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Guru Gyandil Das Dham in Gelling, West Sikkim: Relevance to Floristic richness & Conservation perspectives towards promotion of spiritual tourism

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Abstract

Men's spiritual inclinations, secular behavior, recognition and appreciation of the values of plant resources and that of material erection of mortal remains of the spiritual Guru in the form of statute, place of samadhi, chappels, mandirs, temples, monasteries and **Dham** have been a legacy and great heritage of human civilization. In this research study the "**Dham**", a temple-like entity for the followers of a sect of Sadhus (Saints), is a holy place with its own spiritual and religious perspectives having been linked to religious and environmental traditions and practices since long. Such holy place is formed or found in areas endowed with natural resource richness growing there and new plant resources added by the followers and devotees of the said faith out of their deep belief and convictions during their visit to Dham and also during their puja/worship offerings. The present work is the outcome of detailed study undertaken on **Guru Gyandil Das Dham (GGDD)** in Gelling in western Sikkim during April 2019 to November 2021. The study yielded the historical backdrop of Dham, spiritual belief and an insight of various floristic elements growing in Dham and its compound. This revered place is commonly known by the name "Guru Gyandil Das Dham" which symbolizes the holy place for its followers and disciples to assemble, hold ***vandara*** (an annual religious ceremony for offering prayers, puja and worships to gurus and almighty for the well being of entire human being, environment and all the entities on the mother planet earth, and the universe as a whole) which is performed twice in the months of May and December every year by burning fire and offering harvest and produce to the nature with fire ("Charu Polnu") chanting faith rhymns and sacred mantras, ringing prayer bells, blowing conch, playing Damaroos, bamboo pipes, one stringed sitar, jhyali, and chanting faith rhymns and sacred mantras.

During the course of study, a total 237 of species of plants spread over 208 Genera and 137 Families have been recorded which also included 3 species of Gymnosperms and 13 species of Ferns and its allies. This accounts to habit-wise 56 species of trees (23.628 %), 50 species of shrubs (21.09 %), 103 species of herbs (43.45 %), and 28 species of climbers (11.814 %). As regards to the composition of flora of Dham, Dicotyledonous species were 191 (80.59 %), Monocotyledonous species were 30 (12.658 %), Ferns & allies were 13 (5.485 %) and the Gymnosperm species were 3 (1.265 %). From the recorded plant species, 34 are recorded to be medicinal plant resources, and 12 are found to be sacred plants having their various applications and values one way or the other in the life of the local communities being inseparably amalgamated with their traditions, customs and various rituals. The availability of such rich floristic elements in a small patch of Dham compound of merely 5 acres reflects that the faith and belief through spiritualism of the people are well connected to this revered Dham which is found to be very crucial for upholding and conserving the plant diversity of the area and also the age-old cultural heritage of the people. This study also places a recommendation for its future planning and development so that the religious and faith activities along with biodiversity conservation move side by side in tandem harmony and synergy giving unique recognition to this other-wise, *hitherto*, little known village hamlet in this part of the globe.

Keywords: Gelling, Guru Gyandil Das Dham (GGDD), Sikkim, spiritual tourism.

Introduction

The religious institutions and the faith have played a role in the promotion and conservation of biodiversity in the State of Sikkim. The rich

genepool of flora and fauna in and around the Hindu worship places as well as Buddhist monasteries are great examples to substantiate this. In Indian context, the sacred groves are live examples for their roles in conservation milieu as far as the plant and animal genetic resources/germplasm are concerned. The roles of various sacred groves are studied to some extent in the country *vis-à-vis* biodiversity conservation and climate regulation. Moreover, religious institutions like monastic places, temples, Dham etc and their entities in various forms are yet to be studied in a systematic and scientific arena to ascertain their roles and services in maintaining and sustaining the floristic and faunistic genetic resources/germplasms diversity along with their various direct and indirect environmental services. With the evolution and advancement of materialistic world, the development of ethos and the sense of true value for species diversity also evolved in the mankind with their consciousness and that culminated into the form of sacred groves, religious faiths and beliefs. Thus, such sacred groves and religious/spiritual institutions also developed as the outcome of human's spiritual belief and secular appreciation of the values attached with plants as well as other objects of the earth. Sacred groves represent a tradition of conservation, management and even sustainable development of nature's resources especially plants, and more particularly trees, irrespective of belief, faith and their origin (Das & Chauhan, 2002). The world-wide study of the diverse sacred groves is very important today as they are not only embedded with rich floristic diversity amidst high endemism but they also serve as natural habitat for many important and rare species of plants, and thus, the importance of sacred grove in biodiversity conservation has long been recognized (Kosambi, 1962; Gadgil & Vartak, 1976, 1996; Hajra, 1975; Gadgil *et al*, 1993; Lal, 1989; Ramakrishnan *et al*, 1998; Dutta, 2004). However, no comprehensive and systematic study has been conducted so far in this context excepting a few patchy works here and there.

Sikkim with its geographical area of 7096 sqkm is one of the smallest States in the country and is located in the Eastern Himalaya stretch between 27◦5" to 28◦19' N and 87◦ to 88◦E. The State consists of a mosaic of different ethnic communities along with unique cultural diversities. Altogether 35 sacred groves are recorded from Sikkim which are conserved on one or the other ethos of spirituality, and these are worth labeling heritage tags. Out of these, 24 are terrestrial and 11 are aquatic, either holy lakes or other water bodies (Das & Chauhan, 2002). Moreover, owing to various reasons like urbanization, infrastructure development and rapid rural transformation, the revered ethos and faiths are eroding; their related institutions and sacred areas are also narrowing and shrinking day by day. Therefore, in order to give impetus to this age-old ethos and values, and thereby conserve such time-tested heritage, immediate measures need to be adopted through documentation of the natural resources and their germplasm, preparing detailed checklist and preparing plans and programmes through structured strategy so as to preserve such tradition/culture-bound legacy and practices of preservation amalgating the modern scientific and technological knowledge/inputs. It is against this backdrop, a study was undertaken in Guru Gyandil Das Dham at Gelling village in West Sikkim with the following objectives:

◦ To study the floristic elements of Guru Gyandil Das Dham in Gelling village

- To prepare the habit-wise check list of floristic resources of Dham
- To provide a recommendation for its preservation, growth, future management and value addition for religious/spiritual tourism prospect

Study area/site

Guru Gyandil Das Dham (GGDD) in Gelling is situated almost 93 km away from the capital city of Gangtok towards the west. It is almost 59km far from West District Head Quarter of Gezying, 14km far from Soreng Sub Division of West Sikkim, and 12 km far from the main *en-route* town and Sub Division of Jorethang of South Sikkim District.

The climate of the area is hot during summer season. However, the climate of the said area can be grouped into 3 distinct seasonal variations based on rainfall and temperature persisting in the area. Usually, the months of June to October mark the monsoon season with scanty to heavy downpour; months of November to March mark the prolonged winter period and again a short spill of summer beginning from the month of April to May of the year.

Methodology

The preliminary study was initiated during periodical visits to the study area on various calendar months so as to cover all seasons of the year. This started from the month of April 2019 to November 2021, and camping was also done in the Dham compound in the final phase of study. The village administrative center was visited and the study area data were collected. The Committee Members of Dham as well as the Pujari/head of Dham were also interacted and the joint visit to Dham compound was also undertaken with the Pujari of Dham for defining/demarcating the proper area and compound of the Dham as well as to find and cross check the vernacular names of the germplasm of various plant species. Then, the survey of the floristic elements of the study site was done where specimens of plant elements were collected and brought to the laboratory of Botany Department of Sikkim Govt. Science College, Chakung. Field notes and photographs of the floristic elements were also taken during the field study period. The Dham Committee members and Pujari also accompanied sometimes in Dham complex while moving and exploring about the essence of Dham floristic elements.

The plant elements and entities were then identified using available literature and existing specimens in the college. All these specimens were properly treated with 4% HgCl2 solution, processed into herbarium sheets, labeled properly, and stored in the Departmental Laboratory of the College.

For understanding the historical perspectives of Guru Gyandil Das Dham at Gelling, focused group discussion (FGD) was done with the Dham Pujari and Dhaaam Committee members, and the information evolved from FGD was noted in details; village people of the Dham complex were also interacted and their ground knowledge/information about Dham and the plants germplasm resources of the area of Dham compound were recorded. All these field findings, information so evolved and knowledge gained were consolidated systematically, compiled and computed in an organized manner. Some of the informations were further cross checked with secondary sources of information and data, mainly from the local village administration and Block Administration center. From this exercise, many valuable information were inferred which were

integrated in putting forward the recommendation for the preservation and management of the plant diversity of the study area as well as for the promotion and value addition of the GDDD, and also to help to attain the objective of conservation in the pursuit of long term national goal.

Observation

Spiritual value & history of Gyandil Das Dham

A Dham was established by Swami Gyandil Das in Gelling, West Sikkim in early part of 19th Cintury. It was later called as The Guru Gyan Dil Das Dham after his death. The Dham carries a legacy of Josmani religious sect. Situated at Gelling village under Soreng Sub Division in West Sikkim, it has a root in the middle of 18th. Century and was founded by Guru Gyandil Das who was a great josmani religious revolutionary spiritual leader of that time. He was a great revolutionary social reformer/thinker. Having seen the existing social discrimination such as caste biases and gender violence prevalent in all the spectrum of society then, a lad born to the higher Brahmin family in Omchuk Village in Ilam, Eastern Nepal in 1878, he opposed these social maladies, and was even jailed by the then Rana ruler of Nepal. He had a deep knowledge of Vedas and Puranas, and as a great orator and preacher of Josmani religious sect, he inducted the concept of Nirguna (attribute-less God). He had composed many poetries, slokas, devotional songs, verses, Tungna Bhajans, and Udayalahari which are found to immensely contribute in the development of Nepali literature and also in spreading the literacy and awareness among the communities mass. His various works are often found to be cited, referred, quoted and included in many literary dissertations, articles, journals and courses of higher studies in Universities. Gyandil Das was bestowed with the Josmani Dikshya by his Guru Shyamdil Das. He visited many places in Nepal, Darjeeling and Sikkim promoting and preaching *Nirguna* spiritualism with messages of social awakening and literacy and established Dhams in many places. His preaching and expanding the religious ideology was based on social equality and social engineering. He died in Gelling, West Sikkim in 1940. The Nepal Government honoured him by publishing a Saint Gyandil Das postage stamp in 1980.

A Dham (a congregation place like a temple/chappel for meditation & worships/prayers) was constructed in the honour of Late Guru Gyandil Das in Gelling by the follower of Josmani religious sect. The Dham spreads over an area of five (05) acres, and consists of main prayer central place, yagna place for offering new harvest and human feeds to the mother nature/earth, disciple rest shed, and the area is enriched with floristic elements grown naturally and also planted by the disciples and pilgrims during their visit/pilgrimage.

Every year in the month of June and December, a big religious festival is organized/observed called Bhandara where the Josmani followers and people having faith and spiritual connection from places as far as Nepal, Bhutan and many places of India gather/visit in this holy Gelling Dham, and invoke the nature deities, God and Goddesses, and conduct yagna by offering various harvests, flowers and fruits praying for well being and good health of human kind and all living creatures. The disciples play one stringed *tungna* (a traditional plucked string instrument), *damaroo* (a small two-headed religious drum used in the religious ceremonies), *bells, jhyali* (a traditional percussion instrument made from round metal plates) and blow *cunch* to invoke deities and the mother

earth/nature seeking blessings for their generations to gain happiness, prosperity and good health.

Floristic Elements in the Dham Compound

Analysis of floristic components prevalent within the area of 5 acres of Guru Gyandil Dal Das Dham recorded altogether 237 species of plants distributed within 208 genera belonging to a total of 137 families. Ferns and allies were also recorded to be of 13 families under 13 genera and 13 species, and the Angisopermic flora comprised of 121 families under 192 genera and 221 species. Three (03) species of Gymnosperms were also recorded from the Dham complex area. The flora comprises of 56 species of trees, 50 species of shrubs, 103 species of herbs, 28 species of climbers, 13 species of ferns and 3 species of coniferous plants. Over and all, the Flora of GGDD comprised of 80.590 % of dicotyledonous plants species, 12.658 % of monocotyledonous plants species, 5.485 % ferns and allies, and 1.265 % of coniferous plants species. The Dicot and Monocot represented the ratio of almost 7:1.

Table 1: Composition of flora of GGD Dham

Sl. No.	Category	No. of Species	% composition
1	Dicotyledonous species	191	80.590 %
2	Monocotyledonous species	30	12.658 %
3	Ferns & allies	13	5.485 %
4	Gymnosperm species	03	1.265 %
Total		**237**	**100**

Figure 1: Presentation of c*omposition of flora of* Gyandil Das Dham in Histogram

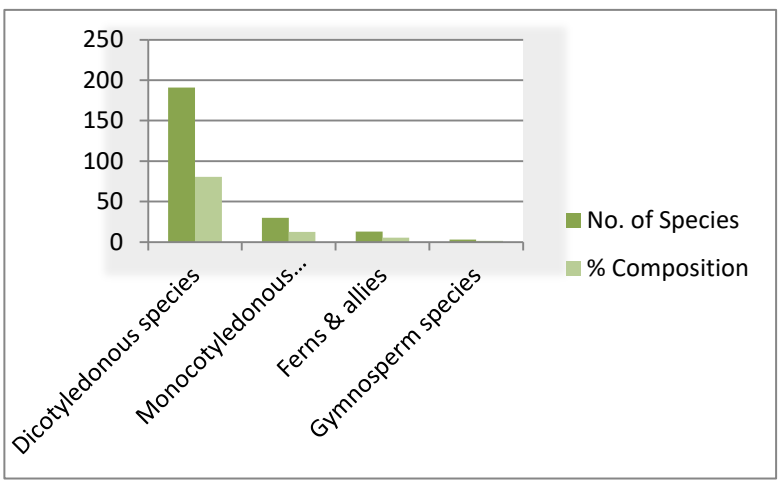
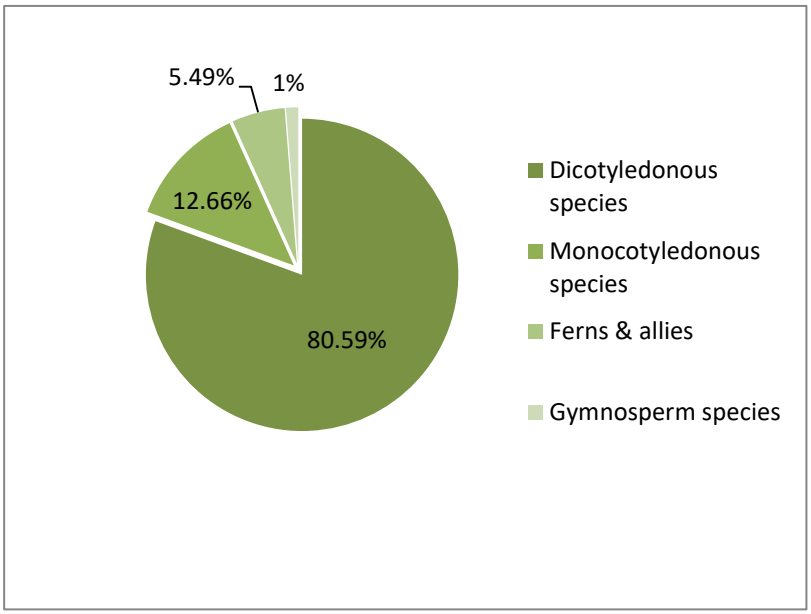


Figure 2: Presentation of c*omposition of flora of* Gyandil Das Dham in Pie Chart



With reference to habit-wise composition of the flora of GGDD, Herbs represented 43.459 % (103 species), Shrubs represented 21.097 % (50 species); Trees represented 23.628 % (56 species) and Climbers constituted 11.814 % (28 species).

Table 2: Habit-wise composition of flora of GGDD

Sl. No	Habit	Species	Genera	Family	Dicot	Monocot	Fern	Gymnosperms	% Composition
1	Herbs	103	91	51	**72**	19	12	0	43.459
2	Shrubs	50	48	34	47	3	0	0	21.097
3	Trees	56	46	32	52	1	0	3	23.628
4	Climbers	28	23	20	26	1	1	0	11.814
	TOTAL	237`	208	137	197	24	13	3	100%

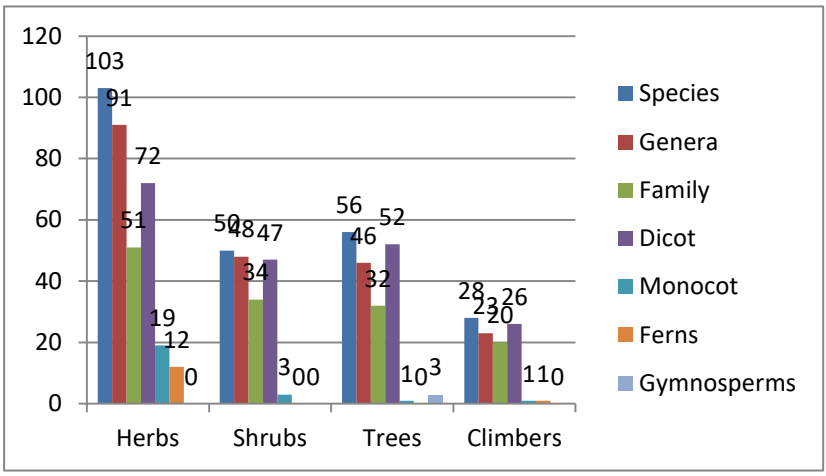


Fig 3 : Presentation of Habit-wise composition of flora of Gyandil Das Dham in Histogram

Table 3: Statistical Analysis of flora recorded in GGDD

Category	Dicotyledons		Monocotyledons		Pteridophytes		Gymnosperms		Total
	Total	%	Total	%	Total	%	Total	%	
Families	107	78.102	12	8.759	13	9.489	3	2.189	100%
Genera	164	78.846	28	13.461	13	6.25	3	1.442	100%
Species	191	80.590 %	30	12.658 %	13	5.485 %	3	1.265 %	100%

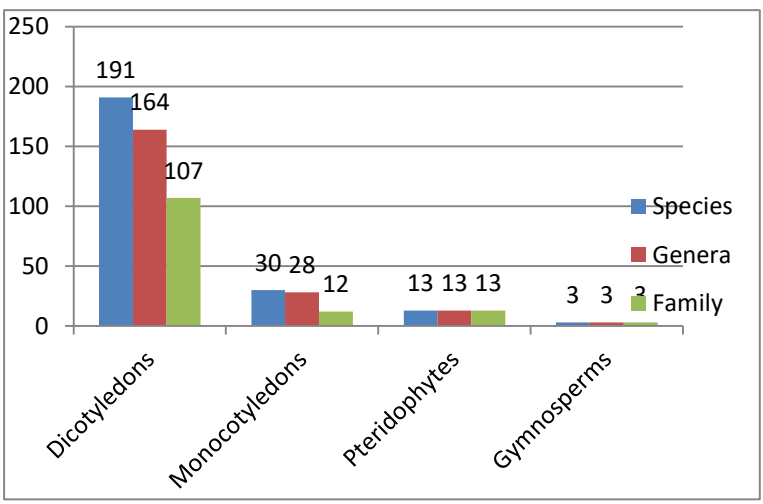


Figure 3: Presentation of statistical analysis of flora of Gyandil Das Dham in Histogram

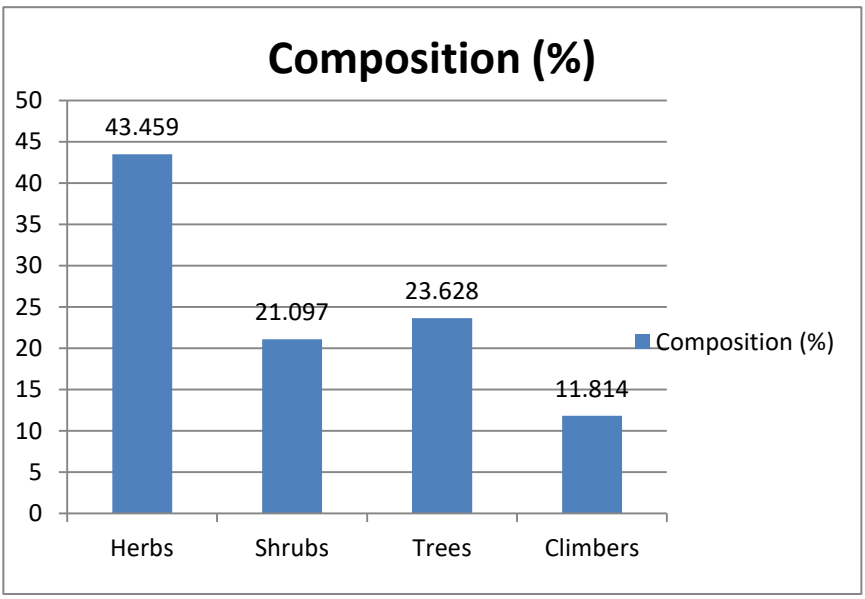


Figure 4: Presentation of species distribution in the flora of Gyandil Das Dham in Pie Chart

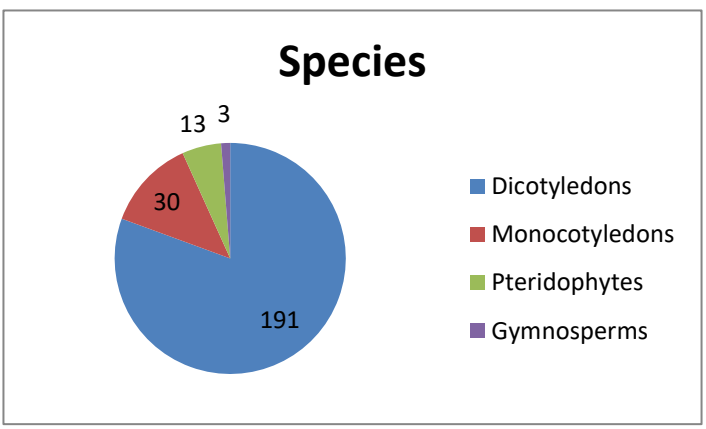


Table 4: Habit-wise percentage composition of Flora of GGD Dham

Sl. No.	Habit	Composition (%)
1	Herbs	43.459
2	Shrubs	21.097
3	Tress	23.628
4	Climbers	11.814
Total		100%

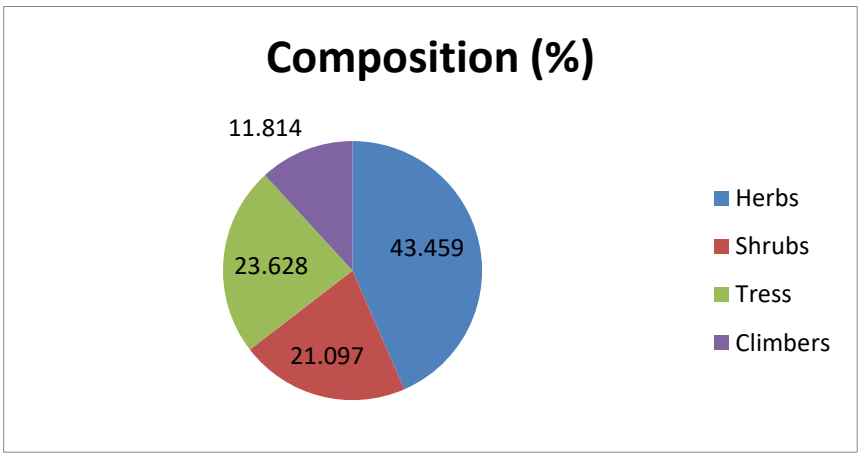


Fig. 4: Habit-wise percentage composition of Flora of Gyandil Das Dham in pie chart

Ten (10) Dominant Families in GGDD:

The ten dominant families prevalent in Guru Gyandil Das Dham have been tabulated in Table 5 below. Its analysis revealed that no single Family is absolutely dominating, yet, *Compositae* with 13 species is the most dominating Family followed by *Poaceae* with 10 species, *Moraceae* with 9 species and *Rosaceae* with 7 species. The ten dominating Families represented 26.582 % of total taxa of the Dham. The five dominating Genera included *Ficus*, *Dioscorea*, *Zanthoxylum*, *Litsea* and *Terminalia*, and they together constituted 6.75 % of the total taxa of the Dham. The Five most dominating Genera included *Ficus* with 6 species, followed by *Dioscorea* with 4 species and the rest being *Zanthoxylum*, *Litsea* and *Terminalia* representing 2 species each.

Table 5: Ten most dominant Families of GGDD

Sl. No.	Name of Families	Number of species
1	Compositae	13
2	Poaceae	10
3	Moraceae	9
4	Rosaceae	7
5	Verbenaceae	6
6	Rutaceae	6
7	Euphorbiaceae	6
8	Rubiaceae	6
9	Scrophulariaceae	5
10	Acanthaceae	5

Fig. 5: Ten most dominant Families of Gyandil Das Dham in Histogram

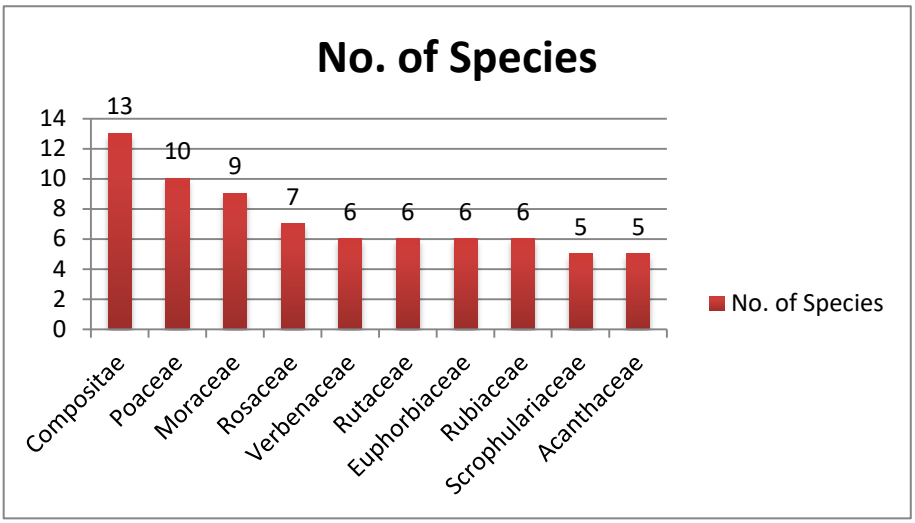
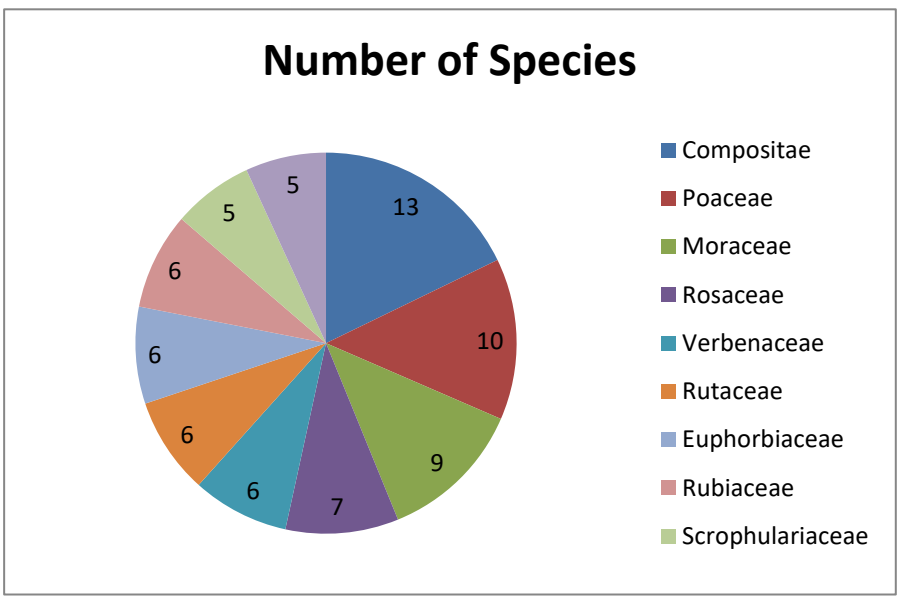


Fig. 6: Ten most dominant Families of Gyandil Das Dham in Pie Chart



The top canopy of the vegetation is composed of tall trees up to 20 m height with tall boles and spreading crowns. The tree species constituting top canopy of vegetation in the area of GGDD included *Schima wallichii* (DC.) Korth., *Albizia procera* (Roxb.) Benth., *Erythrina arborescens* Roxb., *Engelhardtia spicata* Leschen. *ex* Blume, *Macaranga denticulata* (Blume) Muell.-Arg., *Toona ciliata* M. Roem, Ficus auriculata Lour., *Quercus lanceifolia* Roxb. , *Elaeocarpus lanceifolius* Roxb., *E. Sikkimensis*

Masters, *Ficus elastic* Roxb., *Ficus religiosa* L., *Ficus bengalensis* L., *Ficus benjamina* L., *Prunus cerasoides* D. Don, *Grewia eriocarpa* Juss., *Terminalia chebula* Retz., *Litsea polyantha* Juss., *Artocarpus lacucha* Buch.-Ham., *Engelhardtia spicata* Leschen. *ex* Blume, *Ficus benjamina* L., *Eugenia jambosa* L. etc.

The trees species were also heavily loaded with epiphytic plants like aroids, pipers, peperomia, orchids and ferns. The aroids growing as epiphytes there included *Rhaphidophora glauca* (Wallich) Schott., *Gonatanthus sarmentosus* Klotzsch & Otto. Other epiphytic plant species growing on the trunk and branches of trees as epiphytes were *Hoya linearis* Wallich *ex* D. Don, *Remusatia hookerina* Schott., *Agapetes serpens* (Wight) Sleumer, *Begonia sp, Aeschynanthus bracteatus* Wall. *ex* A. DC., *Begonia picta* Smith, *Vaccinium vaccinifolium* (Roxb.) Sleumer, *Didymocarpus albicalyx* Clarke. One parasitic plant species *Loranthus sp* was also recorded from the study.

The shrubs to small tree species of about 2m to 12 m height comprised of *Daphniphyllum himalense* (Benth.) Muell.- Arg., *Maytenus rufa* (Wallich) Hara, *Euphorbia pulcherrima* Willd. *ex* Klotz., *Phyllanthus emblica* L., *Myrsine semiserrata* Wallich., *Viburnum erubescens* Wallich, *Oroxylum indicum* (L.) Vent., *Mallotus philippensis* (Lam.) Muell., *Morus australis* Poiret, *Callicarpa arborea* Roxb. *ex* Clarke, *Masea chisiia* Buch.-Ham. *ex* D. Don, *Neillia thyrsiflora* D. Don, *Aconogonum molle* (D. Don) Hara, *Ardisia macrocarpa* Wallich, *Artemisia indica* Willd., *Buddleja asiatica* Lour., *Duranta repens* L., *Clerodendrum colebrookeanum* Walp., *Ficus auriculata* Lour., *Eurya acuminata* DC., *Dichroa febrifuga* Lour., *Litsea cubeba* (Lour.) Pers., *Osbeckia nepalensis* Hook. Lour., *Rubus ellipticus* Smith, *Thysanolaena maxima* (Roxb.) Kuntze, etc.

The ground herbaceous flora was rich which vary in various seasons. The recorded prominent herbaceous flora included *Bidens pilosa* L., *Begonia cathcartii* Hook. f., *Cerastium glomeratum* Thuiller, *Gynura nepalensis* DC., *Hydrocotyle himaliaca* P.K. Mukherjee, *Impatiens balsamina* L., *Galingsoga parviflora* Cav., *Persicaria nepalensis* (Meisner) H. Gross, *Solanum nigrum* L., *Pouzolzia hirta* (Blume) Hassk, *Dicrocephala integrifolia* (L. f.) Kuntze, *Elatostema hookerianum* Wedd., *Houttuynia cordata* Thunb., *Achyranthes bidentata* Blume, *Hypoestes triflora* Roem. *et* Schul., *Lindernia ciliata* (Colsm.) Pennell, *Setaria intermedia* Roem. *et* Schult., *Ageratum conyzoides* L., *Triumfetta rhomboidea* Jacq., *Colocasia esculenta* (L.) Schott, *Plantago erosa* Wallich, *Euphoirbia hirta* L., etc.,

The shrubs and small trees are interlined and amalgated with some climber species in the Dham compound. The important climbers noted in the area of Dham included *Paederia foetida* L., Thunbergia *lutea* T. Anderson, *Parthenocissus semicordata* (Roxb.) Planch., *Piper peepuloides* Roxb., *Actiniidia strigosa* Hook. f. & Thoms., *Dioscorea belophylla* Voigt. *ex* Haine, *Trichosanthes lepiana* (Naudin) Cogn., *Tetrastigma serrulatum* (Roxb.) Planch, *Rubia manjith* Roxb. *ex* Flemming, *Hedyotis scandens* Roxb., *Holboellia latifolia* var. *angustifoli*a (Wallich) Hook. f. & Thomson, *Smilax lancifolia* Roxb., *Ipomea batatas* (L.) Lam., *Mikania micrantha* Kunth, *Treutlera insignis* Hook. f., *Aristolochia saccata Wallich, Jasminum auriculatum* Vahl, *Dioscorea alata* L., *Dioscorea pentaphylla* L.

Many fern and fern allies have also been recorded from the floor and the tree trunks, some of the important ones being *Lygodium sp, Cheilanthes tenuifolia* (N. Burm.) Sw., *Lepisorus loriformis* (Wallich *ex* Mett.) Ching., *Asplenium ensiformis* Wallich, *Adiantum philippense* L., *Nephrolepsis tuberose* Presl., *Microsorium membranaceum* (D. Don) Ching., *Selaginella biformis* A. Braun *ex* Kuhn, *Polystichum auriculatum* (L.) Presl., *Dryopteris cochleata* (D. Don) C. Chr., *Oleandra wallchi* (Hook. f.) Presl., etc.

Some orchids were also found to be growing in the compound of Dham and that included mainly *Cymbidium hookerianum* Rchb. f., *Bulbophyllum sterile* (Lam.) Suresh, *Celogyne cristata* Lindl., *Spiranthes sinensis* (Persoon) Ames, *Oberonia sp.* as dominant genera of orchids. Epiphytic plants growing over there consist of *Vaccinium vaccinifolium* (Roxb.) Sleumer, *Agapetes serpens* (Wight) Sleumer, *Didymocarpus albicalyx* Clarke, *Begonia cathcartii* Hook. f., *Hoya linearis* Wallich *ex* D. Don, *Aeschynanthus bracteatus* Wallich *ex* A. DC., *Rhaphidophora glauca* (Wall.) Schott., and a parasitic plant *Loranthus sp.*

Utilization of phytodiversity of Dham

The phytodiversity available in the compound/area of GGDD render services to the people in three major ways - (i) by providing spiritual faith/refuge to the followers & disciples of Joshmani religious sect, (ii) by providing aesthetic sense/values by virtue of many ornamental plants in worship/yogna areas, and (ii) source of germplasm conservation also in a broader sense. The grasses growing over there are also utilized as fodder for the milching cows. Many plant species of Dham complex render some unique services to the local people as presented below.

Sacred Plants in GGD Dham

More than 12 species of plants available in Dham have reverence value, and duly worshipped or used during different rituals by the followers of Joshmani religious sect as well as the common people. These plants species having sacred and religious value are *Ficus religiosa* L. (Vernacular: Peepal), *Ficus bengalensis* L. (Vernacular: Bar), *Nyctanthes arbor-tristis* L. (Vernacular: Parijat), *Occimum sanctum* L. (Vernacular: Tulsi), *Elaeocarpus sphaericus* (Gaertn.) Schumann (Vernacular: Rudraksay), *Aegle marmelos* (L.) Correa (Vernacular: Bel), *Erythrina arborescens* Roxb. (Vernacular: Faledo), *Thysanolaena maxima* (Roxb.) Kuntze (Vernacular: Amliso/Kuccho), Entada scandens (L.) Benth. (Vernacular: Bharla), *Imperata cylindrica* (L.) Pal. (Vernacular: Kush siroo), Musa *sapientum* L. (Vernacular: Kera), *Cynodon dactylon* (L.) Pers. (Vernacular: Dubo), *Buddleja asiatica* Lour. (Vernacular: Bhimsen Pati), *Oroxylum indicum* (L.) Vent. (Vernacular: Totala), etc.

Food Plants species of GGD Dham

A few plant species having edible values have also been recorded which included *Bauhinia purpurea* L. (Vernacular: Tanki), *Ficus benjamina* L. (Vernacular: Kabra), *Aconogonum molle* (D. Don) Hara (Vernacular: Thotnney), *Dioscorea alata* L. (Vernacular: Ghar Tarul), *Dryopteris cochleata* (D. Don) C. Chr. (Vernacular: Danthay Ninguro), Diplazium maximum (D. Don) C. Chr. (Vernacular: Saunay/Meetay Ninguro), *Manihot utilissima* Pohl. (Vernacular: Simal Tarool, *Dioscorea hamiltonii* Hook. f. (Vernacular: Ban Tarul), *Laportea terminalis* Wight (Vernacular: Pately Sisnu), *Rubus ellipticus*

Smith (Vernacular: Aiselu), *Girardinia diversifolia* (Link.) Friis (Vernacular: Bhangray Sisnu), *Quercus lanceifolia* Roxb. (Vernacular: Patlay Katus), *Castanopsis indica* (Roxb.) A. DC. (Vernacular: Aulay Katus), *Urtica dioica* L. (Vernacular: Ghario Sisnu), *Aegle marmelos* (L.) Correa (Vernacular: Bel), *Ficus auriculata* Lour. (Vernacular: Nebharo), *Terminalia bellirica* (Vernacular: Barra), *Viburnum erubescens* Wall. *et* DC. (Vernacular: Asaray), *Ipomea batatas* (L.) Lam. Vernacular: Sakarkhanda), *Pilea bracteosa* Wedd. (Vernacular: Chiplay), *Morus australis* Poiret (Vernacular: Sano Kimboo), *Corcuma longa* L. (Vernacular: Haldi/Besar), *Colocasia esculenta* (L.) Schott (Vernacular: Pindalu), *Musa sapientum* L. (Vernacular: Kera), *Punica granatum* L. (Vernacular: Daarim), *Dendrocalamus hamiltonii* Nees *et* Arn. *ex* Munro (Vernacular: Choya baans/Taama), *Psidium guajava* L. (Vernacular: Ambak), *Litchi chinensis* Sonn. (Vernacular: Litchi), *Oroxylum indicum* (L.) Vent. (Vernacular: Totala), *Mangifera sylvatica* Roxb. (Vernacular: Chuchay Aanp), *Syzygium kurzii* (Duthie) Balakr. (Vernacular: Ambokay), *Artocarpus heterophyllus* Lam. (Vernacular: Rukh Katahar), *Asparagus racemosus* Willd. (Vernacular: Kurilo), *Litsea cubeba* (Lour.) Pers. (Vernacular: Siltimbur), *Oxalis corniculata* L. (Vernacular: Chariamilo), etc.

Medicinal Plants in GGD Dham

Many species of medicinal plants have been recorded from the Dham compound as presented in the following table.

Table 6: Medicinal Plants species in GGD Dham compound

Sl. No.	Name of medicinal Plants	Family	Local Name	Parts used	Remedy
1	*Achyranthes bidentata* Blume	Amaranthaceae	Ankhlay jhar	Root & stem	Gout Rheumatism
2	*Ageratum conyzoides* L.	Compositae	Ilamay	Leaves Roots	Cut Wounds Gall bladder stone
3	*Artocarpus lacucha* Buch.-Ham.	Moraceae	Barhar	Stem latex	Dysentery
4	*Artemisia indica* Willd.	Compositae	Titepati	Leaves Inflorescence	Injury Bleeding
5	*Clematis acuminata* DC.	Ranunculaceae	Pinasay Lahara	Root	Sinus pain
6	*Costus speciosus* (Koen.) Smith	Zingiberaceae			
7	*Callicarpa arborea* Roxb. *ex* Clarke	Verbenaceae	Guenyhlo	Bark & Leaves	Fever Skin disease
8	*Drymaria cordata* (L.) Willd.	Caryophyllaceae	Abijalo	Young shoots	Throat pain Pneumonia Sinusitis Fever
9	*Entada rheedii* Spreng.	Leguminosae	Pangra	Fruits Seeds	Oral sores Glandular swellings
10	*Eupatorium adenophorum* Spreng.	Compositae	Kaalijhar	Leaves	External injuries
11	*Hemiphragma heterophylla* Wallich	Scrophulariaceae	Mala jhar	Fruits Leaves	Throat infections

12	*Houttuynia cordata* Thunb.	Saururaceae	-	Shoots	Stomach disorder
13	*Jasminum auriculatum* Vahl	Oleaceae	Jai	Flowers	Aromatic
14	*Laportea terminalis* Wight	Urticaceae	Patlay Sisnu	Twigs Inflorescence	Blood pressure Heart troubles
15	*Mimosa pudica* L.	Mimosaceae	Buarijhar	Roots	Tooth-ache
16	*Nephrolepsis tuberosa* Presl.	Polypodiaceae	Paani Amala	Root-tubers	Kidney troubles
17	*Nyctanthes arbor-tristis* L.	Oleaceae	Parijat	Leaves	
18	*Paederia foetida* L	Rubiaceae	Paday Lahara/Biri Lahara	Leaves, Stem	Tooth-ache
19	*Persicaria capitata* (Ham.) H. Gross	Polygonaceae	-	Shoots	Insect bites & stings
20	*Phyllanthus emblica* L.	Euphorbiaceae	Amala	Fruits	Indigestion
21	*Plantago erosa* Wallich	Plantiginaceae	Nasay Jhar	Leaves	Tooth-ache
22	*Prunus cerasoides* D. Don	Rosaceae	Arupatay	Bark, Stem	Bone – fracture & Tooth-ache
23	*Rhus javanica* L.	Anacardiaceae	Bhakimlo	Fruits	Indigestion Diarrhea Dysentery
24	*Rubia manjith* Roxb. *ex* Flemming	Rubiaceae	Majito	Roots Fruits	Skin diseases, boils, menstrual disorders Chest troubles
25	*Rubus ellipticus* Smith	Rosaceae	Ainselu	Roots	Fever
26	*Rumex nepalensis* Spreng.	Polygonaceae	Halhalay	Shoots	Skin diseases
27	*Schima wallichii* Korthals	Theaceae	Chilaune	Barks	Anthetmintic
28	*Sida acuta* Burm. f.	Malvaceae	-	Shoots	Bone fracture boils
29	*Scoparia dulcis* L.	Scrophulariaceae	-	Leaves	Diabetes
30	*Solanum myriacanthum* Dunal	Solanaceae	Bee kara	Fruits	Tooth ache
31	*Terminalia bellerica* (Gaertn.) Roxb.	Combretaceae	Barra	Fruits	Dysentery Dropsy Diarrhea
32	*Thysanolaena maxima* (Roxb.) Kuntze	Poaceae	Amliso	Root	Boils Mumps Abscesses
33	*Xanthoxylum nitidum* (Roxb.) DC.	Rutaceae	Parparay Timbur	Fruits	Flatulence Indigestion
34	*Viola biflora* L.	Violaceae	-	Roots & Flowers	Emetic & antiseptic

Discussion & Conclusion

Most of the floristic elements find their existence in the compound/area of Guru Gyandil Das Dham due to the religious activities performed by the gurus and

the follower of Joshmani sainthood which are linked to their offerings during puja and worship events there, and also planting of floriculture and horticulture plants species by the followers as well as the management committee of the Dham out of their faiths, spirituality and their deep sense of convictions. Anthropogenic pressure is evident from the facts of many new households coming up around the Dham compound. GGD Dham compound is found to be a good repository of floristic elements and therefore, need for its safeguard and upkeep is must to promote this religious built up as a heritage asset through proper policy frame work at the local administration level. The same can be developed as a religious tourist point/destination which will give a due recognition to the place and also trigger economic activities in various ways. One of the important observations was that 7.82% of the flora of GGD Dham was found to be having medicinal/theraupetic values which is very significant in itself.

Due to fast changing societal framework and impact of westernization concepts, the spiritual sentiments take a route of dilution eroding the century old legacy of religious philosophy founded by the then spiritual Joshmani guru saint Gyandil Das. Besides, the eological services and ecological productions rendered by the biodiversity of GGD Dham like oxygen generation, carbon dioxide absorption, providing niche to the birds, butterflies and insects, soil-erosion checks, serene and quiet ecosystm etc. in this micro-sites/micro habitat area of only 5 acres has a lot many bearing to do valuation of by present day human society. In the swiftly changing scenario of eroding spiritual and faith values amongst modern day youths, the eco-development of the biodiversity in Dham micr-site/complex cannot go alone without the sustainable development of the areas/villages surrounding the Dham complex. Such place of importance cannot be simply preserved for long only relying and passing on the spiritual belief, and therefore, conservation practices should be reinforced with modern day technological inputs too. For the effective management and development of GGD Dham along with the biodiversity conservation of its compound, following points are recommended for considerations by the stakeholders:

1. First and foremost, initiative must be taken to mobilize the key stakeholders of GGD Dham and the biodiversity in its compound
2. Steps must be taken to create awareness among the communities around the Dham complex regarding the importance of GGD Dham heritage and the biodiversity conservation in its complex and surroundings.
3. Native plant species of fruits, flowers, medicinal values must be grown in the Dham area for worship/puja purpose, aesthetic value and biodiversity conservation/ecological service purpose.
4. The history of philosophy of Joshmani sect of religious sainthood must be documented and archived.
5. The villages/areas adjacent to the GGD Dham need to be developed so that the anthropogenic pressure on Dham floristic resources can be reduced.
6. Nearby colleges/Universalities must be invited/linked to augment the research work on the perspectives of dwindling philosophical base of Josmani sainthood/faith.

7. An effective mutli-disciplinary committee need to be constituted under the patronage of State Government to look after and plan the programmes for development and promotion of GGD Dham.
8. A full time Pujari may be appointed to perform/render puja/worship services to the pilgrims/tourists.
9. A sacred place conservation programe should be initiated with the local administrative body and other key stakeholders including the saint/disciple of Josmani religious sect
10. GGD Dham should then be included in the religious/sprittitual tourism/heritage maps.

1. A Kutir in Dham parisar with fluttering white flags in the surroundings. **2 & 3**. A part of Dham parisar with its floristic germplasm richness. **4.** Tress species's refuge- a natural way in Dham. **5.** A Pilgrim waiting- shed in Dham. **6.** A part of diversity of floristic elements in Dham parisar. **7.** Dhooni Ghar where new harvest is burnt & offered to the nature. **8.** Climbers find their ways undisturbed in Dham area. **9**. Noting floristic germplasm in Dham compound. **10.** Samadhi of spiritual Guru Gyandil Das. **11.** Dham signage in Gelling village. **12.** Recording floristic entities from the field

13. Dham Pujari preparing for bhandara puja 14. Joshmani followers praying before Samadhi of Guru 15. Disciples playing two-edged spiritual drum (Damaroo) & walking clockwise around the Guru's samdhi esthal 16. Walking round the Guru's Samadhi esthal seeking blessings 17. Dham pujari leading the disciples chanting Guru's rhymns 18. Followers in rapt attention & preparing bhandara materials 19. Dham pujari offering holy water 20. Followers praying in rapt attention before Guru's samdhi 21. Followers performing parikrama around puja esthal with folded hands & burning incense

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