica*	Mimosaceae	Bark, gum	Skin diseases, oral ulcers, liver tonic	Bark paste
83	*Acacia tortitis*	Mimosaceae	-	-	-
84	*Agave americana*	Agavaceae	Leaves, roots, dried, flower stalks	Laxative, diuretic, diaphoretic, antiseptic, dysentery, malaria, other fevers, fish poison	Root juice, paste
85	*Albizzia amara*	Mimosaceae	Leaves, flowers, seeds, gum	Eye diseases, ulcers, swellings, piles, diarrhea, leprosy, leucoderma	Powder
86	*Albizzia lebbeck*	Mimosaceae	Flowers, pods, root gum, stem, seeds	Anti cancer, ophthalmic, wounds, sprains, inflammations, hypoglycemic	Powder
87	*Azadirachta indica*	Meliaceae	All parts	Blood purity, skin diseases, ophthalmic, cough, asthma, ulcers, tumors, liver tonic	Root tonic, bark paste, seeds powder, tonic
88	*Bambusa arundinacea*	Poaceae	Leaves, roots	Diuretic, skin diseases, general debility, nausea, wounds, sprouts	Decoctions of root , leaf bud, paste
89	*Bauhinia variegata*	Caesalpiniaceae	Leaves, flower buds, root bark.	Cough dysentery, tumors, inflammations, diabetes, piles, skin disease	Decoction of root, bark is boiled, paste.
90	*Cassia fistula*	Caesalpiniaceae	Whole plant	Diuretic, dyspepsia, fever, diabetes, skin diseases, ulcers, diuretics, jaundice, cough	Leaf juice, bark powder, root paste
91	*Cassia siamea*	Caesalpiniaceae	Aerial parts , root	Diuretics, to remove intestinal worms	Powder
92	*Chloroxylon swietenia*	Ruutaceae	Leaves, root, bark	Rheumatism, wounds, malaria	leaf Juice, bark decoction
93	*Commiphora berryi*	Bursaraceae	latex	Cracks of feet	Latex
94	*Commiphora caudata*	Bursaraceae	fruits	pickles	Cooked
95	*Delonix regia*	Caesalpiniaceae	Flowers, seeds	Rheumatism, anthelmentic	Powder
96	*Eucalyptus globulus*	Myrtaceae	Leaves , oil	Powerful antiseptic, asthma, diarrhea, vomiting, head ache, cough , cold	leaf oil
97	*Euphorbia antiquorum*	Euphorbiaceae	Roots	Cough, wounds ulcers, rheumatisms	Root juice, powder
98	*Ficus bengalensis*	Moraceae	Whole plant	Diabetes, skin diseases, antidote, tooth ache, cough, ulcers, dysentery, rheumatism	Bark juice, milky juice, extract of aerial root
99	*Ficus tomentosa*	Moraceae	-	-	-
100	*Peltophorum pterocarpum*	Caesalpiniaceae	Barks, seed	Dysentery, muscular pains , sores, anti inflammatory	powder
101	*Pithecellobium dulce*	Mimosaceae	Leaves, bark, seeds	Inflammation of the eyes, blood clotting, dysentery, febrifuge	Extract of seed, powder
102	*Pongamia pinnata*	Fabaceae	Whole plant	Dyspepsia, antiseptic, cough, leprosy, rheumatic pains, foul ulcers cleaning, bleeding	Leaf juice, root paste, decoction of bark and flowers,

				piles, diabetes, fish poison	seeds powder
103	*Prosopis juliflora*	Mimosaceae	mesquite gum	Adulterant, emulsifying agents	As raw
104	*Prosopis spicigera*	Mimosaceae	Barks,leaves,seeds	Dysentery, leprosy, bronchitis, asthma, piles	Paste and powder
105	*Samanea saman*	Mimosaceae	-	-	-
106	*Santalum album*	Santalaceae	Heart wood	Cough, bronchitis, dysentery, jaundice , intermittent fever, skin diseases	Paste of heart wood
107	*Tamarindus indica*	Caesalpiniaceae	Leaves, fruits, roots, seeds	Sore throat, ulcer, wounds, cough, eye disorder, dysentery, disorders, swellings	Leaf paste, seeds powder
108	*Tectona grandis*	Verbinaceae	Whole plant	Antiseptic, diabetes, leprosy, bronchitis, piles, dysentery, urinary troubles, headache	Paste, powder
109	*Terminalia arjuna*	Combretaceae	Twig , leaf, fruit, bark	Body ache, cardio tonic, ear ache, fractures, ulcer, asthma, bronchitis, tumors, dysentery	Leaf juice, paste , bark powder
110	*Thespesia populnea*	Malvaceae	Whole plant	Cough, asthma, diabetes, ulcer, scabies	Fruit juice, decoction of bark
111	*Zizypus rugosa*	Rhamnaceae	Flowers, leaf, bark	Diarrhea, swellings, infection of teeth	Powder
112	*Zizypus trinervia*	Rhamnaceae	leaves	Purify the blood, venereal affections,	Decoction of leaves
113	**CLIMBERS**	Fabaceae	Leaves, fruits, roots	Cough, cold, colic leucoderma, skin disease,	Leaf juice, root powder seed
	Abrus precatorius		seeds	wounds, asthma, ulcers, tonic, jaundice	paste
114	*Canavalia mollis*	Fabaceae	Seeds, leaves	Wound heeling	Paste
115	*Cardiospermum halicacabum*	Sapindaceae	Roots , leaves, seeds	Rheumatism, asthma, diuretic, fever, lumbago naturopathic	Powder
116	*Cissus quadrangularis*	Vitaceae	Whole plant	Bone fracture , asthma , scurvy , wounds digestive , menstrual disorders	Leaf juice, root and stem paste
117	*Clitoria ternatea*	Fabaceae	Leaves, seeds	Diuretic, asthma, ulcers , fever, rheumatism	Leaf juice, root paste
118	*Coccinia indica*	Cucurbitaceae	Whole plant	Sores, scabies skin disease,	Paste and powder
119	*Cocculus hirsutus*	Menspermiaceae	Root and leaves	Chronic rheumatism, inflammation of urinary passages, diabetes, skin disease	Leaf juice leaf paste root paste
120	*Cocculus pendulous*	Menspermiaceae	Leaves	Noise bleeding , anti tumor , anticancer	Extract of leaves
121	*Daemia extensa*	Asclepiadaceae	Whole plant	Cold, Cough, fever, asthma, digestive	Leaf juice, leaf paste
122	*Ipomoea nil*	Convalvulaceae	Seeds	Anti –inflammatory, purgative, skin diseases, dyspepsia, bronchitis,fever	Extract of seeds
123	*Leptadenia reticulata*	Asclepiadaceae	Whole plant	Leprosy, tonic and stimulant	Plant extract
125	*Passiflora foetida*	Passifloraceae	Aerial part, fruits, roots	Anticancer, memory power, asthma, biliousness, hysteria, itches	Decoction of fruit and root, paste, powder
126	*Rivea hypocrateriformis*	Convolvulaceae	Leaves, shoots	Eaten, fragrant	Powder
127	*Sarcostemma intermedium*	Asclepiacaceae	Dried stem, root	Emetic, antidote, hemorrhage	Paste
128	*Tiliacora acuminata*	Menispermaceae	Roots	Antidote	Root juice

Table 2. Importance value index for the ecologically stronger and weaker, economically important plants in a dry deciduous forest of Maruthamalai hills.

Sl. No.	Species	Maruthamalai hills		
		Plot I	Plot II	Plot III
	HERBS			
1	*Acalypha indica*	2.53	2.24	-
2	*Acanthospermum hispidum*	1.68	-	-
3	*Achyranthes aspera*	1.76	1.65	2.00
4	*Aerva lanata*	1.19	-	-
5	*Alternanthera pungens*	1.35	1.21	1.96
6	*Amaranthus viridis*	2.06	1.59	2.30
7	*Barleria buxifolia*	1.71	1.60	-
8	*Barleria prionitis*	-	1.64	-
9	*Blepharis mederaspatensis*	2.09	2.68	2.62
10	*Boerhaavia diffusa*	3.49	1.96	-
11	*Borreria ocymoides*	2.41	3.08	-
12	*Borreria hispida*	-	1.71	-
13	*Cassia occidentalis*	2.32	1.77	-
14	*Cenchrus ciliaris*	3.26	3.40	3.64
15	*Chloris barbata*	9.64	10.19	10.85
16	*Chloris roxburghiana*	-	6.12	-
17	*Cleome viscosa*	1.74	1.76	-
18	*Corchorus tridens*	2.21	3.60	2.92
19	*Crotalaria verrucosa*	1.60	1.79	-
20	*Croton sparciflorus*	1.47	1.04	-
21	*Cynodon dactylon*	3.40	1.72	-
22	*Desmodium triflorum*	3.64	3.88	4.42
23	*Eragrostis viscosa*	10.21	9.82	12.99
24	*Euphorbia hirta*	5.34	5.06	4.53
25	*Evolvulus alsinoides*	3.98	3.73	-
26	*Gomphrena decumbens*	1.30	0.95	1.55
27	*Heteropogon contortus*	4.86	4.72	6.80
28	*Hibiscus micranthus*	4.24	4.46	5.06
29	*Indigofera enneaphylla*	1.23	1.30	1.59
30	*Indigofera viscosa*	1.88	-	-
31	*Justicia tranquebariensis*	-	1.80	2.85
32	*Leucas aspera*	3.24	3.27	2.32
33	*Malvastrum coromandelianum*	1.08	1.34	-
34	*Mariscus cyperinus*	2.02	2.15	-
35	*Mariscus paniceus*	-	-	2.68
36	*Mollugo pentaphylla*	4.91	5.07	3.24
37	*Oldenlandia umbellata*	2.95	3.13	2.68
38	*Parthenium hysterophorus*	1.66	1.11	1.60
39	*Pavonia zeylanica*	2.95	2.59	3.81
40	*Peristrophe bicalyculata*	2.44	2.31	2.95
41	*Perotis indica*	4.61	4.29	5.59
42	*Phyllanthus maderaspatensis*	4.24	4.01	4.33
43	*Polygala bulbothrix*	1.45	1.64	1.99
44	*Polygala jacobi*	0.88	1.22	1.27
45	*Portulaca guadrifida*	0.77	0.81	-
46	*Rothia indica*	1.04	0.93	-
47	*Ruellia patula*	0.86	0.95	-
48	*Sida acuta*	2.15	2.23	2.83
49	*Sida cordata*	2.52	2.37	2.68
50	*Sida cordifolia*	2.03	1.77	-
51	*Sida rhomboidea*	0.67	0.70	-
52	*Tephrosia purpurea*	3.99	3.73	-
53	*Tephrosia villosa*	2.27	2.37	3.13
54	*Tridax procumbens*	4.38	3.94	4.84
55	*Vernonia cinerea*	2.71	2.53	3.45
56	*Waltheria indica*	0.93	0.98	1.22
	SHRUBS			
57	*Acacia torta*	13.52	12.63	15.56
58	*Acalypha fruiticosa*	4.77	4.36	4.96
59	*Bougainvillaea spectabilis*	0.71	0.49	-
60	*Calotropis gigantea*	0.48	0.40	-
61	*Capparis brevispina*	1.56	-	2.02
62	*Capparis roxburghii*	-	1.51	-
63	*Capparis zeylanica*	2.08	2.26	2.93
64	*Carissa carandas*	2.22	2.34	2.60
65	*Carissa spinarum*	2.02	1.83	2.42
66	*Cassia auriculata*	2.61	2.49	-
67	*Chromolaena odorata*	5.40	5.05	6.59
68	*Dodonaea viscosa*	1.92	1.77	2.60
69	*Erythroxylon monogynum*	10.82	10.90	13.66
70	*Fluggea leucopyrus*	8.58	8.00	9.17
71	*Jatropha glandulifera*	2.11	1.92	2.43
72	*Lantana camara*	4.84	4.73	6.08
73	*Phyllanthus reticulates*	3.17	3.12	3.95
74	*Pterolobium indicum*	10.52	9.87	-
75	*Randia dumetorum*	3.44	3.26	5.44
76	*Solanum torvum*	0.34	0.40	0.49
77	*Strobilanthes* sp.	-	5.48	-
78	*Tarenna asiatica*	6.09	-	-
79	*Tecoma stans*	0.76	0.68	0.41
80	*Toddalia asiatica*	4.17	3.88	7.28
81	*Zizyphus oenoplia*	9.97	9.26	15.70
	TREES			
82	*Acacia leucophloea*	0.79	0.74	0.62
83	*Acacia nilotica*	0.81	0.58	-

84	*Acacia tortitis*	0.45	0.51	0.31
85	*Agave americana*	0.50	-	-
86	*Albizzia amara*	3.71	3.60	4.60
87	*Albizzia lebbeck*	1.49	1.42	1.85
88	*Azadirachta indica*	1.81	1.69	0.97
89	*Bambusa arundinacea*	0.93	0.88	0.79
90	*Bauhinia variegata*	1.11	1.10	0.64
91	*Cassia fistula*	0.62	0.70	0.70
92	*Cassia siamea*	1.35	1.39	1.28
93	*Chloroxylon swietenia*	0.90	0.79	2.94
94	*Commiphora berryi*	2.14	1.98	1.25
95	*Commiphora caudata*	2.15	1.96	8.41
96	*Delonix regia*	0.55	0.52	0.49
97	*Eucalyptus globulus*	0.25	0.31	0.31
98	*Euphorbia antiquorum*	3.41	3.66	5.85
99	*Ficus bengalensis*	0.63	0.73	0.44
100	*Ficus tomentosa*	-	0.55	-
101	*Peltophorum pterocarpum*	0.54	0.44	1.67
102	*Pithecellobium dulce*	0.40	0.46	0.30
103	*Pongamia pinnata*	0.78	0.83	0.53
104	*Prosopis juliflora*	0.79	0.66	0.79
105	*Prosopis spicigera*	1.04	0.84	1.18
106	*Samanea saman*	0.53	0.44	0.40
107	*Santalum album*	2.30	1.95	-
108	*Tamarindus indica*	0.83	0.87	0.72
109	*Tectona grandis*	0.25	0.34	0.30
110	*Terminalia arjuna*	0.63	0.70	-
111	*Thespesia populnea*	0.48	-	0.53
112	*Zizypus rugosa*	2.26	2.09	5.72
113	*Zizypus trinervia*	-	2.02	-
	CLIMBERS			
114	*Abrus precatorius*	2.54	2.57	3.88
115	*Canavalia mollis*	0.83	0.85	3.62
116	*Cardiospermum halicacabum*	-	0.67	-
117	*Cissus quadrangularis*	1.65	1.51	2.51
118	*Clitoria ternatea*	3.65	3.40	4.38
119	*Coccinia indica*	2.47	2.38	2.05
120	*Cocculus hirsutus*	2.01	1.85	2.78
121	*Cocculus pendulous*	1.06	1.01	1.43
122	*Daemia extensa*	2.85	2.79	3.12
123	*Ipomoea nil*	2.41	2.32	3.58
124	*Leptadenia reticulata*	0.38	-	-
125	*Passiflora foetida*	1.23	1.38	3.43
126	*Rivea hypocrateriformis*	0.97	0.94	1.31
127	*Sarcostemma intermedium*	2.04	2.33	3.32
128	*Tiliacora acuminata*	-	2.72	-

On the other hand many species such as *Gomphrena* decumbens, *Polygala Jacobi*, *Portulaca guadrifida*, *Ruellia patula*, *Sida rhomboidea*, *Waltheria indica*, *Bougainvillaea spectabilis*, *Calotropis gigantean*, *Solanum torvum*, *Tecoma stans*, *Acacia leucophloea*, *Acacia nilotica*, *Acacia trotitis*, *Agave Americana*, *Bambusa arundinacea*, *Cassia fistula*, *Chloroxylon swietenia*, *Delonix regia*, *Eucalyptus globules*, *Ficus bengalensis*, *Peltophorum pterocarpum*, *Pithecellobium dulce*, *Pongamia pinnata*, *Prosopis juliflora*, *Samanea saman*, *Tamarindus indica*, *Tectona grandis*, *Terminalia arjuna*, *Thespesia populnea*, *Canavalia mollis*, *Leptadenia reticulata Rivea hypocrateriformis* etc., were poorly establishment in the community because of their lower IVI values (less than 1). This may be due to the presence of many intrinsic factors like lower seed output, shorter dormancy, less germination percentage and vigour and poor competitive ability make the species of ecologically weaker category, less available in the communities of shola forests (Padmavathy, 2005).

The floristic composition and ecological studies on various plant species in the study area of Maruthamalai hills indicate that it is an ideal habitat for the growth of many kinds of economically important plants. Further it is known that the population size, density and ecological fitness of the economically important plants in general and medicinal plants in particular are also highly appreciable. Hence the local environment of Maruthamalai is found to suitable for the cultivation of medicinal plants. Therefore it is suggested that the fragile parts of Maruthamalai can be used for the growing of economically and medicinally important plants.

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