STUDY OF PLANT UTILITY

Introduction: The common folks of villages have little knowledge about the medicinal importance of the weeds growing wild on fallow lands and forests and so they have almost no concern for the occurrence, density, economic significance as well as sustainable growth of these plants. They are unaware of the fact that weeds also have significant biological, ecological, aesthetic as well as economic importance. The growth of such plants in agricultural fields is straightway considered obnoxious and damaging due to invasive nature and hence are seriously attempted to control them or to eradicate them completely. However, their growth in forests and other barren areas is welcome, since they save soil from erosion, drought and denudation. Certain weeds are allowed to grow in association with some crops, as these weeds promote growth of the crops by providing shade against scorching sunrays, absorbing excess moisture from soil, often fixing atmospheric nitrogen etc. To the common villagers, the weeds, in general, are considered as sources of food, fodder, fibre, fuel and many other household affairs. Many villagers having fair knowledge either acquired by own effort or traditionally carrying from predecessors, understand the weeds as the major ingredients of folk or ethno-medicines. It is also known to them that a significant part of the weeds are used for furniture and craft making in rural and urban areas of this district. In craft making, the Mahalis, a bamboo craftsmen tribe, are the principal users of tree or weed based woods along with bamboos and canes.

Since no recorded information on the use of the selected 4 weed plants namely, *Lantana camara* Linn., *Crotalaria pallida* Ait., *Ocimum canum* Sims. and *Tephrosia purpurea* Linn. are available in the district Paschim Medinipur and adjoining areas, it has been felt necessary to go for an opinion survey of the users in the villages of the area under study, consisting of 4 selected forest Beats of Paschim Medinipur. The knowledge and views of these respondents are taken as more realistic information, since most of the representative

informants are involved with the jobs of collection of ingredients of weeds for traditional and folk medicines. Altogether 244 respondents were randomly selected from the 4 forest Beat areas taking 56 from Ramrama, 52 from Kalaikunda, 64 from Gurguripal and 72 from Bhaduala Beats. Demography of the respondents by their gender, religion, ethnic category and educational status were recorded and displayed in the Table 5.1.

Table 5.1: Demographic characteristic of informants in terms of % of people.

Beat / Character	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Gender	-	-	-	-
Male	85.71	100	88.23	88.88
Female	14.28	0	11.76	11.11
Religion	-	-	-	-
Hindu	100	100	100	100
Others	0	0	0	0
Category	-	-	-	-
Tribal	64.28	61.53	61.11	52.94
Non- Tribal	35.71	38.46	38.88	47.05
Education	-	-	-	-
Primary	64.28	53.84	64.70	61.11
Secondary	35.71	46.15	35.29	38.88
Age Group	-	-	-	-
20-29	14.28	30.76	17.64	33.33
30-39	21.42	30.76	23.52	5.55
40-49	28.57	15.38	23.52	22.22
50-59	21.42	23.07	29.41	22.22
Years ≥ 60	14.28	0	5.88	16.66
Total No of Respondents	56	52	64	72

Participation of female members as respondents was quite lesser in comparison to male participation. In all the 4 Beats female respondents were less than 15% with lowest at Kalaikunda Beat and highest at Ramrama (14.28%).

In consideration of religion of the respondents of four Beats all were uniformly belonging to Hinduism. Considering the criteria of the beats the tribal respondents were more than 60%, except in Bhadutala Beat, where tribal respondents were 52.94% of total informants. Considering the educational status, the informants, studied upto primary level were least (53.84%) at Kalaikunda Beat and highest (64.70%) at Gurguripal Beat. While people with secondary level of education was seen to be varying from 35.29% at Gurguripal to as much as 46.15% at Kalaikunda Beat area. Informants were also classified to five age groups (20 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years and 60 years and above). The youngest age group (20-29 years), were highest (33.33%) in Bhadutala Beat among the 4 Beats. No respondent from the age group of 60 years and above were obtained at Kalaikunda, while the highest number (16.66%) of this group was observed in Bhadutala Beat. However, people from all age groups were moderately available in Ramrama and Gurguripal beats.

Materials and Methods:

Materials: Selected four plant samples as stated in chapter 2.

Methods:

Uses of each species by the people dwelling nearby or on the fringe of each forest were recorded through personal contact, interrogation and interview of local people. Interviews were taken both by individual interrogation and group discussion. The survey was conducted with a set of questionnaires and the responses against which were used to extract the fact regarding the information on the nature of uses of the concerned species by the local people. The role of Traditional Medicinal Practitioners (TMP) or Local Herbal Medical Practitioners (Folk Doctors) in searching of folk medicinal utilities of all study plant specimen is very significant. Various information obtained from the people regarding many aspects of plant use through normal conversations and methodical interview were kept as 'Data' as outlined by Jain, S.K. (1964). Data were documented in a standard data sheet mentioning names of plant, family, vernacular names, plant parts in use, nature of use. Framed questions, conversations and participatory outlooks were used to form information from the concerned persons by using proper methods (Martin, 1995). The questionnaires for interview has been listed in the table 5.2.

Table 5.2: Sample questionnaires for interview.

Sl No.	Sample Question
1	Which plant is this?
2	What is the use of this plant?
3	Which parts of the plant are useful?
4	How this plant cures the disease (mentioning name of disease)?
5	Either the plant part is directly consumed or not?
6	Either young leaf or mature leaf which one is more effective?
7	How many times plant parts are applied for?
8	How can you determine the disease (mentioning sign or symptom)?
9	Tell me your name and age.
10	In which diseases you can apply herbal medicine?
11	Tell me utilization of the plant except traditional medical uses.

Results and Discussions:

Respondents of the field survey from all four forest Beats of Paschim Medinipur have informed about multifarious uses of all these selected weeds for several domestic purposes, though much emphasis was laid on their ethno medicinal uses. Besides some of them were said to be used as fuel wood, some others as raw materials for making crafts and furniture, cosmetics, insecticides, dye etc.

As it was extracted from the interview of forest fringe people of the studied forest beats the mostly used parts of *Lantana camara* Linn. were said to be its leaf, as a source of Ethno medicine to combat pox and measles, to treat eczema, malaria, wound, root decoction to treat ulcer and dysentery and as an antidote to snake venom; whereas people of Bhadutala beat utilize stem of *Lantana camara* Linn. for treatment of wound. Utilization of *Lantana camara* Linn. as anti-measles and pox, anti-ulcer, anti- malaria, anti-Tetanus by people of Kalaikunda is higher than other three sites.

The use of *Lantana camara* Linn as anti- Eczema is lower in Kalaikunda than other three sites and mostly as anti-dysentery medicine in Bhadutala unlike other three sites. People of Ramrama beat use leaf of *Lantana camara* Linn. for any wound more than the rest three areas. It is worthwhile to mention that people of Gurguripal use root of *Lantana camara* Linn as anti- snake venom more than that of other three sites. (Table 5.3 and 5.4).

Table 5.3: Use of *Lantana camera* Linn, for Ethno medicinal purposes (confirmation by % of informants).

Beat / Parameters	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Measles & Pox.	57.14	61.53	17.64	33.33
Anti-Ulcer.	50.00	84.61	23.52	38.88
Anti-Eczema.	14.28	38.46	11.76	58
Anti-Dysentery.	64.28	53.84	58.82	72.22
Anti-Malaria.	28.57	69.23	47.05	66.66
Anti-Tetanus.	35.71	46.15	11.76	22.22
Wound Healing.	85.71	53.84	70.58	77.77
Anti-Snake Venom.	21.42	15.38	29.41	11.11

Table 5.4: Ethno medicinal Use of *Lantana camara* Linn. by plant parts used (Information from % of total informants).

Medicinal Use	Beat / Plant parts used	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Pox, Measles.	Leaf	57.14	61.53	17.64	33.33
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-ulcer.	Leaf	-	-	-	-
	Stem	-	-	-	-
	Root	50	84.61	23.52	38.88
Anti-Eczema.	Leaf	14.28	30.76	-	16.66
	Stem	-	7.69	11.76	33.33
	Root	-	-	-	-
Anti-Dysentery.	Leaf	-	-	-	-
	Stem	-	-	-	-
	Root	64.28	53.84	58.82	72.22
Anti-Malaria.	Leaf	28.57	64.28	47.05	66.66
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Tetanus.	Leaf	21.42	15.38	-	5.55
	Stem	14.28	30.76	11.76	16.66
	Root	-	-	-	-
Wound Healing.	Leaf	85.71	53.84	70.58	33.33
	Stem	-	-	-	44.44
	Root	-	-	-	-
Anti-Snake Venom.	Leaf	-	-	-	-
	Stem	-	-	-	-
	Root	21.42	15.38	29.41	11.11

From the conversation of forest based people of different sites, leaf and root were found to be the major utilized parts of *Crotalaria pallida* for treating fever, tumor, hypertension, urinary problem, skin itches, painful swellings and fungal diseases as ethno medicine. It is also used as vermifuge. Whereas the people of Ramrama beat do not use leaf of *Crotalaria pallida* for anti-urinary problem, anti-skin itch and painful swelling. People Bhadutala apply *Crotalaria pallida* for treatment of fever and tumor more than other sites. People of Ramrama beat utilize *Crotalaria pallida* as hypertensive more than rest three sites.

Dwellers of Kalaikunda beat use root as well as leaf of this plant more as vermifuge whereas, people of Bhadutala showed least of such use. (Table 5.5 & 5.6).

Table 5.5: Use of *Crotalaria pallida* Ait, for Ethno medicinal purposes (confirmation by % of informants).

Beat / Parameters	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Fever	35.71	15.38	47.05	77.77
Anti-Tumor	42.85	30.76	70.58	83.33
Hyper Tensive	78.57	76.92	35.29	27..77
Vermifuge	64.28	92.30	23.52	44.44
Ant-Urinary Problem	57.14	53.84	76.47	66.66
Anti-Skin Itches	50.00	61.53	52.94	55.55
For-Painful Swelling	14.28	38.46	41.17	50
Anti-Fungal Disease	21.42	53.84	47.05	38.88

Table 5.6: Ethno medicinal Use of *Crotalaria pallida* Ait. by plant parts us (Information from % of total informants).

Medicinal Use	Beat / Plant parts used	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Fever	Leaf	21.42	15.38	29.41	50
	Stem	-	-	-	-
	Root	14.28	-	17.64	27.77
Anti-Tumor.	Leaf	35.71	-	23,52	50
	Stem	-	-	-	-
	Root	07.14	30.76	47.05	33.33
Hyper-tensive.	Leaf	42.85	30.46	11.76	16.66
	Stem	-	-	-	-
	Root	28.57	30.46	23.52	11.11
Vermifuge.	Leaf	42.85	30.76	11.76	38.88
	Stem	-	-	-	-
	Root	21.42	61.53	11.76	5.55
Anti-urinary Problem.	Leaf	-	15.38	29.41	16.66
	Stem	-	-	-	-
	Root	57.14	38.46	47.05	33.33
Anti-Skin Itches.	Leaf	-	23.07	23.52	27.77
	Stem	-	-	-	-
	Root	50	38.46	29.41	27.77
For Painful Swellings.	Leaf	-	23.07	17.64	33.33
	Stem	-	-	-	-
	Root	14.28	15.38	23.52	16.66
Anti-Fungal Diseases.	Leaf	14.28	38.46	-	5.55
	Stem	-	-	-	-
	Root	-	15.38	47.05	33.33

As it derived from the reports of the dwellers on the forest edge of all four sites the mostly used part of *Ocimum canum* is leaf for expectorant, fever, itching and dysentery; Leaf and stem for gout and hemorrhage; stem and root for painful swelling; leaf, stem and root for arthritis as ethno medicine.

People of Bhadutala beat claimed the use of Ocimum *canum* as ethno medicine for fever, itches and painful swellings more intensely than the people of other selected areas. From the interviews of village people, it appeared that the residents of Ramrama forest area were more accustomed to use *Ocimum canum* for healing for arthritis and constipation; inhabitants of Kalaikunda apply this plant as remedy for dysentery and hemorrhage and people of Gurguripal apply *Ocimum canum* for gout mostly. (Table 5.7 & 5.8).

Table 5.7: Use of *Ocimum canun* Sims, for Ethno medicinal purposes (confirmation by % of informants).

Beat / Parameters	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Fever	42.85	30.76	17.64	50
Anti-Arthritis	64.82	61.53	29.41	61.11
Anti-Gout	35.71	23.07	58.82	55.55
Anti-Dysentery	50	69.23	64.70	44.44
Expectorant	78.57	76.92	35.29	38.88
Anti-Hemorrhage	71.42	92.30	23.52	33.33
Anti-Itches	57.14	38.46	52.94	66.66
Anti-Painful Swelling	14.28	30.76	41.17	44.44

Table 5.8: Ethno medicinal Use of *Ocimum canum* Sims. by plants parts used (Information from % total informants).

Medicinal use	Beat / Plant parts used	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Fever.	Leaf	42.85	30.76	17.64	50
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Arthritis.	Leaf	28.57	15.38	11.76	16.66
	Stem	14.28	30.76	11.76	22.22
	Root	21.42	15.38	5.88	22.22
Anti-Gout.	Leaf	7.14	7.69	17.64	16.66
	Stem	-	-	-	-
	Root	21.42	15.38	41.17	38.88
Anti-Dysentery.	Leaf	50	69.23	64.70	44.44
	Stem	-	-	-	-
	Root	-	-	-	-
Expectorant.	Leaf	78.57	76.92	35.29	38.88
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Hemorrhage.	Leaf	35.71	38.46	5.88	22.22
	Stem	35.71	53.84	17.64	11.11
	Root	-	-	-	-
Anti- Itches.	Leaf	57.14	38.46	52,94	66.66
	Stem	-	-	-	-
	Root	-	-	-	-
Anti- Painful Swelling.	Leaf	-	-	-	-
	Stem	-	15.38	17.64	27.77
	Root	14.28	15.38	23.52	16.66

Uniformly, interview of forest fringe people of various forest beats the mostly used parts of *Tephrosia purpurea* Linn as ethno medicine is leaf for diarrhea, dyspepsia, skin itching, dental carries and anti-pyretic; Leaf and root for anti-urinary problem; leaf, stem and root for asthma and alexiteric. But people of Bhadutala utilize root of *Tephrosia purpurea* Linn for asthma unlike other sites.

People of Bhadutala are highest user for *Tephrosia purpurea* as ethno medicine of diarrhea, dyspepsia and alexiteric, similarly residents of Kalaikunda are leading user for this plant as healer for urinary problem, skin itches and dental carries and inhabitants of Ramrama are foremost utilizers for treatment of asthma and pyretic as depicted in Table 5.9 & 5.10.

Table 5.9: Use of *Tephrosia purpurea* Linn, for Ethno medicinal purposes (confirmation by % of informants).

Beat / Parameters	RAMRAMA	KALAIKUNDA	GURGURIPAL	BHADUTALA
Anti-Diarrhea	64.28	15.38	70.58	83.33
Anti-Dyspepsia	50	30.76	64.70	66.66
Anti-Asthma	78.57	46.15	52.94	61.11
Anti-Pyretic	71.42	61.53	47.05	55.55
Anti-Urinary Problem	21.42	84.61	41.17	16.66
Anti-Skin Itches	35.71	76.92	58.82	44.44
Anti-Dental Carries	42.85	92.30	76.47	50
Alexiteric	14.28	38.46	35.29	77.77

Table 5.10: Ethno medicinal Use of *Tephrosia purpurea* Linn. by plants parts used (Information from % total informants)

Medicinal Use	Beat / Plant parts used	Ramrama	Kalaikunda	Gurguripal	Bhadutala
Anti-Diarrhea.	Leaf	64.28	15.38	70.58	83.33
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Dyspepsia.	Leaf	50	30.76	64.70	66.66
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Asthma.	Leaf	28.57	15.38	11.76	16.66
	Stem	28.57	15.38	29.41	16.66
	Root	21.42	15.38	11.76	27.77
Anti-Pyretic.	Leaf	71.42	61.53	47.05	55.55
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Urinary Problem.	Leaf	7.14	30.76	17.64	11.11
	Stem	-	-	-	-
	Root	14.28	53.84	23.52	5.55
Anti-Skin Itches.	Leaf	35.71	76.92	58.82	44.44
	Stem	-	-	-	-
	Root	-	-	-	-
Anti-Dental Carries.	Leaf	42.85	92.30	76.47	50
	Stem	-	-	-	-
	Root	-	-	-	-
Alexiteric.	Leaf	14.28	15.38	5.88	33.33
	Stem	-	23.07	29.41	-
	Root	-	-	-	44.44

People of all selected areas apply more than one plant as folk medicine to cure single disease likely for treatment of fever *Crotalaria pallida* Ait and *Ocimum canum* Sims, for dysentery *Lantana camera* Linn and *Ocimum canum* Sims*;* for urinary problem as well as for skin itches *Crotalaria pallida* Ait and *Tephrosia purpurea* Linn are utilized.

Other Miscellaneous Uses:

***Lantana camera* Linn**:

Lantana is primarily used as fuel wood. In some areas it is widely used as household furniture yielding plant. From lower part of mature (5 to 7 years) trunk or shoot including root it is utilized as a base portion of wooden table or cot. The wood from Lantana is highly resistant to heat and that helps in using this widely for craft making. Fiber from this plant helps in making of basket. Woody Stem of Lantana is used in paper industry to make paper pulp.

***Crotalaria pallida* Ait.:**

Besides medicinal property Crotalaria used as green manure, as food and fiber. Fiber is produced from mature stem and that is why quality rope is produced from this Plant. Young leaves and stems are provided to cattle as a good quality fodder. Mature seeds are boiled for 4 to 5 hours and then wrapped with banana leaves, this preparation is kept for few days to remove harmful compounds. Finally, this liquid is used as beverage by tribal people. In river banks of Subarnarekha at Nayagram block Crotalaria is grown in huge quantity over large areas and this reason is used to protect soil erosion along the banks. Black dye is produced from mature seeds which is used for dying mud walls of their houses and sometimes crafts and furniture they produce.

***Ocimum canum* Sims:**

Essential oil is obtained from *Ocimum canum* and this oil is used in Chocolate industry as a substitute for 'Mentha'. It is also used in production of tooth paste, cosmetics etc. Other than this *Ocimum canum* is used as Bio insecticide. Village cultivators often apply young and mature leaves in crop field to destroy pests. After overnight soaking of mature leaves and seed of this weed in water, the villagers prepare local insecticide, and this water is applied to crop field as bio insecticide.

***Tephrosia purpurea* Linn:**

Tribal people use dusts of mature seeds of Tephrosia for fishing by angling or trapping. This is locally called by them as 'Bait', or 'char' which attracts fishes to eat it. Tephrosia commonly utilized as source of fuel. Often tribal people use Tephrosia as an agent for cleaning material. It is a good N_2 fixer.

Prospects of Livelihood Improvement in Tribal Areas:

At present no record is available on the coverage and yield of Lantana camara Linn and other three weeds in Paschim Medinipur district. Under the circumstances the following procedure is followed to estimate the possible area to be covered under these weeds (Rural Planning & Management Unit, IIT Kharagpur, 2015). In this matter the latest information on Land use is used (District Statistical Handbook, Paschim Medinipur, 2013 published by Bureau of Applied Economics & Statistics, Govt. of West Bengal). It is estimated that 10% of the total 171.94 thousand ha forest area of the district i.e. 17.20 thousand ha is barren and wasteland within the territory of forest Department. Taking that 50% of that area i.e. 8.60 thousand ha could be put to the process of afforestation or reforestation, the total area available in the district for growth of *Lantana camara* Linn and other weeds will be as follows: (Table no-5.11).

Table 5.11: Area not available for cultivation but growth of weeds in Paschim Medinipur.

Sl. No.	Land Use Sector	Estimated Area under growth of weeds (thousand ha)
1.	Forest Land	8.60
2.	Barren and unculturable	1.00
3.	Area under Miscellaneous Tree grooves	4.86
4.	Culturable waste	3.28
5.	Fallow land other than current fallow	2.06
6.	Permanent Pastures	0.23
	Total	**19.93**

Source: District Statistical Hand Book, Paschim Medinipur, 2013.

Considering 50% of this barren and fallow land measuring 19.93 thousand hectares to be available, the area under perennial growth of *Lantana camara* Linn is estimated to be 10.00 thousand hectares. The said 10 thousand ha. land will also allow growth of 3 annual weeds along with *Lantana camara* Linn as perennial weed plant. This however does not restrict growth of other local weeds along with these four selected weeds.

From the above estimated land, collection of dry biomass at the present system of annual collection (immature and tender biomass) at the rate of 2 tons / ha will be 20 thousand tons from 10,000 ha land. The market rate of this dry biomass is Rs 600.00 / ton and thus the total value of output will be Rs 1.20 crore per year. This, rate of collection does not create any obstacle to collection and processing of raw materials required for medicinal and bleaching purposes and also that for meeting the demands of craftsmen. Taking Rs. 50,000.00 per family as minimum annual income for sustainable living, the above value of output from raising *Lantana camara* Linn can just support only 240 families above poverty level.

On the other hand, if coppice growing is accepted and newly germinated ones are allowed to mature for 10 years, then with 10% selective felling from 11th year onwards the estimated yield including that generated by three other annual weeds will be no less than 16 tons / ha. Thus, the estimated output will be Rs 1.60 lakh tons per year. The price of improved fuel wood will be Rs 2000.00 per ton, though price of timber pieces for crafts and furniture will be around Rs 15,000.00 per cu. m. This part of the output is expected to fetch higher level of output to provide sustainable living to a large number of timber crop growers as well as timber traders and craftsmen. The value of output from fuel wood above will be Rs 32.00 crores and families to be supported with sustainable living will be 6400.

Taking all avenues of employment and income generation in this venture of promotion of the 4 weeds namely *Lantana camara* Linn, Crotalaria *pallida* Ait., *Ocimum canum* Sims *and Tephrosia purpurea* Linn the sustainable livelihood opportunities to be created for tribal and other villagers in Paschim Medinipur is expected to be around 10,000. Thus, there will be enough scope to provide significant opportunities for earning sustainable income by a large number of families living in the tribal areas of this district.

Summary:

Traditionally *Lantana camara* Linn, *Crotalaria pallida* Ait, *Ocimum canum* Sims and *Tephrosia purpurea* Linn were considered as weed plants only but today depending on various utilities and benefits thereof, these plants are regarded as utility base plants particularly to the forest fringe common people.

Lantana camara Linn is used in many ethno medicinal approaches such as anti-measles and pox, anti-ulcer, anti- Eczema, anti-dysentery, malarial drug, and snake venom. Ethno medicinal uses of *Lantana camara* Linn for 'wound healing' is highest at Ramrama Beat area among four areas and among other utilizations.

Applications of *Crotalaria pallida* Ait in herbal treatment system are for healing of fever, tumor, tension, vermifuge, urinary problem, skin itches, painful swelling and fungal disease. Uses of *Crotalaria pallida* Ait by the people of Kalikunda as 'vermifuge' is leading among all other uses and among all selected sites.

Residents of all selected areas use *Ocimum canum* Sims as ethno medicine in healing of fever, arthritis, gout, dysentery, expectorant, hemorrhage, itches and painful swelling. It is use as expectorant by the people of Ramrama is highest in all respects.

Similarly, people of selected four areas use *Tephrosia purpurea* Linn in many ethno medicinal aspects like to cure diarrhea, dyspepsia, asthma, pyretic, urinary problem, skin itches, dental carries and alexiteric. Instead of these, use of this plant for dental carries by the people of Kalaikunda is highest in all concerned. **The World Health Organization (WHO) defines traditional medicine, folk medicine or ethno medicine as " the sum total of the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness."**

According to 'WHO' present study reveals that four selected plant species i.e. *Lantana camera* Linn, *Crotalaria pallida* Ait, *Ocimum canum* Sims and *Tephrosia purpurea* Linn are used as folk or traditional medicine by local villagers of selected forest area.

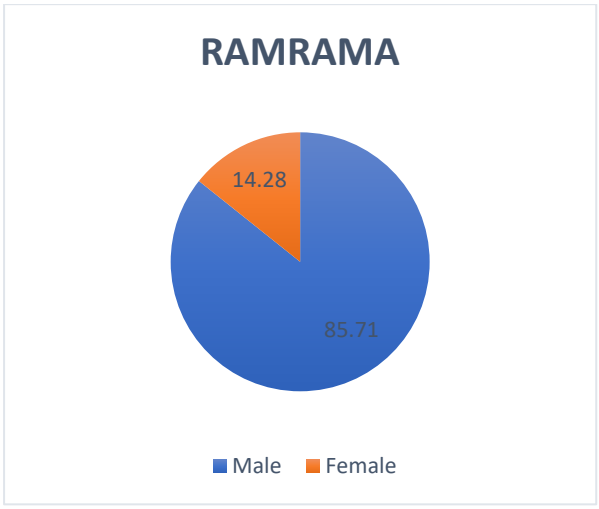
According to different utilities and usefulness of four weeds are given in table below:

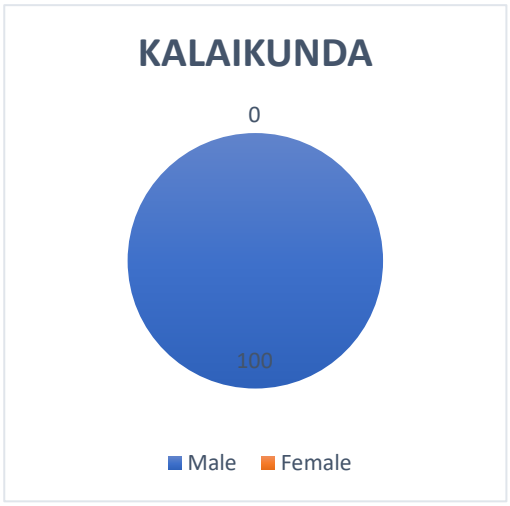
Table 5.12: Comparison of four weeds on their utility.

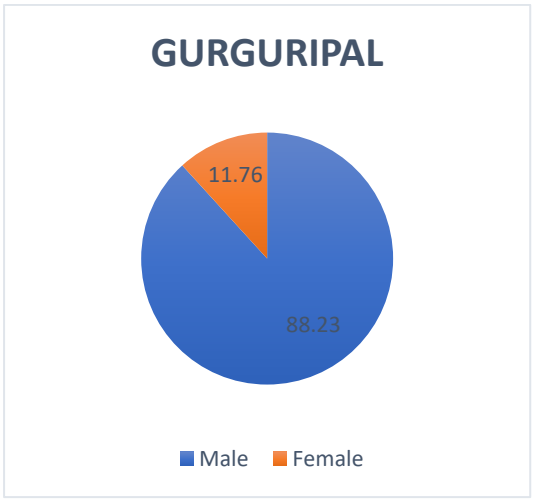
Weed / Used as	*Lantana camara* Linn.	*Crotalaria pallida* Ait.	*Ocimum canum* Sims	*Tephrosia purpurea* Linn.
Fuel wood for domestic use	High	Meagre	-	Moderate
Fuel wood for industrial uses	High	-	-	-
Direct use as medicine.	High	Moderate	High	Moderate
Cosmetics, other external and Insecticidal use	Moderate	-	Moderate	-
Raw materials for Handicrafts and furniture.	High	-	-	-
Preparation of Dye.	-	Moderate	-	High

Among the four weeds *Lantana camara* Linn is most useful plant from the point of view of utility and livelihood support to the collectors and users of the plant. Since it is a perennial weed plant with quality timber supply over the years of maturity, it has the opportunities to promote entrepreneurship to thousands of craftsmen for significant income generation.

Fig 5.1a: Graphical representation of gender of informants in terms of percentage (%) shares of total respondents.







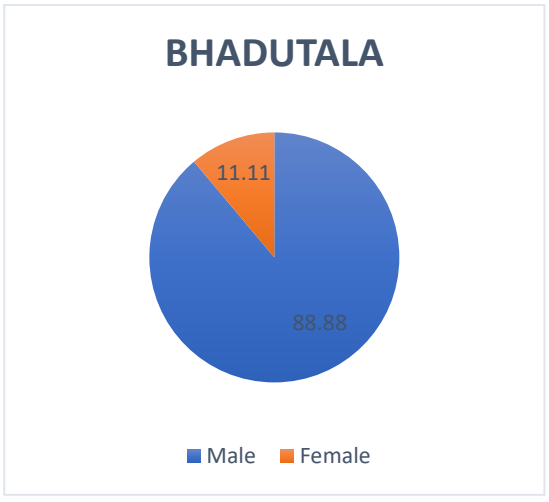
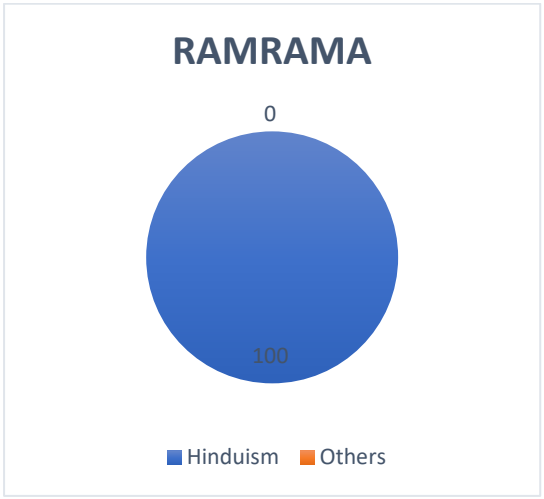
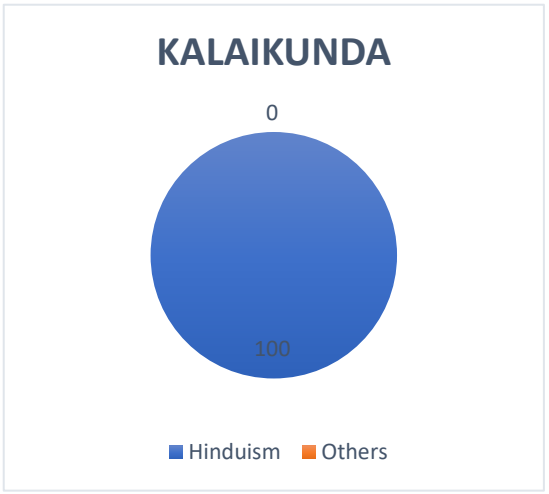
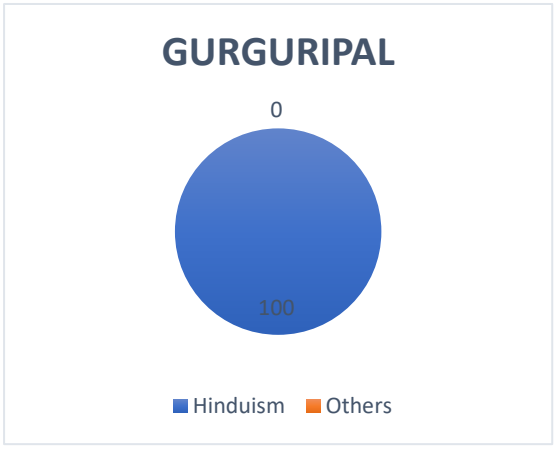


Fig 5.1b: Graphical representation of religion of informants in terms of percentage (%) shares of total respondents.







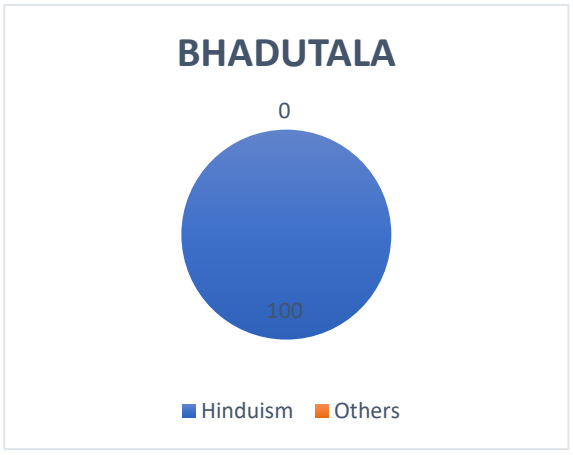
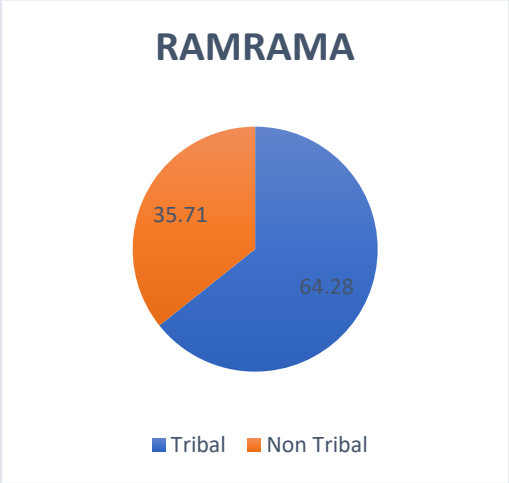
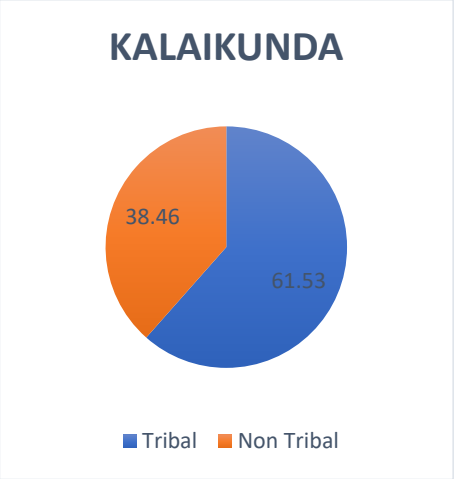
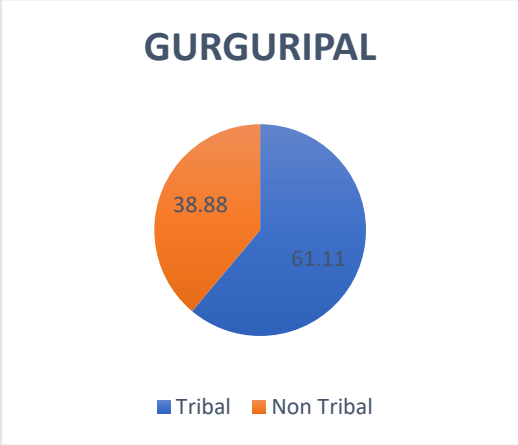


Fig 5.1c: Graphical representation of category of informants in terms of percentage (%) shares of total respondents.







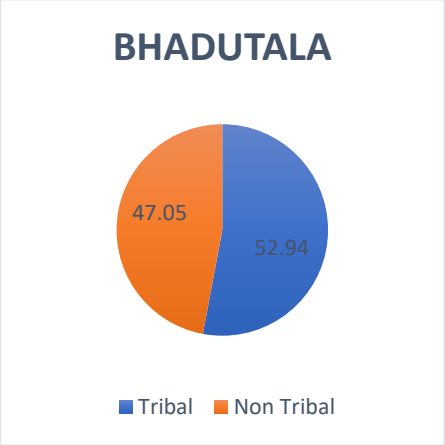


Fig 5.1d: Graphical representation of education status of informants in terms of percentage (%) shares of total respondents.

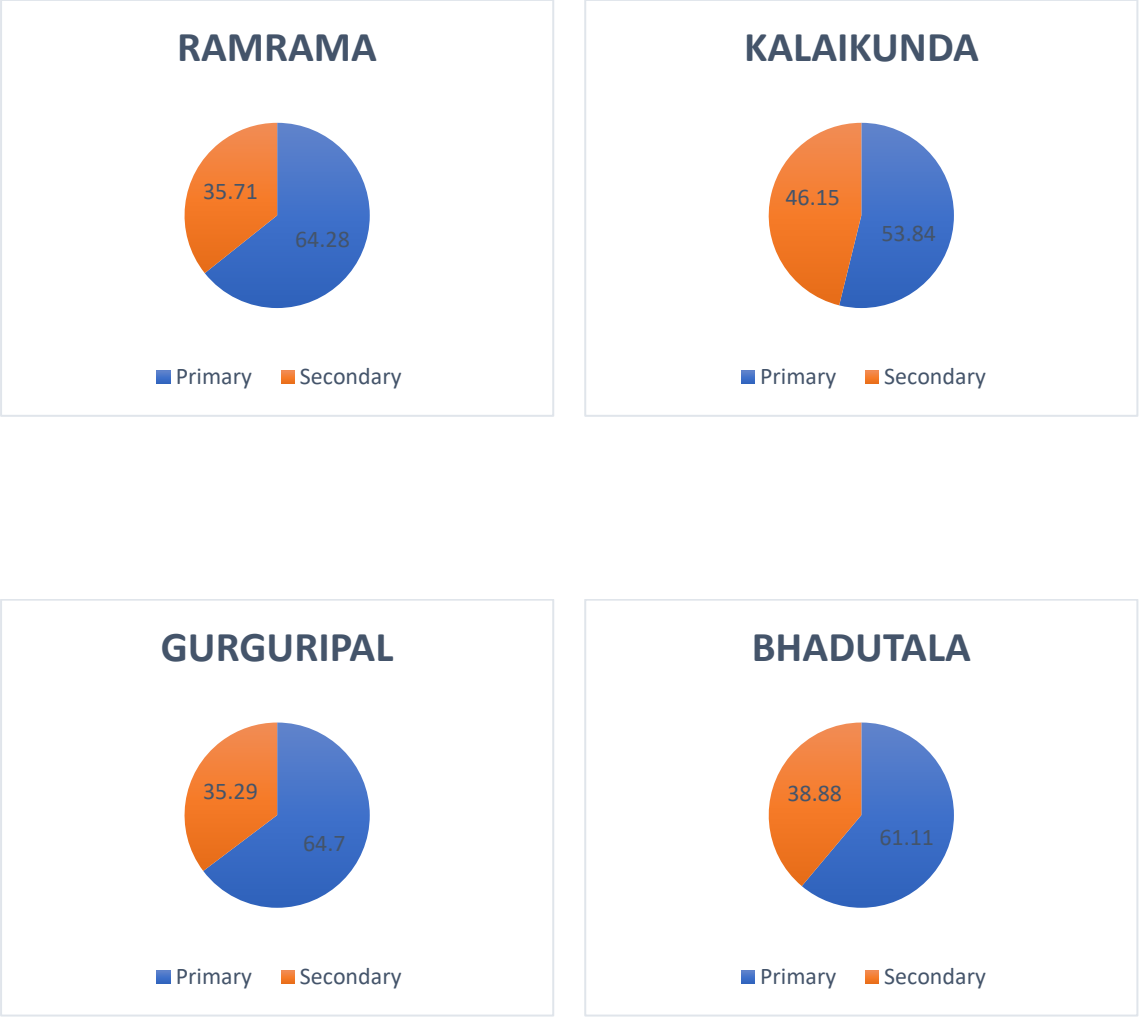
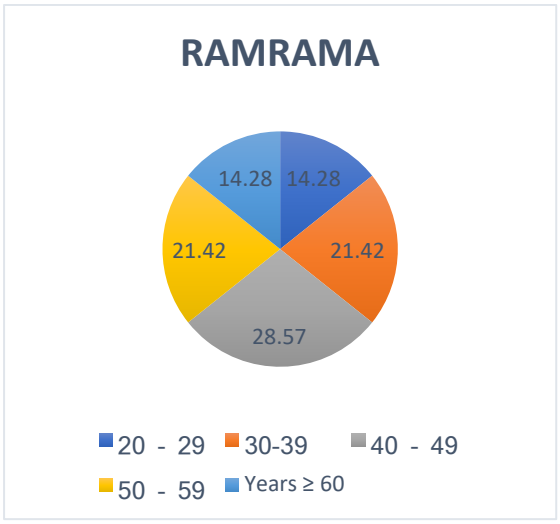
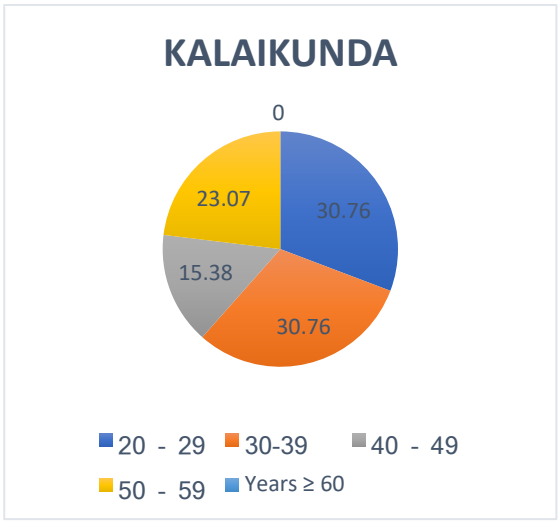
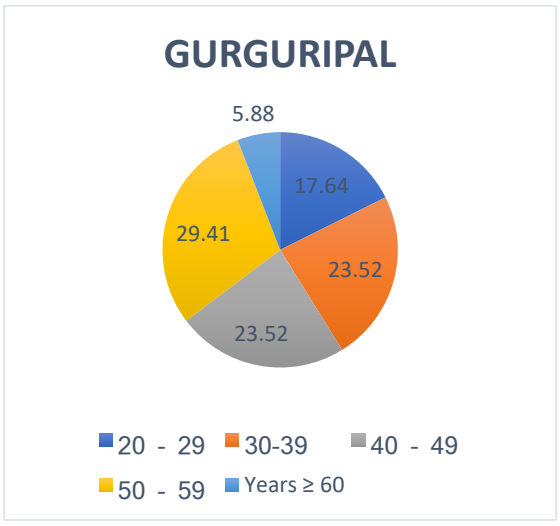


Fig 5.1e: Graphical representation of Age group of informants in terms of percentage (%) shares of total respondents.







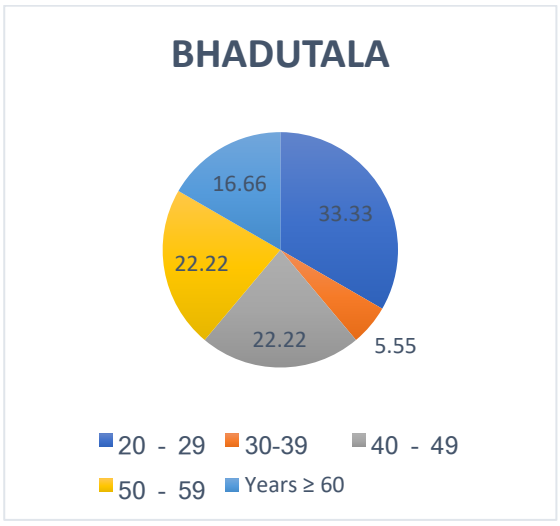


Fig 5.2: Graphical representation of use of *Lantana camara* Linn for medicinal purposes (confirmation by % of informants).

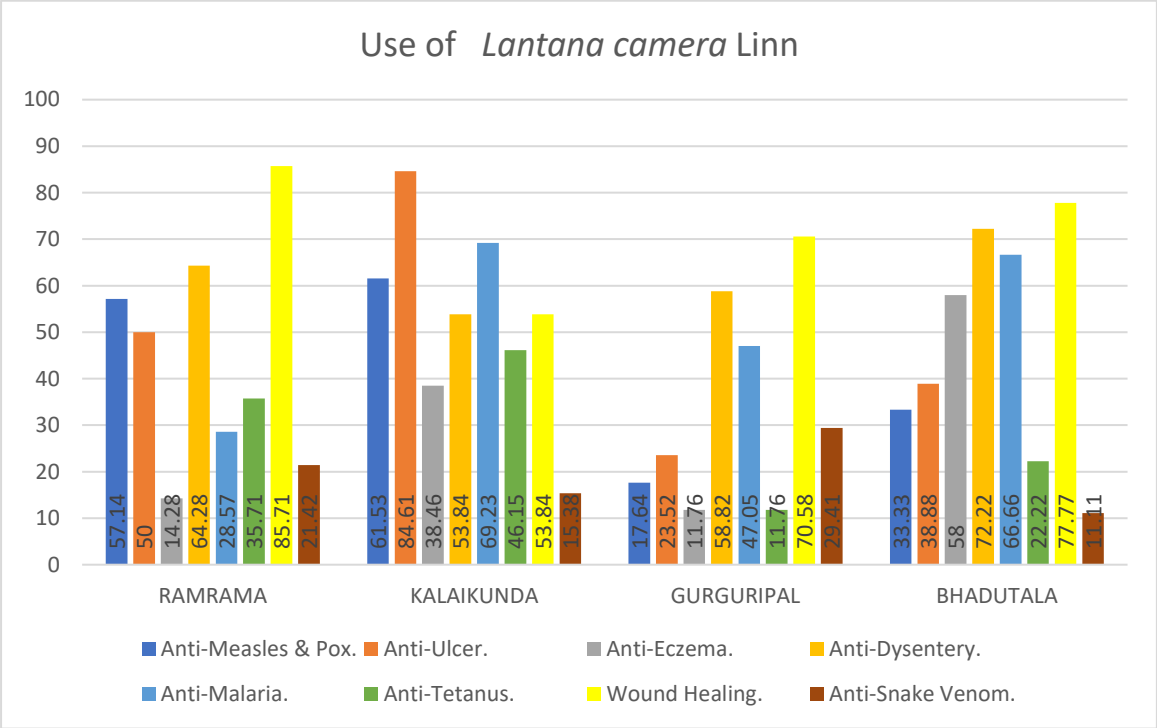


Fig 5.3a: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-pox and measles (information from % of total informants.

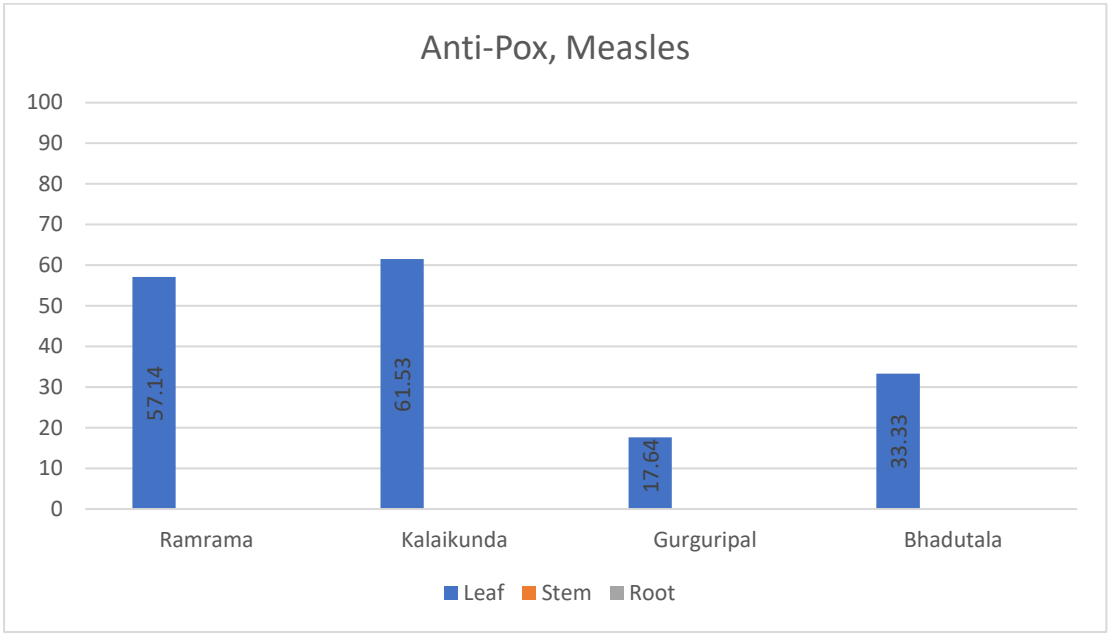


Fig 5.3b: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-ulcer (information from % of total informants.

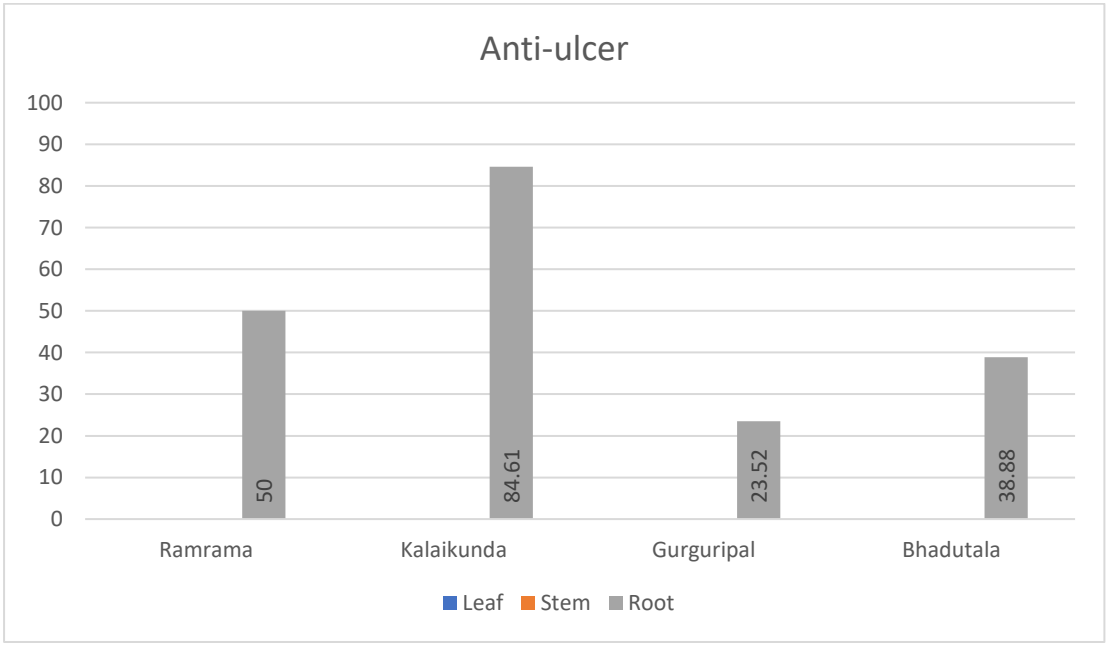


Fig 5.3c: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-eczema (information from % of total informants.

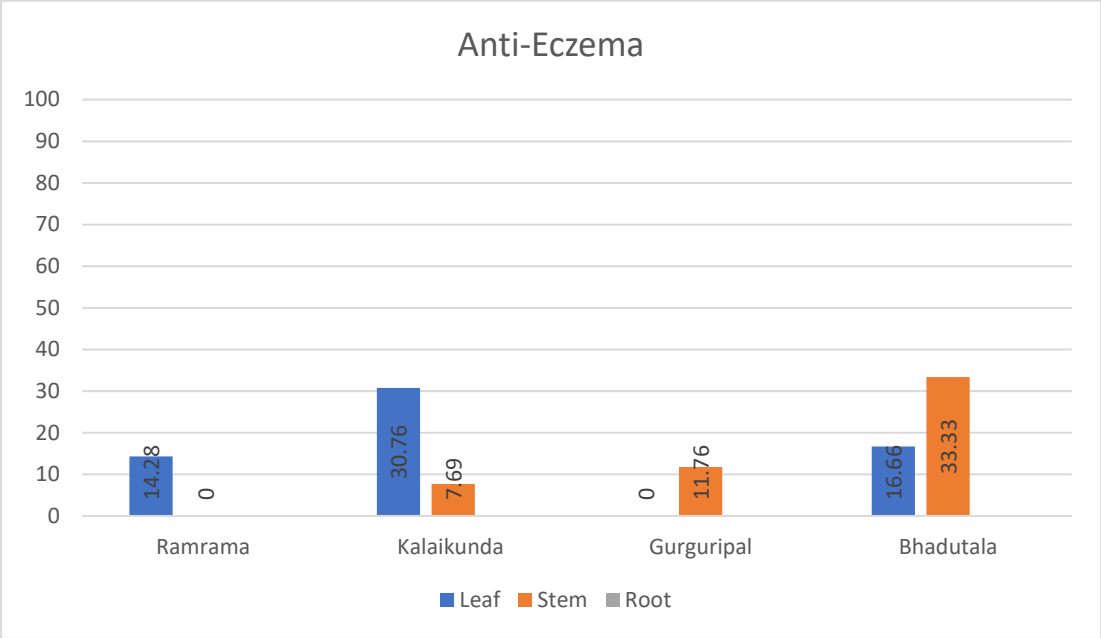


Fig 5.3d: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-dysentery (information from % of total informants.

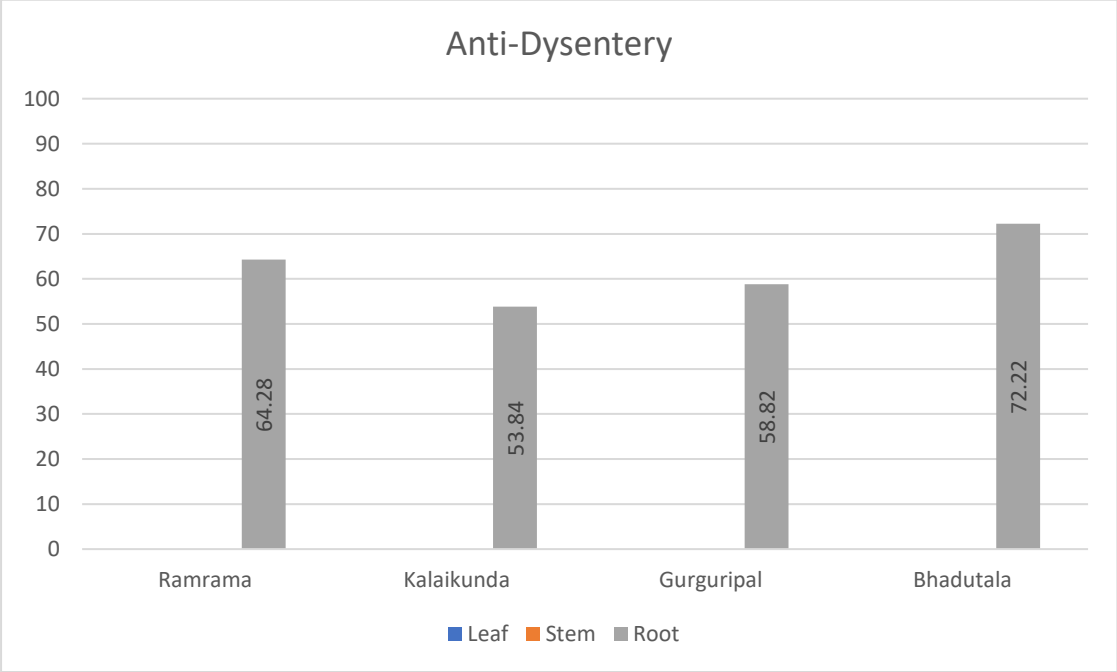


Fig 5.3e: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-malaria (information from % of total informants.

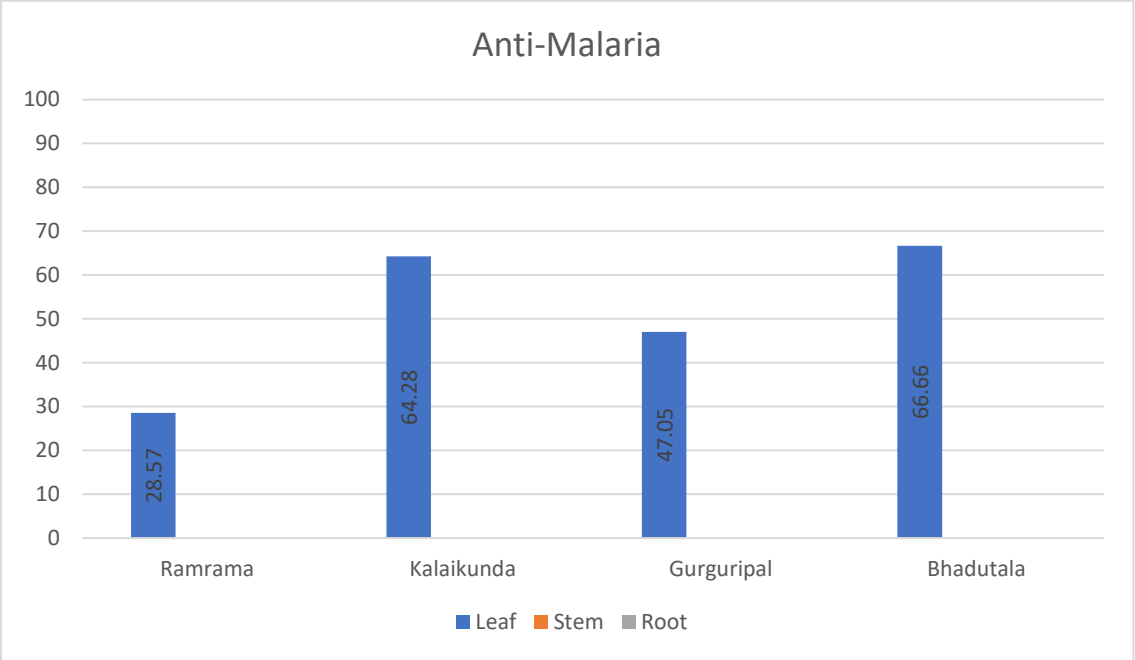


Fig 5.3f: Graphical representation of *Lantana camara* Linn, by plant parts used as anti-Tetanus (information from % of total informants).

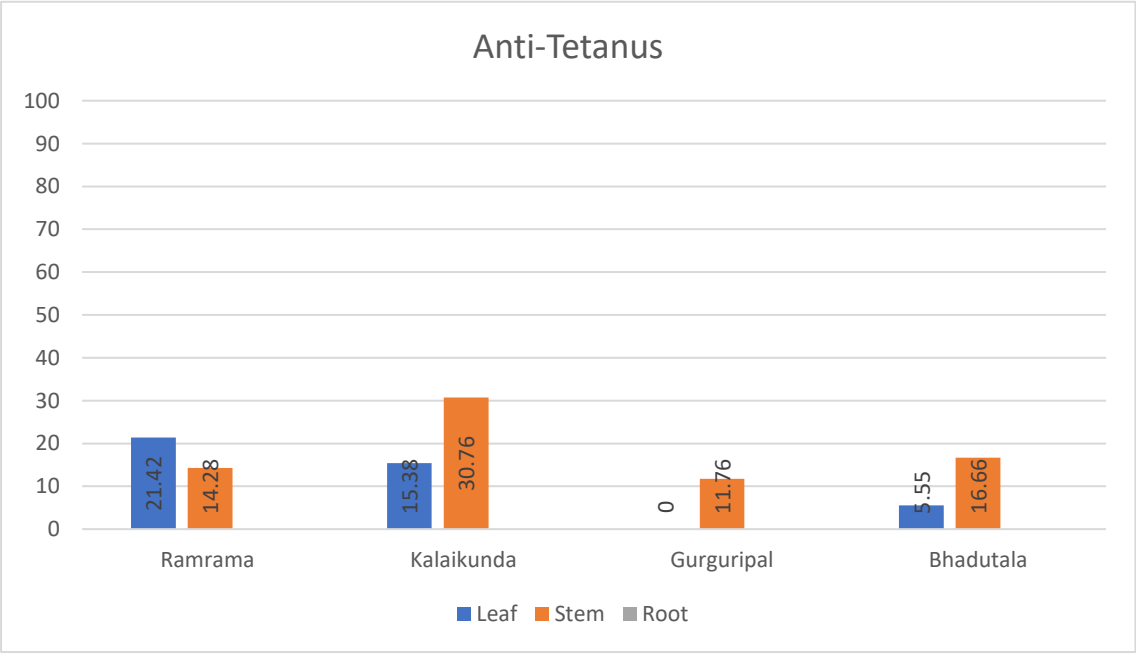


Fig 5.3g: Graphical representation of *Lantana camara* Linn, by plant parts used for wound healing (information from % of total informants).

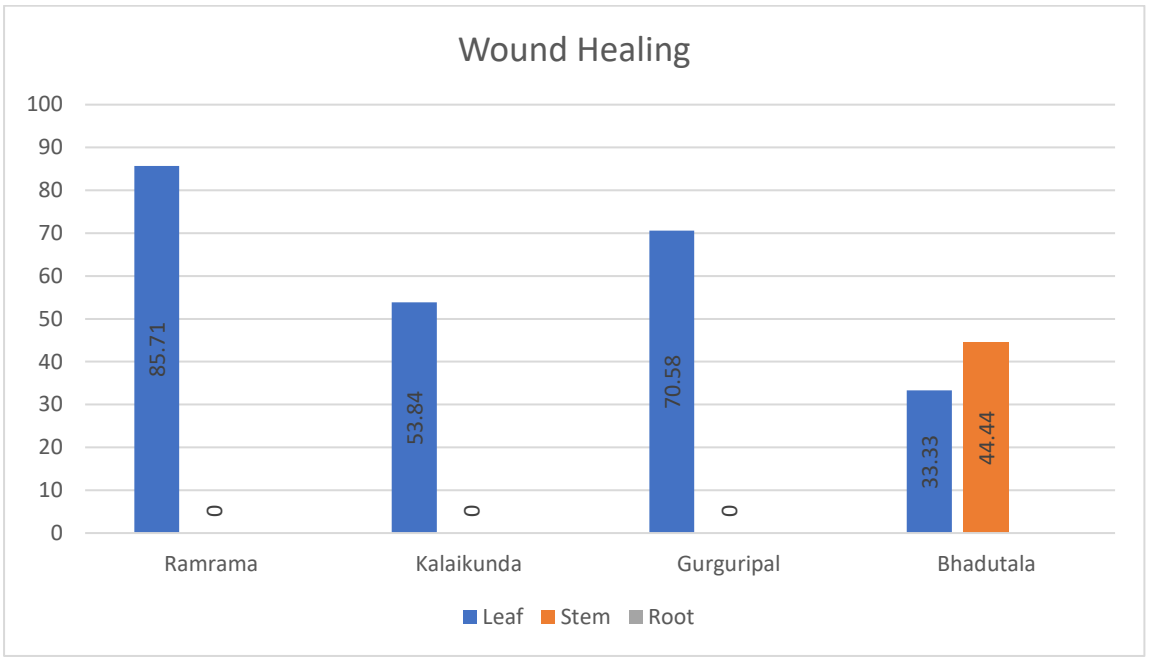


Fig 5.3h: Graphical representation of *Lantana camara* Linn, by plant parts used as anti. Snake venom (information from % of total informants).

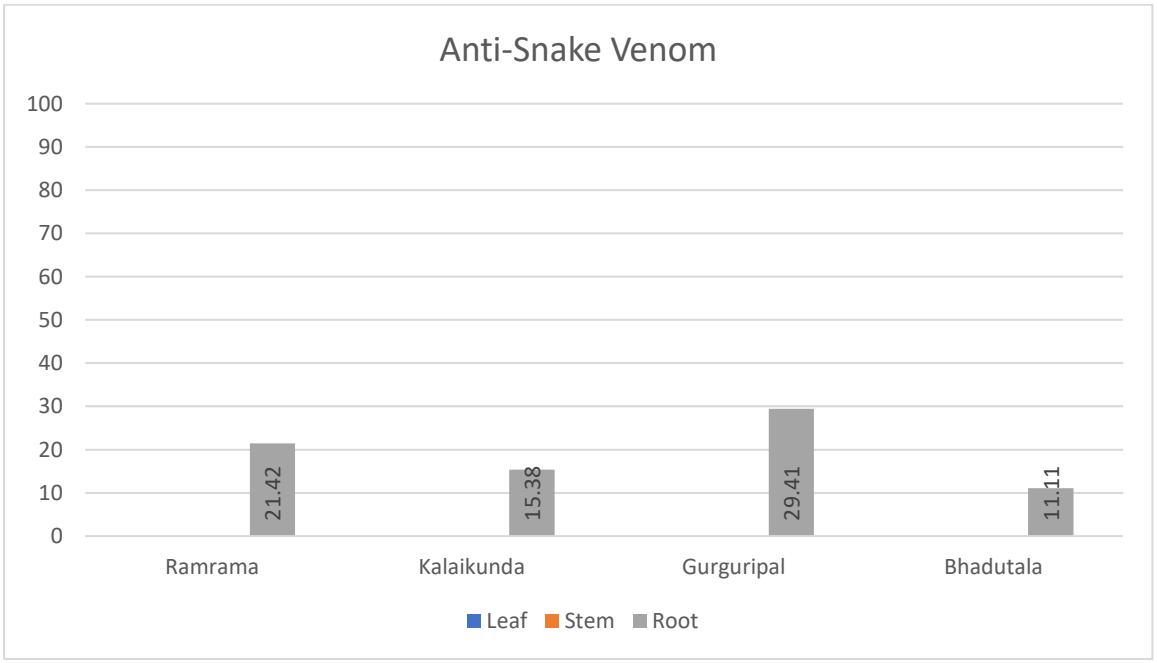


Fig 5.4: Graphical representation of use of *Crotalaria pallida* Ait for medicinal purposes (confirmation by % of informants).

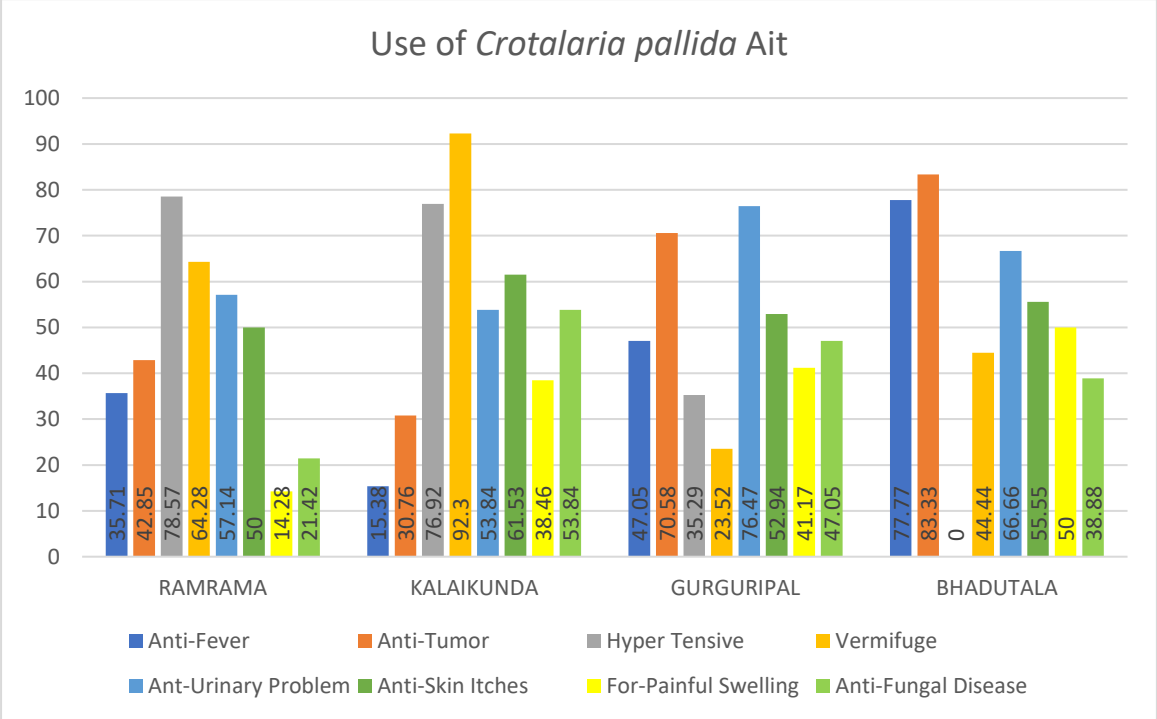


Fig 5.5a: Graphical representation of *Crotalaria pallida* Ait, by plant parts used as anti- fever (information from % of total informants).

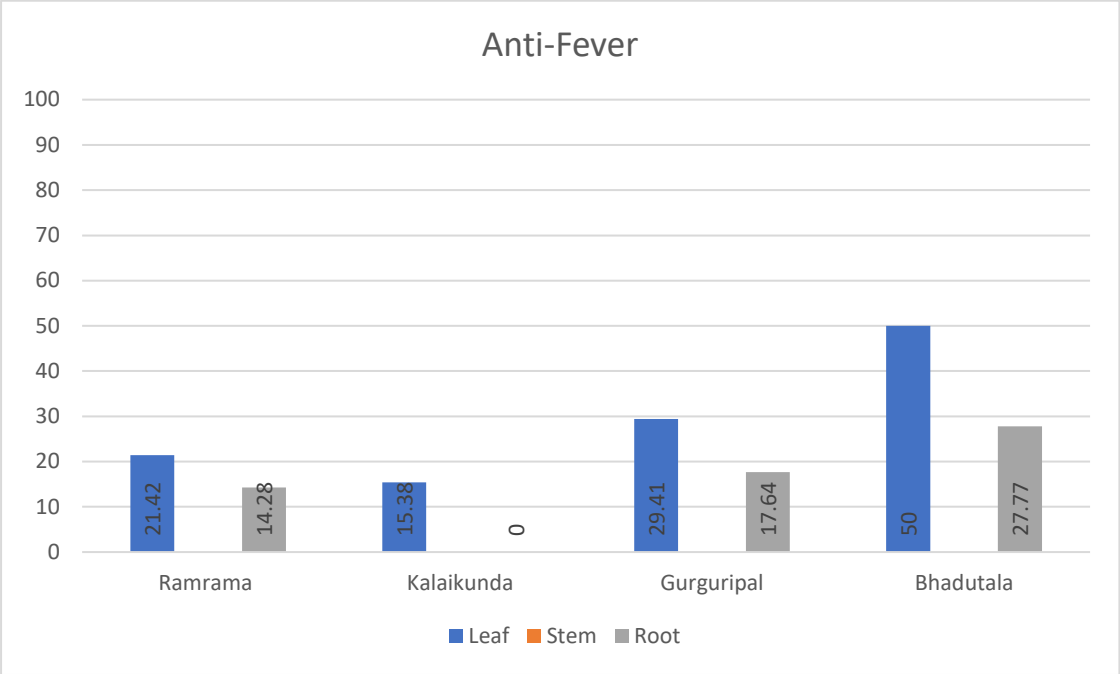


Fig 5.5b: Graphical representation of *Crotalaria pallida* Ait, by plant parts used as anti- tumor (information from % of total informants).

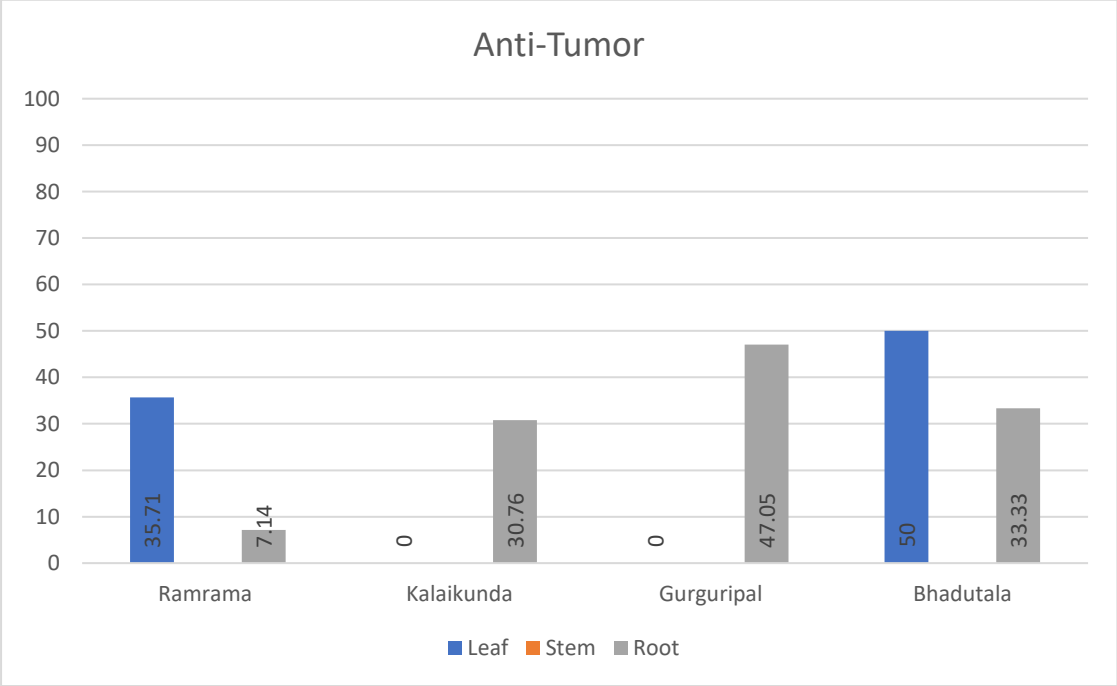


Fig 5.5c: Graphical representation of *Crotalaria pallida* Ait, by plant parts used for Hyper tension (information from % of total informants).

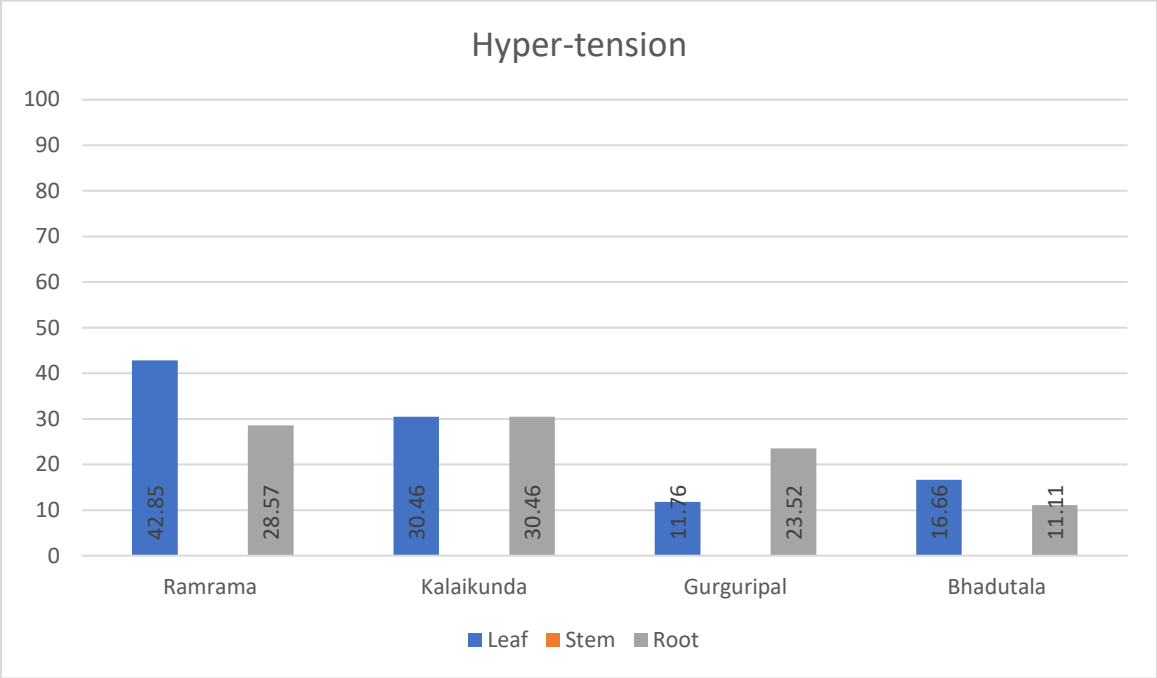


Fig 5.5d: Graphical representation of *Crotalaria pallida* Ait, by plant parts used for Vermifuge (information from % of total informants).

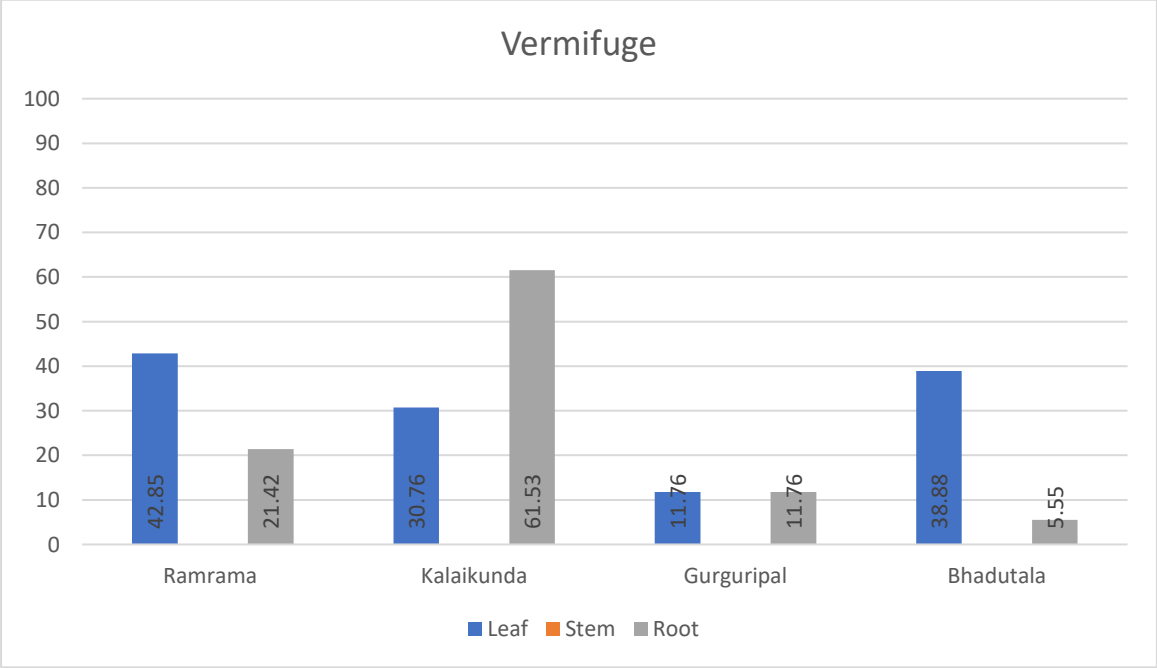


Fig 5.5e: Graphical representation of *Crotalaria pallida* Ait, by plant parts used for urinary problem (information from % of total informants).

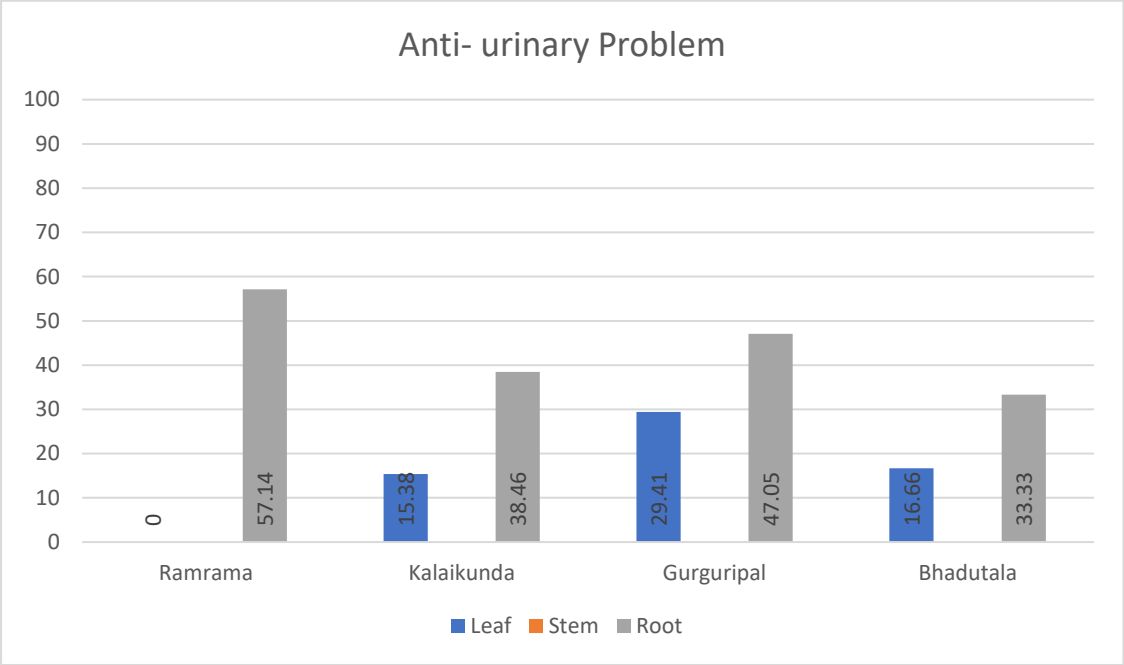


Fig 5.5f: Graphical representation of *Crotalaria pallida* Ait, by plant parts used as anti- skin itches (information from % of total informants).

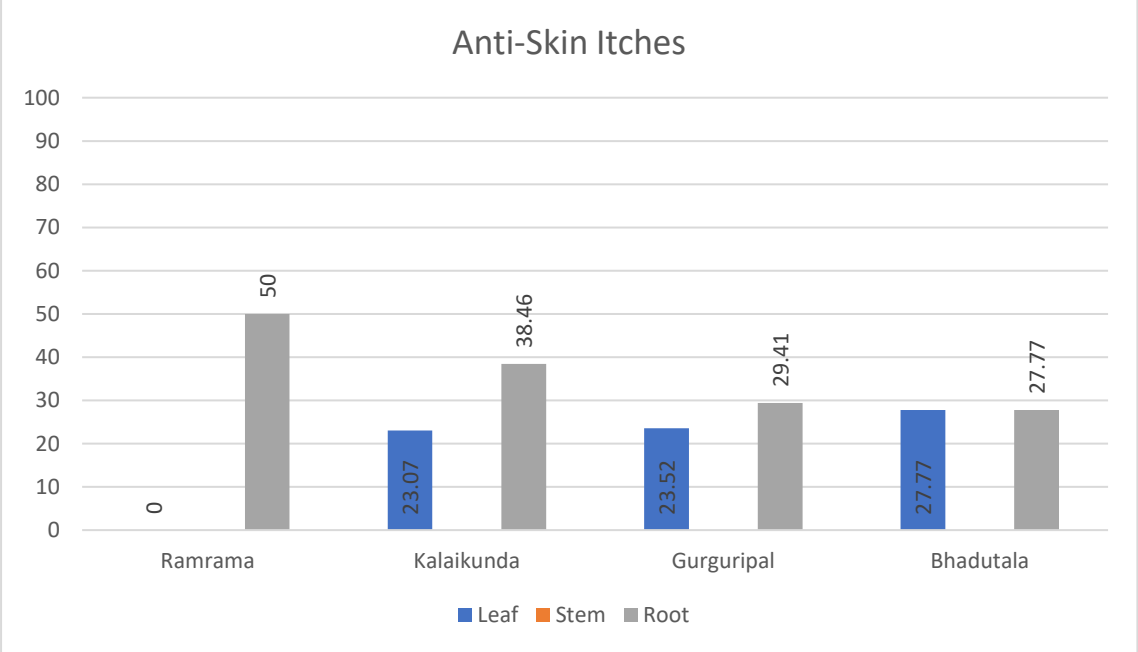


Fig 5.5g: Graphical representation of *Crotalaria pallida* Ait, by plant parts used for painful swelling (information from % of total informants).

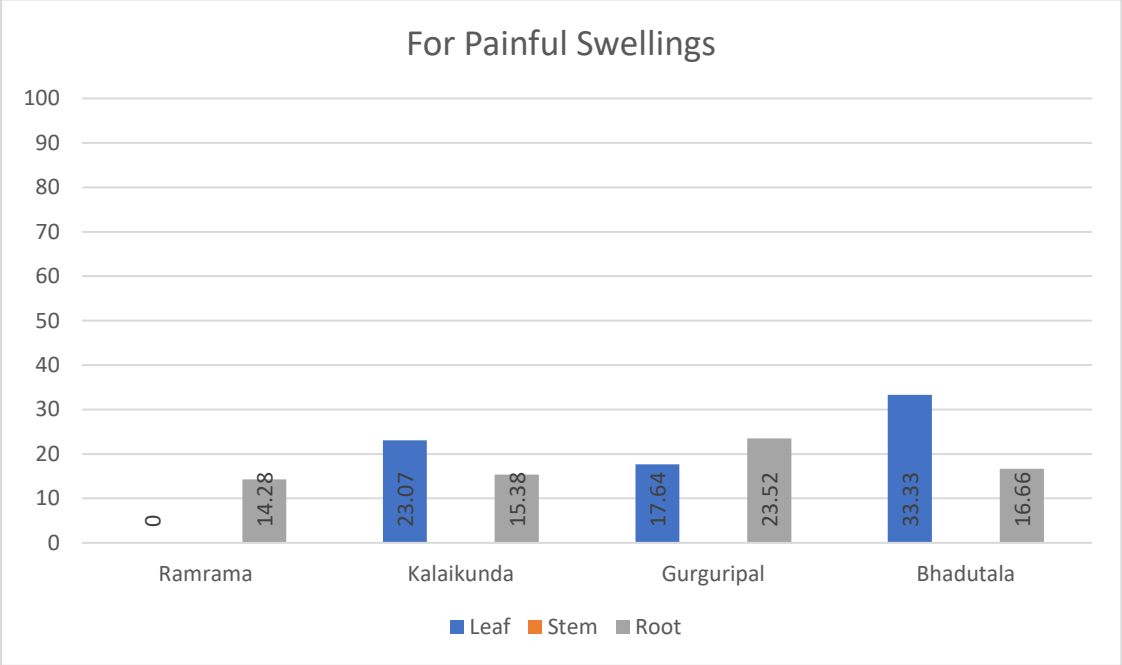


Fig 5.5h: Graphical representation of *Crotalaria pallida* Ait, by plant parts used for anti- fungal disease (information from % of total informants.

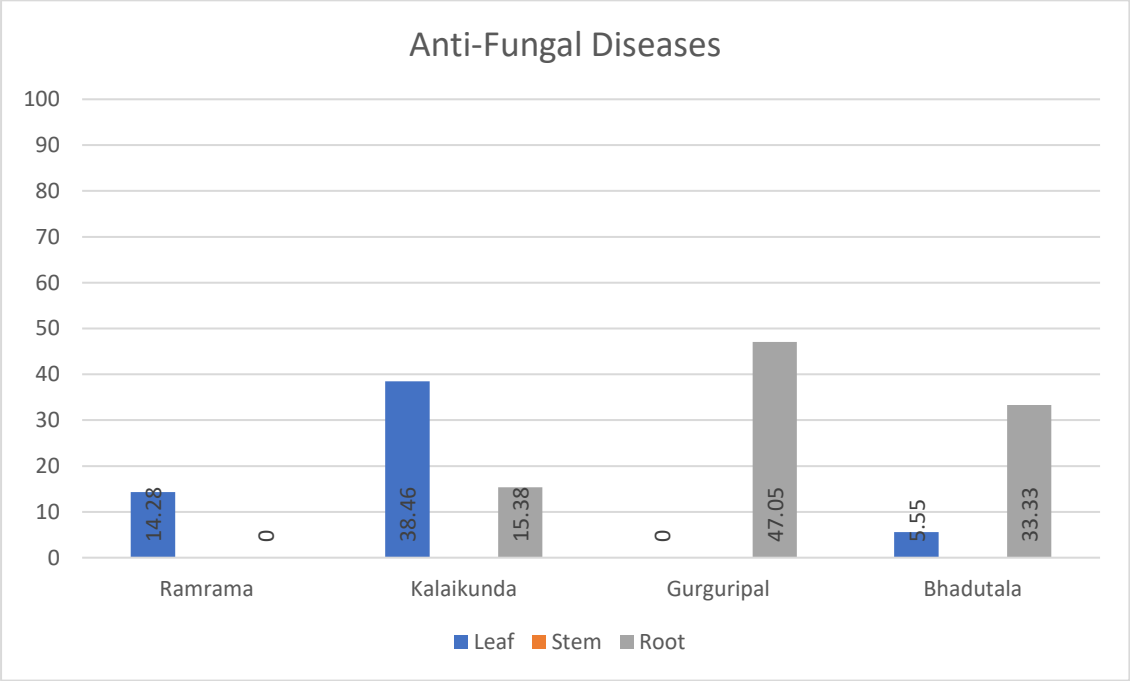


Fig 5.6: Graphical representation of use of *Ocimum canum* Sims for medicinal purposes (confirmation by % of informants).

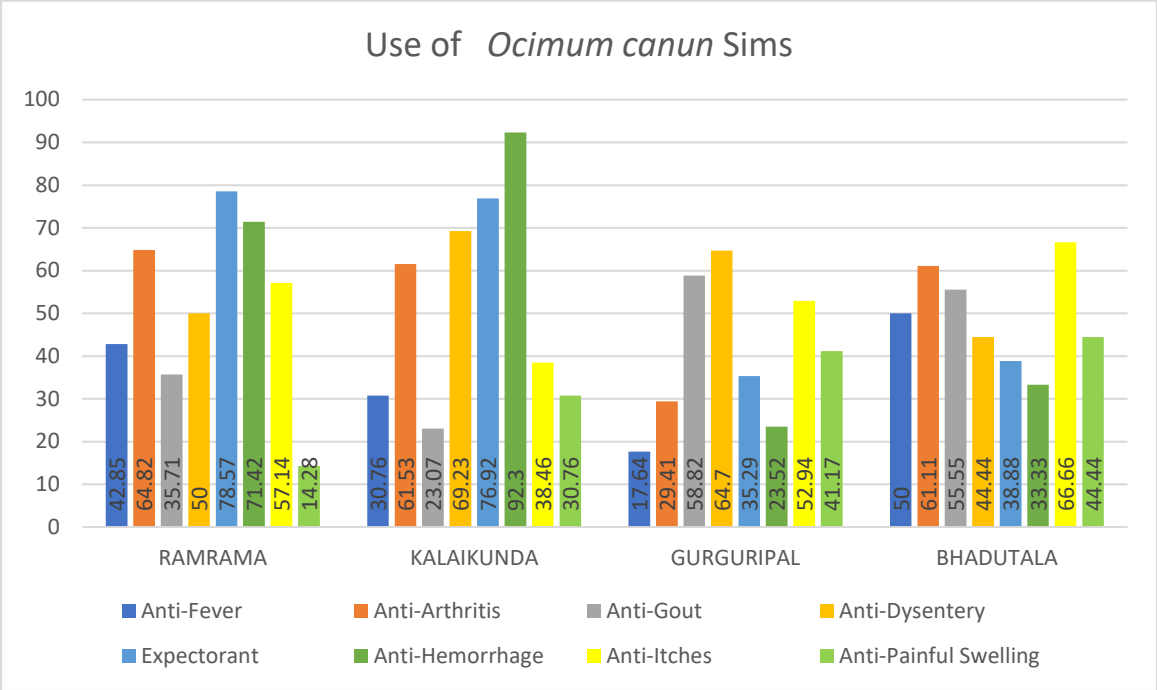


Fig 5.7a: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-fever (information from % of total informants).

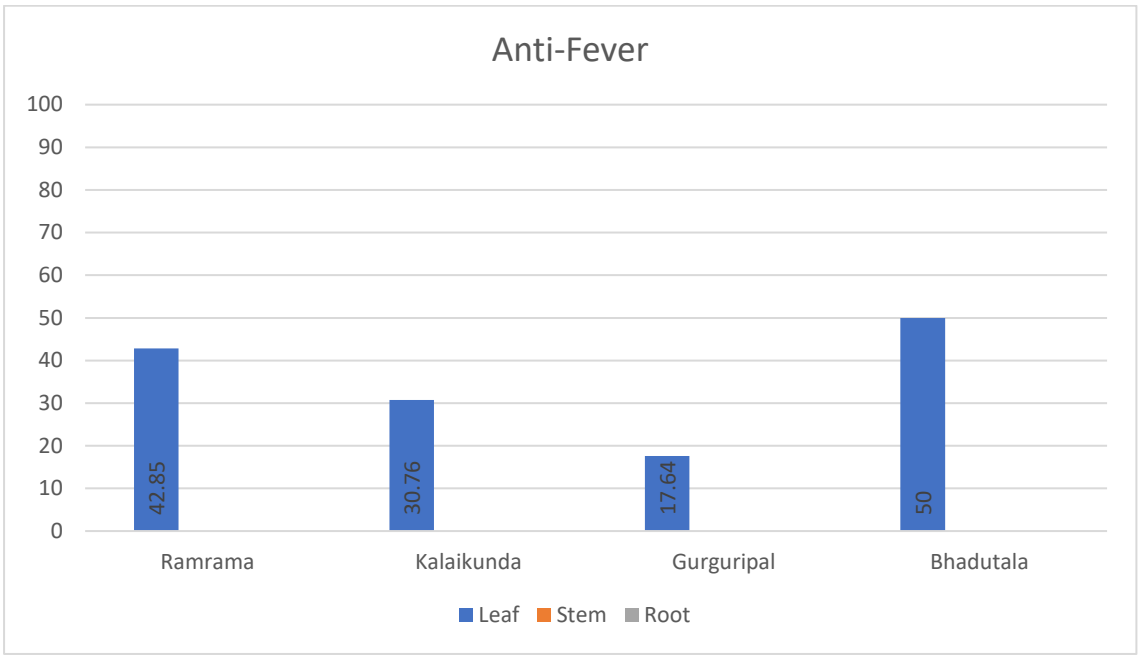


Fig 5.7b: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-arthritis (information from % of total informants).

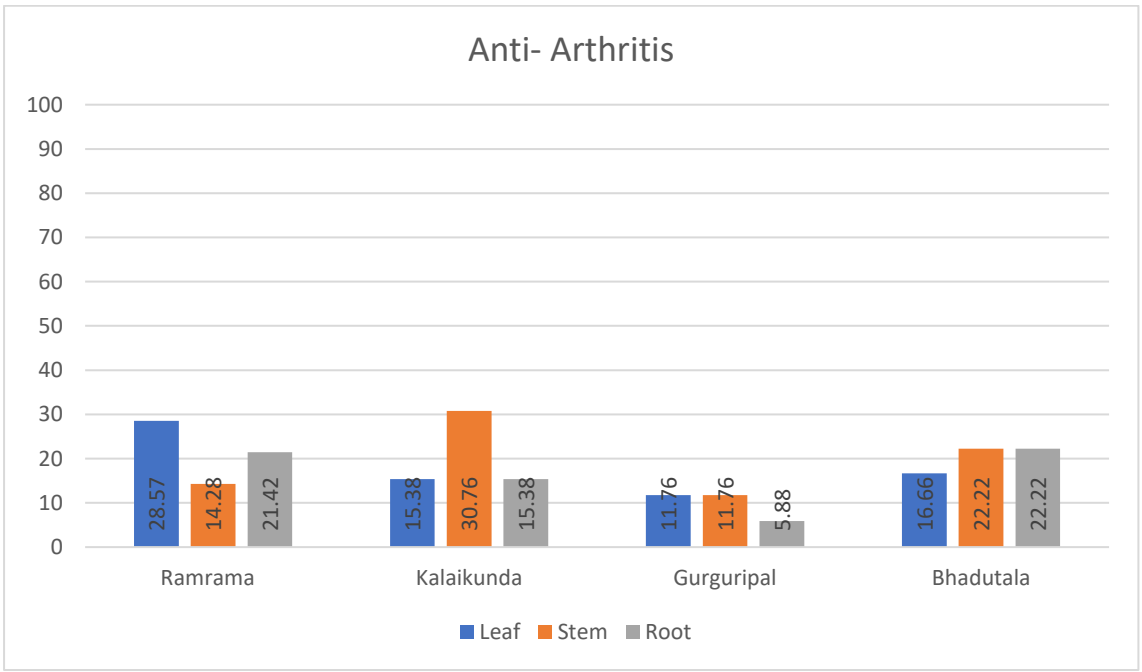


Fig 5.7c: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-gout (information from % of total informants).

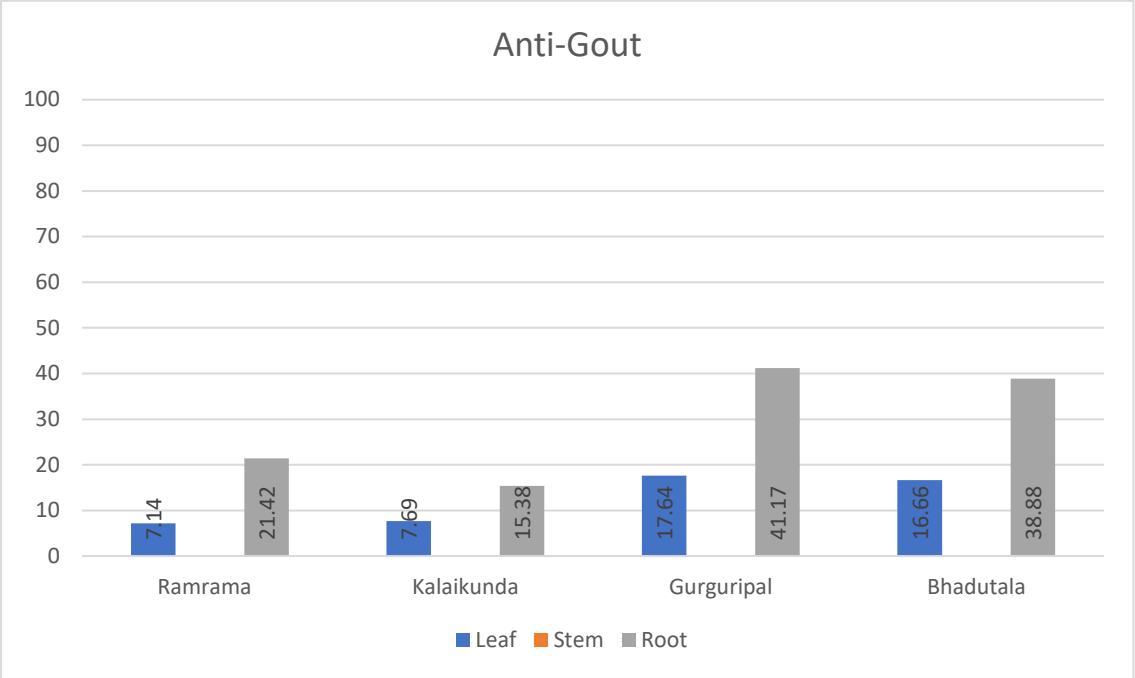


Fig 5.7d: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti- dyspepsia. (information from % of total informants).

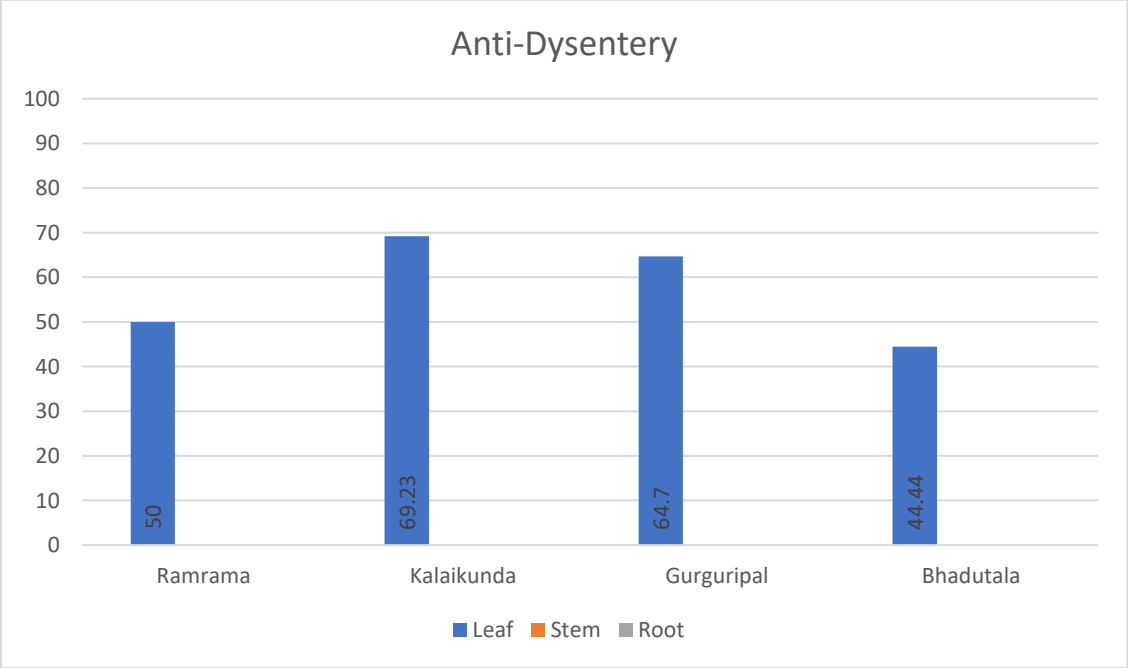


Fig 5.7e: Graphical representation of *Ocimum canum* Sims, by plant parts used as expectorant (information from % of total informants).

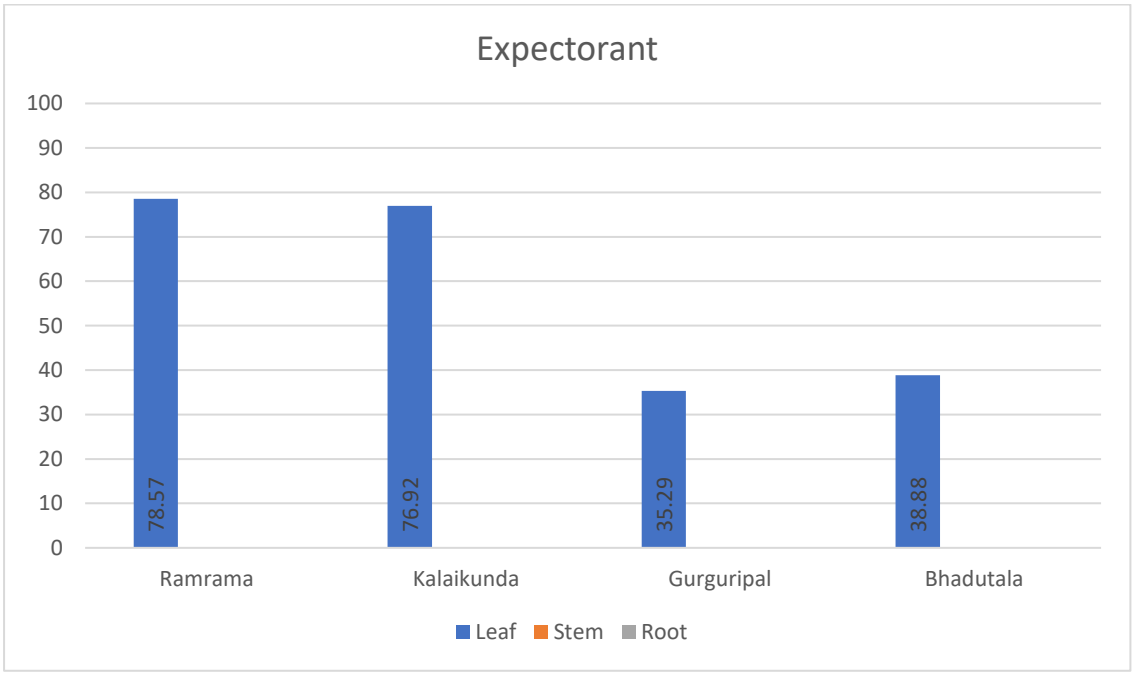


Fig 5.7f: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-hemorrhage (information from % of total informants).

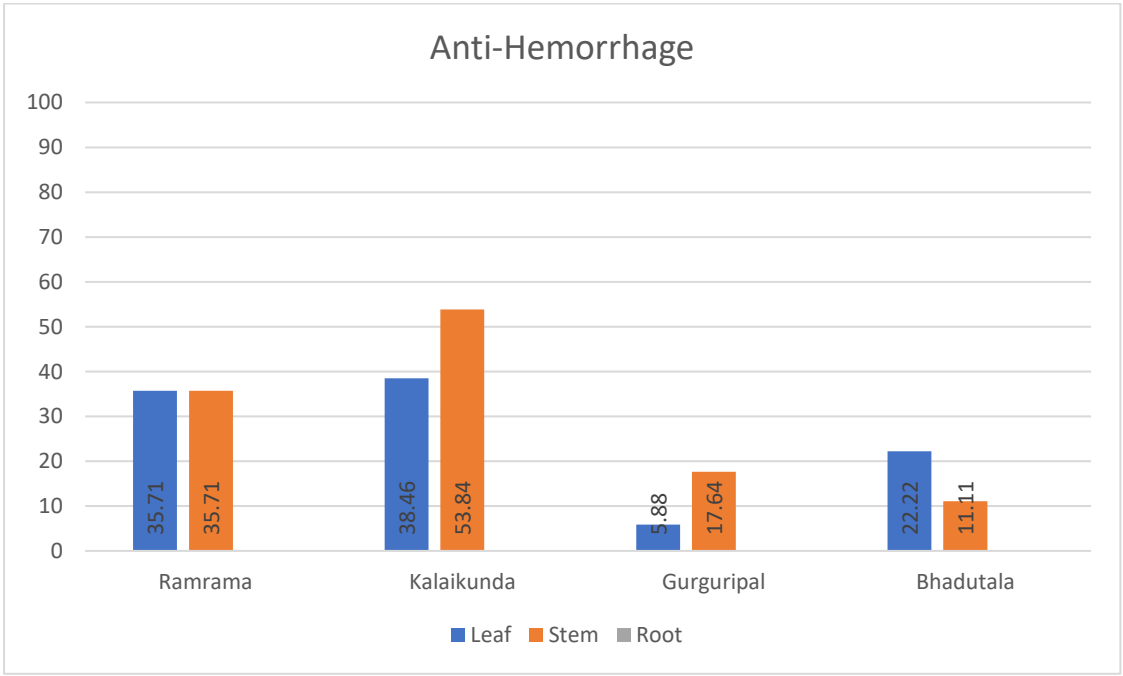


Fig 5.7g: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-itches (information from % of total informants).

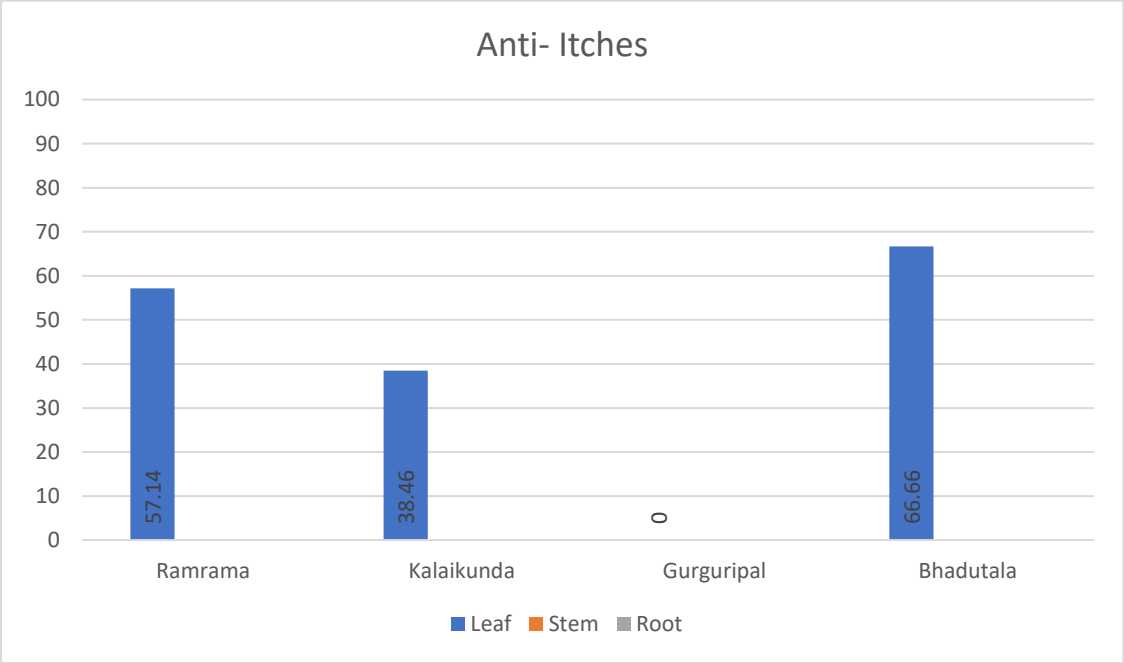


Fig 5.7h: Graphical representation of *Ocimum canum* Sims, by plant parts used as anti-painful swelling (information from % of total informants).

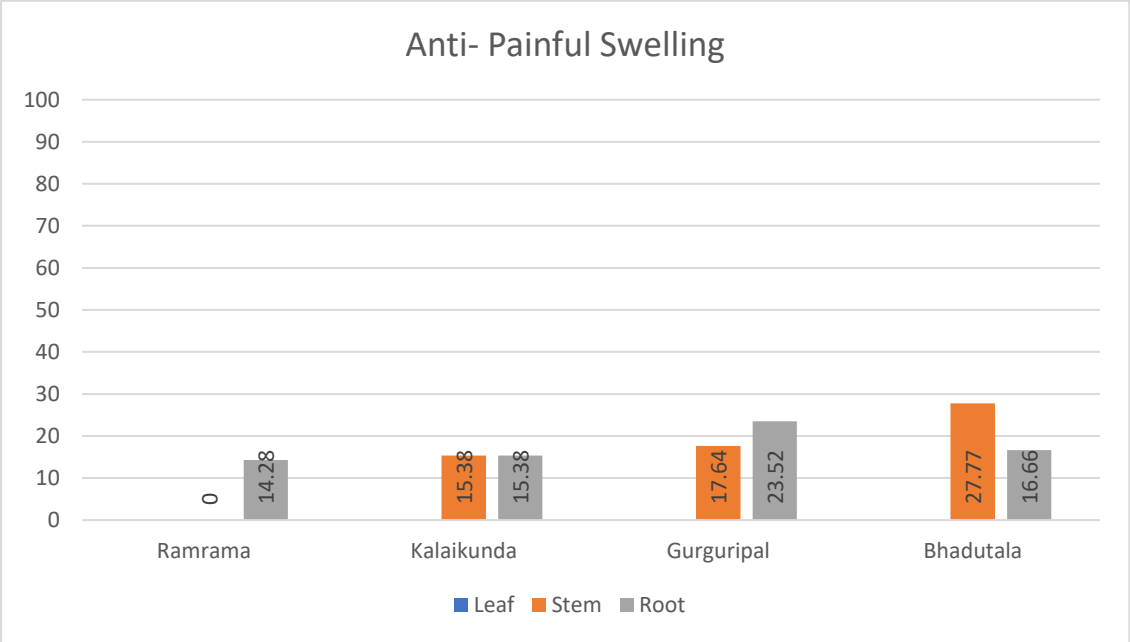


Fig 5.8: Graphical representation of use of *Tephrosia purpurea* Linn for medicinal purposes (confirmation by % of informants).

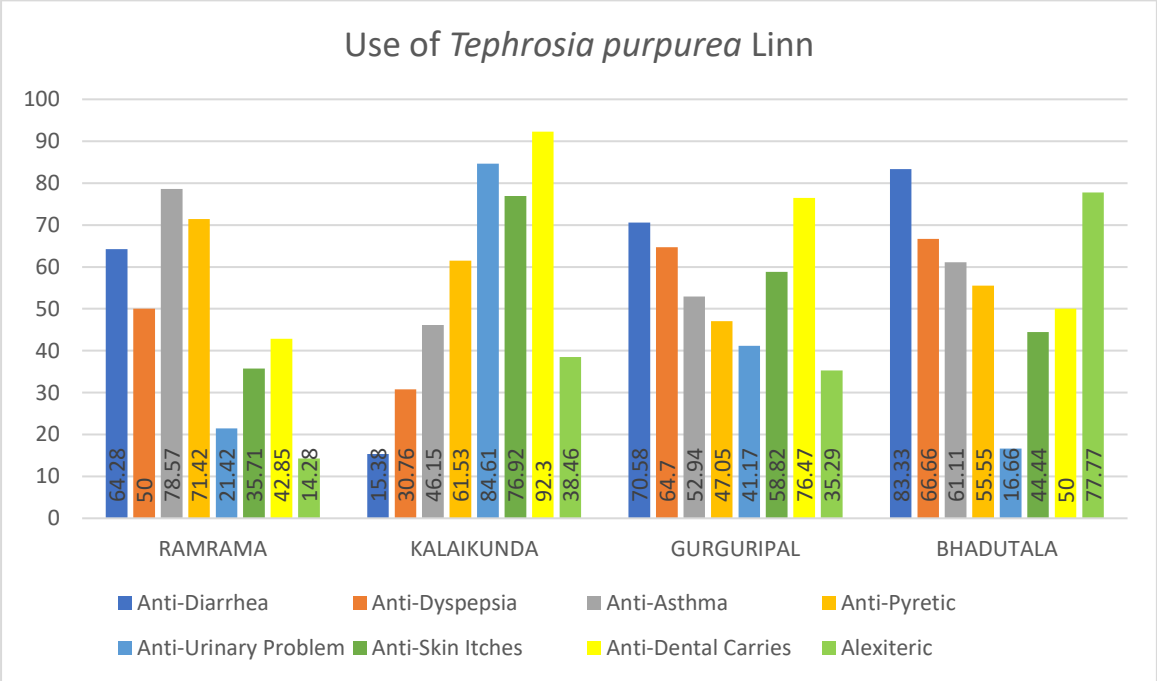


Fig 5.9a: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti-diarrhea (information from % of total informants).

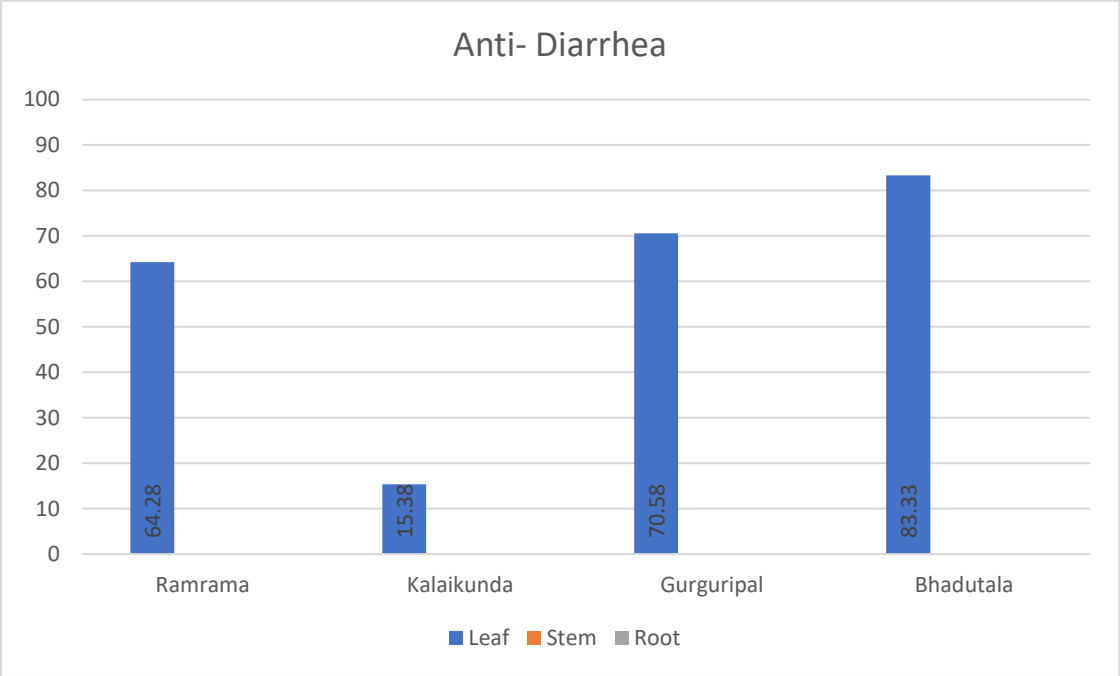


Fig 5.9b: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti-dyspepsia (information from % of total informants).

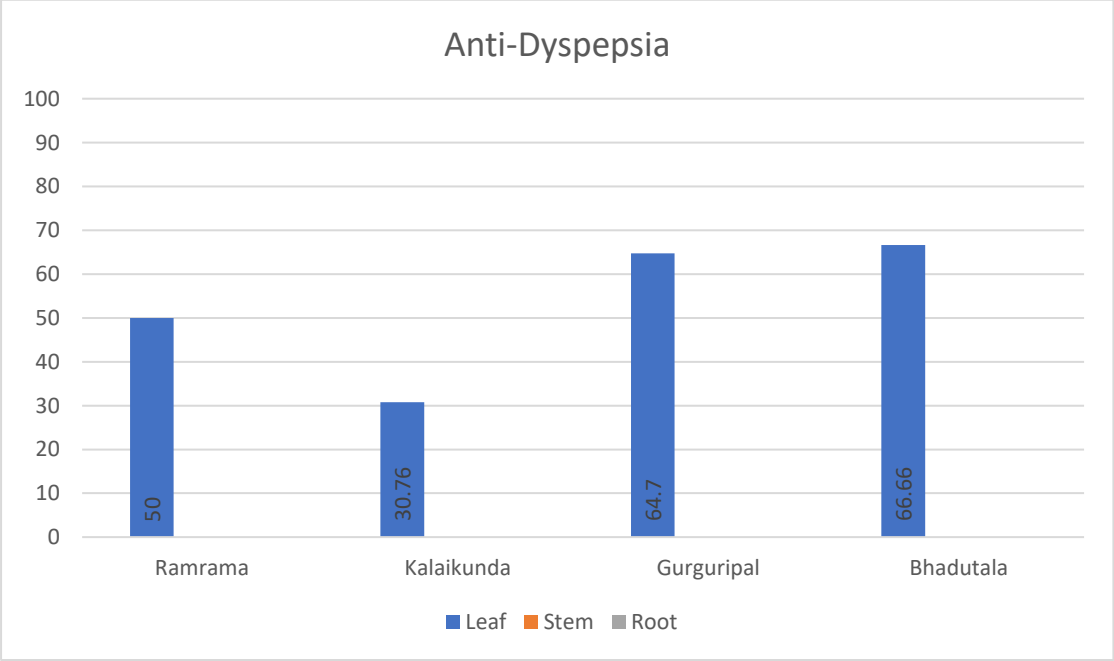


Fig 5.9c: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti-asthma (information from % of total informants).

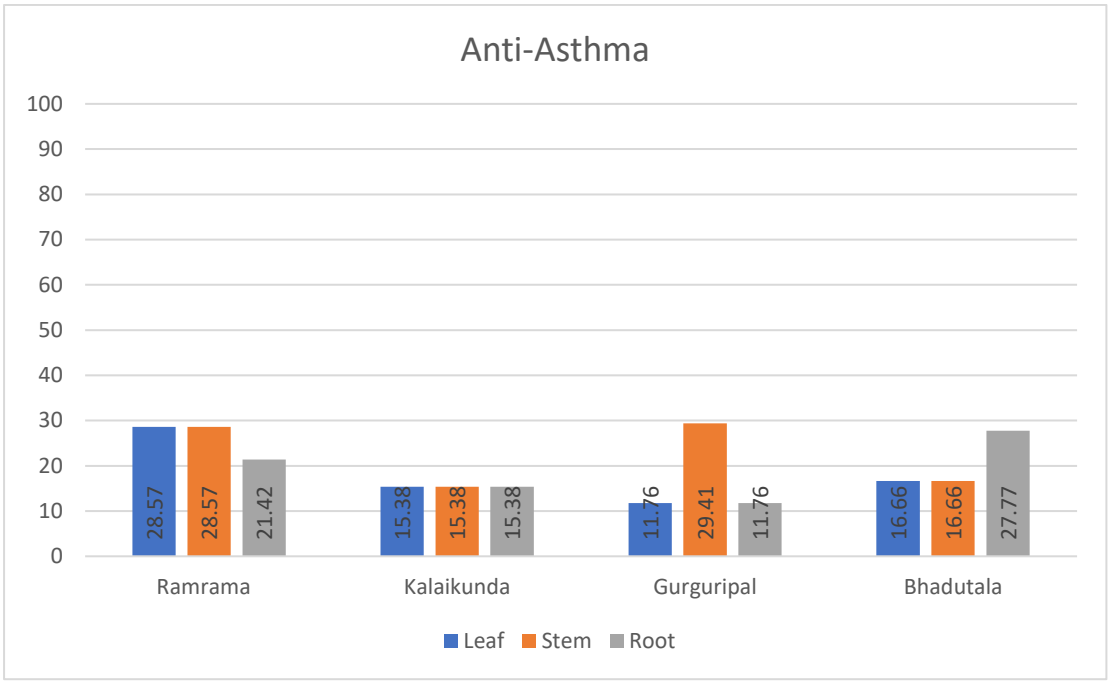


Fig 5.9d: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti-pyretic (information from % of total informants).

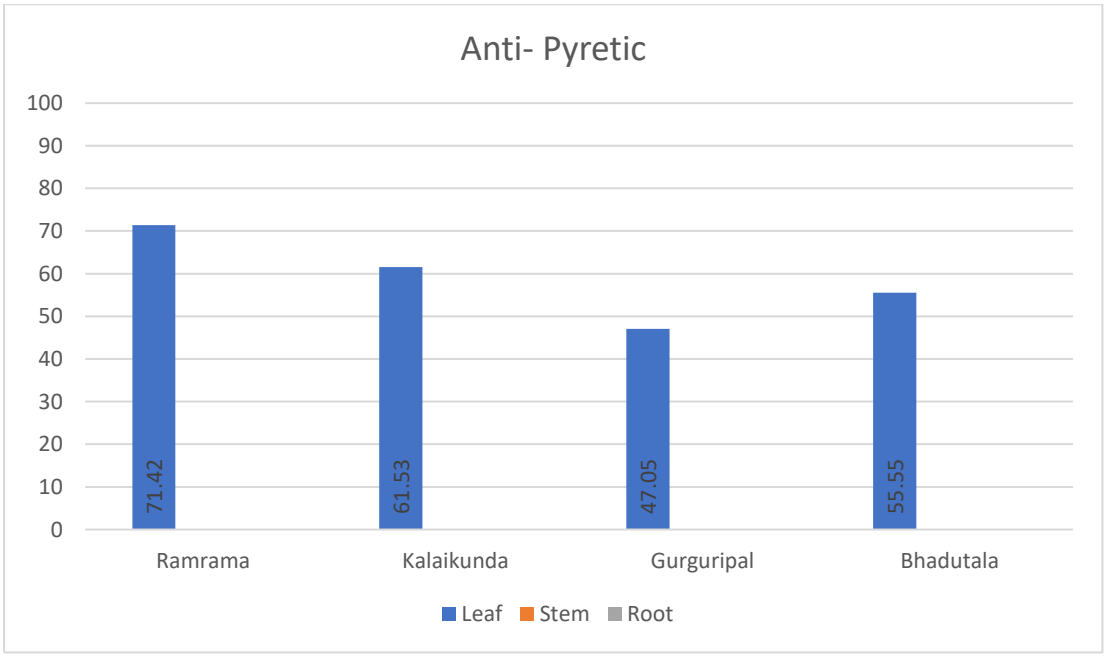


Fig 5.9e: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used for urinary problem (information from % of total informants).

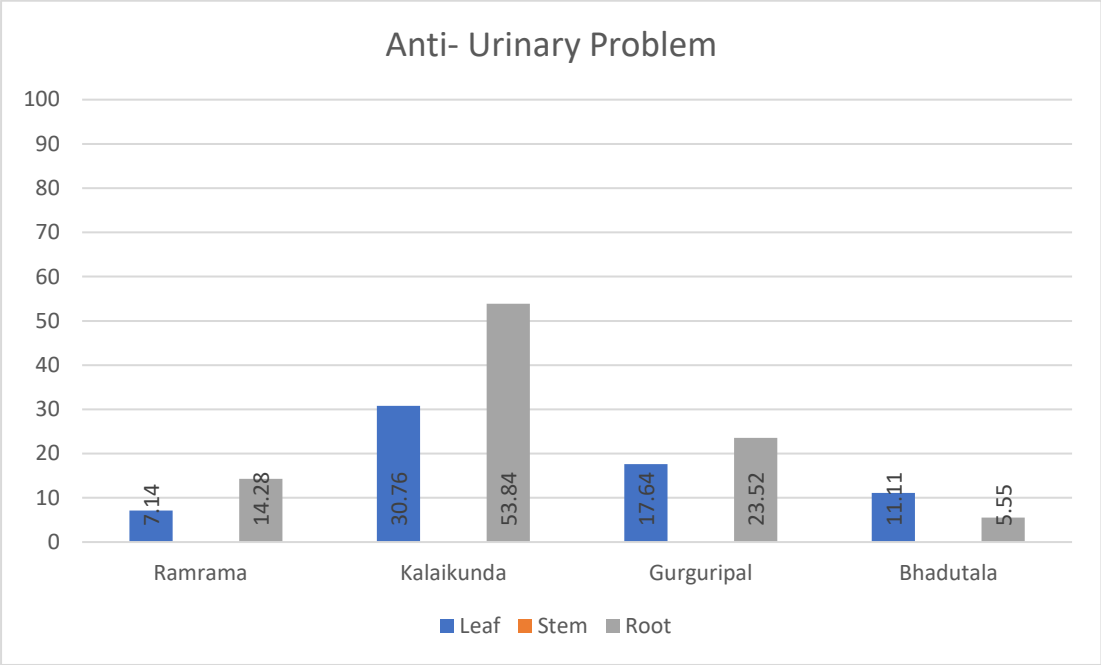


Fig 5.9f: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti- skin itches (information from % of total informants).

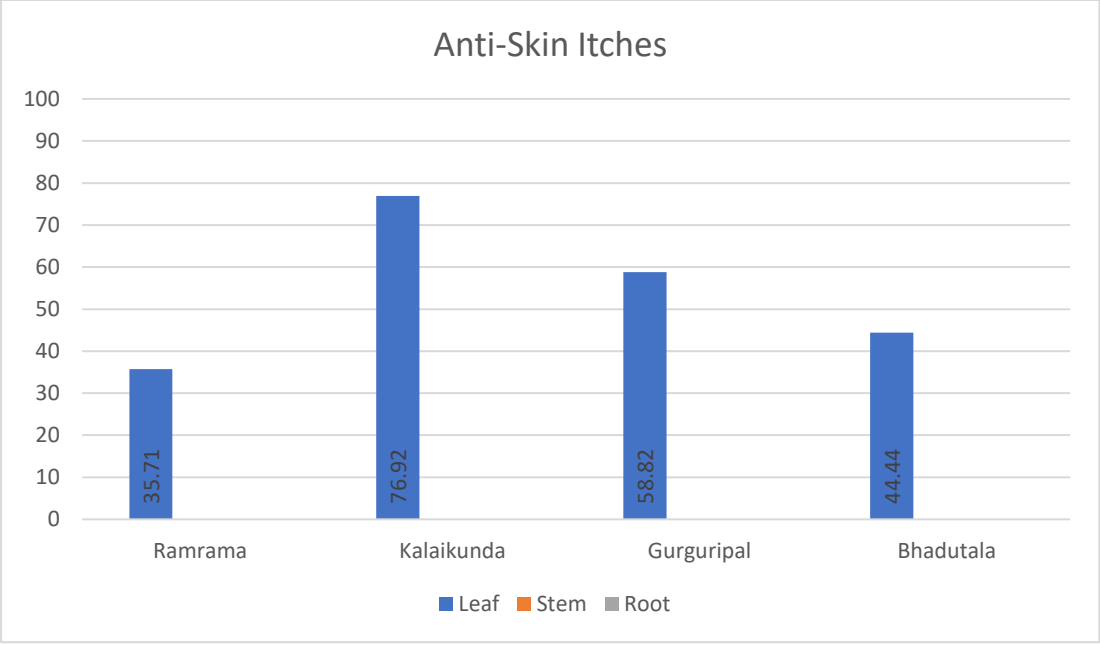


Fig 5.9g: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as anti- dental carries (information from % of total informants).

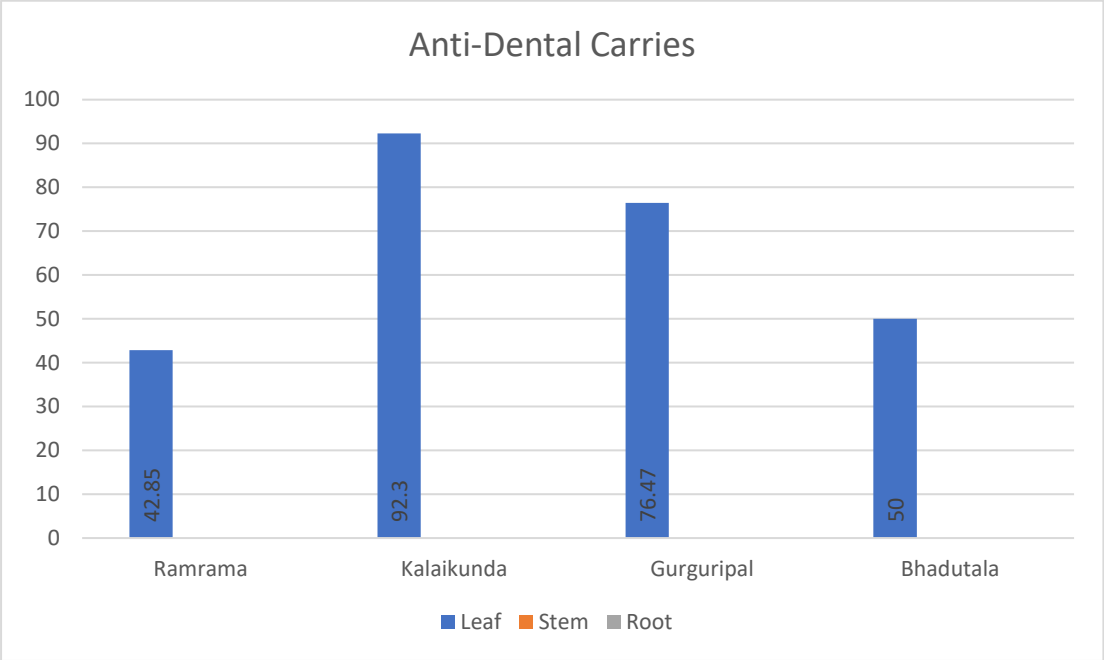


Fig 5.9h: Graphical representation of *Tephrosia purpurea* Linn, by plant parts used as alexiteric (information from % of total informants).

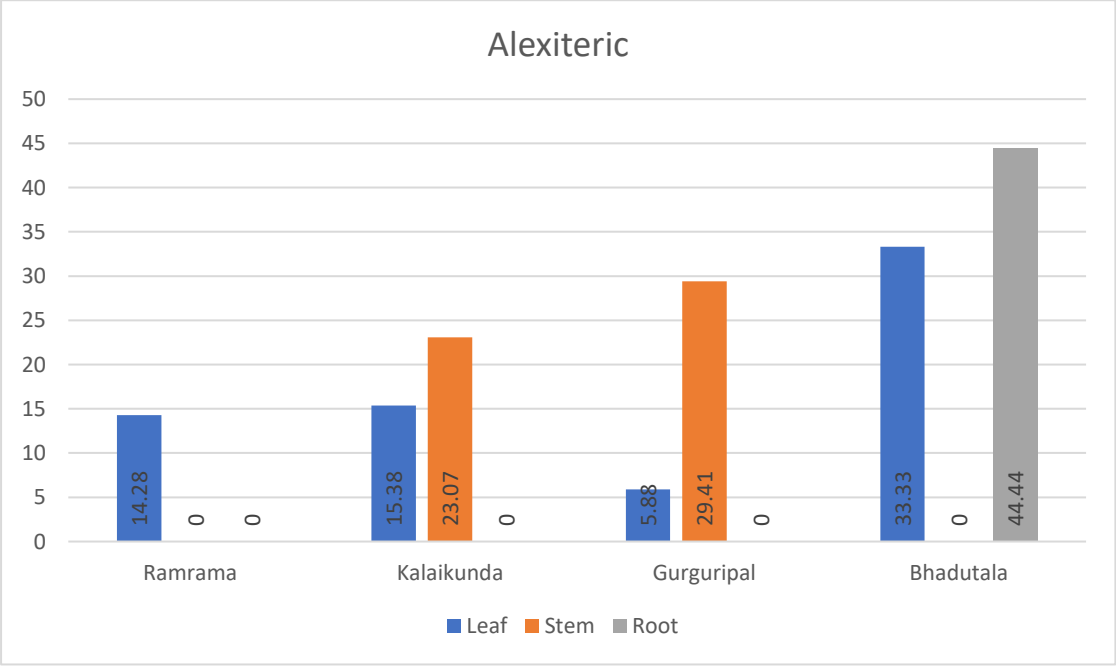


Fig 5.10: Use of weeds as fuel by villagers.

Fig 5.11: Interview with ‘T M P’ in village areas.

Fig 5.12: Furniture from Lantana wood.