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RESEARCH ARTICLE

ECOLOGICAL STUDY OF WEED FLORA OF RUBBER PLANTATION IN KULASEKHARAM, KANYAKUMARI DISTRICT.

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Abstract

Present study was conducted 2017 to 2018 in and around Rubber Plantations in Kulasekharam area, located near Muthukuzhivayal Forest Range. Kulasekharam has many Rubber Plantations that yield high quality latex, which is the town's major revenue source. Four Rubber Estates viz., Vaikundam, Ambadi, Maruthi, and Ganthimathi have been selected to study the weed flora and its ecology. A total number of 183 weed species were recorded. The dominant weed species were *Achyranthes aspera*, *Asystasia gangetica*, *Clerodendron infortunatum*, *Cyanodon dactylon*, *Hyptis suaveolens*, *Justicia simplex*, *Mimosa pudica*, *Parthenium hysterophorus*, *Sida cordifolia*, *Solanum torvum*. Grassy weeds were uniformly distributed throughout the selected area. *Sida cordifolia* was found the most dominant and frequent weed species with Important Value Index (IVI) of 2.63. The calculation of biomass of the 10 dominants weed species were recorded.

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Introduction:-

Kanyakumari district is accounting for 90 percent of rubber production in overall Tamilnadu State (Rakesh,2010). In Kanyakumari Rubber is being cultivated in 19233 hectares of produce 24020 tonnes of rubber annually. Total number of area 1671.3 km²(650 sq mi) Census Info(2011). Weeds are unwanted plants which grow abundantly in crop condition. It is generally associated with mainly important crop plants which affects the growth and yield of crop plants. (Ranjana Kumara 2016). *Hevea brasiliensis* (rubber tree) is the most widely cultivated tree species for producing natural rubber latex, (Caio Doria Guzzo *et al.*, 2014). The Rubber production is affected by soil, humidity, rainfall but almost affected by weeds. It reduce the growth and minimizes the crop production by competing for water, soil moisture, soil nutrient, sunlight and growing space needed by crop. Weeds cause economic loss to the producers as they lose part of their investment. Any weed plant requires some forms of action to reduce its effect on the economy, the environment, human health and amenity etc (Shaw, 1964). There are approximately 250,000 species of plants worldwide of those about 3% or 8000 species behave as weeds. Weeds produce the chemical substances which are toxic to crop plants (allelopathy), animals and humans. Weeds can also cause asthma and other respiratory problems, especially in children (Singh Aman, Dangwal,2013). For the proper management of weed flora, scientific study on the documentation of weed flora, and its ecology are warranted. Keeping this in view the present investigation was carried out to study the weed flora its ecology and Biomass.

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Materials And Methods:-

Study Area:

The present study was conducted to find out the weed flora and its ecology in the Rubber plantations of Kulasekharam, Kanyakumari district. Four Rubber plantations were selected for the study viz., Ambadi, Vaikundam, Maruthi, Ganthimathi. Ambadi estate is located in Chittar, Pechiparai Village, it is spread across 1703 acres lying between 9.3311° N and 76.9222° E. The annual rainfall 101.6mm. Vaikundam, estate is located near Netta. On the Kerala- Tamilnadu border. It is 700 acres private plantation, lying between 8.47549° N and 77.2330° E. The average annual rainfall is 582mm. Maruthi, estate is located in Aalancholai, Pechiparai village, Vilavancode taluk. It is spread across 950 acres, lying between 8.4305° N and 77.2585° E. The annual rainfall is 573.20mm. Ganthimathi estate is located in Arukani. It is spread about 400 acres, lying between 8.3441057° N and 77.1815797° E. Kulasekharam receives both the North-East Monsoon and the South-West monsoon (Kulasekharam population census 2011).

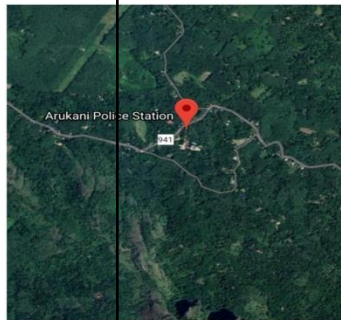
Floristic study:

Frequent and regular field visits have been made in the study area with a view of document weed flora. Field surveys have been carried out in study area during 2017 to 2018, covering different seasons. During field trips voucher specimens of every species was collected in flowering and fruiting stages and detailed field notes were prepared on the spot. Special emphasize was given on data pertaining to habit, habitat association with other species. Collection and preservation was made as per the procedure given by (Jain and Rao, 1977), (Nayar *et al.*, 2014). Initially identification was provisionally done by using (Gamble- Fischer 1915-1936), (Charles Bryson *et al.*, 2009) Available monographs and relevant literature were also consulted for the same. The specimens were then poisoned with Mercuric Chloride in alcohol. Further process of pressing, mounting and labeling were done following the instructions given by (Jain and Rao, 1977). The mounted specimens were deposited in the Herbarium of Botany Department and Research centre N.M.C.College Marthandam.

Ecology and Biomass Study:

1m × 1m Quadrats were laid randomly in the Rubber Plantation to quantify various weed species. The study was decided based on the species were calculated using the given formula by Misra (1968). The structure and composition of vegetation in the Rubber plantations have been compared in terms of frequency, density, abundance and Importance Value of Index (IVI = relative frequency + relative density + relative dominance).

The weeds were collected separately and washed thoroughly with running tap water to remove sand particles. They were allowed to shade dry and then finely powdered by using mixer grinder. The dry weight was estimated.



Result:

Ecological aspects of Common Weed flora of Rubber Plantation (Ambadi, Vaikundam, Maruthi, Ganthimathi).

No	Scientific Name	TNQS	TNI	TOI	F	F-C	D	A
1	<i>Abutilon hirtum</i> (Lam.) Sweet	40	19	12	30%	B	47.5	158.3
2	<i>Abutilon indicum</i> L.	40	131	18	45%	C	327.5	727.7
3	<i>Acalypha indica</i> L.	40	67	23	57%	C	167.5	291.3
4	<i>Achyranthes aspera</i> (L.)	40	63	25	62%	C	90	252
5	<i>Acmalla paniculata</i> Wall. Ex DC	40	33	11	27%	A	82.5	300
6	<i>Acrotrema arnottianum</i> Wight	40	11	7	17%	A	27.5	157.1
7	<i>Aerva lanata</i> L.	40	9	7	17%	A	22.5	128.5

8	<i>Agave cantala</i> (Roxb.)	40	5	8	20%	A	12.5	62.5
9	<i>Ageratum conyzoides</i> L.	40	40	26	65%	C	100	153.8
11	<i>Aloe vera</i> L.	40	8	3	7%	A	20	266.6
12	<i>Alternanthera brasiliana</i> (L.)Kuntze	40	19	12	30%	B	47.5	158.3
13	<i>Alternanthera sessilis</i> (L.) R.Br	40	33	19	47%	B	82.5	173.6
14	<i>Amaranthus spinosus</i> L.	40	4	4	10%	A	10	100
15	<i>Amaranthus viridis</i> L.	40	12	6	15%	A	30	200
16	<i>Ammania bacifera</i> L.	40	8	6	15%	A	20	133.3
17	<i>Ammania multiflora</i> (Roxb)	40	7	5	12%	A	17.5	140
18	<i>Amorphophallus dubius</i> (Blume.)	40	2	2	5%	A	5	128.5
19	<i>Anagalis arvensis</i> L.	40	18	14	35%	B	42.5	125
20	<i>Ananas cosmosus</i> L.	40	5	4	10%	A	12.5	120
21	<i>Andrographis paniculata</i> (Burm.f)Wall.	40	6	5	12%	A	15	377.7
22	<i>Anisomeles indica</i> (L.)Kuntze	40	68	18	45%	B	170	310
23	<i>Anisomeles malabarica</i> (R.Br.ex Sims	40	93	30	75%	D	232.5	133.3
10	<i>Aregmone mexicana</i> L.	40	5	4	10%	A	12.5	125
24	<i>Aristolochia bracteolata</i> Lam	40	4	3	7%	A	10	250
25	<i>Aristolochia indica</i> L.	40	10	4	10%	A	25	175
26	<i>Asparagus racemosus</i> Willd	40	7	4	10%	A	17.5	457.1
27	<i>Astercantha longifolia</i> (L.) Nees	40	64	14	35%	B	160	479.1
28	<i>Asystasia gangetica</i> (L.) T. Anderson	40	115	24	60%	C	287.5	136.3
29	<i>Bacopa monnieri</i> (L.) Pennell	40	15	11	27%	A	250	356.2
30	<i>Biophytum intermedium</i> (Wight)	40	57	16	40%	B	142.5	436.3
31	<i>Biophytum sensitivum</i> (L.)DC	40	96	22	55%	C	165	150
32	<i>Blepharis integrifolia</i> (L.f.)E.Mey	40	9	6	15%	A	22.5	227.2
33	<i>Blepharus madraspatensis</i> L.	40	50	22	55%	C	125	235.2
34	<i>Blumea lacera</i> (Burm.f)Dc	40	40	17	42%	B	100	193.3
35	<i>Boerhavia diffusa</i> L.	40	29	15	37%	B	72.5	125
36	<i>Borreria stricta</i> (L.f) DC	40	5	4	10%	A	12.5	140
37	<i>Brachiaria distachya</i> L.	40	7	5	12%	A	17.5	142.8
38	<i>Brachiaria ramosa</i> L.	40	10	7	17%	A	25	140
39	<i>Breynia retusa</i> (Dennst.)	40	14	10	25%	A	35	153.8
40	<i>Calotropis procera</i> (Aiton.)	40	20	13	32%	B	50	207.6
41	<i>Camelia sinensis</i> (L.)Kuntze	40	27	13	32%	B	67.5	415.3
42	<i>Canthiyum coromandelicum</i> L.	40	54	13	32%	B	135	140
43	<i>Canthiyum dicoccum</i> (Gaertn.) Merr	40	7	4	10%	A	17.5	175
44	<i>Capillipedium assimile</i> (Steud)	40	9	4	10%	A	22.5	225
45	<i>Cardiospermum helicacabum</i> L.	40	41	15	37%	B	102.5	273.3
46	<i>Carrisa carrandus</i> L.	40	14	4	10%	A	102.5	273.3
47	<i>Carrisa spinarum</i> L.	40	18	10	25%	A	35	350
48	<i>Cassia occidentalis</i> L.	40	7	4	10%	A	45	180
49	<i>Cassia tora</i> L.	40	23	14	35%	B	17.5	175
50	<i>Cassytha filiformis</i> L.	40	8	6	15%	A	57.5	164.2
51	<i>Catharanthus roseus</i> (L.)G.Don	40	15	7	17%	A	20	133.3
52	<i>Centella asiatica</i> (L.) Urban	40	16	8	20%	A	37.5	214.2
53	<i>Ceropegia bulbosa</i> (Roxb.)	40	17	12	30%	B	40	200
54	<i>Chaemelia sebastiana</i>	40	11	6	15%	A	27.5	141.6
55	<i>Chenopodium album</i> L.	40	38	15	37%	B	95	183.3
56	<i>Chloris wightiana</i> (Nees ex steud)	40	4	3	7%	A	10	253.3
57	<i>Chromolaena odorata</i> L.	40	57	30	75%	D	142.5	133.3
58	<i>Cleome aspera</i> (L.)	40	72	26	65%	C	180	190
59	<i>Cleome gynandra</i> L.	40	27	16	40%	B	67.5	168.7
60	<i>Cleome viscosa</i> L.	40	55	24	60%	C	137.5	229.1

62	<i>Clerodendron indicum</i> (Vent.)	40	82	20	50%	C	205	410
61	<i>Clerodendron infortunatum</i> L.	40	178	30	75%	D	445	593.3
63	<i>Clerodendron serratum</i> L.	40	59	31	77%	D	147.5	190
64	<i>Clitoria ternatea</i> L.	40	38	20	50%	C	95	190
66	<i>Cocculus hirsutus</i> L.	40	12	8	20%	A	30	150
67	<i>Colacasia esculenta</i> L.	40	21	12	30%	B	52.5	175
68	<i>Combretum indicum</i> (L.)	40	7	6	15%	A	17.5	116.6
70	<i>Commelina diffusa</i> Burm.f	40	9	6	15%	A	150	150
69	<i>Commelina benghalensis</i> L.	40	40	19	47%	B	100	210.5
71	<i>Commelina ensifolia</i> R.Br	40	18	11	27%	A	45	163.6
72	<i>Crotalaria hebecarpa</i> (DC.)Rudd	40	5	3	7%	A	12.5	166.6
73	<i>Crotalaria juncea</i> L.	40	21	16	40%	B	52.5	131.2
74	<i>Crotalaria retusa</i> L.	40	5	5	12%	A	12.5	100
75	<i>Croton bonplandinum</i> L.	40	65	25	62%	C	162.5	260
76	<i>Curculigo orchioides</i> (Gaertn.,)	40	76	24	60%	C	190	316.6
77	<i>Cuscuta reflexa</i> Roxb	40	38	15	37%	B	95	253.3
78	<i>Cyanodon dactylon</i> (L.)Pers.	40	149	24	60%	C	372.5	620.8
79	<i>Cyperus difformis</i> L.	40	73	26	65%	C	182.5	280.7
80	<i>Cyperus dubius</i> (Rottb.)	40	26	13	32%	B	65	200
81	<i>Cyperus rotundus</i> L.	40	30	17	42%	C	75	176.4
82	<i>Dactyloctenium aegyptium</i> (L.)Willd	40	30	16	40%	B	75	187.5
83	<i>Desmodium triflorum</i> (L.) DC.	40	7	5	12%	A	17.5	140
84	<i>Desmodium voluntinum</i> (Willd)	40	13	9	22%	A	32.5	351.8
85	<i>Diffenbeckia amoena</i>	40	95	27	67%	C	237.5	316.6
86	<i>Eclipta ciliata</i> Raf.	40	76	24	60%	C	190	316.6
87	<i>Eclipta prostrata</i> (L.)L.	40	22	8	20%	A	55	275
88	<i>Elephantopus scaber</i> L.	40	33	26	65%	C	82.5	126.9
89	<i>Eryngium campestre</i> L.	40	10	9	22%	A	17.5	111.1
90	<i>Eupatorium cannabinum</i> L.	40	7	5	50%	C	17	140
91	<i>Euphorbia heterophylla</i> L.	40	36	13	32%	B	90	276.9
92	<i>Euphorbia hirta</i> L.	40	21	15	37%	B	52.5	140
93	<i>Evolvulus alsinoides</i> (Linn.)Linn	40	51	25	62%	C	127.5	204
94	<i>Evolvulus nummularis</i> L.	40	8	6	15%	A	20	133.3
95	<i>Galinsoga parviflora</i> Cav.	40	4	4	10%	A	10	100
96	<i>Gloriosa superba</i> L.	40	7	4	10%	A	17.5	175
97	<i>Gomphrena celosioides</i> Mart.	40	40	8	20%	A	100	500
98	<i>Gomphrena serrata</i> L.	40	45	22	55%	C	112.5	204.5
99	<i>Grangea madaraspatana</i> (L.)Poir	40	1	1	2%	A	2.5	100
100	<i>Heliotropium indicum</i> L.	40	34	19	47%	B	85	178.9
101	<i>Hemidesmus indicus</i> (L.)R.Br	40	55	22	55%	C	137.5	250
102	<i>Hibiscus micranthus</i> L.f	40	28	9	22%	A	70	311.1
103	<i>Hibiscus mirabilis</i> L.	40	77	10	25%	A	192.5	770
104	<i>Hibiscus platanifolius</i> (Willd.)Sweet	40	60	17	42%	B	150	352.9
105	<i>Hibiscus vitifolius</i> L.	40	49	10	25%	A	122.5	352.9
106	<i>Hypocharis radiata</i> L.	40	14	10	25%	A	35	352.9
107	<i>Hyptis suaveolens</i> (L.)Poit	40	112	36	90%	E	30	490
108	<i>Indigofera tinctoria</i> L.	40	45	15	37%	B	112.5	300
109	<i>Ipomea aquatica</i> L.	40	35	9	22%	A	87.5	388.8
110	<i>Ipomea obscura</i> (L.)Ker Gawl.	40	38	21	52%	C	95	180.9
111	<i>Jatropha curcas</i> L.	40	10	7	17%	A	2.5	142.8
112	<i>Justicia procumbens</i> L.	40	13	9	22%	B	32.5	144.4
113	<i>Justicia prostrata</i> (Roxb.)	40	13	10	25%	A	32.5	130
114	<i>Justicia simplex</i> L.	40	104	30	75%	D	260	346.6

115	<i>Justicia tranquebariensis</i> L.	40	12	8	20%	A	30	150
116	<i>Lantana camera</i> L.	40	91	27	67%	C	227.5	337.6
117	<i>Lantana wightiana</i> L.	40	17	9	22%	A	42.5	188.8
118	<i>Latyrus odoratus</i> L.	40	4	4	10%	A	10	100
119	<i>Leucas cephalotes</i> (Roth)Spreng	40	11	5	50%	C	27.5	220
120	<i>Leucas hirta</i> (Heyne&Roth)	40	9	6	15%	A	22.5	150
121	<i>Ludiwigia adscendens</i> L.	40	30	12	30%	B	75	250
122	<i>Ludiwigia octovalvis</i> (Jacq.)Raven	40	5	4	10%	A	12.5	125
123	<i>Merrimia dissecta</i> (Jacq)	40	2	5	50%	C	5	100
124	<i>Merrimia emarginata</i> L.	40	14	7	17%	A	35	100
125	<i>Mikania micrantha</i> H.B&k	40	59	24	60%	C	147.5	245.8
126	<i>Mimosa pudica</i> L.	40	149	39	97%	E	372.5	382
127	<i>Mirabilis jalapa</i> L.	40	15	8	20%	A	93.7	187.5
128	<i>Musanda frandosa</i> L.	40	19	8	20%	A	47.5	237.5
129	<i>Naravelia zeylanica</i> (L.)DC.	40	28	15	37%	B	7	186.6
130	<i>Ocimum americanum</i> L.	40	33	19	47%	B	82.5	173.6
131	<i>Ocimum basilicum</i> L.	40	23	10	25%	A	57.5	230
132	<i>Ocimum gratissimum</i> L.	40	12	7	17%	A	30	171.4
133	<i>Oldenlandia corymbosa</i> L.	40	85	18	45%	B	210	466.6
134	<i>Oldenlandia umbellata</i> L.	40	4	4	10%	A	10	100
135	<i>Opuntia stricta</i> (Haw.)Haw.	40	19	12	30%	B	47.5	158.3
136	<i>Oxalis articulate</i> (Savign.)	40	3	2	5%	A	7.5	150
137	<i>Oxalis corniculata</i> L.	40	6	5	12%	A	15	120
138	<i>Oxalis corymbosa</i> DC	40	12	9	22%	A	30	133.3
139	<i>Panicum auritum</i> Pers	40	4	3	7%	A	10	133.3
140	<i>Panicum repens</i> L.	40	3	3	7%	A	7.5	100
141	<i>Parthenium hysterophorus</i> L.	40	167	31	77%	D	417.5	538.7
142	<i>Passiflora foetida</i> L.	40	31	19	47%	B	77.5	163.1
143	<i>Pavonia odorata</i> Willd.	40	8	7	17%	A	20	114.2
144	<i>Pepromia pellucida</i> (kunth)	40	18	9	22%	A	45	200
145	<i>Pergularia daemia</i> (Forrst.)	40	11	9	22%	A	27.5	122.2
146	<i>Phyla nodiflora</i> (L.) Green	40	13	7	47%	B	130	185.7
147	<i>Phyllanthus amarus</i> L.	40	27	14	35%	B	67.5	192.8
148	<i>Phyllanthus mirabilis</i> L.	40	10	7	22%	A	25	142.8
149	<i>Pilea microphylla</i> L.	40	8	6	15%	A	20	133.3
150	<i>Pogostemon benghalensis</i> (Burm.f)	40	4	3	7%	A	10	133.3
151	<i>Polygala arvensis</i> L.	40	9	9	22%	A	22.5	100
152	<i>Polygala wightiana</i> (Wall.)	40	9	6	15%	A	22.4	150
153	<i>Polypogon nilgircicus</i> (L.) Desf.	40	7	4	10%	A	17.5	175
154	<i>Portulaca oleracea</i> L.	40	24	12	30%	B	60	200
155	<i>Rauwolfia serpentina</i> (L.)Benth.exKurz	40	19	10	25%	A	47.5	190
156	<i>Rhynchospora wightiana</i> (Nees)Steud.	40	71	19	47%	B	177.5	373.6
157	<i>Rivinia humulis</i> L.	40	90	29	72%	D	225	310
158	<i>Ruellia tuberosa</i> L.	40	51	24	60%	C	127.5	212.5
159	<i>Saroups androgynus</i> (L.)Merr.	40	26	16	40%	B	65	162.5
160	<i>Scoparia dulcis</i> L.	40	79	34	77%	D	197.5	232.3
161	<i>Scopubia delphinifolia</i> L.	40	1	1	12%	A	2.5	100
162	<i>Sida acuta</i> (Burm.f)	40	94	32	80%	E	235	293.7
163	<i>Sida cordifolia</i> L.	40	206	28	70%	D	515	735.7
164	<i>Sida rhombifolia</i> L.	40	21	7	22%	A	2.5	300
165	<i>Solanum nigrum</i> L.	40	8	6	15%	A	20	133.3
166	<i>solanum torvum</i> (Sw.)	40	124	32	80%	E	310	387.5
167	<i>Spermacoce ocymoides</i> L.	40	39	12	30%	B	97.5	325

168	<i>Sphagneticola trilobata</i> L.	40	37	9	22%	A	92.5	411.1
169	<i>Stachytarpheta utricaeifolia</i> L.	40	52	29	72%	D	130	179.3
170	<i>Synedrella nodiflora</i> (L.)Gaertn	40	39	29	72%	D	97.5	134.4
171	<i>Talinium fruticosum</i> (L.)Juss.	40	74	15	37%	B	185	493.3
172	<i>Thyponium roxburghii</i> (Schott.)	40	54	9	22%	A	135	342.8
173	<i>Tinospora cordifolia</i> (Willd.)	40	5	4	10%	A	12.5	125
174	<i>Tribulus terrestris</i> L.	40	14	9	22%	A	35	155.5
175	<i>Tridax procumbens</i> L.	40	96	28	70%	D	240	342.8
176	<i>Trifolium repens</i> L.	40	11	4	10%	A	27.5	275
177	<i>Triumfetta rhomboidea</i> (Jacq.)	40	8	6	15%	A	20	133.3
178	<i>Tylophora indica</i> (Burm.f)	40	5	4	10%	A	12.5	125
179	<i>Uvaria narum</i> (Dunal) Wall.	40	7	4	10%	A	17.5	175
180	<i>Vernonia baldwinii</i> (Scherb)	40	13	8	20%	A	32.5	162.5
181	<i>Vernonia cinirea</i> L.	40	29	11	27%	A	72.5	263.6
65	<i>Vigna trilobata</i> (L.)Verds	40	2	2	5%	A	5	100
182	<i>Withania somnifera</i> (L.)Dunnal	40	49	14	35%	B	122.5	350
183	<i>Xanthium strumarium</i> L.	40	8	12	30%	B	20	66.6
	Total	9150	7646	2967	12123%		29347	61756

Key: TNQS-Total number of quadrate study; TOI- Total Occurrence of Individuals; TNI-Total Number of individual weeds; D-Density; F-Frequency ,F-C Frequency Class, A-Abundance

Dominant And Endangered Weed Species In The Study Area



Parthenium hysterophorus (Asteraceae)



Rauwolfia serpentina (Apocynaceae)



Ceropogia bulbosa (Asclepiadaceae)



Solanum torvum (Solanaceae)



Asystasia gangetica (Acanthaceae)



Clerodendrum infortunatum (Verbenaceae)

Table 2:-Importance value Index (IVI) of Weed flora

No	Scientific Name	(R) Frequency	(R) Density	(R) Abundance	(IVI) Importance value
1	<i>Achyranthes aspera</i> L.	1.08	0.44	0.21	1.73
2	<i>Asystasia gangetica</i> L.	0.94	0.39	0.18	1.51
3	<i>Sida cordifolia</i> L.	1.69	0.70	0.33	2.72
4	<i>Clerodendron infortunatum</i> (Vent.)	1.46	0.60	0.28	2.34
5	<i>Cyanodon dactylon</i> L.	1.22	0.50	0.24	1.96
6	<i>Hyptis suaveolens</i> L.	0.92	0.38	0.18	1.48
7	<i>Justicia simplex</i> L.	0.85	0.35	0.16	1.36
8	<i>Mimosa pudica</i> L.	1.22	0.49	0.23	1.94
9	<i>Parthenium hysterophorus</i> L.	1.37	0.56	0.27	2.21
10	<i>Solanum torvum</i> Sw.	1.02	0.42	0.20	1.64
	Total	11.77	4.83	2.28	18.89

(R) Frequency- Relative Frequency, (R) Density- Relative Density, (R)Abundance,

Table 3:-Biomass of the total species

Scientific name	Number of Species	Dry weight
<i>Achyranthes aspera</i> L.	4	23.4
<i>Asystasia gangetica</i> L.	5	5.04
<i>Sida cordifolia</i> L.	11	36
<i>Clerodendron infortunatum</i> (Vent.)	10	32
<i>Cyanodon dactylon</i> L.	3	7.92
<i>Hyptis suaveolens</i> L.	3	2.72
<i>Justicia simplex</i> L.	2	18.16
<i>Mimosa pudica</i> L.	3	4.72
<i>Parthenium hysterophorus</i> L.	4	23.4
<i>Solanum torvum</i> Sw.	6	92

During the study period a total number of 183 species were recorded. These 183 species belongs to 68 families. The species wise distribution in showed the **Table no: 1** .From the Ambadi Estate (**Site I**) were recorded 100 species and 40 families. The Most dominant species was *Clerodendron serratum*. The largest family *Asteraceae* have 13 weeds. From (**Site II**) Vaikundam Estate were recorded 100 species and 44 families. The most dominant species was *Clerodendron infortunatum* The largest family *Asteraceae* have 11 weeds. From the (**Site III**) Maruthi Estate were recorded 100 species 45 families. The most dominant species was *Cyanodon dactylon*. The largest family *Asteraceae* have 13 weeds. From the (**Site IV**) Ganthimathi Estate were recorded 100 species and 47 families. The most dominant species was *Achyranthes aspera*. The largest family *Asteraceae* 10 weed species

Despite of negative impacts of weeds, some plants usually thought of as weeds any actually provide some benefits. Some attributes include: Soil stabilization habitat and feed for wildlife, nectar for bees; aesthetic qualities and organic matter; provide genetic reservoir, human consumption and provide employment opportunities. Some weeds are used in medicine and some used as cooling recepies and some are used as fodder in the study area.

The calculated Biomass, Frequency, Density, Abundance, Relative Frequency, Relative Density, Relative Abundance and IVI of all species are given in table. And Importance value of dominant 10 weeds were recorded total value index (19.024).

Discussion and Conclusion:-

During the study period 183 weed species were recorded. 4 endemic and 2 endangered species. The endemic species are *Canthium dococum*, *Breynia retusa*, *Indigofera tinctoria*, *Ceropegia bulbosa*, and Endangered species are *Gloriosa superba*, *Rauvolfia serpentina*. The dominant 10 weed species were *Achyranthes aspera*, *Asystasia gangetica*, *Clerodendron infortunatum*, *Cyanodon dactylon*, *Hyptis suaveolens*, *Justicia simplex*, *Mimosa pudica*, *Parthenium hysterophorus*, *Sida cordifolia*, *Solanum torvum*. The Biomass dominant 10 weeds were recorded.

Solanum torvum having Dry weight 92. Followed by Clerodendron serratum 36 Dry weight. Sida cordifolia was found the most dominant and frequent weed species with Important Value Index (IVI) of 2.63.

Weeds are undesirable plant species growing along with domesticated or agricultural crops. They reduce latex production by competing for water, soil moisture, soil nutrients, sunlight and growing space needed by crop plants. (Rajput et al., Sultan & Nasir, 2007), (Marwat et al., 2006).

Their presence can reduce crop growth quality and production. Weeds cause economic loss to the producers as they lose part of their investment. Any weed plant requires some forms of action to reduce its effect on the economy, the environment, human health and amenity etc. The weed species with high IVI and frequency might compete better to reduce growth and yield of associated crop.

Some weeds are important due to their possible allelopathic effects on cultivated crop (Hussain, 1983). Weeds have specific characteristics that help their survival. These characteristics may be deep root system. Most of the weeds are annual which propagate by seed only. Most weeds with small population are unimportant but they share the habitat resources.

The present study suggests that a variety of weeds are infesting the plantation quite heavily in and around the Kulasekharam, Kanyakumari district that may cause losses to latex production of different plantation. For acquiring the better yield, it is necessary to take appropriate cultural, mechanical, biological and chemical measure for their control. The chemical control is the most effective, time saving and economical way of weed control

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