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FLORISTIC LIST AND THEIR ECOLOGICAL CHARACTERISTICS, OF PLANTS AT VILLAGE DERIKOT SELAI PATTAY DISTRICT MALAKAND KHYBER PAKHTUNKHWA PAKISTAN

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ABSTRACT

Floristic composition and characteristics studies were made in of vallag Derikot selai pattay District Malakand Khyber Pakhtunkhwa, Pakistan.The floristic composition of present study comprised of 146 species and 41 genera which belong to 39 families. It included 115 dicots species, Monocot 24, Gymnosperm 2, Pteridophytes 5, species. Family Asteraceae (23 spp.)is dominant family in floristic table. In the present study, therophytes with 57 species (39.041%.) were the dominant life form in the study area. Nanophanerophytes with 22 species (15.06%). Microphanerophytes with 22 species (15.06 %). Hemicryptophytes with 19 species (13. 01%). Chamaephytes with 15 species (10. 27%). Geophytes with 5 specie (3.42%). and Megaphanerophytes with 2 species (1.36%) Mesophanerophytes with 4 species (2.73%) were least observed life forms. Leaf size spectra was dominant by microphylls with 61 species (41.78%) followed by mesophylls with 35 species (23.97%), Nanophylls with 26 species (17.80%), Leptophylls with 17 species (11.64%), Aphyllous with 4 species (2.73%).Megaphylls 2 species (1.36%). Macrophyll only 1species (0.66 %) of study area.

Key: Macrophyll, Leptophylls, Aphyllous, Nanophylls, microphylls

Introduction

There is some controversy about the histrological significance of the word Malakand. The word Malakand is meaning a curved place while others term it as 'Mulakandao' which means curved, like the backbone of the body. In short, all these mean a difficult point or place to climb on. Infact, it is situated on a curved line almost in a zig-zig position. Malakand District lies in a strategically important position as it acts as a gateway to Bajaur, Lower Dir, Swat and Buner. It is surrounded by mountains that were overgrown with different kinds of trees in the past, though they have a barren look today. The aera of malakand District is 952 km2 and has apopulation density of 596 people per km. The climate District Malakand is moderately cool in winter and pleasant in summer, hottest months are June, July and August. The maximum temperature during summer reaches 38°C and minimum in winter reaches -2°C. Rainfall is maximum during the month of august and also in winter the month of January and February. As will as the snow fall occurs in the month of December. District of Malakand is divided into two Tehsils.

Swat Ranizai or Tehsil Batkhela Is the main tehsil and capital of Malakand District. Batkhela main bazaar is more than 3 kilometers long; there are no intersections (junctions) so no traffic lights. Therefore, it is the longest bazaar that has no traffic lights or junctions (intersections) on it. Swat River enters this area about 3 kilometres above Thana village. In Malakand District of The west Side vallage Derikot selaipattay are found. In Derikot selaipattay have a broad range plants for the research of Botany as well as in other scientific activity. Utman Khel is the large kingdom of District Malakand but the fatherly divided into sub tribes. The people sow different kind of crops in plain as well as in hilly areas. The total 35% area is cultivated. Most of the cultivation upper and lower plain vallage Derikot selai pattay. Approximately 65% area is covered with homes and mountain. Topography of vallage Derikot selai pattay surrounded by high altitude hills. In study area the famous mountain (seingharry Ghar) of vallage Derikot Selai pattay during the winter season snow fall occure it tope of mountain. The people vesting to senghara for exiting .Amoung the mountain a vallage Derikot selai pattay is found.The contour of valley are marked by U..Shaped contour .This type of valley formed when a glacier passes through a U shaped valley by the erosion the side of vallage become steep, smooth with broad center.

MATERIAL AND METERIAL

Floristic study of village Derikot selai pattay District Malakand Tehsil Batkhela. In the vallage Derikot selai pattay have a broad range plants for the research of Botany as well as in other scientific activity. During the study that the different types of plant such

as,Gymnosperm,Bryophyts,Pteridophytes , Monocot, Dicot etc are included .The plant are collected from mountain, plan area ,field ,shade, Mountain, desert area, Dry slopes,Wet places,Forest epiphytic, condition and Rivers.The plants are collected in spring and summer seasons in 2018 March to September .The plant were identified through the flora of Pakistan (Nasir and Ali ,1971,1995 ,Ali and Qasir,1995-2015).The plant were mounted standard herbarium sheets and deposited in the Herbarium, Deportment of Botany, Bacha khan university charsadda. A detailed floristic list alphabetically complied.A Danish botanist christens Raunkiaer (1934) and Hussain (1989) as follows. The plant was designed a more useful system. He classified the plant life forms. He defined these life forms in terms of plants perennating tissues (embryonic or meristematic tissues of buds, bulbs, tubers, rootes and seeds that remain inactive over the winter).

RESULT AND DISCISSION

Floristic composition and characteristics studies were made in of village Derikot selai pattay District Malakand Khyber Pakhtunkhwa, Pakistan.The floristic composition of present study comprised of 146 species and 41 genera which belong to 39 families. It included 115 dicots species, Monocot 24, Gymnosperm 2, Pteridophytes 5, species. Family Asteraceae (23spp.)is dominant family in floristic table. Family Amaranthaceae (7 ssp),Family Moraceae(9 ssp), Family Papilionaceae (5 ssp.), Family Rhmnaceae (4 ssp), Family Borainaceae (5 ssp), Family lamiaceae(14 ssp), Family Euphorbiaceae (4 ssp),Family Mimosaceae (4 ssp). In Monocot Family Poaceae (17 ssp), Family Araceae (3 ssp), Family Amaryllidaceae (1 ssp.). In Gymnosperm ,Family Cupressaceae (1 ssp) and Family Pinaceae (1 ssp).In Pteridophytes Family Adiantaceae (1 ssp.),Family Dryopteridaceae (1 ssp).The remaining families were represented the floristic table (Tabel.1).

Life form

In the present study, therophytes with 57 species (39.041%.) were the dominant life form in the study area. Nanophanerophytes with 22species (15.06%). Microphanerophytes with 22 species (15.06 %). Hemicryptophytes with 19 species (13. 01%). Chamaephytes with 15

species (10. 27%). Geophytes with 5 specie (3.42%). and Megaphanerophytes with 2 species (1.36%) Mesophanerophytes with 4 species (2.73%) were least observed life forms. *Cuscuta reflexa* wase the only one parasite. Syeda *et al.,* (2016) agree that Therophytes and Microphylls were the most dominating life form leaf form of road sides and central green belt of Motorway (M-1) from Peshawar to Charsadda Interchange Pakistan. Our finding regarding dominant leaf form agree with Hussain & Chaudhary (2014) that reported microphyllsas the dominant leaf size classin Azad Kashmir. Sher *et al.,* (2011) our finding regarding dominant life form agree identified as the weeds of wheat from village Lahor, District Swabi Musharaf *et a*., (2014) are also agree therophytes and microphylls is the dominant life formand leaf form of floristic Composition and Ecological Characteristics of Shahbaz Garhi, District Mardan. Zhu *et al*., (2015) also agree the Complete floristic and vegetation surveys were done in a newly established nature reserve on a tropical mountain in southern Yunnan. Umar *et al*., (2016) are sported floristic Composition and Phytosociological studies of Hazar Nao Hills, District Malakand. Wariss et al., reported (2013) Therophytes and microphys is dominant leaf and life form of the Cholistan Desert, Pakistan.

Leaf form

Leaf size spectra was dominant by microphylls with 61 species (41.78%) followed by mesophylls with 35 species (23.97%), Nanophylls with 26 species (17.80%),Leptophylls with 17 species (11.64%), Aphyllous with 4 species (2.73%).Megaphylls 2 species (1.36%).Macrophyll only 1species (0.66 %) of study area. Ali *et al.,* (2016) are supported the . family Asteraceae and family Poaceae is dominant family of Chail Valley, District Swat, Pakistan. Prasad *et al*., (2016) are supported that diversity over Long Temporal Scales in Upper Bhotekoshi Hydropower Area in Nepal. Barkatullah *et al*.,(2011) are help in the plant identification Khan *et a.,l* in (2017) are supported Microphyll is the most dominant leaf size with the highest deviation for therophytes Swat Ranizai of District Malakand, Khyber Pakhtunkhwa, Pakistan. Shaheen *et al*., (2016) are supported our finding of biological spectrum of vallage Derikot sealaipaty. Malik *et al*., (2007) [10] reported microphyll and nanophyll as the dominant leaf size from Ganga Chotti and Bedori Hills. Bhatti et al., (2010) supported our finding. our finding regarding dominant life form agree with This contrast is due to environmental fluctuation mainly due to temperature, elevation and edaphic factor. Based on Light requirement, 125 species are sun loving plants, 16

species are shade loving plants and 15 species are both sun and shade loving plants. Based on the season 28 species grow in summer, 17 species spring and 101 species are grown in both season. A detail ecological characharictrics of 146 species are given in floristic list (table.1) briefly. Non spiny species were the dominant as 119 species were non spiny. Only 28 species were spiny (Table1.).The major parts of vegetation 108 simple lemina, 19 compound lamina, Dssected lemina 12, Needle lemina in 3 species,4 species are Aphyllous or leafless *Cuscuta reflexa, Carallum fimbrita, Periploca Aphylla, Opentia dilleni* and *Cuscuta reflexa* wase the only one parasite on *Ziziphus oxyphyla, Ziziphus numularia* etc.

Table.1. Floristic list and ecological characteristics of plant Vallage Derikot selai pattay District Malakand

S.N	Families and species	Life form	Leaf size	Habitat	Spiny / Non spiny	Leaf types	Light requirement	Season spring /summer or Both
	A.DICOT							
1	**Family Asteraceae**							
1	*Artemisia absinthium* L.	Th	N	Dry	NS	Dis	Sun	Summer
2	*Cirsium arvense* (L.) Scop.	Ch	Mic	Dry	Spiny	Simp	Sun	Spring
3	*Carthamus oxycantha* Bieb	Th	Mic	Dry	NS	Simp	Sun	Spring
4	*Sonchus asper* (L) Hill	Th	Mic	Moist	Spiny	Dis	Sun	Spring
5	*Pluchea arguta* Boiss.	Th	Mic	Dry	NS	Simp	Sun	Both
6	*Calendula officinalis* L.	Th	Mes	Dry	NS	Simp	Sun	Both s
7	*Lactuca serriola* L.	Th	Mes	Dry	Spiny	Dis	Sun	Summer
8	*Xanthium sibiricum* Partrin ex Widder.	Th	Mes	Dry	Spiny	Simp	Sun	Summer
9	*Pentanema vestitum* (Wallich)	Th	L	Dry	NS	Simp	Sun	Summer
10	*Tagetes erecta* L.	Th	N	Moist	NS	Comp	Shade/ shade	Both
11	*Bidens pilosa* L.	Th	Mic	Dry	Spiny	Dis	Sun	Summer
12	Sunchus asper (L.) Hill	Th	Mes	Moist	NS		Sun	Spring
13	*Traxacum officinale* L.	Th	Mic	Moist	NS	Simp	Sun	Spring
14	*Xanthium strumarium* L.	Th	Mes	Dry	Spiny	Simp	Sun/ Shade	Both
15	*Parthenium hysterphorus* L.	Th	Mes	Dry	NS	Simp	Sun	Both
16	*Artimisia scoparia* L.	Th	Mes	Moist	NS	Disc	Sun/ Shade	Both

17	*Bidens cernua* L.	Th	Mic	R/WP	NS	Simp	Sun	Summer
18	*Filago haurdwarich* L.	Th	Mic	Dry	NS	Simp	Sun	Both
19	*Conyza stricta* L.	Th	L	Dry	NS	Simp	Sun	Summer
20	*Bidens tripartite* L.	Th	Mic	Dry	Spiny	Simp	Sun	Both
21	Conyza bonariens (L.)	Th	L	Dry	NS	Simp	Sun	Summer
22	*Tagetes minota* (L.)	Th	L	Moist	NS	Simp	Shade	Both
23	*Tithonia diversifolia* (Hems.)	H	Mes	Dry	NS	Simp	Sun	Both
2	**Family Amaranthaceae**							
24	*Achyranthes aspera* L .	Th	Mic	Dry	NS	Simp	Sun	Summer
25	*Amaranthus viridis* L.	Th	Mic	Dry	NS	Simp	Sun	Both
26	*Amaranthus retroflexu* L.	Th	Mic	Dry	Spiny	Simp	Sun	Both
27	*Achyranthe bidentate L. var.*	Th	Mic	Dry	NS	Simp	Sun	Summer
28	*Amaranthus spinosus* L.	Th	Mic	WP	NS	Simp	Sun	Summer
29	*Aerva javanic* (Burm.)	Th	Mic	Dry	NS	Simp	Sun	Summer
30	*Alternanthera pungens* Kunth	NP	Mic	Dry	Spiny	Simp	Sun	Summer
3	**Family Anacardiaceae**							
31	*Schinus terebinthifolia* Raddi.	NP	Mes	Dry	NS	Comp	Sun	Both
32	*Mengifera indica* L.	Mesp	Mic	Dry	NS	Comp	Sun	Both
4	**Family Apocynaceae**							
33	*Carallum fimbrita*Wall.	NP	Aphy llous	Dry	NS	Abse nt	Sun	Both
34	*Nerium oleander* L.	NP	Mes	Dry	NS	Simp	Sun	Both
35	*Vincetoxicum arnottianum* Medic.	Th	Mic	Dry	NS	Simp	Sun	Both
36	*Periploca Aphylla* Lind.	Np	Aphy llous	Dry	Spiny	Abse nt	Sun	Both
5	**Family Asclepiadaceae**							
37	*Aloe vera* (L.) Burm.f.	Ch	Mac	Dry	Spiny	Simp	Sun	Both
38	*Calotropis procera* (Ait).	Ch	Mes	Dry	NS	Simp	Sun	Both
6	**Family Acanthaceae**							
39	*Justicia adhatoda* L.	Np	Mes	Dry	NS	Simp	Sun	Both
40	*Barleria cristata L.*	Ch	Mes	Dry	NS	Simp	Sun	Both
41	*Coriandrum sativam* L.	Np	L	Moist	NS	Dis	Sun	Both
7	**Family Berberidaceae**							
42	*Berberis lyceum* Royle.	Np	N	F	Spiny	Simp	Sun	Both
8	**Family Buddlejaceae**							
43	*Buddleja crispa*Benth.	Np	Mic	Dry	NS	Simp	Sun	Both
9	**Family Boraginaceae**							
44	*Nonea edgeworthii* A. DC.	Th	Mic	Dry	N S	Simp	Sun	Spring
45	*Cynoglossum lanceolatum* Forssk.	H	N	Dry	Spiny	Simp	Sun	Both
46	*Cynoglossum glochidiatum* L	H	N	Dry	NS	Simp	Sun	Both
47	*Lithospermium officinale* L	Th	Mic	Dry	NS	Simp	Sun	Spring
48	*Onososma hispida* Wall.	H	N	Dry	Spiny	Simp	Sun	Both
10	**Family Chenopodiaceae**							
49	*Chenopodium album* L.	Th	Mic	Dry	NS	Simp	Sun	Summer

50	*Chenopodium ambrosioides* L	Th	Mic	Moist	NS	Simp	Shade/ Moist	Summer
51	*Chenopodium umbrosum* L.	Th	Mic	Dry	NS	Simp	Sun	Both
52	*Atriplex laciniata* Lind	Th	Mic	Moist	NS	Simp	Sun	Summer
53	*Chenopodium botrys* L.	Th	Mic	Dry	NS	Dis	Sun	Summer
11	**Family Cleomaceae**							
54	*Cleoma viscose* (Raf.)	Th	Mes	Dry	NS	Dis	Sun	Summer
12	**Family Celastraceae**							
55	*Maytenus royleanus*L.	Np	Mic	Dry	Spiny	Simp	Sun	Both
13	**Family Cactaceae**							
56	*Opentia dilleni* Haw.	Np	Aphy llous	Dry	Spiny	Abse nt	Sun	Both
14	**Family Convolvulaceae**							
57	*Convolvulus arvensis* Linn.	Th	Mic	Dry	NS	Simp	Sun	Spring
15	**Family Cuscutaceae**							
58	*Cuscuta reflexa* Roxb.	Np	Aphy llous/ Clim	Dry	NS	Abse nt	Sun	Both
59	*Silene conoidea* L.	Th	Mic	Dry	NS	Simp	Sun	Spring
16	**Family Equitaceae**							
60	Equesetum arvensis L.	Np	L	Sandy	NS	Dis	Both	Both
17	**Family Euphorbiaceae**							
61	*Euphorbia helissscopa* L.	Th	N	Moist	NS	Simp	Sun	Spring
62	*Euphorbia hirsute* L.	Ch	Mic	Dry	NS	Simp	Sun	Summer
63	*Euphorbia indica* L.	Th	N	Dry	NS		Sun	Summer
64	*Chrozophora tinctoria* (L.)	Th	Mes	Dry	NS	Simp	Sun	Summer
18	**Lamiaceae family**							
65	*Otostegia lambata* B L.	Np	Mic	Dry	Spiny	Simp	Sun	Both
66	*Micromeria Biflora* L.	Th	L	Dry /slop	NS	Simp	Sun	Summer
67	*Origanum vulgare* L.	Ch	Mic	Dry	NS	Simp	Sun	Both
68	*Ajuga australis* R.Br.	Th	Mes	R	NS	Simp	Sun	Both
69	*Salvia lanata* Rox burg.	Th	Mes	Dry	NS	Simp	Sun	Spring
70	*Teucrium roylea* L.	H	Mic	R	NS	Simp	Sun	Both
71	*Teucrium tatjanae* Nik.	H	Mic	Dry/ slope	NS	Simp	Sun	Both
72	*Mintha arvensis* (Sole) Briq.	Ch	N	Shade	NS	Simp	Both	Both
73	*Salvia moorcroftiana* L.	Th	L	Dry	NS	Simp	Sun	Summer
74	*Mentha longifolia* (L.)	Ch	Mic	Moist	NS	Simp	Both	Both
75	*Salvia plebian* R.Br	Ch	Mes	Both	NS	Simp	Both	Spring
76	*Nepeta cataria* L.	Ch	Mes	Dry	NS	Simp	Both	Both
77	*Anisomeles indica* (L)	Np	Mic	Dry	NS	Simp	Sun	Both
78	*Ajuga bracteosa* Wall .	Th	Mic	Dry	NS	Simp	Shade	Both

19	**Family Lythraceae**							
79	*Punica granatum* L.	Mip	Mes	Dry	Spiny	Simp	Sun	Both
20	**Family Meliaceae**							
80	*Melia azedarach* L.	Megp	N	Dry	NS	Comp	Sun	Both
81	*Debregeasia salacefolia* L.	Mip	Mes	Moist	NS	Simp	Sun	Both
21	**Family Myrtaceae**							
82	*Eucalyptus camaidulensis* L.	Mip	Mic	R	NS	Simp	Sun	Both
83	*Eucalyptus lanculatus* L	Mip	Mic	Dry	NS	Simp	Sun	Both
84	*Eugenia jambolana* Lim	Mesp	Mic	Dry	NS	Simp	Sun	Both
85	*Psidium guajava* L.	Mesp	Mic	Moist	NS	Simp	Sun	Both
22	**Family Moraceae**							
86	*Broussonetia papyrifera* (L.)	Mip	Mes	Dry	NS	Comp	Sun	Both
87	*Ficus carica* L.	Mip	Mes	Dry /Moist	NS	Simp	Sun	Both
88	*Ficus palmate* Forsk	Mip	Mes	Dry /Moist	NS	Simp	Sun	Both
89	*Morus alba* Linn.	Mip	Mes	Dry	NS	Simp	Sun	Both
90	*Morus nigra* L.	Mip	Mes	Dry	NS	Simp	Sun	Both
91	*Morus rubra* L.	Mip	Mes	Dry	NS	Simp	Sun	Both
92	*Ficus sermentosa*L.	Mip	Mes	Dry	NS	Simp	Sun/Shade	Both
93	*Ficus elastic* odorda	Mip	Mes	Dry	NS	Simp	Sun	Both
94	*Ficus pumila* L.	Mesp	Mes	Ephy	NS	Simp	Sun	Both
23	**Family Malvaceae**							
95	*Malvastrum coromendelianum* (L.)	Th	N	A -WP	Spiny	Simp	Sun	Both
96	*Malva neglecta* Wall.	Th	Mes	WP	NS	Simp	Sun	Both
97	*Corchorus capsularis* L.	Th	Mes	Dry	NS	Simp	Sun	Both
24	**Family Mimosaceae**							
98	*Accaia modesta* Wall.	Mip	L	Dry	Spiny	Comp	Sun	Both
99	*Accia farnesina* L.	Mip	L	Dry	Spiny	Comp	Sun	Both
100	*Accia nilotica* (L.)	Mip	L	Dry	Spiny	Comp	Sun	Both
101	*Albizia lebbeck* (L.)	Mip	L	Dry	NS	Comp	Sun	Both
25	**Family Oleaceae**							
102	*Jasminum humil* L.	Np	Mic	Dry	Spiny	Comp	Sun	Both
103	*Olea ferruginea* Royle.	Mip	N	Dry	NS	Simp	Sun	Both
104	*Jasminum officinale* L.	Np	Mic	Dry	Spiny	Comp	Sun	Both
26	**Family Phyllanthaceae**							
105	*Phyllanthus emblica* L.	Th	L	Dry	NS	Simp	Sun	Both
106	*Andrachne cordifolia* L.	Th	Mic	Dry	NS	Simp	Sun	Both
27	**Family Papilionaceae**							
107	*Delbergia sissoo* Roxb.	Mip	Mic	Dry	NS	Comp	Sun	Both
108	*Lespedeza juncea* Lind.	Np	Mic	Moist	NS	Simp	Sun	Both
109	*Melilotus albus* Medik.	Th	Mic	Dry	NS	Simp	Sun	Summer
110	*Lathyrus aphaca* L.	Th	L	Dry	NS	Comp	Sun	Spring
111	*Cassia fistula*L.	Mip	Mic	Dry	NS	Comp	sun	Both
28	**Family Rhmnaceae**							
112	*Ziziphus mauritiana.* L.	Mip	Mic	Dry	Spiny	Simp	Sun	Both

113	*Ziziphus oxyphyla* Royl	Mip	Mic	Dry	Spiny	Simp	Sun	Both
114	*Sagereteia thea* Hook.	Np	Mic	Wp	NS	Dis	Sun	Both
115	*Ziziphus numularia* Box.	Np	Mic	Dry	Spiny	Simp	Sun	Both
	B .MONOCOT							
29	**Family Amaryllidaceae**							
116	*Allium griffithianum* L.	G	Mic	Moist	NS	Simp	Both	Both
30	**Family Araceae**							
117	*Arisaema flavum* (Forssk.)	G	Mes	Moist	NS	Comp	Sun	Summer
118	*Phonex dactylifera* L.	Mip	Meg	Dry	NS	Comp	Sun	Summer
119	*Nonnorrhops ritchiana* Griff.	Np	Meg	Dry	NS	Comp	Sun	Both
31	**Family Liliaceae**							
120	*Notholirian thomsonianum* (Royle).	G	N	Moist	NS	Simp	Both	Spring
121	*Tulipa stellate* Redout.	G	Mes	Moist	NS	Simp	Sun	Spring
122	*Asparagus officinalis* Browicz.	Ch	L	Moist	NS	N	Sun	Spring
32	**Family poaceae**							
123	*Poa annua* L.	H	N	Dry	NS	Simp	Sun	Both
124	*Saccharum grifthii* L.	H	N	Dry	Spiny	Simp	Sun	Both
125	*Apluda mutica* L.Sp.	H	N	Dry	NS	Simp	Sun	Both
126	*Aristida cyanantha* Ness ex steud.	H	Mic	Dry	Ns	Simp	Sun	Both
127	*Bromus pectinatus* Tim.	Th	Mic	Dry	NS	Simp	Sun	Spring
128	*Zea mays* L.	Th	Mes	Dry	NS	Simp	Sun	Summer
129	*Arundo donax* L.	Ch	Mic	Moist	NS	Simp	Sun	Both
130	*Desmostachya bipinnata* (L.)	H	Mic	Dry	NS	Simp	Sun	Both
131	*Chrysopogon serrulatus* Trin.	H	N	Dry	NS	Simp	Sun	Both
132	*Eragrostis monor* mind.	H	N	WP	NS	Simp	Sun	Summer
133	*Hyparrhenia hirta (*L.) Stapf.	H	N	Dry	Spiny	Simp	Sun	Both
134	*Cymbopogon commutatus* (steud.)	H	N	Dry	NS	Simp	Sun	Both
135	*Piptatherum coerulescens* P.Beauv.	H	N	Dry	NS	Simp	Sun	Both
136	*Cenchrus ciliaris* L.	H	N	Dry	NS	Simp	Sun	Both
137	*Digitaria ciliaris* (Retz.)	Th	N	Dry	NS	Simp	Sun	Summer
138	*Tritecum aestivum* L.	Th	Mic	Dry	NS	Simp	Sun	Both
139	*Imperata cylindrical* (L.)	H	N	Dry	NS	Simp	Sun	Both
	C. GYMNOSPERMS							
33	**Family Cupressaceae**							
140	*Thuja orientalis* L.	Np	L	I	NS	N	Sun	Both
34	**Family Pinaceae**							
141	*Pinus roxburghii* Sal.	Megp	N	F	NS	N	Sun	Both
	C. Pteridophytes							
35	**Family Adiantaceae**							
142	*Adiantum capillus veneris* L.	G	N	Moist	NS	Comp	Shade	Both
36	**Family Aspleniaceae**							
143	.*Asplenium dalhousiae* Hooker,	Ch	L	Moist	NS	Simp	Shade	Both

37	**Family Athyriaceae**							
144	*Athyrium filix-femina* (L.)	Ch	Mic	Moist	NS	Simp	Shade	Both
38	**Family Dryopteridaceae**							
145	*Dryopteris crenata* L.	Ch	Mic	Moist	NS	Dis	Shade	Both
39	**Family Pteridaceae**							
146	*Pteris vittata* L.	H	Mic	Moist	NS	Dis	Shade	Both

Key to Abbreviations:
(Life form)

G-geophyte, **Th**-Therophyte, **H**-Hemicryptophyte, **Ch**-Chamaephyte, **Np**-Nanophanerophyte, **Mip**- Microphanerophyte, **Mesp**Mesophanerophyte, **Megp**-Megaphanerophyte, **P**-Parasite.
(Leaf form)

Ap-Aphyllous, **L**-Leptophyll, **N**-Nanophyll, **Mic**-Microphyll, **Mes**-Mesophyll, **Mac**-Macrophyll, **Meg**-Megaphyll). **(Lamina) A**-Absent, **S**Simple, **Dis**-Dissected, **Comp**-Compound, **Sp**-Spiny, **N**-Needle.

(Habitat) D-Dry slopes, **W**-Wet places , **F**-Forest, **M**- Moist shady places, **R**-Rock crevices, **WP**-Waste places, **I**-Introduced, **Epi**-Epiphy

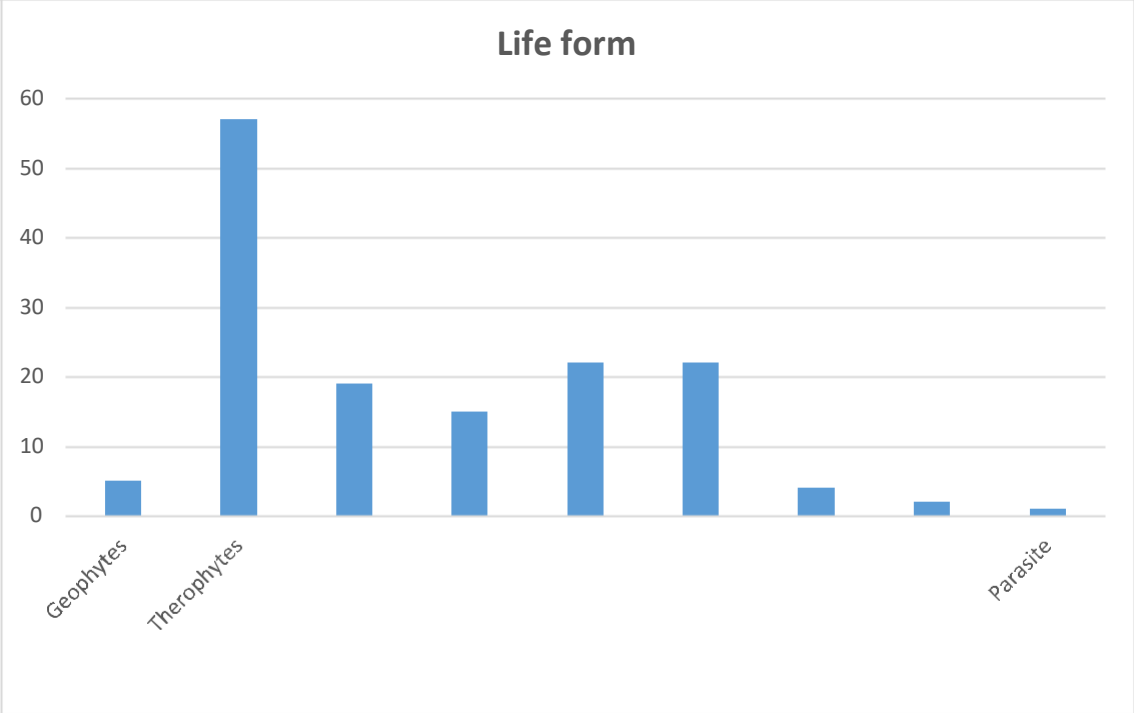

Fig.1. Life form spectra of Vallage Derikot selai patty, District Malakand

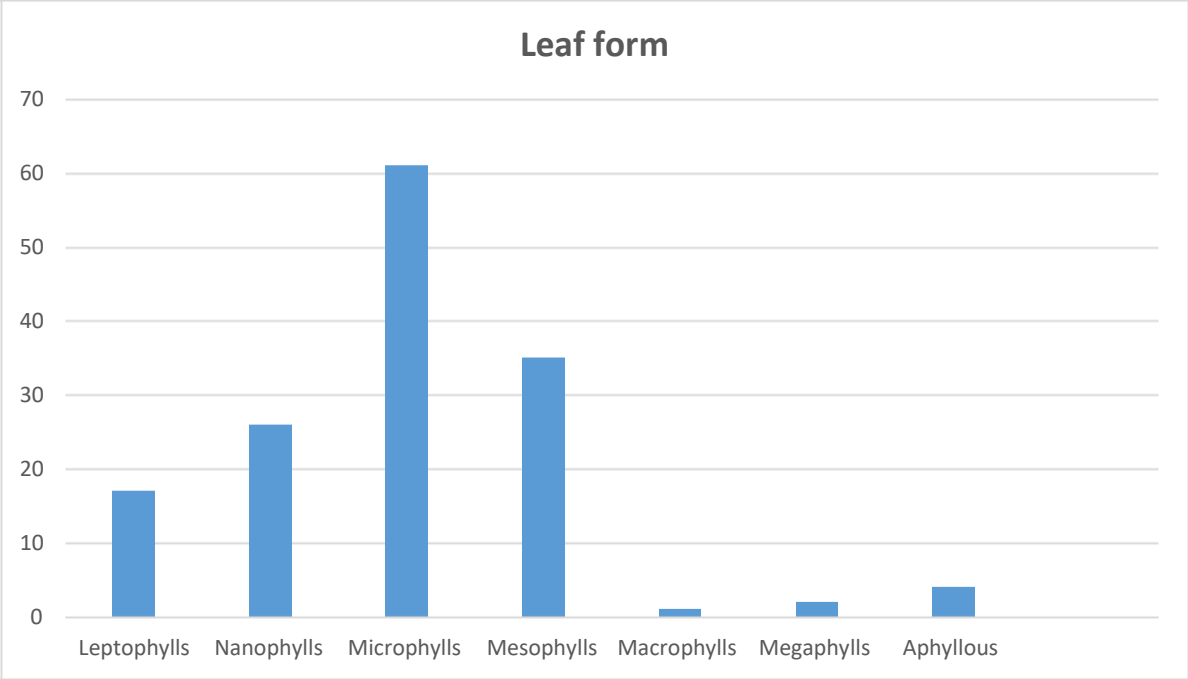

Fig.2. Leaf form spectra of of Vallage Derikot selai patty, District Malakand

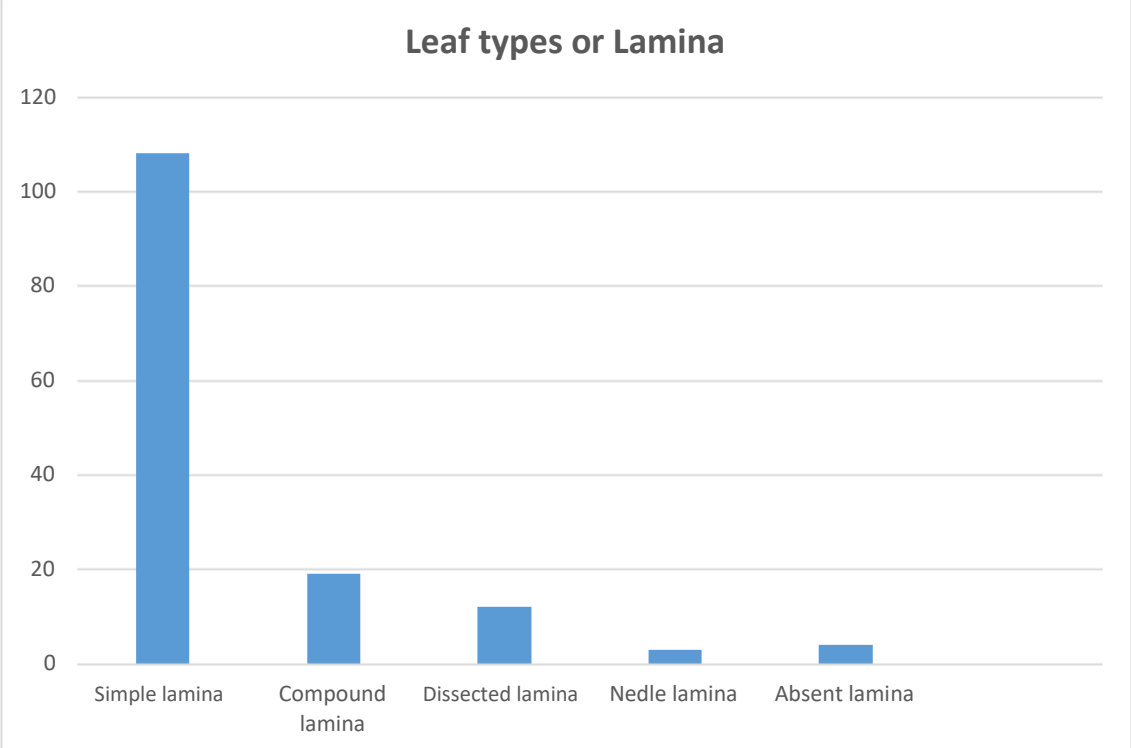

Fig.3. Leaf types spectra of Vallage Derikot selai patty, District Malakand

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