

# Angiospermic Diversity of Kurunthamalai Hillock, Karamadai, Coimbatore District, Tamil Nadu, India

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**ABSTRACT**

The Kurunthamalai hillock, Coimbatore district, has an enormous diversity of plant community without the adequate firsthand information. Therefore, current attempt is subjected to analysis the Angiospermic diversity of Kurunthamalai Hillock. During the survey, sums of 86 angiosperm species belonging to 80 genera of 46 families were explored. Of which, 12 species are fallen under red list category of IUCN.

**Keywords:** Coimbatore district, Checklist, Diversity, Western Ghats.

**1. INTRODUCTION**

Over thousands of years, biodiversity has been a supportive system for the survival of human and economic well-being, and each civilization has exploited it to expand and flourish. India is one of the world's top ten species-rich countries, with high degree of endemism (1). The state of Tamil Nadu holds massive diversity in plank kingdom, especially of flowering plants encompassed of about 5640 taxa documented from this area by pioneer researchers (2). Out of about 0.4million hitherto known in the world, representing as much as 11.4 percent of world flora. About 28 percent of plants that occur in India are endemic. They are distributed in different Groups, Angiosperms-2991 genera & 251 families (3), Gymnosperms 15 genera & 8 families (4), Pteridophytes-204 genera, Algae-666 genera, Bryophytes-2800, Lichens-248, Fungi-14,500 species & 2300 genera in India. India has more endemic species of plants than any other region of the world except (5). About 28 percent of plants that occur in India are endemic. Though this data are huge, there are few places which are yet to be explored. A taxonomist is always aware of the scientific part of the plants and they can able to describe the plant in technical way. Although the thought of the Elders and healers knew more about the medicinal plants, their distribution, the local ethnomedicinal practices and knowledge transfer patterns are highly appreciated. Plant species have a vital role in maintaining of biodiversity; hence documenting plant variety is the first step towards measurement on biodiversity conservation. Hence, an attempt was made to document the flora of Kurunthamalai hillock.

## 2. MATERIALS AND METHODS

### Study area

Kurunthamalai hillock situated in geographical position of 11°15' 05" N. Longitude and 76° 55' 06" E. Latitude in Kaliappanur a small village in Mettupalayam taluk, Coimbatore district of Tamil Nadu. This village is foot hills of Nilgiri biosphere reserve area of the Western Ghats of Tamil Nadu. It has hillock with elevation ranges from 450-600 m. The forest type of this region is dry deciduous or scrub jungle (6). Annual rainfall is around 450 mm and temperature in a year is varies between 18° C and 38° C. The soil is generally shallow with sandy loam texture and rocky substratum is available at steeply area. It comes under Karamadai forest range of Coimbatore forest division. It is located 24 km from the main city of Coimbatore and 4 km from Karamadai.

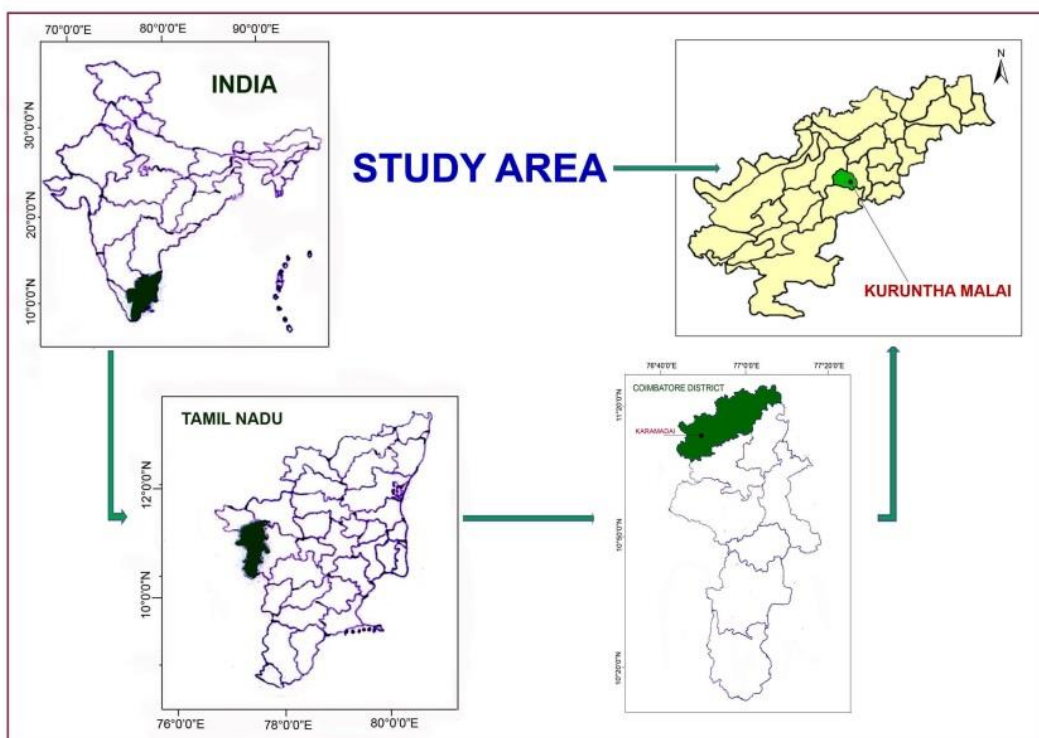


Figure 1: Study area

### Methodology

An extensive field surveys were carried out from May 2018 to February 2019 for documentation of the plant diversity from Kurunthamalai hillock. While collecting the plant specimens, the field data such as habit, habitat, flowering and fruiting, exact locality, altitude, collection date and ethnobotanical details, vernacular name and field notes were recorded. The plant specimens with flower/fruits were collected and photographed for further study. The collected plant specimens were preserved and mounted on the herbarium sheets using standard method (7). Voucher specimens were identified using the state and local Flora and revisionary studies (8, 9, 10 and 11) and consulting the specimens deposited at Madras Herbarium (MH), Coimbatore; also, referred online resources such as IPNI, TROPICOS, POWO and THEPLAN TLIST to update the current status of binomial of each taxon. All the plant specimens were deposited in the herbarium of PG and Research Department of Botany, PSG College of Arts and Science (Autonomous), Coimbatore, Tamil Nadu for future references.

## 3. RESULTS AND DISCUSSION

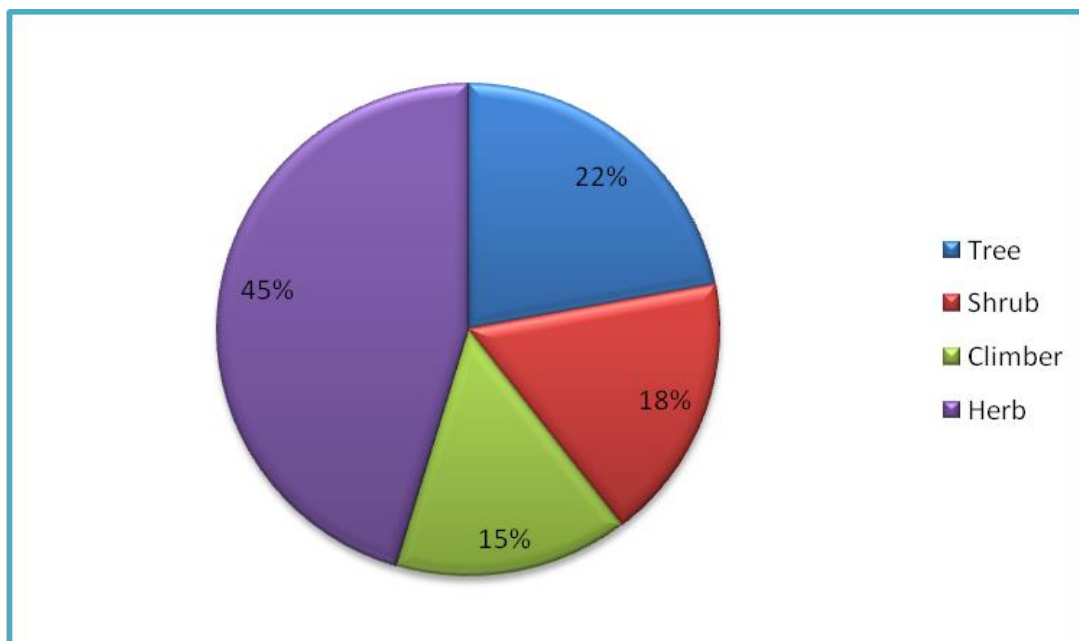
Floristic survey of Kurunthamalai hillock revealed the presence of 86 species of angiosperms belonging to 80 genera of 46 families which includes the lifeform of 19 species of Trees, 15 species of Shrubs, 13 species of Climbers and 39 species of Herbs (Figure 2). The collected plants are systematically arranged according to Bentham & Hooker system of classification with recent modifications and enumerated in table 1.

Table: 1. List of existing plant species in Kurunthamalai hillock

S.No	Plant Name	Family	Habit	IUCN / Endemics*
1	<i>Nymphaea rubra</i> Roxb. ex Andrews	Nympheaceae	Herb	
2	<i>Magnolia champaca</i> (L.) Baill. ex Pierre	Magnoliaceae	Tree	
3	<i>Cissampelos pareira</i> L.	Menispermaceae	Climber	
4	<i>Cocculus hirsutus</i> (L.) W.Theob.	Menispermaceae	Climber	
5	<i>Capparis divaricata</i> Lam.	Capparaceae	Herb	
6	<i>Capparis zeylanica</i> L.	Capparaceae	Shrub	
7	<i>Cleome viscosa</i> L.	Capparaceae	Tree	
8	<i>Afrohybanthus enneaspermus</i> (L.)	Violaceae	Herb	
9	<i>Ceiba pentandra</i> (L.) Gaertn.	Malvaceae	Tree	LC
10	<i>Malvastrum cromandelianum</i> (L.) Garcke.	Malvaceae	Herb	
11	<i>Pavonia zeylonica</i> (L.) Cav.	Malvaceae	Herb	
12	<i>Thespesia populnea</i> (L.) Sol. ex Correa.	Malvaceae	Tree	LC
13	<i>Hugonia mystax</i> L.	Linaceae	Shrub	
14	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Herb	
15	<i>Aegle marmelos</i> (L.) Correa.	Rutaceae	Tree	
16	<i>Pleiospermium alatum</i> (Wall. ex Wight & Arn.)	Rutaceae	Tree	
17	<i>Simarouba galuca</i> DC.	Simaroubaceae	Tree	
18	<i>Ziziphus glabrata</i> B. Heyne ex Roth	Rhamnaceae	Tree	
19	<i>Ziziphus oenopolia</i> (L.) Mill.	Rhamnaceae	Shrub	
20	<i>Dodonaea viscosa</i> (L.) Jacq.	Sapindaceae	Shrub	
21	<i>Cissus quadrangularis</i> L.	Vitaceae	Shrub	
22	<i>Mangifera indica</i> L.	Anacardiaceae	Tree	DD
23	<i>Abrus precatorius</i> L.	Fabaceae	Climber	
24	<i>Indigofera linnaei</i> Ali.	Fabaceae	Herb	
25	<i>Vigna trilobata</i> L. Verdc.	Fabaceae	Climber	
26	<i>Guilandina bonduc</i> L.	Fabaceae	Shrub	LC
27	<i>Chamaecrista absus</i> (L.) H.S.Irwin & Barneby	Fabaceae	Shrub	
28	<i>Caesalpinia pulcherrima</i> (L.) Sw.	Fabaceae	Herb	
29	<i>Delonix regia</i> (Boj. ex Hook.) Raf.	Fabaceae	Tree	LC
30	<i>Albizia amara</i> (Roxb.) Boivn	Mimosoideae	Tree	
31	<i>Mimosa pudica</i> L.	Mimosoideae	Herb	LC
32	<i>Coccinia grandis</i> (L.) Voigt.	Cucurbitaceae	Climber	
33	<i>Canthium coromandelicum</i> (Burm.f.)	Rubiaceae	Shrub	
34	<i>Catunaregam spinosa</i> (Thunb.) Tirveng.	Rubiaceae	Shrub	
35	<i>Spermacoce ocymoides</i> Burm.f.	Rubiaceae	Herb	
36	<i>Ageratum conyzoides</i> (L.) L.	Asteraceae	Herb	
37	<i>Chromolaena odorata</i> (L.) R.M. King & H. Rob.	Asteraceae	Shrub	
38	<i>Cyanthillium cinereum</i> (L.) H.Rob.	Asteraceae	Herb	
39	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Herb	
40	<i>Mimusops elengi</i> L.	Sapotaceae	Tree	
41	<i>Diospyros montana</i> Roxb.	Ebenaceae	Tree	
42	<i>Jasminum auriculatum</i> Vahl	Oleaceae	Climber	
43	<i>Boucerosia umbellata</i> (Haw.) Wight & Arn.	Apocynaceae	Herb	
44	<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	Herb	
45	<i>Ceropegia candelabrum</i> L.	Apocynaceae	Climber	
46	<i>Cryptolepis grandiflora</i> Wight.	Apocynaceae	Climber	

47	<i>Pergularia daemia</i> (Forrsk). Chiov.	Apocynaceae	Climber	
48	<i>Holarrhena pubescens</i> Wall. ex G.Don	Apocynaceae	Tree	LC
49	<i>Rauwolfia tetraphylla</i> L.	Apocynaceae	Herb	
50	<i>Cascabela thevetia</i> (L.) Lippold	Apocynaceae	Shrub	
51	<i>Wrightia tinctoria</i> (Roxb.) R.Br.	Apocynaceae	Tree	
52	<i>Trichodesma indicum</i> (L.) Sm.	Boraginaceae	Herb	
53	<i>Evolvulus alsinoides</i> (L.)	Convolvulaceae	herb	
54	<i>Ipomoea obscura</i> (L.) Ker Gawl.	Convolvulaceae	Climber	
55	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	climber	
56	<i>Solanum pubescence</i> Willd.	Solanaceae	Shrub	
57	<i>Tecoma stans</i> (L.) Juss. ex Kunth.	Bignoniaceae	Shrub	
58	<i>Martynia annua</i> L.	Pedaliaceae	Herb	
59	<i>Pedaliium murex</i> L.	Pedaliaceae	Herb	
60	<i>Andrographis echinoides</i> (L.) Nees	Acanthaceae	Herb	
61	<i>Barleria buxifolia</i> L.	Acanthaceae	Herb	
62	<i>Barleria prionitis</i> L.	Acanthaceae	Herb	
63	<i>Blepharis maderaspatensis</i> (L.) B. Heyne ex Roth.	Acanthaceae	Herb	
64	<i>Dicliptera paniculata</i> (Forssk.) I. Darbysh.	Acanthaceae	Herb	
65	<i>Justicia tranquebariensis</i> L. f.	Acanthaceae	Herb	
66	<i>Lantana camera</i> L.	Verbenaceae	Shrub	
67	<i>Priva cordifolia</i> (L. f.) Druce	Verbenaceae	Herb	
68	<i>Coleus strobilifer</i> (Roxb.) A.J.Paton	Lamiaceae	Herb	
69	<i>Anisomeles malabarica</i> R.Br.	Lamiaceae	Herb	
70	<i>Mesosphaerum suaveolens</i> (L.) Kuntze	Lamiaceae	Herb	
71	<i>Ocimum filamentosum</i> Forssk.	Lamiaceae	Herb	
72	<i>Orthosiphon thymiflorus</i> (Roth) Sleensen.	Lamiaceae	Herb	
73	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Herb	
74	<i>Aerva tomentosa</i> Forsk.	Amaranthaceae	Shrub	
75	<i>Aristolochia indica</i> L.	Aristolochiaceae	Climber	
76	<i>Santalum album</i> L.	Santalaceae	Tree	VU
77	<i>Holoptelea integrifolia</i> Planch.	Ulmaceae	Tree	
78	<i>Ficus benghalensis</i> L.	Moraceae	Tree	
79	<i>Ficus mollis</i> Vahl	Moraceae	Tree	
80	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Herb	
81	<i>Phyllanthus maderaspatensis</i> L.	Euphorbiaceae	Herb	
82	<i>Gloriosa superba</i> L.	Liliaceae	Climber	LC
83	<i>Commelina benghalensis</i> L.	Commelinaceae	Herb	LC
84	<i>Murdannia semiteres</i> (Dalzell) Santapau	Commelinaceae	Herb	LC
85	<i>Pistia stratiotes</i> L.	Araceae	Herb	LC
86	<i>Kyllinga triceps</i> Rottb.	Cyperaceae	Herb	

\*LC - Least Concern, VU – Vulnerable, DD – Data Deficient.



**Figure: 2** Habit wise distribution of plant species in the study area

Whilst, the present study highlights the maximum of occurrence of family Apocynaceae with 9 genera and 9 species, followed by Leguminosae (8 genera and 9 species) Acanthaceae (5 genera and 6 species) and Lamiaceae (5 genera and 5 species), Malvaceae (4 genera and 4 species), Rubiaceae and Asteraceae (3 genera and 3 species), Capparaceae and Convolvulaceae (2 genera and 3 species), Menispermaceae, Rutaceae, Caesalpinaceae, Pedaliaceae, Moraceae, Euphorbiaceae, Verbinaceae and Commelinaceae (2 genera and 2 species), Rhamnaceae (1 genera and 2 species). Many families (27) were represented by a single species (Nymphaeaceae, Magnoliaceae, Violaceae, Linaceae, Zygophyllaceae, Simaroubaceae, Sapindaceae, Vitaceae, Anacardiaceae, Cucurbitaceae, Plumbaginaceae, Sapotaceae, Ebenaceae, Oleaceae, Boraginaceae, Solanaceae, Bignoniaceae, Nyctaginaceae, Amaranthaceae, Aristolochiaceae, Santalaceae, Ulmaceae, Liliaceae, Araceae and Cyperaceae. Ten dominant families with their Genus and Species level indicated (Figure 3). Towel plants comes under IUCN red list category they are: Least Concern (10 species): *Ceiba pentandra* (12); *Thespesia populnea* (13); *Delonix regia* (14) *Caesalpinia bonduc* (15); *Mimosa pudica*(16); *Holarrhena pubescens* (17); *Gloriosa superba* (Contu, 2013); *Commelina benghalensis* (18); *Murdannia semiteres* (19); *Pistia stratiotes* (18) Vulnerable species(1):*Santalum album* (Asian Regional Workshop, 1998); Data Deficient species (1): *Mangifera indica* (World Conservation Monitoring Centre 1998).

#### 4. CONCLUSION

This study is the fundamental base to light out the important sources of valuable plant species that found in the Kurunthamalai hillock. It has rich plant diversity; provides livelihood option to local community by some non timber forest products like *Mangifera indica* (Fruits), *Caesalpinia bonduc* (Seeds), *Gloriosa superba* (Tubers). The herbaceous elements dominate with 39 species and followed by trees with 19 species, climbers with 13 species and shrubs with 15 species. The angiosperm diversity was observed to be highest in the middle part of the hillock (500 m) followed by foot of hillock (450 m) Therefore, the results of this survey can be included into future conservation of plants.

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PLATE - 1



*Nymphaea rubra* Roxb. ex Andrews



*Magnolia champaca* (L.) Baill. ex Pierre



*Cissampelos pareira* L.



*Cocculus hirsutus* (L.) W.Theob.



*Capparis divaricata* Lam.



*Capparis zeylanica* L.



*Cleome viscosa* L.



*Afrohybanthus enneaspermus* (L.)

PLATE - 2



*Ceiba pentandra* (L.) Gaertn.



*Malvastrum coromandelianum* (L.)



*Pavonia zeylonica* (L.) Cav.



*Thespesia populnea* (L.) Sol. ex Correa



*Hugonia mystax* L.



*Tribulus terrestris* L.



*Aegle marmelos* (L.) Correa



*Pleiospermium alatum* (Wall. ex Wight & Arn.)

PLATE - 3



*Simarouba glauca* DC



*Ziziphus glabrata* (B.Heyne ex Schult.) B.Heyne ex Wight



*Ziziphus oenopolia* (L.) Mill.



*Dodonaea viscosa* (L.) Jacq.



*Cissus quadrangularis* L.



*Mangifera indica* L.



*Abrus precatorius* L.



*Indigofera linnaei* Ali



PLATE - 4



*Vigna trilobata* (L.) Verdc.



*Guilandina bonduc* L.



*Caesalpinia pulcherrima* (L.) Sw.



*Chamaecrista absus* (L.) H.S.Irwin & Barneby



*Delonix regia* (Bojer ex Hook.) Raf.



*Albizia amara* (Roxb.) Boivin



*Mimosa pudica* L.



*Coccinia grandis* (L.) Voigt

PLATE - 5



*Canthium coromandelicum* (Burm.f.)



*Catunaregam spinosa* (Thunb.) Tirveng.



*Spermacoce ocymoides* Burm.f.



*Ageratum conyzoides* L.



*Chromolaena odorata* (L.) R.M.King & H.Rob.



*Cyanthillium cinereum* (L.) H.Rob.



*Plumbago zeylanica* L.



*Mimusops elengi* L.

PLATE - 6



*Diospyros montana* Roxb.



*Jasminum auriculatum* Vahl



*Boucerosia umbellata* (Haw.) Wight & Arn.



*Catharanthus roseus* (L.) G. Don



*Ceropogia candelabrum* L.



*Cryptolepis grandiflora* Wight



*Pergularia daemia* (Forssk.) Chiov.



*Holarrhena pubescens* Wall. ex G. Don

PLATE - 7



*Rauvolfia tetraphylla* L.



*Cascabela thevetia* (L.) Lippold



*Wrightia tinctoria* (Roxb.) R.Br.



*Trichodesma indicum* (L.) Sm.



*Evolvulus alsinoides* (L.) L.



*Ipomoea obscura* (L.) Ker Gawl.



*Ipomoea pes-tigridis* L.



*Solanum pubescens* Willd.

PLATE - 8



*Tecoma stans* (L.) Juss. ex Kunth



*Martynia annua* L.



*Pedalium murex* L.



*Andrographis echinoides* (L.) Nees



*Barleria buxifolia* L.



*Barleria prionitis* L.



*Blepharis maderaspatensis* (L.) B. Heyne ex Roth



*Dicliptera paniculata* (Forssk.) I. Darbysh.

PLATE - 9



*Justicia tranquebariensis* L.f.



*Lantana camara* L.



*Priva cordifolia* (L.f.) Druce



*Coleus strobilifer* (Roxb.) A.J.Paton



*Mesosphaerum suaveolens* (L.) Kuntze



*Anisomeles malabarica* (L.) R.Br.



*Ocimum filamentosum* Forssk.



*Orthosiphon thymiflorus* (Roth) Sleesen

PLATE - 10



*Boerhavia diffusa* L.



*Aerva tomentosa* Forsk.



*Aristolochia indica* L.



*Santalum album* L.



*Holooptelea integrifolia* (Roxb.) Planch.



*Ficus benghalensis* L.



*Ficus mollis* Vahl



*Euphorbia heterophylla* L.

## PLATE - 11



*Phyllanthus maderaspatensis* L.



*Gloriosa superba* L.



*Commelina benghalensis* L.



*Murdannia semiteres* (Dalzell) Santapau



*Pistia stratiotes* L.



*Kyllinga triceps* Rottb.

**Ethical approval**

Angiospermic species of Kurunthamalai Hillock, India were collected, recorded, and identified with consulting the Madras Herbarium (MH), Coimbatore where the specimens deposited. All the plant specimens were deposited in the herbarium of PG and Research Department of Botany, PSG College of Arts and Science (Autonomous), Coimbatore, Tamil Nadu for future references.

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**Conflicts of interests**

The authors declare that there are no conflicts of interests.

**Data and materials availability**

All data associated with this study are present in the paper.

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