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## PHYTOSOCIOLOGICAL STUDY OF SOME WEEDS IN AGRICULTURE CROP FIELD IN SAMI TALUKA

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### ABSTRACT:

A weed is a plant which grows naturally with crop and decreases the quality and quantity of crop and it's compete with crop all over the world. Here we work to know the distribution the weeds in crop field in Sami taluka by using the some ecological parameters which are density, frequency and abundance. These were calculated by its proper formula given in methodology section. After completing this study we have recorded 47 weeds plant species belonging to 45 genera and 21 families. From it 40 species were Dicotyledone and 7 species were Monocot. Asteraceae is the leading plant family with 8 number of plant.

**KEY WORDS:** *Abundance, Agriculture, Crop, Density, Frequency, Sami, Weeds.*

### INTRODUCTION:

Sami is the taluka place of the district Patan. It's have dried atmosphere and have 98 villages. Most of the people engaged with agriculture. There have facing some problem related to agriculture which are weeds. According to King (1974), "A plant out of place" approximately 8000 plant species behave as a weed worldwide. Weeds fight with crop and damaged anyway. Distribution and proper identification is very useful for further research to invent new idea and new technology to control it. Phytosociology data help us to know

distribution pattern of weed community in particular area. Here we calculate the some basic parameters for weed distribution abundance, density and frequency. Also decide the frequency class with Raunkiars method.

### ***STUDY AREA:***

Sami is a taluka palace in Patan district of Gujarat state in the western part of India. Located between 23.68<sup>0</sup> N to 71.77<sup>0</sup> E. It's have black salt affected soil also have a mix geographic condition due to combination of two type of soil structure with mixed salt in soil. Not too much irrigation sources available in taluka. Some particular crop like Bajra and Cumin are the main agriculture crop of the Sami taluka. Average rain fall in taluka is 361 mm/year, generally it have dried atmosphere.

### ***MATERIALS AND METHODS:***

This study was carried out during July 2019 to January 2020 for Phytosociological investigation of weed plant in agriculture field in Sami taluka. Random quadrat method was applied for this Study. Total 30 Quadrat laying in field with 100 × 100 cm<sup>2</sup> size. Expensive field trip was arranged during research period. Photograph of observed plant were taken during research field trip. Observed plants were identified with local Flora of G.L. Shah and R.L. Patel. The character of plant community was calculated by following formula.

$$Density = \frac{\text{Total no of individual of species in all quadrates}}{\text{Total no of quadrates studied}}$$

$$Frequency = \frac{\text{No of quadrates in which species occurred}}{\text{Total no of quadrates studied}} \times 100$$

$$Abundance = \frac{\text{Total no of individual of species in all quadrates}}{\text{No of quadrates in which species occurred}}$$

### ***RESULTS AND DISCUSSION:***

In present study we have recorded 47 weed plant species belonging to 22 families and 47 genera. From it 40 species were Dicotyledone with 39 genera and 7 were Monocotyledons with 6 numbers of genera. Asteraceae is the leading family with 8 number of plant with 8 numbers of genera. Poaceae is second largest family with 5 number of plant species belonging to 5 genera. Dicotyledone is the leading class in both site 1 and 2. Further detail is mentioned in following graph.

### **CONCLUSION:**

This is the first attempt of Phytosociology study in Sami taluka. Phytosociology study help us to know the structure and distribution of plant community. This study provides us a most needed information about distribution of weed community in crop field in study site. Its gave us a base line information about weed. This result is useful for weed management and further research in economic value, medicinal value and other branches related weed, this data is useful for farmers, researcher and other interested person. To help with this research data to create a benchmark for further study related to weeds.

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Table 1: SITE 1

SR NO	PLANT NAME	FAMILY	TOTAL NO OF QUADRATE	SPECIES OCCURRED IN NO OF PLOT	TNI	FREQUENCY	FREQUENCY CLASS	DENSITY	ABUNDANCE
1	<i>Andrographis paniculata</i> (Burm. F.) Wall.	Acanthaceae	30	6	10	20	A	0.33	1.7
2	<i>Argemone mexicana</i> Linn.	Papavaraceae	30	18	20	60	C	0.67	1.1
3	<i>Aristida adscensionis</i> L.	Poaceae	30	10	43	33.3	B	1.43	4.3
4	<i>Blumea eriantha</i> DC.	Asteraceae	30	18	22	60	C	0.73	1.2
5	<i>Cadaba fruticosa</i> (L.) Forsk.	Capparaceae	30	6	14	20	A	0.47	2.3
6	<i>Capparis sepiaria</i> L.	Capparaceae	30	6	6	20	A	0.2	1
7	<i>Capparis spinosa</i> L.	Capparaceae	30	3	4	10	A	0.13	1.3
8	<i>Cassia tora</i> L. Baker	Caesalpiniaceae	30	14	26	46.7	C	0.87	1.9
9	<i>Celosia argentea</i> Linn.	Amaranthaceae	30	14	16	46.7	C	0.53	1.1
10	<i>Chloris barbata</i> Sw	Poaceae	30	24	50	80	D	1.67	2.1
11	<i>Cissampelos pareira</i> L.	Menispermaceae	30	14	17	46.7	C	0.57	1.2
12	<i>Citrullus colocynthis</i> (Linn.) Schrad.	Cucurbitaceae	30	15	21	50	C	0.7	1.4
13	<i>Convolvulus microphyllus</i> (Roth.) Sieb. ex Spr.	Convolvulaceae	30	16	26	53.3	C	0.87	1.6
14	<i>corchorus hirsutus</i> L.	Tiliaceae	30	6	10	20	A	0.33	1.7
15	<i>Cuscuta reflexa</i> Roxb.	Cuscutaceae	30	6	29	20	A	0.97	4.8
16	<i>Cynodon dactylon</i> (Linn.) Pers	Poaceae	30	19	30	63.3	D	1	1.6
17	<i>Cyperus compressus</i> Linn.	Cypraceae	30	10	17	33.3	B	0.57	1.7
18	<i>Cyperus difformis</i> L. Cent	Cypraceae	30	18	28	60	C	0.93	1.6
19	<i>Dactyloctenium aegyptium</i> Beauv.	Poaceae	30	25	60	83.3	E	2	2.4
20	<i>Desmostachya bipinnata</i> (L.) Stapf	Poaceae	30	16	27	53.3	C	0.9	1.7
21	<i>Digera muricata</i> (Linn.) Mart	Amaranthaceae	30	19	29	63.3	D	0.97	1.5
22	<i>Eclipta prostrata</i> (Linn.)Linn	Asteraceae	30	16	26	53.3	C	0.87	1.6
23	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	30	18	35	60	C	1.17	1.9
24	<i>Evolvulus alsinoides</i> (L.)	Convolvulaceae	30	13	21	43.3	C	0.7	1.6
25	<i>Launaea procumbens</i> (Roxb.) Rmayya & Rajgopal.	Asteraceae	30	19	28	63.3	D	0.93	1.47
26	<i>Parthenium hysterophorus</i> Linn.	Asteraceae	30	20	26	66.7	D	0.87	1.3

SR NO	PLANT NAME	FAMILY	TOTAL NO OF QUADRATE	SPECIES OCCURRED IN NO OF PLOT	TNI	FREQUENCY	FREQUENCY CLASS	DENSITY	ABUNDANCE
27	<i>Portulaca oleracea</i> Linn.	Portulacaceae	30	20	28	66.7	D	0.93	1.4
28	<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	30	19	32	63.3	D	1.07	1.68
29	<i>Solanum surattense</i> Burm. F.	Solanaceae	30	15	22	50	C	0.73	1.47

Table 1: SITE 2

SR NO	PLANT NAME	FAMILY	TOTAL NO OF QUADRATE	SPECIES OCCURRED	TNI	FREQUENCY	FREQUENCY CLASS	DENSITY	ABUNDANCE
1	<i>Argemone mexicana</i> Linn.	Papaveraceae	30	18	20	60	C	0.67	1.1
2	<i>Cassia tora</i> L. Baker	Caesalpiaceae	30	14	26	46.7	C	0.87	1.9
3	<i>Citrullus colocynthis</i> (Linn.) Schrad.	Cucurbitaceae	30	15	21	50	C	0.7	1.4
4	<i>Convolvulus microphyllus</i> (Roth.) Sieb. ex Spr.	Convolvulaceae	30	16	26	53.3	C	0.87	1.6
5	<i>Cynodon dactylon</i> (Linn.) Pers	Poaceae	30	19	30	63.3	D	1	1.6
6	<i>Cyperus compressus</i> Linn.	Cyperaceae	30	10	17	33.3	B	0.57	1.7
7	<i>Digera muricata</i> (Linn.) Mart.	Amaranthaceae	30	19	29	63.3	D	0.97	1.5
9	<i>Dactyloctenium aegyptium</i> Beauv.	Poaceae	30	25	60	83.3	E	2	2.4
10	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	30	18	35	60	C	1.17	1.9
11	<i>Evolvulus alsinoides</i> (L.)	Convolvulaceae	30	13	21	43.3	C	0.7	1.6
12	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	30	22	40	73.3	D	1.33	1.82
13	<i>Grangea maderaspatana</i> (Linn.) Poir	Asteraceae	30	18	29	60	C	0.97	1.61
14	<i>Heliotropium supinum</i> Linn.	Boraginaceae	30	16	30	53.3	C	1	1.88
15	<i>Indigofera oblongifolia</i> Forsk.	Fabaceae	30	2	4	6.67	A	0.13	2



SR NO	PLANT NAME	FAMILY	TOTAL NO OF QUADRATE	SPECIES OCCURRED	TNI	FREQUENCY	FREQUENCY CLASS	DENSITY	ABUNDANCE
16	<i>Ipomoea pes-tigridis</i> L.	Convolvulaceae	30	14	18	46.7	C	0.6	1.29
17	<i>Launaea procumbens</i> (Roxb.) Rmayya & Rajgopal	Asteraceae	30	19	28	63.3	D	0.93	1.47
18	<i>Lepidium sativum</i> L.	Brassicaceae.	30	18	24	60	C	0.8	1.33
19	<i>Melilotus alba</i> Desr.	Fabaceae	30	12	15	40	B	0.5	1.25
20	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	30	20	25	66.7	D	0.83	1.25
21	<i>Parthenium hysterophorus</i> Linn.	Asteraceae	30	20	26	66.7	D	0.87	1.3
22	<i>Phyllanthus fraternus</i> Webster.	Euphorbiaceae	30	28	42	93.3	E	1.4	1.5
23	<i>Polygonum plebeium</i> R. Br. var. <i>indica</i> (Heyne ex Roth) Hook	Polygonaceae	30	20	36	66.7	D	1.2	1.8
24	<i>Portulaca oleracea</i> Linn.	Portulacaceae	30	20	28	66.7	D	0.93	1.4
25	<i>Portulaca quadrifida</i> Linn.	Portulacaceae	30	20	29	66.7	D	0.97	1.45
26	<i>Rhynchosia minima</i> (Linn.) DC. var. <i>minima</i>	Fabaceae	30	10	15	33.3	B	0.5	1.5
27	<i>Solanum surattense</i> Burm.f.	Solanaceae	30	15	22	50	C	0.73	1.47
28	<i>Tribulus terrestris</i> Linn.	Zygophyllaceae	30	19	32	63.3	D	1.07	1.68
29	<i>Tricholepis glaberrima</i> DC.	Asteraceae	30	10	18	33.3	B	0.6	1.8
30	<i>Trichosanthes bracteata</i> (Lam.)Voigt	Cucurbitaceae	30	4	6	13.3	A	0.2	1.5
31	<i>Vernonia cinerea</i> (Linn.)Less	Asteraceae	30	19	23	63.3	D	0.77	1.21
32	<i>Xanthium strumarium</i> Linn.	Asteraceae	30	19	31	63.3	D	1.03	1.63

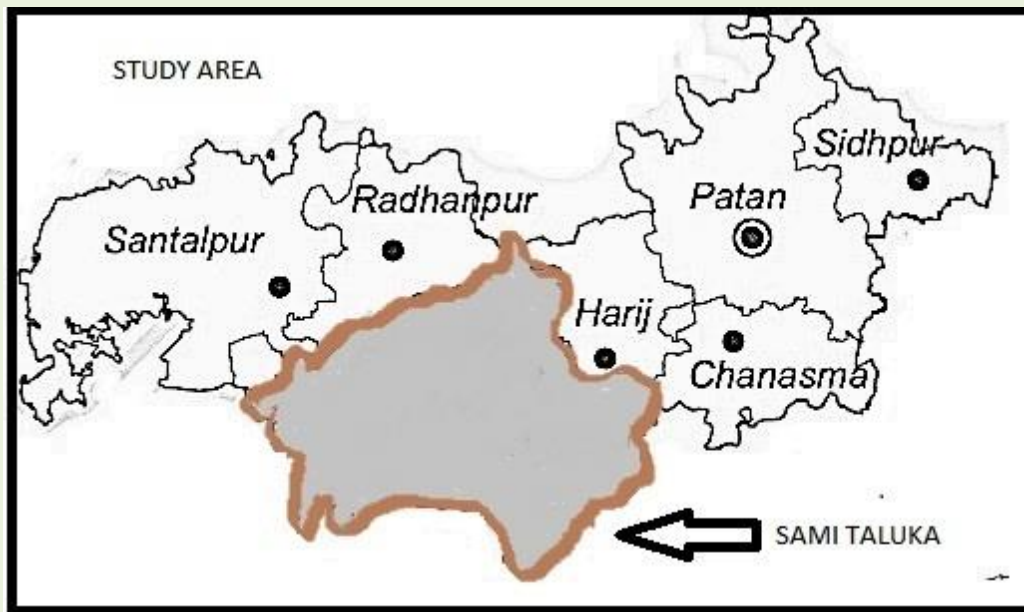
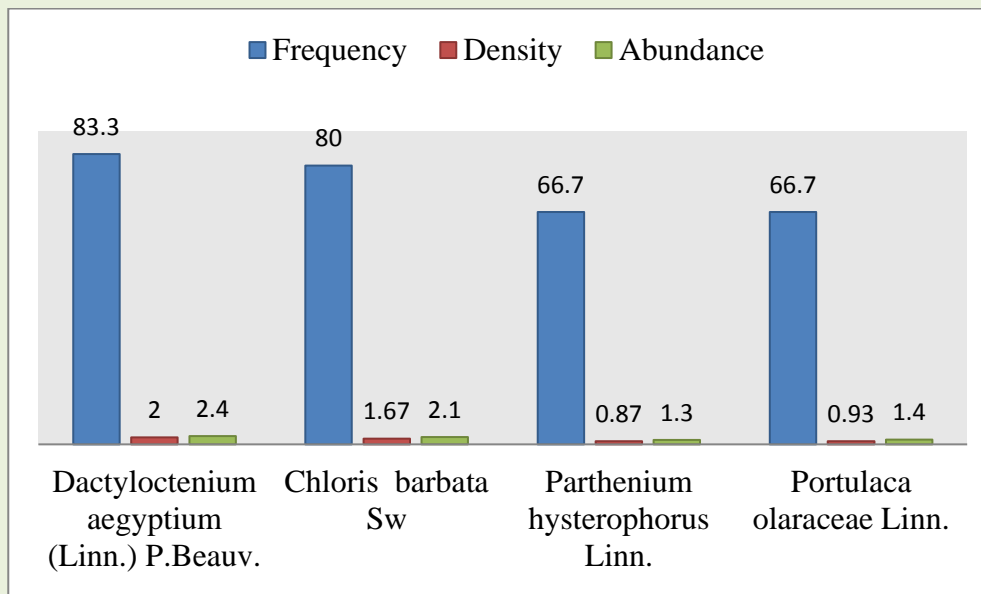
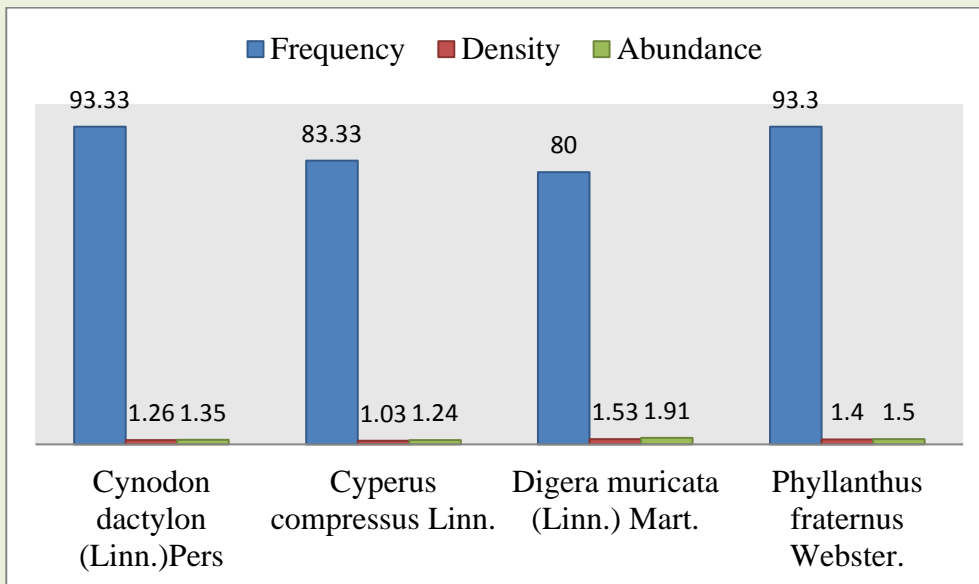


Fig.1: MAP OF SITE

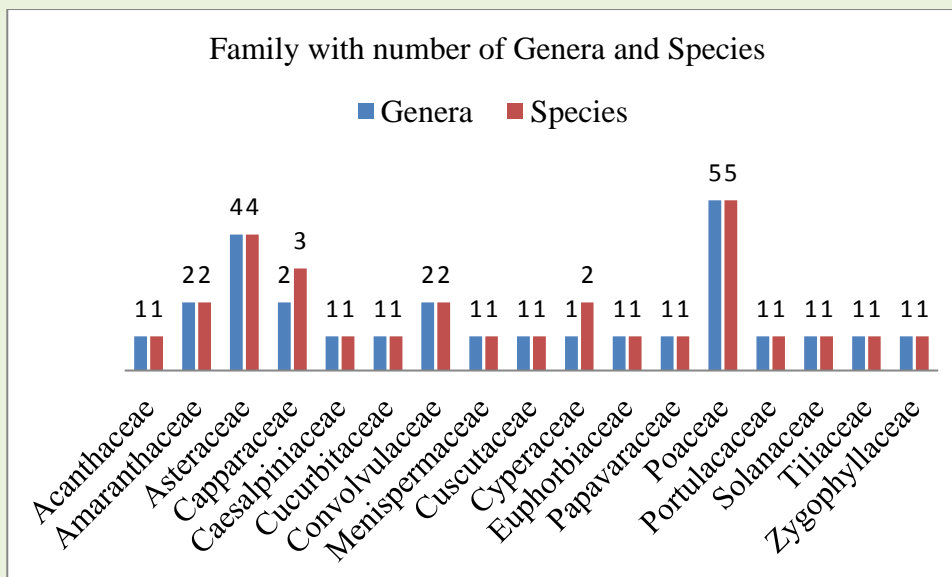


GRAPH 1: Leading species with highest Frequency value in site 1

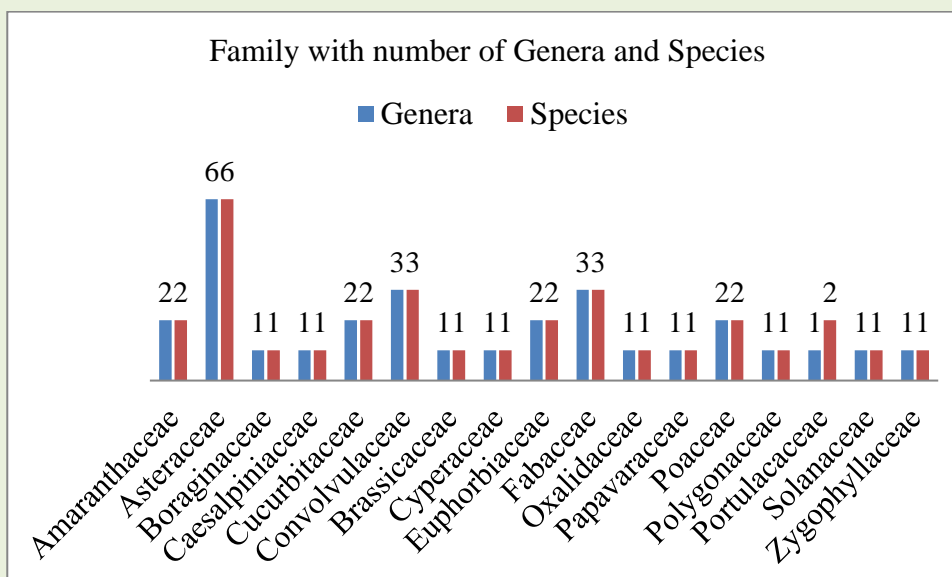




**GRAPH 2: Leading species with highest Frequency value in site 2**



**GRAPH 3: Family with number of genera and species in site 1**



**GRAPH 4: Family with number of Genera and Species in site 2**