Floristic inventory and Ecological characteristics of flora of Koh valley Chitral, Hindukush range, Pakistan.

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Abstract

This was the first attempt to explore the floristic diversity of Koh valley, Chitral, Hindukush range, Pakistan. Investigation of the area showed that the flora comprised of 310 genera and 540 species belonging to 95 families including 72 dicots, 14 monocots, 3 Gymnosperm and 3 Pteridophyte. Out of 540 species largest group was of Dicots (442), followed by Monocots (85), Gymnospems (9) and Pteridophytes consist of (4) species. Leading family of the research area according to species number was of Asteraceae with (70) species followed by Poaceae (44), Papilionaceae (43), Rosaceae (28), Lamiaceae (27), Polygonaceae (19), Apiaceae (19), Brassicaceae (18), Boraginacea (14), Caryophyllaceae (14), Ranunculaceae (13), Cucurbitaceae (11), Chenopodiaceae (10), Solanaceae (9), Salicaceae and Scrophulariaceae (8) each, Geraniaceae (7) and remaining families consisting of six, five, four, three, two and one species. Biological spectrum showed that the dominant group was of Therophytes with (225) species, followed by Hemicryptophytes (132), Geophytes (63), Megaphanerophytes (45), Chamephytes (42) and Nanophanerophytes (33). The leaf size spectrum was dominated by Nanophylls having (187) species, followed by Mesophylls (145), Leptophylls (111), Microphylls (60), Macrophylls (32) and Aphyllous with (5) species. Most of the plants shows phenology during summer season followed by spring, autumn and winter. According to altitude most of the plants flourish well at the range of 1600-2100m of the sea level. All the villages of the research area viz-a-viz., Kari, Ragh, Kuju, Koghuzi, istangol, Mori, Morilasht, Moroi, Prayet and Barenis showed very rich floristic composition and very suitable for plant growth. Due to increase in population growth the burden on vegetation is increasing on each passing days. The collected plant samples after dring and voucher numbering was submitted to the Botany Department University of Peshawar for future reference.

Key words: Ecological characteristic, Koh Valley, Floristic inventory, Hindukush range, Pakistan.

Introduction

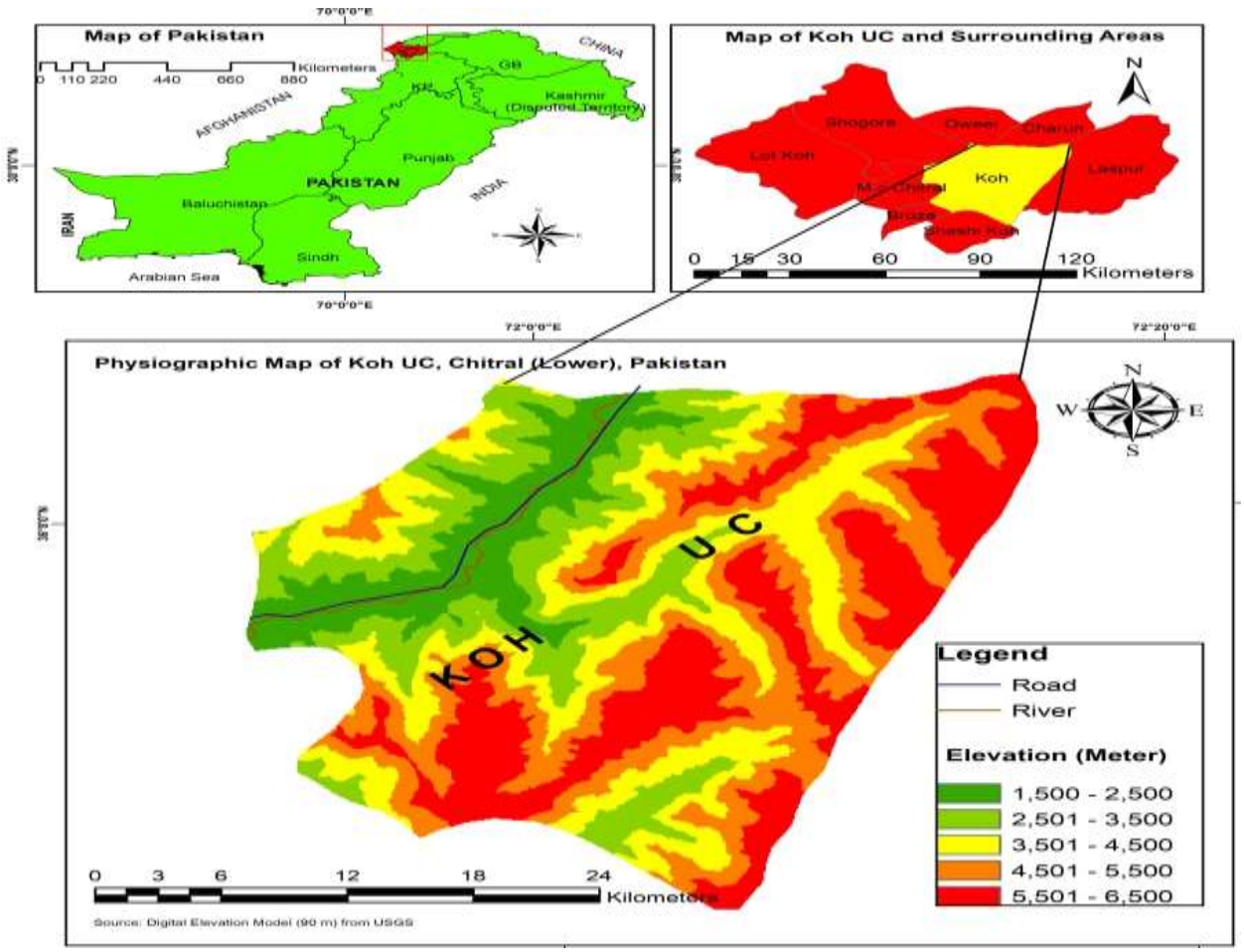
District Chitral is located to extreme North and North-west of Pakistan within 35^0 $15^/$ to 36^0 $55^/$ North latitude and 71^0 11 to 73^0 $51^/$ East longitude. Chitral is steeped in mystique, magic and beauty with an altitude counted amongst the highest regions of the world, sweeping from 1494m to 7726m at Terichmer.

This picturesque valley is covered in some of the mightiest glaciers in the world. Administratively, Chitral was the largest District of Khyber Pakhtunkhawa covering an area of 14800 square Km. Dry temperate tall mountainous terrains of Hindukhush ranges covered the area [1]. Koh valley is located 72° 07′ to 73° 97′ East longitude and 35° 20′ to 36° 55′ North latitude. The valley ranges from 1850m at Kari to 4685m at Phasti above the sea level. It is located in central portion of Chitral. Golain and Phasti is sub-valley in Koh valley. The total area is 1075 Km^2 with a population of 20537 individuals following census [2]. Sloppy and uneven terrain characterizes the valley. Temperature fluctuations ranges from -8^0C in winter to 42^0C in summer season. In district lower Chitral flora and fauna are abundantly found. Phytogeographically, Koh valley lies in Irano-Turanian floristic regions and floristically very rich due to its altitudinal variations and landscape features. The valley in geographically, climatically and ecological point of view lies in dry temperate, alpine and sub-alpine type of vegetation. The valley has very unique features as it is present in central position of district upper and lower Chitral and touches various parts of both the districts. Koh valley is the large valley through out of the upper and lower Chitral consisting of Sub-valleys such as Golan valley and Phasti valley.

A rich floristic diversity means favourable growing conditions. Floristic diversity and ecological characteristics depends upon climatic conditions, altitudinal variation and related habitat condition. The peculiar nature of flora such as phenology, leaf size and life form spectra and other morphological features explains the existing ecological and habitat conditions [3]. Listing of species has always been utmost necessary for any ecological and plant resource management. Many studies for such purpose have been done at Pakistan and other countries of the globe. [4] Explored the floristic features such as biological spectra, leaf sizes of flora Samahni valley district Bhimber of Azad Kashmir, Pakistan. [5] Investigated a checklist of phanerogamic flora and floristic composition of Haripur Hazara, KPK, Pakistan. [6] Documented the floristic composition, life form and leaf size spectra of coal mine area of Darra Adam Khel, KPK. [7] Recorded the floristic composition and ecological characteristics of Shamshokii district Karak, KPK. [8] performed research work on floristic composition, leaf size and life form spectra of Asshab Baba Graveyard Chaghar Matti, district Peshawar, Khyber Pakhtoonkhwah, Pakistan in order to identification and preservation of plants.

[9] Documented ecological diversity of weeds in wheat crops of Kalash valley, district Chitral, Hindukush Range, Pakistan. [10] Explored floristic diversity and ecological characteristics of flora of Mastuj valley, district Chitral, Hindukush range, Pakistan. [11] studied the floristic composition of Havelian, district Abbottabad, KPK, Pakistan. [12] Documented notes on the plants of Swat Ranizai, district Malakand. [13] Studied species diversity of Allai valley in the western Himalayan region of Pakistan. [14] Conducted a field work to explore the floristic compositions and ecological characteristic of the plant

resources of Hazar Nao hills Malakand. [15] Investigated the floristic composition and diversity analysis of Keri hills of district Kotli Azad Jammu and Kashmir, Pakistan. [16] Conducted field survey to explore the floristic diversity of plants in Kalash valley Chitral, KP viz., Rumbor, Bumburet and Birir. [17] Conducted a study to investigate the floristic composition, phenology, life structure, leaf sizes and plant habit for the different plant in Kharawo Talash Dir Lower.



[18] Performed a research work aiming to investigate the plant distribution and diversity of Sarrawat Mountain at Taif province, Saudi Arabia. [19] Explored the structure and floristic composition of 534 species of Scio, Western Ivory Coast forest. [20] Prepared a checklist of 52 genera and 124 taxa of Caesalpinoideae from Equatorial Guinea. [21] Reported 303 plant species of 238 genera and 75 families from Karnataka, India. According to them Fabaceae was dominant family representing 44 species. The floristic diversity and ecological features of flora of district Tank is worked out by [22]. [23] Reported the diversity and ecological characteristics of flora of Gadoon, district Swabi.

Koh valley is floristically and ecologically unexplored that invites the plants scientists to come forward. Some references in other parts of Chitral is available on weed flora, ethnobotany and ecology [24, 25, 26], flora and vegetation of Mastuj [27], medicinal plants [28] status of Juniper [29], Phytosociology [30] and [3] of Mustuj valley flora. They present effort therefore brings on to explore the diversity and Ecological features of Plants of Koh valley that might be helpful for coming researcher.

Materials and Methods

Floristic compositions and Ecological attributes

The research area Koh valley was frequently visited for plant collection during 2019-2022. A complete survey of the flora was documented through collection of plants species. Plant specimens were dried and hard pressed and identified through [31, 32, 33]. A comprehensive floristic checklist was prepared and the voucher specimens were appropriately numbered in alphabetical order. The collected plants materials were processed using conventional herbarium techniques and submitted as a reference for future records in the Herbarium, Botany Department University of Peshawar.

Life form and leaf size spectra

Life form and leaf sizes of a species being important ecological characteristics were adopted according to the prevailing climatic conditions of the locality. The plants were classified in to different life form classes and leaf sizes by following [34, 35, 36].

Results

Floristic composition: Floristic exploration of Koh valley showed that the flora comprised of 310 genera and 540 species belonging to of 95 families including 72 dicots, 14 monocots, 3 Gymnosperms and 3 Pteridophytes (Tables 1 & 2). Out of 540 species largest group was of Dicots (442), followed by Monocots (85), Gymnospems (9) and Pteridophytes consist of (4) species. Leading family of the research area according to species number was of Asteraceae with (70) species followed by Poaceae (44), Papilionaceae (43), Rosaceae (28), Lamiaceae (27), Polygonaceae (19), Apiaceae (19), Brassicaceae (18), Boraginacea (14), Caryophyllaceae (14), Ranunculaceae (13), Cucurbitaceae (11), Chenopodiaceae (10), Solanaceae (9), Salicaceae and Scrophulariaceae (8) each, Geraniaceae (7) and remaining families consisting of six, five, four, three, two and one species. Biological spectrum shows that the dominant group was of Therophytes with (225) species, followed by Hemicryptophytes (132), Geophytes (63), Megaphanerophytes (45), Chamephytes (42) and Nanophanerophytes (33) Table (1). The leaf size spectrum was dominated by Nanophylls having (187) species, followed by Mesophylls (145), Leptophylls

(111), Microphylls (60), Macrophylls (32) and Aphyllous with (5) species. Most of the plants shows phenology during summer season followed by spring, autumn and winter. According to altitude most of the plants flourish well at the range of 1600-2100m of the sea level. All the localities of the research area viz a viz, Kari, Ragh, Kuju, Koghuzi, istangol, Mori, Morilasht, Moroi, Prayet and Barenis showed very rich floristic composition and very suitable for plant growth. Most of the plants were present in all the localities as mentioned in table (1) with village names. Due to increase in population growth the burden on vegetation is increasing on each passing days. Further research in the area is recommended for the betterment of human being from plant resources for coming generation in other aspects of plants knowledge. The collected plant samples after dring and voucher numbering was submitted to the Botany Department University of Peshawar for future reference.

Discussion

Floras describe the total plants of any geographic area including both wild and cultivated species [37]. It explains physiognomic arrival and interaction of plants in ecologically in various localities [38]. This is the first attempet for the exploration of the flora of Koh Valley Chitral. However, no reference is available on Koh Valley. This study will fill the break and provide adequate knowledge to the Floras of Pakistan in particular. Other valley of the district were worked out by researcher such as Mastuj valley of Chitral has been described in ecological features and importance of plant resources by [3]. Similarly, floristic diversity of Kalash valley has worked out [16]. [39] Investigated flora of Terich valley [27] on flora of Mastuj, [40] of Booni, [41] of Chitral valley, [6] on Chitral Gol and [42] on plants of Rech valley. Likewise, various researchers documented flora of Khyber Pakhtunkhwa [7, 11, 12, 14). [43] Explored the floristic inventory and ethnobotanical study of the Naltar Valley (Karakoram Range) Gilgit, Pakistan.
The presence of high species diversity is attributed to the extensive exploration from diverse localities round the year and diverse habitat and altitudinal range within the valley. The present study reported highest number of plant species as compared to the work of other researchers at other parts of the district. The present floristic list also improved and elaborated over the flora reported by many researcher of Pakistan. Present work demonstrated that the dominat plants family was Asteraceae and major life form was Therophytes while leaf spectram shows highest percentage of Nanophylls. The present survey was with similar results as performed by other reseaerchers as [8] who reported total of 66 plant species were explored belonging to monocot and dicot on floristic compositions, leaf size and life form spectra of Ashab Baba Graveyard Chaghar Matti. [44] Performed field work to explore the floristic composition and ecological prevalence of the weed species growing in the wheat and sugar cane field of district Charsadda Khyber Pakhtunkhawa, Pakistan. [44] Mentioned medicinal and ecological diversity of weeds in wheat crop at lower Dir, Pakistan explaining some 31 taxa of weeds belonging to 30 genera and 18 families.

Asteraceae was leading family showing 08 species (26.66%) followed by Poaceae. [45] Performed field work to explore the weed flora of Tehsil Manki Sharif, District Nowshera Pakistan during 2013-14. A total of 46 weed species belonging to 21 families and 43 genera were collected during the field work. The leading family was Asteraceae. [9] Documented ecology of weeds in wheat crops of Kalash valley, district Chitral, Hindukush Range, Pakistan. A total of 59 weed species belonging to 51 genera and 25 families were investigated. Dominant family was Asteraceae with 10 species (16.94%) followed by Poaceae with 8 species (13.55%) same results. [3] Explored diversity and ecological characteristics of flora of Mastuj valley, district Chitral, Hindukush range, Pakistan. Their research work cover total of 82 families including 65 Dicots, 13 Monocots, 2 Gymnosperm and 2 Pteridophyte. Total of 334 genera were concluded belonging to 3 Pteridophyte, 2 Gymnosperm, 54 monocot and 275 dicots. Among families dominant families were Asteraceae (91 species, 15.95%), Poaceae (58 species, 10.16%). Biological spectrum was leading by therophytes (234 species, 40.98%), followed by hemicryptophytes (154 species, 26.97%). Among the leaf size spectra dominant was Nanophylls (40.98%). [11] Studied the floristic composition of Havelian, district Abbottabad, KPK, Pakistan. They documented a total of 205 plant species which belonged to 78 families. Among the species 129 were herbs, 38 were trees and 38 were shrubs. The leading families were Asteraceae. [13] Documented notes on the plants of Swat Ranizai, district Malakand. They documented a total of 264 plant species. The studied plant species belonged to 90 families and 202 genera. [14] Conducted a field work to explore the floristic composition and ecological characteristic of the plant resources of Hazar Nao hills Malakand. In his study total of 242 species belonging to 88 families were investigated. Based on the number of species, Poaceae (32 species) followed by Asteraceae (22 species). Life form spectrum showed that Therophytes was dominant (99 species, 40.91%). [46] Performed field work to explore the floristic composition of Lala Kalay district Peshawar. Based on the numbers of species, leading family was Asteraceae followed by Poaceae. Biological spectrum reflected that therophytes was dominant life form contributed (30 species, 37.5%). [1] Performed field work to known floristic diversity of different weed species in the crops of maize, potato and mung-beans in Kalash valley Chitral. Total of 23 plants were identified out of which 18 species (78.3 %) were Therophytes, 4 species (17.4%) were geophytes and one species (4.3%) belonged to nanophanerophytes. Leaf size spectrum shows the highest and equal number of species (seven each) in Nanophylls. [17] Conducted study to investigate the floristic composition, phenology, Life structure, Leaf size and plant habit for the different plant in Kharawo Talash Dir Lower. The Flora of the locality comprises of 165 Species having belonged to 79 Families and 129 Genera. The well-represented families were Asteraceae contributing 19 Taxa. The Life form classes were controlled by Raunkiaers strategy which uncovers that the most predominant living thing was Therophytes. [47] Prepared 179 species belonging to 70 families and 146 genera from forest in the Ssese Islands of Lake Victoria, Central

Uganda. [48] Recorded the floristic composition of 113 woody plant species. [49] Identified 133 plant species belonging to 47 families including 42.9% of Therophytes, 26.3 % Phanerophytes, 15.8 % Chamaephytes, 12.8% Hemicryptophytes and 2.3 % Cryptophytes. [50] Reported 80 species of 36 families and biological spectrum of vegetation of alpine meadows of Kedarnath. Asteraceae was dominant family and major life form class was Chamaephytes followed by Therophytes.

Floristic list is ecologically important as it provide information about natural recources and associations of plants with each other and their interaction with other biotic and abiotic factors. Floristic composition varies in response to altitudinal and habitat variations. It also provides an idea about the life form, stratification, habitat and related environmental conditions. Similarly, leaf size spectrum together with biological spectrum and other features of plants can be used in the classification of communities and association of plant grouping and assemblages. The leaf size knowledge is also useful in understanding the physiological processes of plants and plant communities. The dominanace of small leaved species i.e., Nanophylls is well in co-ordination with arid climate with severe cold freezing winters. Plants assume life form according to the climatic conditions for their survival. It was noticed that Biological spectrum (table 1 & 2) was dominated by Therophytes followed by Hemicryptophytes. This suited with the prevailing environmental condition of Koh valley. In harsh and arid alpine and sub-alpine area annual plants flourish in spring, thereby quickly completing their life cycle so as to avoid the dry desiccating season.

Table.1 Floristic inventory and Ecological characteristics of Koh valley Chitral.

Division/ Family	Botanical Names	L.F	L.S	Vou. No	Phenology				Altitude (m)	Area
					sp	Sm	Au	wi		
A. Pteridiophytes										
1. Adiantaceae	1. *Adiantum capillus-veneris* L.	Geo	Nan	Fazal Bot 01		+			1810	Moroi
	2. *Adiantum venustum* D. Don.	Geo	Nan	Fazal Bot 02		+			1692	Koghuzi
2. Equcitaceae	3. *Equesitum ramossimum* Desf.	Geo	Nan	Fazal Bot 03		+			1699	Istan-Gol
3. Pteredaceae	4. *Pteris spps*	Geo	Nan	Fazal Bot 04		+			1696	Koghuzi
B. Gymnosperm										
4. Cupressaceae	5. *Juniperus excelsa* M. Bieb	Mp	Lep	Fazal Bot 05		+			2015	Prayet
	6. *Juniperus communis* L.	Np	Lep	Fazal Bot 06		+			2189	Golan
	7. *Cupressus sempervirens*	Np	Lep	Fazal Bot 07		+			2210	Prayet
	8. *Thuja orientalis* L.	Np	Lep	Fazal Bot 13		+			1805	Moroi

5. Ephedraceae	9. *Ephedra gerardiana* Wall.ex Stapf.	Ch	Aph	Fazal Bot 08	+	+			2335	Golan
	10. *Ephedra intermedia* scherink & Meyer.	Ch	Aph	Fazal Bot 09	+	+			2850	Koghuzi
6. Pinaceae	11. *Pinus roxburghii* Sarg.	Mp	Nan	Fazal Bot 10		+			1805	Moroi
	12. *Pinus wallichiana* A.B. Jackson.	Mp	Nan	Fazal Bot 11		+			1920	Golan
	13. *Picea smithiana* (Wall.) Boiss.	Mp	Nan	Fazal Bot 12		+			1978	Golan
C. Angiosperm (Monocot)										
7. Alliaceae	14. *Allium cepa* Linn.	Geo	Mes	Fazal Bot 14	+	+			1845	Prayet
	15. *Allium sativum* L.	Geo	Mes	Fazal bot 15		+	+		1756	Kuju
	16. *Allium purum* L.	Geo	Mes	Fazal Bot 16	+				2314	Golan
	17. *Allium chitralicum* Wang & Tang	Geo	Mes	Fazal Bot 17	+				2245	Koghuzi
	18. *Allium griffithianum* Boiss.	Geo	Mes	Fazal Bot 18	+				2341	Koghuzi
	19. *Allium tuberosum* Rottl. ex. Spreng	Geo	Mes	Fazal Bot 19	+	+			2287	Koghuzi
8. Amaryllidaceae	20. *Amaryllis belladonna* L.	Geo	Mes	Fazal Bot 20	+				1799	Moroi
	21. *Ixilirion montanum* (Labill.)	Geo	Mes	Fazal Bot 21		+			1923	Barenis
	22. *Narcissus tazetta* L.	Geo	Mes	Fazal Bot 22	+				1809	Moroi
	23. *Narcissus pseudonarcissus* L.	Geo	Mes	Fazal Bot 23	+				1819	Mori
9. Asparaginaceae	24. *Asparagus racemosus* Willd.	Geo	Mic	Fazal Bot 24		+			1823	Golan
	25. *Asparagus officinale* L.	Geo	Mic	Fazal Bot 25		+			1834	Moroi
	26. *Hyacinthus orientalis* L.	Geo	Mes	Fazal Bot 26		+			1934	Prayet
	27. *Muscari armeniacum* Leichtlin ex Baker	Geo	Nan	Fazal Bot 27	+				1878	Moroi
10. Araceae	28. *Arisaema jacquemontii* Blume	Geo	Mic	Fazal Bot 28		+			1923	Barenis
	29. *Arum italicum* Mill.	Hem	Mes	Fazal Bot 29		+			2109	Kuju
11. Colchicaceae	30. *Colchicum luteum* Baker.	Geo	Mes	Fazal Bot 30		+			1921	Moroi
	31. *Colchicum aitchisoni* (Hook. f.) E. Nasir	Geo	Nan	Fazal Bot 31			+		1953	Prayet
12. Cyperaceae	32. *Carex alpina* Swartz	Geo	Lep	Fazal Bot 32		+			1956	Kuju
	33. *Carex diluta* M. Bieb.	Hem	Lep	Fazal Bot 33		+			1923	Kuju
	34. *Carex infuscata* Nees.	Hem	Lep	Fazal Bot 34		+			1913	Ragh
	35. *Cyperus rotundus* L.	Hem	Lep	Fazal Bot 35			+		1723	Ragh

13. Iridaceae	36. *Iris germiniaca* Linn.	Geo	Mes	Fazal Bot 36	+				1815	Moroi
	37. *Iris hookeriana* Foster	Geo	Mes	Fazal Bot 37	+				1867	Prayet
	38. *Crocus sativus* L.	Geo	Mes	Fazal Bot 38		+			1938	Golan
14. Juncaceae	39. *Juncus regia* Linn.	Hem	Lep	Fazal Bot 39		+			1987	Moroi
	40. *Juncus articulata* Linn.	Hem	Mic	Fazal Bot 40			+		2023	Prayet
	41. *Juncus effuses* L.	Hem	Lep	Fazal Bot 41		+			1997	Barenis
	42. *Juncus himalensis* Klotzsch	Hem	Mic	Fazal Bot 42			+		2014	Golan
	43. *Juncus membranaceus* Royle ex. D. Don	Hem	Mic	Fazal Bot 43		+			2019	Barenis
15. Juncaginaceae	44. *Triglochin palustris Linn.*	Geo	Nan	Fazal Bot 44		+			2190	Barenis
16. Liliaceae	45. *Eremurus perisicus (Jaub & Spach) Boiss.*	Geo	Nan	Fazal Bot 45				+	2289	Koghuzi
	46. *Eremurus stenophyllus* (Boiss. &Buhse) Baker	Geo	Nan	Fazal Bot 46			+		2267	Barenis
	47. *Gagea chitralensis* S. Dasgupta & Deb	Geo	Lep	Fazal Bot 47		+			2038	Barenisn
	48. *Gagea stefolia* Baker	Geo	Nan	Fazal Bot 48		+			2018	Moroi
	49. *Tulipa gesneriana* L.	Geo	Mes	Fazal Bot 49	+				1849	Moroi
	50. *Lilium auratum* Lindl.	Geo	Lep	Fazal Bot 50		+			1923	Prayet
17. Orchidaceae	51. *Cyperipedium cordigerum* D. Don	Geo	Nan	Fazal Bot 51		+			2119	Golan
18. Poaceae	52. *Aristida cynantha* Nees. & Steud	Hem	Nan	Fazal Bot 52		+			1978	Koghuzi
	53. *Avena sativa* Linn.	Th	Nan	Fazal Bot 53	+				1832	Prayet
	54. *Avena barbata* Pott ex. Link	Th	Nan	Fazal Bot 54	+				1813	Prayet
	55. *Bothriochloa barbinodis*	Hem	Nan	Fazal Bot 55		+			1988	Koghuzi
	56. *Bromus danthoniae* Trin	Hem	Lep	Fazal Bot 56	+				2134	Istangol
	57. *Bromus pectinatus* Thunb	Hem	Mic	Fazal Bot 57		+			2119	Mori
	58. *Bromus stenostachyus* Boiss.	Hem	Nan	Fazal Bot 58		+			2112	Koghuzi
	59. *Cynodon dactylon* (Linn.) Pers.	Hem	Nan	Fazal Bot 59		+			1790	Moroi
	60. *Corynephorus canescens*	Hem	Lep	Fazal Bot 60			+		2312	Koghuzi
	61. *Dactylis glomerata* Linn.	Th	Nan	Fazal Bot 61		+			2210	Golan
	62. *Dichanthium annulatum* (Forssk.) Stapf	Hem	Nan	Fazal Bot 62			+		2245	Barenis

	63. *Digitaria sanguanilis* L.	Geo	Nan	Fazal Bot 63		+	+		1599	Koghuzi
	64. *Echinochloa crus-galli* (Linn.) P. Beauv.	Th	Nan	Fazal Bot 64		+			1949	Barenis
	65. *Elymus nutans* Griseb.	Hem	Nan	Fazal Bot 65		+			1897	Koghuzi
	66. *Elymus repens* (Linn) Gould	Hem	Nan	Fazal Bot 66		+	+		1896	Morilasht
	67. *Eragrostis minor* Host.	Th	Nan	Fazal Bot 67		+	+		1923	Moroi
	68. *Eragrostis nigra* Nees ex Steud.	Th	Nan	Fazal Bot 68		+			1978	Koghuzi
	69. *Festuca kashmiriana* Stapf.	Hem	Lep	Fazal Bot 69		+			1983	Prayet
	70. *Festuca valesiaca* Schleich ex Gaud	Hem	Lep	Fazal Bot 70		+			1988	Barenis
	71. *Heteropogon contortus* (Linn) P. Beauv. Ex Roem & Schult	Hem	Mic	Fazal Bot 71		+	+		2037	Barenis
	72. *Hordium volgure*	Th	Nan	Fazal Bot 72	+				1830	Prayet
	73. *Hyparrhenia hirta* (Linn.) Stapf	Hem	Nan	Fazal Bot 73			+		1928	Moroi
	74. *Koeleria cristata* Pers.	Hem	Nan	Fazal Bot 74			+		1967	Prayet
	75. *Lolium rigidum* Guad.	Th	Nan	Fazal Bot 75			+		1923	Prayet
	76. *Melia ciliata* L.	Ch	Nan	Fazal Bot 76		+	+		2133	Kuju
	77. *Melica persica* Kunth	Hem	Lep	Fazal Bot 77		+			1897	Moroi
	78. *Oryza sativa* L.	Th	Mic	Fazal Bot 78		+			1789	Moroi
	79. *Phragmites australis* (Cav.) Trin ex Steud.	Th	Mac	Fazal Bot 79			+		1912	Golan
	80. *Poa alpina* Linn.	Ch	Nan	Fazal Bot 80			+		1998	Kuju
	81. *Poa annua* L.	Th	Lep	Fazal Bot 81			+		1544	Kari
	82. *Poa bulbosa* Linn.	Geo	Nan	Fazal Bot 82		+			1898	Kuju
	83. *Poa pratensis* Linn.	Th	Nan	Fazal Bot 83		+			1745	Kari
	84. *Poa sterilis* M. Bieb.	Th	Lep	Fazal Bot 84		+	+		1788	Ragh
	85. *Saccharum spontaneum* Linn.	Ch	Mac	Fazal Bot 85	+	+	+		1799	Moroi
	86. *Secale cereal* L.	Th	Lep	Fazal Bot 86		+			1906	Golan
	87. *Setaria glauca* (Linn.) P. Beauv.	Hem	Nan	Fazal Bot 87		+			1837	Golan
	88. *Setaria intermedia* Roem & Schult.	Hem	Nan	Fazal Bot 88		+			1650	Kuju
	89. *Setaria viridis* (L.) P. Beauv.	Hem	Nan	Fazal Bot 89		+			1978	Prayet

	90. *Stipa himalaica* Rozhev	Hem	Nan	Fazal Bot 90			+		2103	Prayet
	91. *Stipa trichoides* P. Smirnn	Hem	Nan	Fazal Bot 91			+		2019	Moroi
	92. *Tetrapogon villosus* Desf	Hem	Nan	Fazal Bot 92			+		1956	Mori lasht
	93. *Triticum aestivum* Linn.	Th	Mic	Fazal Bot 93	+	+			1700	Kuju
	94. *Triticum durum* Desf.	Th	Mic	Fazal Bot 94		+			1787	Moroi
	95. *Zea mays* Linn.	Th	Mes	Fazal Bot 95			+		1780	Moroi
19. Potamogetonaceae	96. *Potamogeton alpinus* Balbis.	Geo	Lep	Fazal Bot 96		+			1906	Prayet
	97. *Potamogeton nodosus* Poiret	Geo	Lep	Fazal Bot 97			+		1907	Barenis
20. Typhaceae	98. *Typha angustata* Borry. & Chaub. 62 genera	Geo	Mac	Fazal Bot 98			+		2123	Golan
D. Angiosperm (Dicot)										
21. Amaranthaceae	99. *Amaranthus cruentius* Linn.	Th	Mes	Fazal Bot 99		+			1809	Moroi
	100. *Amaranthus hybridus* Linn.	Th	Nan	Fazal Bot 100		+			1834	Prayet
	101. *Amaranthus retroflexus* Linn.	Th	Mes	Fazal Bot 101		+			1820	Moroi
	102. *Amaranthus viridis* Linn.	Th	Mes	Fazal Bot 102	+	+			1786	Mori
	103. *Dysphania pumilio* (R. Br) Mosyakin & Clemants	Th	Mes	Fazal Bot 103		+			1750	Moroi
22. Anacardaceae	104. *Pistacia integerrhima* J. L. Steward ex. Brandis.	Np	Mes	Fazal Bot 104		+			1805	Moroi
	105. *Pistacia khinjuk* Stocks.	Np	Nan	Fazal Bot 105		+			2023	Prayet
23. Apiaceae	106. *Ammi visnega* (L.) Lam.	Th	Nan	Fazal Bot 106		+			1609	Kuju
	107. *Anethum graveolens* L.	Th	Nan	Fazal Bot 107		+			1566	Kari
	108. *Bunium persicum* (Boiss.) Fedtsch.	Geo	Nan	Fazal Bot 108		+			1898	Barenis
	109. *Carum capticum* L.	Geo	Mic	Fazal Bot 109		+			1876	Prayet
	110. *Angelica glauca* Edgew.	Th	Nan	Fazal Bot 110		+			2208	Golan
	111. *Carum carvi* L.	Th	Nan	Fazal Bot 111	+				1822	Moroi
	112. *Carum copticum* L.	Geo	Mic	Fazal Bot 112		+			1687	Koghuzi
	113. *Coriandrum sativum* L.	Th	Nan	Fazal Bot 113		+			1798	Moroi
	114. *Conium macullatum* L.	Th	Nan	Fazal Bot 114	+	+			1622	Kuju
	115. *Daucus carota* L.	Geo	Mes	Fazal Bot 115		+			1745	Koghuzi
	116. *Eryngium maritimum* L.	Th	Nan	Fazal Bot 116			+		1820	Prayet
	117. *Ferula assafoitida*	Geo	Mes	Fazal Bot 117		+	+		1876	Prayet
	118. *Ferula northex* Boiss.	Geo	Mes	Fazal Bot 118		+	+		1877	Prayet
	119. *Foeniculum vulgare*	Th	Nan	Fazal Bot 119		+			1806	Moroi

	Miller.									
	120. *Pimpinella stewartii* Dunn. Nasir	Th	Nan	Fazal Bot 120		+			2109	Golan
	121. *Prongus pabularia* Lindl.	Hem	Nan	Fazal Bot 121		+			1645	Kuju
	122. *Seseli libanotis* (L.) Koch.	Th	Lep	Fazal Bot 122		+			1923	Ragh
	123. *Trachydium roylei* Lindl.	He	Mic	Fazal Bot 123			+		1867	Kari
	124. *Trachyspermum ammi* (L.) Spargue.	Geo	Nan	Fazal Bot 124			+		1923	Prayet
24. Apocynaceae	125. *Catharanthus roseus* Linn.	Th	Lep	Fazal Bot 125					1823	Moroi
	126. *Nerium indicum* Mill.	Th	Mes	Fazal Bot 126		+			1845	Moroi
	127. *Trachomitum venetum* (Linn.) Woodson	Hem	Mes	Fazal Bot 127		+			1908	Prayet
25. Asclepiadaceae	128. *Cynanchum acutum* Linn.	Ch	Mes	Fazal Bot 128		+			1988	Barenis
26. Asteraceae	129. *Anthemus cotola* L.	Hem	Nan	Fazal Bot 129		+			1523	Kari
	130. *Artemisia brevifolia* Wall. ex. D.C	Hem	Lep	Fazal Bot 130		+			1806	Moroi
	131. *Artemisia herba-alba*	Hem	Lep	Fazal Bot 131	+	+			1934	Golan
	132. *Artemisia indica* Willd.	Hem	Lep	Fazal Bot 132		+			1560	Kari
	133. *Artemisia japonica* Thunb.	Hem	Mic	Fazal Bot 133		+			1923	Koghuzi
	134. *Artemisia maritima* Linn.	Th	Nan	Fazal Bot 134		+			1565	Kari
	135. *Artemisia parviflora Roxb. ex. D. Don*	Th	Mic	Fazal Bot 135		+			1812	Moroi
	136. *Artemisia persica* Boiss	Ch	Lep	Fazal Bot 136		+			1876	Golan
	137. *Artemisia rutifolia* Spreng.	Hem	Lep	Fazal Bot 137		+			1833	Kari
	138. *Artemisia santolinifolia* Turcz ex Krasch	Ch	Lep	Fazal Bot 138		+			1845	Ragh
	139. *Artemisia scoparia* Waldst & Kit.	Hem	Nan	Fazal Bot 139		+	+		1923	Barenis
	140. *Aster altaicus* Willdenow	Hem	Mes	Fazal Bot 140		+			1865	Moroi
	141. *Aster flaccidus* Bunge	Hem	Nan	Fazal Bot 141			+		1876	Mori
	142. *Bidens tripartite* Linn.	Hem	Nan	Fazal Bot 142			+		1921	Kuju
	143. *Calendula officinalis* Linn.	Th	Mes	Fazal Bot 143		+			1896	Prayet
	144.*Carthamus cotola* L.	Th	Mes	Fazal Bot 144		+			1809	Moroi
	145. *Carthamus carduncellus* L.	Th	Mes	Fazal Bot 145		+			1786	Kuju
	146. *Centaurea calcitrapa* Linn.	Th	Nan	Fazal Bot 146			+		1654	Ragh
	147. *Centaurea corymbosa*	Th	Nan	Fazal Bot 147		+			1822	Kuju

	Pourr.									
	148. *Chrysanthemum cinerariaefolium* Vis.	Hem	Nan	Fazal Bot 148			+		1687	Kuju
	149. *Cichorum intybus* Linn.	Th	Mes	Fazal Bot 149			+		1833	Moroi
	150. *Cirsium acaule* (Linn.) Scop.	Th	Mac	Fazal Bot 150			+		1834	Mori lasht
	151. *Cirsium argyacanthum* D.C.	Th	Mac	Fazal Bot 151		+			1867	Moroi
	152. *Cirsium vulgare* (Savi) Ten	Th	Mes	Fazal Bot 152		+			1890	Prayet
	153. *Cnicus benedictus* Linn.	Th	Mes	Fazal Bot 153		+			1986	Barenis
	154. *Conyza bonariensis* (L.) Cronquist.	Th	Nan	Fazal Bot 154		+			1823	Kari
	155. *Conyza canadensis* (L.) Cronquist.	Th	Nan	Fazal Bot 155		+			1845	Ragh
	156. *Conyza stricta* Willd.	Th	Nan	Fazal Bot 156		+			1828	Kuju
	157. *Cosmos bipinnatus* Cav.	Th	Nan	Fazal Bot 157		+			1821	Kuju
	158. *Cotulla coronopifolia* L.	Th	Nan	Fazal Bot 158		+			1860	Prayet
	159. *Cousinia buphthalmoides* Regel	Th	Lep	Fazal Bot 159			+		1713	Ragh
	160. *Cousinia multiloba* DC	Th	Lep	Fazal Bot 160			+		1723	Istangol
	161. *Cousinia thomsonii* C. B. Clarke.	Th	Lep	Fazal Bot 161			+		1733	Mori Lasht
	162. *Crepis multicaulis* Ledeb	Th	Lep	Fazal Bot 162		+			1921	Prayet
	163. *Crepis thomsonii* Babc.	Th	Nan	Fazal Bot 163		+			1929	Prayet
	164. *Cynara humilis*	Th	Lep	Fazal Bot 164			+		2176	Prayet
	165. *Echinops echinatus* Roxb.	Th	Mac	Fazal Bot 165		+			1834	Moroi
	166. *Echinops cornigerus* DC	Th	Mes	Fazal Bot 166		+			1892	Golan
	167. *Erigeron alpinus* Linn.	Th	Mic	Fazal Bot 167			+		1939	Barenis
	168. *Erigeron Canadensis* Linn.	Th	Nan	Fazal Bot 168		+			1956	Barenis
	169. *Erigeron uniflorus* Linn	Th	Lep	Fazal Bot 169		+			1912	Prayet
	170. *Gnaphalium thomsonii* Hook. f.	Hem	Nan	Fazal Bot 170		+			1897	Golan
	171. *Helianthus annuus* L.	Th	Mes	Fazal Bot 171	+	+			1790	Moroi
	172. *Inula obtusifolia* A. Kerner	Th	Mes	Fazal Bot 172		+			1967	Barenis
	173. *Lactuca dissecta* D. Don	Hem	Nan	Fazal Bot 173		+			1824	Moroi
	174. *Lactuca orientalis* Boiss.	Th	Nan	Fazal Bot 174		+			1823	Koghuzi
	175. *Lactuca sativa* Linn.	Th	Mac	Fazal Bot 175		+			1856	Moroi
	176. *Lactuca serriola* Linn.	Th	Mes	Fazal Bot 176		+			1876	Prayet
	177. *Lactuca viminea* (L.) J. & C. Presl.	Hem	Nan	Fazal Bot 177		+			2304	Golan
	178. *Launaea procumbens* (Roxb.)	Th	Nan	Fazal Bot 178		+			1934	Barenis
	179. *Matricaria chamomilla* L.	Th	Nan	Fazal Bot 179			+		1798	Moroi

	180. *Matricaria disciformis* (C. A. Mey) DC.	Th	Nan	Fazal Bot 180			+		2010	Golan
	181. *Santolina chamaecyparissus* L.	Th	Lep	Fazal Bot 181		+	+		1766	Prayet
	182. *Saussurea lappa* (Falc.) Lipsch.	Hem	Lep	Fazal Bot 182		+			2167	Golan
	183. *Saussurea bracteata* Decne	Hem	Lep	Fazal Bot 183		+			1834	Koghuzi
	184. *Saussurea falconeri* Hook.f.	Hem	Lep	Fazal Bot 184		+			1823	Kari
	185. *Saussurea gilesii* Hemsley	Hem	Lep	Fazal Bot 185		+			1766	Ragh
	186. *Senecio spps*	Th	Nan	Fazal Bot 186		+			1821	Koghuzi
	187. *Seriphidium kurramense* (Qazilb.) Y.R. Ling	Hem	Lep	Fazal Bot 187			+		1876	Ragh
	188. *Solidago virgaurea* Linn.	Hem	Nan	Fazal Bot 188		+			1962	Kuju
	189. *Sonchus arvensis* Linn.	Th	Mes	Fazal Bot 189		+			1812	Moroi
	190. *Sonchus asper* (Linn.) Hill.	Th	Mes	Fazal Bot 190		+			1798	Moroi
	191. *Sonchus oleraceus* Linn.	Th	Nan	Fazal Bot 191		+			1867	Prayet
	192. *Tagetes erecta* Linn.	Th	Nan	Fazal Bot 192			+		1926	Golan
	193. *Taraxacum officinale* Webber	Geo	Mes	Fazal Bot 193		+			1806	Moroi
	194. *Taraxacum stenolepium* Hand-Mazz	Geo	Nan	Fazal Bot 194		+			1921	Barenis
	195. *Tragopogon gracilis* D. Don	Hem	Nan	Fazal Bot 195		+			1821	Kuju
	196. *Tussilago farfara* Linn.	Geo	Mac	Fazal Bot 196		+			1754	Ragh
	197. *Xanthium strumarium* L	Th	Mes	Fazal Bot 197		+			1840	Prayet
27. Berberidaceae	198. *Berberis lycium* Royle.	Np	Nan	Fazal Bot 198			+		1830	Prayet
	199. *Berberis orthobotrys* Bien. ex Aitch	Np	Nan	Fazal Bot 199			+		1790	Moroi
28. Betulaceae	200. *Betula utilis* D. Don	Mp	Mes	Fazal Bot 200			+		2287	Koghuzi
	201. *Betula chitralica* Browicz	Mp	Mes	Fazal Bot 201			+		2370	Prayet
29. Boraginaceae	202. *Arnebia hispidissima* (Lehm.) A. DC.	Hem	Mes	Fazal Bot 102			+		1678	Kuju
	203. *Arnebia linearifolia* (Lehm.) A. DC.	Hem	Nan	Fazal Bot 203			+		1656	Kari
	204. *Cynoglossum lanceolatum* Forssk.	Hem	Mic	Fazal Bot 204			+		1987	Barenisn
	205. *Heliotropium dasycarpum* Ledeb.	Hem	Lep	Fazal Bot 205		+			2109	Golan
	206. *Lappula barbata* (M. Bieb) Gurke.	Hem	Lep	Fazal Bot 206		+			2314	Golan
	207. *Lappula squarrosa*	Th	Lep	Fazal Bot 207		+			2117	Prayet
	208. *Lindelofia longiflora* (Benth) Baill.	Hem	Nan	Fazal Bot 208		+			2430	Barenis

	209. *Mattiastrum spps*	Ch	Lep	Fazal Bot 209		+			2118	Prayet
	210. *Myosotis arvensis* (Linn.) Hill.	Hem	Nan	Fazal Bot 210			+		2134	Prayet
	211. *Myosotis ramosissima*	Hem	Mic	Fazal Bot 211	+				1766	Koghuzi
	212. *Nonea edgeworthii* A. DC.	Hem	Nan	Fazal Bot 212			+		1876	Moroi
	213. *Onosma hispidium* Wall ex G. Don	Th	Nan	Fazal Bot 213		+			1708	Koghuzi
	214. *Pentaglottis sempervirens*	Ch	Lep	Fazal Bot 214		+			1713	Kuju
	215. *Rochelia stylaris* Boiss.	Th	Nan	Fazal Bot 215			+		1842	Mori
30. Brassicaceae	216. *Arabis fruticulosa* C. A. Mey	Hem	Nan	Fazal Bot 216		+			1766	Mori lasht
	217. *Brassica campestris* Linn	Th	Mac	Fazal Bot 217	+				1700	Kuju
	218. *Brassica napus* Linn.	Geo	Mes	Fazal Bot 218	+				1802	Moroi
	219. *Capsella bursa-pastoris* (L.) Medic.	Th	Mes	Fazal Bot 219		+			1806	Moroi
	220. *Chorispora macropoda* Trautv.	Th	Nan	Fazal Bot 220		+			1876	Mori Lasht
	221. *Coronopus didymus* (Linn.) Smith.	Th	Lep	Fazal Bot 221		+			1723	Koghuzi
	222. *Draba lanceolata* Royle	Hem	Lep	Fazal Bot 222		+			1934	Barenis
	223. *Draba nemorosa* Linn.	Th	Lep	Fazal Bot 223		+			1998	Koghuzi
	224. *Draba tibetica* Hook. f. & Thoms.	Hem	Lep	Fazal Bot 224			+		1956	Prayet
	225. *Lepidium sativum* Linn.	Th	Nan	Fazal Bot 225			+		1987	Barenis
	226. *Lepidium apetalum* Willdenow.	Th	Nan	Fazal Bot 226			+		1835	Moroi
	227. *Malcolmia spps*	Ch	Mes	Fazal Bot 227		+			1723	Mori
	228. *Mathiola flavida* Boiss.	Th	Mes	Fazal Bot 228		+			1657	Kuju
	229. *Nasturtium officinale* R. Br.	Th	Nan	Fazal Bot 229		+			1876	Prayet
	230. *Raphanus raphanistrum* Linn.	Th	Nan	Fazal Bot 230	+				1823	Mori Lasht
	231. *Raphanus sativus* Linn.	Geo	Mac	Fazal Bot 231	+				1807	Moroi
	232. *Rapistrum rugosum* (L.) All.	Th	Lep	Fazal Bot 232	+				1813	Golan
	233. *Sisymbrium irio* L.	Th	Lep	Fazal Bot 233		+			1822	Moroi
31. Callitricaceae	234. *Callitriche palustris* Linn	Geo	Lep	Fazal Bot 234			+		1923	Koghuzi
32. Campanulaceae	235. *Codonopsis clematidea* (Schrenk) C. B. Clarke	Th	Nan	Fazal Bot 235			+		1930	Barenis
	236. *Codonopsis rotundifolia* Benth.	Hem	Mes	Fazal Bot 236			+		1897	Moroi
33. Canabinaceae	237. *Cannabis sativa* L.	Th	Nan	Fazal Bot 237			+		1856	Prayet
	238. *Capparis spinosa* Linn.	Hem	Mes	Fazal Bot 238	+				1845	Prayet

34. Capparidaceae	239. *Capparis racemosa* Mill.	Hem	Mes	Fazal Bot 239	+				1770	Moroi
	240. *Cleome ariana* Hedge & Lamond	Th	Nan	Fazal Bot 240		+			1798	Mori
35. Caprifoliaceae	241. *Lonicera asperifolia* (Decne.) Hook. f. Thoms	Ch	Nan	Fazal Bot 241		+			1983	Barenis
36. Caryophyllaceae	242. *Arenaria griffithi* Boiss.	Ch	Lep	Fazal Bot 242		+			1934	Prayet
	243. *Arenaria serpyllifolia* Linn.	Th	Nan	Fazal Bot 243		+			1820	Moroi
	244. *Cerastium cerastioides* (L.) Britton.	Th	Mes	Fazal Bot 244			+		1782	Kuju
	245. *Cerastium glomeratum* Thuill.	Th	Lep	Fazal Bot 245			+		1782	Kari
	246. *Dianthus spps*	Hem	Nan	Fazal Bot 246		+			1702	Kuju
	247. *Dianthus anatolicus* Boiss.	Hem	Nan	Fazal Bot 247		+			1823	Moroi
	248. *Minuartia kashmirica* (Edgew.) Mattf.	Hem	Lep	Fazal Bot 248			+		1967	Prayet
	249. *Saponaria griffithiana* Boiss.	Hem	Lep	Fazal Bot 249			+		1956	Prayet
	250. *Silene arenosa* C. Koch.	Th	Nan	Fazal Bot 250		+			1786	Koghuzi
	251. *Silene conoidea* L.	Th	Nan	Fazal Bot 251		+			1812	Moroi
	252. *Silene vulgaris* L.	Th	Lep	Fazal Bot 252		+			1923	Koghuzi
	253. *Stellaria alsinoides* Boiss & Buhse.	Th	Lep	Fazal Bot 253		+			1623	Kuju
	254. *Stellaria media* (L.) Vill.	Th	Nan	Fazal Bot 254		+			1687	Kuju
	255. *Stellaria uliginosa* Murr.	Hem	Nan	Fazal Bot 255		+			1620	Kari
37. Chenopodaceae	256. *Atriplex tatarica* Linn.	Th	Nan	Fazal Bot 256	+				1687	Kuju
	257. *Beta vulgaris* Linn.	Th	Mac	Fazal Bot 257			+		1624	Ragh
	258. *Chenopodium album* L.	Th	Nan	Fazal Bot 258			+		1868	Prayet
	259. *Chenopodium ambrosioides* Linn.	Th	Lep	Fazal Bot 259		+			1987	Golan
	260. *Chenopodium botrys* L.	Th	Lep	Fazal Bot 260		+			1823	Moroi
	261. *Chenopodium morale* Linn.	Th	Nan	Fazal Bot 261		+			1789	Koghuzi
	262. *Haloxylon griffithii* (Moq.) Boiss.	Ch	Lep	Fazal Bot 262		+			1982	Golan
	263. *Kochia stellaris* Mocq.	Th	Lep	Fazal Bot 263		+			1936	Prayet
	264. *Salsola tragus* Linn.	Th	Lep	Fazal Bot 264		+			1786	Ragh
	265. *Spinacia oleracia* Linn.	Th	Mes	Fazal Bot 265			+		1807	Moroi
38. Convulvulaceae	266. *Convulvulous arvensis* L.	Th	Mes	Fazal Bot 266		+			1560	Kari
39. Crassulaceae	267. *Rhodiola coccinea* (Royle) Boriss.	Ch	Mes	Fazal Bot 267		+			1654	Kari
	268. *Rosularia rosulata*	Ch	Mes	Fazal Bot 268		+			1723	Ragh

	(Edgew.) H. Ohba.									
	269. *Sedum ewersii* Ledeb.	Geo	Nan	Fazal Bot 269		+			1734	Kuju
40. Cucurbitaceae	270. *Citrullous lanatous* (Thunb.) Mats. & Nakai.	Th	Mes	Fazal Bot 270		+			1723	Koghuzi
	271. *Cucurbita maxima* Duch ex Lam.	Th	Mac	Fazal Bot 271			+		1811	Moroi
	272. *Cucurbita pepo* L.	Th	Meg	Fazal Bot 272			+		1722	Koghuzi
	273. *Coccinia grandis* (L.) Voigt	Th	Mes	Fazal Bot 273		+			1578	Kari
	274. *Cucumis sativus* Linn.	Th	Mes	Fazal Bot 274		+			1805	Moroi
	275. *Lagenaria siceraria* (Mol.) Standl.	Th	Mes	Fazal Bot 275			+		1603	Ragh
	276. *Luffa cylindrical* (L.) MJ Roem	Th	Mac	Fazal Bot 276		+			1765	Koghuzi
	277. *Luffa acutangula* (L.) Roxb.	Th	Mac	Fazal Bot 277		+			1812	Moroi
	278. *Luffa aegyptica* Mill.	Th	Mes	Fazal Bot 278		+			1788	Koghuzi
	279. *Momordia charantia* L.	Th	Mes	Fazal Bot 279		+			1809	Moroi
	280. *Praecitrullus fistulosus* (Stocks) Pangalo	Th	Mes	Fazal Bot 280		+			1556	Kari
41. Cuscutaceae	281. *Cuscuta europaea* Linn.	Th	Aph	Fazal Bot 281			+		1587	Kuju
	282. *Cuscuta reflexa* Roxb.	Th	Aph	Fazal Bot 282			+		1560	Ragh
42. Ebenaceae	283. *Diospyrus lotus* Linn.	Mp	Mes	Fazal Bot 283		+			1814	Moroi
	284. *Diospyrus kaki* Linn.	Mp	Mes	Fazal Bot 284		+	+		1813	Moroi
43. Elaegnaceae	285. *Elaeagnus angustifolia* L.	Mp	Mes	Fazal Bot 285	+				1699	Istan-Gol
	286. *Elaeagnus umbellate* Thunb.	Mp	Mes	Fazal Bot 286		+			1812	Moroi
	287. *Hippophae rhamnoides* L.	Mp	Nan	Fazal Bot 287			+		1805	Moroi
44. Euphorbiaceae	288. *Euphorbia falcata* Linn.	Th	Nan	Fazal Bot 288		+			2034	Prayet
	289. *Euphorbia heliscopia* L.	Ch	Nan	Fazal Bot 289	+	+			1532	Kari
	290. *Euphorbia pamirica* Prokh	Hem	Lep	Fazal Bot 290			+		2321	Barenis
	291. *Euphorbia prostrata* Ait.	Th	Nan	Fazal Bot 291	+	+			1590	Ragh
	292. *Euphorbia wallichi* Hk.	Th	Nan	Fazal Bot 292	+				1612	Kuju
45. Fumariaceae	293. *Fumaria indica* (Haussk) Pugsly	Th	Lep	Fazal Bot 293	+				1535	Kari
46. Gentianaceae	294. *Gentiana kurroo* Royle	Th	Lep	Fazal Bot 294			+		1789	Mori Lasht
	295. *Swertia speciosa* D. Don	Geo	Nan	Fazal Bot 295		+			1743	Istangol
47. Geraniaceae	296. *Geranium pratense* Linn.	Th	Mes	Fazal Bot 296	+	+			1820	Prayet
	297. *Geranium rotundifolium* Linn.	Th	Nan	Fazal Bot 297		+			1735	Koghuzi
	298. *Geranium wallichianum* D. Don ex. Sweet.	Th	Mes	Fazal Bot 298		+			1789	Koghuzi
	299. *Pelargonium zonale* (L.) L, Her. ex Aiton.	Th	Mes	Fazal Bot 299		+			1801	Moroi

	300. *Pelargonium hortorum* L.H. Bailey	Th	Mes	Fazal Bot 300		+			1887	Prayet
	301. *Pelargonium graveolens* L,Her	Th	Mes	Fazal Bot 301	+	+			1890	Prayet
	302. *Pelargonium peltatum* (L.) L,Her	Th	Mes	Fazal Bot 302	+	+			1823	Moroi
48. Grossulariaceae	303. *Ribes alpestre* Decne.	Ch	Nan	Fazal Bot 303		+			1867	Moroi
	304. *Ribes orientale* Desf.	Ch	Mes	Fazal Bot 304		+			1834	Barenis
49. Gunneraceae	305. *Gunnera tinctoria* (Molina.) Mirb.	Th	Mes	Fazal Bot 305		+			2376	Kuju
50. Hippuridaceae	306. *Hippuris vulgaris* Linn.	Th	Mic	Fazal Bot 306			+		1912	Prayet
51. Hypericaceae	307. *Hypericum perforatum* L.	Hem	Nan	Fazal Bot 307		+			1756	Koghuzi
	308. *Hypericum scabrum* Linn.	Hem	Nan	Fazal Bot 308		+			1687	Kari
52. Jasminaceae	309. *Jasminum humile* Linn.	Th	Mic	Fazal Bot 309	+				1807	Moroi
	310. *Jasminum officinale* Linn.	Th	Mic	Fazal Bot 310	+				1830	Moroi
	311. *Jasminum nudiflorum* Lindl.	Th	Mes	Fazal Bot 311	+				1590	Ragh
53. Juglandaceae	312. *Juglans regia* Linn.	Mp	Mac	Fazal Bot 312		+			2234	Golan
54. Lamiaceae	313. *Glechoma hederacea* L.	Th	Nan	Fazal Bot 313		+			2133	Golan
	314. *Lamium amplexicaule* Linn.	Th	Nan	Fazal Bot 314	+				1860	Prayet
	315. *Lamium purpurium* L.	Th	Nan	Fazal Bot 315	+				1806	Moroi
	316. *Leonurus cardiaca* L.	Ch	Nan	Fazal Bot 316					1922	Mori
	317. *Marrubium vulgare* Linn.	Ch	Mes	Fazal Bot 317		+			1897	Golan
	318. *Mentha arvensis* L.	Hem	Nan	Fazal Bot 318		+	+		1795	Moroi
	319. *Mentha longifolia* (L.) Huds.	Hem	Nan	Fazal Bot 319			+		1805	Moroi
	320. *Mentha spicata* L.	Hem	Nan	Fazal Bot 320			+		1780	Mori
	321. *Mentha pulegium* L.	Hem	Nan	Fazal Bot 321		+	+		1820	Moroi
	322. *Mentha piperita* L.	Hem	Nan	Fazal Bot 322		+	+		1756	Koghuzi
	323. *Mentha royeleana* Benth.	Hem	Nan	Fazal Bot 323		+			1807	Moroi
	324. *Nepeta cataria* Linn.	Ch	Mes	Fazal Bot 324			+		2306	Golan
	325. *Nepeta discolor* Royle ex Bth.	Hem	Nan	Fazal Bot 325			+		1876	Prayet
	326. *Nepeta glutinosa* Benth.	Ch	Mes	Fazal Bot 326			+		1789	Koghuzi
	327. *Nepeta lavaegata* (D.Don) Hand. Mazz.	Ch	Mes	Fazal Bot 327			+		1675	Kuju
	328. *Nepeta longibractiata* Benth.	Hem	Mic	Fazal Bot 328			+		1560	Kari
	329. *Nepeta nepetella* L.	Ch	Mes	Fazal Bot 329			+		1564	Kari
	330. *Nepeta kokanica* Regel	Th	Nan	Fazal Bot 330			+		1599	Ragh
	331. *Nepeta subincisa* Benth.	Hem	Nan	Fazal Bot 331			+		1687	Kuju

	332. *Ocimum basilicum* Linn.	Ch	Nan	Fazal Bot 332		+			1653	Koghuzi
	333. *Ocimum sanctum* Linn.	Th	Mes	Fazal Bot 333		+			1807	Moroi
	334. *Salvia aegyptiaca* L.	Ch	Nan	Fazal Bot 334		+			1792	Koghuzi
	335. *Scutellaria multicaulis* Boiss.	Hem	Lep	Fazal Bot 335			+		1892	Koghuzi
	336. *Thymus linearis* Benth.	Ch	Nan	Fazal Bot 336		+	+		1923	Barenis
	337. *Thymus serphyllum* L.	Hem	Nan	Fazal Bot 337		+	+		1856	Prayet
	338. *Thymus vulgaris* L.	Hem	Nan	Fazal Bot 338		+			1913	Koghuzi
	339. *Ziziphora tenuior* Linn	Th	Lep	Fazal Bot 339			+		1745	Koghuzi
55. Lentibulariaceae	340. *Utricularia australis* R. Br.	Geo	Lep	Fazal Bot 340		+			1823	Moroi
56. Linaceae	341. *Linum usitatisimum* Linn	Th	Nan	Fazal Bot 341		+			1675	Ragh
57. Magnoliaceae	342. *Magnolia grandiflora* L.	Mp	Mes	Fazal Bot 342			+		1807	Moroi
58. Malvaceae	343. *Abutilon bidentatum* Hochst ex A. Rich	Th	Mes	Fazal Bot 343			+		1956	Kuju
	344. *Alcea nudiflora* (Lindl.) Boiss.	Th	Mac	Fazal Bot 344		+			2123	Barenis
	345. *Althea rosea* L. Cav.	Np	Mes	Fazal Bot 345		+			1803	Koghuzi
	346. *Althea officinalis* L.	Np	Mes	Fazal Bot 346		+			1801	Moroi
	347. *Malva neglecta* Wall.	Th	Mes	Fazal Bot 347		+			1988	Barenis
	348. *Malva parviflora* Linn.	Th	Nan	Fazal Bot 348		+			1689	Kuju
59. Meliaceae	349. *Melia azaderacta* Linn.	Mp	Mic	Fazal Bot 349			+		1804	Moroi
60. Moraceae	350. *Ficus carica* Forsk.	Mp	Mac	Fazal Bot 350		+			1823	Prayet
	351. *Ficus palmate* Forrsk.	Mp	Mac	Fazal Bot 351		+			1825	Prayet
	352. *Morus alba* Linn.	Mp	Mac	Fazal Bot 352	+				1806	Moroi
	353. *Morus nigra* Linn.	Mp	Mac	Fazal Bot 353	+				1835	Prayet
	354. *Morus rubra* Linn.	Mp	Mac	Fazal Bot 354	+				1802	Moroi
61. Oleaceae	355. *Fraxinus hookerrii* Wenzig.	Mp	Mic	Fazal Bot 355	+				1712	Koghuzi
	356. *Fraxinus xanthoxyloides* Wall ex G. Don.	Mp	Mic	Fazal Bot 356		+			1967	Golan
62. Onagraceae	357. *Epilobium angustifolium* Linn.	Th	Mes	Fazal Bot 357		+			2078	Barenis
	358. *Epilobium hirsutum* L.	Th	Mes	Fazal Bot 358	+		+		1978	Prayet
	359. *Epilobium cylindricum* D. Don.	Th	Nan	Fazal Bot 359		+			1990	Moroi
63. Orobanchaceae	360. *Orobanche amethystea* Thuill.	Hem	Aph	Fazal Bot 360		+			1923	Prayet
64. Oxalidaceae	361. *Oxalis pes-caprae* L.	Th	Mic	Fazal Bot 361	+				1822	Moroi
	362. *Oxalis corymbosa* DC.	Th	Mic	Fazal Bot 362	+				1912	Prayet
	363. *Oxalis carnicullata* L.	Th	Mic	Fazal Bot 363	+				1804	Moroi
65. Paeoniaceae	364. *Paeonia emodi* Wall. ex Royle	Geo	Nan	Fazal Bot 364			+		2189	Koghuzi
66. Papavaraceae	365. *Papaver somniferum* Linn.	Th	Mac	Fazal Bot 365		+			1812	Moroi
	366. *Papaver nudicaule* Linn	Hem	Lep	Fazal Bot 366		+			1808	Moroi
	367. *Papaver dubium* L.	Th	Lep	Fazal Bot 367	+				1530	Kari
	368. *Astragalus candolleanus*	Hem	Lep	Fazal Bot 368		+			1895	Prayet

	Royle ex. Bth.									
	369. *Astragalus chlorostachys* Lindl.	Th	Nan	Fazal Bot 369		+			2312	Koghuzi
	370. *Astragalus chitralensis* Ali	Hem	Lep	Fazal Bot 370			+		1670	Kuju
	371. *Astragalus corrugates* Bertol.	Th	Nan	Fazal Bot 371			+		1956	Golan
	372. *Astragalus falconeri* Bunge	Hem	Lep	Fazal Bot 372			+		1657	Kuju
	373. *Astragalus falcatus* Lam.	Hem	Lep	Fazal Bot 373		+			1633	Ragh
	374. *Astragalus laspurensis* Ali	Hem	Lep	Fazal Bot 374			+		2589	Golan
	375. *Astragalus psilocentros* Fisch.	Hem	Lep	Fazal Bot 375			+		1824	Moroi
	376. *Astragalus nivalis* Kar and Kir.	Hem	Lep	Fazal Bot 376			+		1901	Prayet
	377. *Astragalus sempervirens* Lam.	Hem	Lep	Fazal Bot 377	+				2312	Kuju
	378. *Astragalus subumbellatus* Klotzsch.	Hem	Nan	Fazal Bot 378		+			1545	Kari
	379. *Astragalus tragacantha* L.	Hem	Nan	Fazal Bot 379		+			2356	Golan
67. Papilionaceae	380. *Astragalus tibetanus* Benth ex. Bunge	Hem	Lep	Fazal Bot 380			+		2218	Barenis
	381. *Cicer arietinum* L.	Th	Nan	Fazal Bot 381		+			1856	Moroi
	382. *Cicer macranthum* M. Popov	Hem	Lep	Fazal Bot 382	+				1887	Mori Lasht
	383. *Cicer microphyllum* Benth.	Hem	Lep	Fazal Bot 383		+			1935	Mori
	384. *Coronilla viminalis* Salisb.	Hem	Mes	Fazal Bot 384		+			2124	Prayet
	385. *Glycyrrhiza glabra* L.	Geo	Mes	Fazal Bot 385	+				1645	Ragh
	386. *Crotolaria prostrata* Roxb ex D. Don.	Hem	Lep	Fazal Bot 386		+			1988	Prayet
	387. *Lathyrus aphaca* L.	Th	Mic	Fazal Bot 387	+				1655	Kuju
	388. *Lathyrus odoratus* L.	Th	Mic	Fazal Bot 388	+				1823	Moroi
	389. *Lespedeza spps*	Th	Nan	Fazal Bot 389		+			1890	Prayet
	390. *Medicago lupulina* Linn.	Th	Nan	Fazal Bot 390		+			1756	Kari
	391. *Medicago denticulata* Linn.	Th	Nan	Fazal Bot 391		+			1768	Ragh
	392. *Medicago sativa* Linn.	Hem	Nan	Fazal Bot 392			+		1845	Koghuzi
	393. *Medicago polymorpha* Linn.	Th	Lep	Fazal Bot 393		+			1978	Barenis
	394. *Melilotus albus* Medik.	Th	Nan	Fazal Bot 394		+			1922	Prayet
	395. *Melilotus indica* (Linn.) All.	Th	Nan	Fazal Bot 395		+			1580	Kuju
	396. *Melilotus officinale*	Th	Nan	Fazal Bot 396		+			1901	Prayet

	(Linn.) Desr.									
	397. *Oxytropis mollis* Royle ex Bth	Hem	Lep	Fazal Bot 397			+		1587	Kari
	398. *Oxytropis tatarica* Camb ex Bunge	Hem	Lep	Fazal Bot 398			+		1645	Ragh
	399. *Pisum sativum* Linn.	Th	Mic	Fazal Bot 399	+				1900	Barenis
	400. *Sophora mullis* (Royle.) Baker	Np	Nan	Fazal Bot 400	+				1590	Ragh
	401. *Sophora alopecuroides* (L.) Boiss.	Ch	Nan	Fazal Bot 401	+				1523	Kari
	402. *Trifolium pretense* Linn	Hem	Mic	Fazal Bot 402		+			1812	Moroi
	403. *Trifolium repens* L.	Hem	Mic	Fazal Bot 403				+	1897	Barenis
	404. *Trifolium resupinatum* Linn.	Th	Mic	Fazal Bot 404	+				1687	Koghuzi
	405. *Trifolium alexandrum* L.	Th	Mic	Fazal Bot 405		+			1600	Ragh
	406. *Vigna radiata* (L.) R. Wilczek	Th	Mic	Fazal Bot 406		+			1818	Prayet
	407. *Vicia faba* L.	Th	Nan	Fazal Bot 407		+			1845	Moroi
	408. *Vicia monentha* Retz.	Th	Nan	Fazal Bot 408	+				1675	Kuju
	409. *Vicia sativa* Linn.	Th	Nan	Fazal Bot 409	+				1520	Kari
	410. *Wisteria sinensis* (Sims) DC.	Th	Lep	Fazal Bot 410	+				1811	Moroi
68. Parnassiaceae	411. *Parnassia nubicola* Planch ex Clarke.	Th	Mes	Fazal Bot 411			+		1704	Ragh
69. Plantaginaceae	412. *Linaria repens* (L.) Mill.	Th	Nan	Fazal Bot 412		+			1656	Kuju
	413. *Plantago lanceolata* Linn.	Th	Mic	Fazal Bot 413		+			1635	Koghuzi
	414. *Plantago major* Aitch.	Th	Mes	Fazal Bot 414		+			1823	Moroi
	415. *Plantago subulata* L.	Th	Mes	Fazal Bot 415		+			1920	Prayet
	416. *Veronica beccagunga* L.	Th	Mes	Fazal Bot 416					2457	Prayet
70. Plantinaceae	417. *Platanus orientalis* Linn.	Mp	Mes	Fazal Bot 417			+		1923	Barenis
71. Plumbaginaceae	418. *Acantholimon longiscapum* Bokhari	Ch	Lep	Fazal Bot 418			+		1835	Moroi
	419. *Acantholimon ulicinum* (Schult.) Boiss.	Hem	Lep	Fazal Bot 419		+			2634	Koghuzi
	420. *Psylliostachys suworoii* (Regel.) Roshk.	Th	Mac	Fazal Bot 420		+			1912	Golan
	421. *Atraphaxis pyrifolia* Bunge	Np	Mes	Fazal Bot 421			+		2033	Barenis
	422. *Atraphaxis spinosa* Linn.	Ch	Lep	Fazal Bot 422			+		2142	Golan
	423. *Bistorta affinis* (D. Don) Green	Ch	Nan	Fazal Bot 423			+		1987	Koghuzi
	424. *Fallopia convulvulous* (L.) A. Love	Th	Nan	Fazal Bot 424			+		1923	Koghuzi
	425. *Fallopia dumetorum* (Linn.) Holub	Th	Mes	Fazal Bot 425			+		2021	Barenis
	426. *Oxyria digyna* (L.) Hill.	Th	Nan	Fazal Bot 426		+			1890	Prayet

72. Polygonaceae	427. *Persicaria chinensis* (Linn.) H. Gross	Th	Nan	Fazal Bot 427			+		1922	Golan
	428. *Persicaria glabra* (Willd) M. Gomes	Hem	Nan	Fazal Bot 428			+		1899	Koghuzi
	429. *Persicaria nepalensis* (Meiss.) H. Gross	Th	Nan	Fazal Bot 429			+		1678	Kuju
	430. *Persicaria orientalis* (Linn.) Spach	Th	Nan	Fazal Bot 430			+		1674	Ragh
	431. *Polygonum aviculare* L.	Th	Lep	Fazal Bot 431		+			1610	Kuju
	432. *Polygonum afghanicum* Meiss.	Th	Lep	Fazal Bot 432		+			1615	Kari
	433. *Rheum emodi* Wall. ex. Meissn.	Geo	Mac	Fazal Bot 433			+		1834	Moroi
	434. *Rheum webbianum* Royle	Th	Mac	Fazal Bot 434		+			1548	Kari
	435. *Rumex crispus* L.	Ch	Mes	Fazal Bot 435	+				1587	Ragh
	436. *Rumex hastatus* D. Don	Ch	Mes	Fazal Bot 436	+				1812	Moroi
	437. *Rumex dentatus* L.	Hem	Mes	Fazal Bot 437	+				1535	Kari
	438. *Rumex nepalensis* Spreng.	Hem	Mes	Fazal Bot 438		+			1878	Golan
	439. *Rumex pulcher* L.	Ch	Mic	Fazal Bot 439	+				1765	Kuju
73. Podophyllaceae	440. *Podophyllum emodi* Wall. ex Royle	Th	Lep	Fazal Bot 440		+			1890	Prayet
74. Portulacaceae	441. *Portulaca oleraceae* Linn.	Th	Nan	Fazal Bot 441		+			1595	Ragh
75. Primulaceae	442. *Primula officinalis* (L.) Hill	Th	Mes	Fazal Bot 442		+			1540	Kuju
	443. *Primula macrophylla* D. Don.	Hem	Mes	Fazal Bot 443		+			1634	Ragh
76. Punicaceae	444. *Punica granatum* Linn.	Np	Mes	Fazal Bot 444		+			1795	Moroi
77. Ranunculaceae	445. *Aquilegia vulgaris* L.	Hem	Mic	Fazal Bot 445		+			1823	Barenis
	446. *Anemone polyanthes* D. Don	Hem	Mic	Fazal Bot 446			+		2109	Golan
	447. *Aconitum heterophyllum* Wall ex Royle	Hem	Mes	Fazal Bot 447			+		2334	Barenis
	448. *Aconitum napellus* L.	Hem	Mes	Fazal Bot 448			+		2316	Golan
	449. *Aconitum rotundifolium* Kar et Kar.	Hem	Mes	Fazal Bot 449			+		2123	Koghuzi
	450. *Clematis graveolens* Lindl.	Ch	Nan	Fazal Bot 450			+		1923	Prayet
	451. *Clematis grata* Wall.	Ch	Nan	Fazal Bot 451		+			1945	Barenis
	452. *Clematis orientalis* Linn.	Ch	Nan	Fazal Bot 452		+			1835	Moroi
	453. *Delphenium nordhageni* Wendelbo.	Ch	Mes	Fazal Bot 453			+		1666	Koghuzi
	454. *Ranunculus arvensis* Linn.	Th	Nan	Fazal Bot 454	+				1865	Koghuzi
	455. *Ranunculus muricatus* L.	Th	Nan	Fazal Bot 455	+				1822	Moroi
	456. *Ranunculus natans* C.A. Mey.	Th	Nan	Fazal Bot 456	+				1700	Koghuzi

	457. *Thalictrum alpinum* Linn.	Th	Nan	Fazal Bot 457		+			2220	Golan
78. Resedaceae	458. *Reseda odorata* Linn.	Th	Lep	Fazal Bot 458		+			1988	Barenis
79. Rosaceae	459. *Cotoneaster microphylla* Wall. ex. Lind	Np	Lep	Fazal Bot 459		+			1813	Moroi
	460. *Cotoneaster nummularia* Fish. & Mey.	Np	Nan	Fazal Bot 460		+			2205	Barenis
	461. *Cotoneaster affinis* var. *bacillaris* (Lindl.) Schneider	Np	Lep	Fazal Bot 461		+			1987	Golan
	462. *Crataegus songarica* C. Koch.	Mp	Mes	Fazal Bot 462			+		1804	Moroi
	463. *Crataegus oxicantha* L.	Mp	Mes	Fazal Bot 463			+		1833	Moroi
	464. *Crataegus wattiana* Hemsl. & Lace, J. L.	Mp	Mic	Fazal Bot 464		+			2212	Barenis
	465. *Eriobotriya japonica* Lindle.	Mp	Mes	Fazal Bot 465	+				1920	Prayet
	466. *Fragaria vesica* L.	Np	Mes	Fazal Bot 466	+				1560	Kari
	467. *Malus domestica* Linn.	Mp	Mac	Fazal Bot 467	+				1766	Mori
	468. *Potentilla bifurca* Linn.	Ch	Mes	Fazal Bot 468		+			1635	Kuju
	469. *Potentilla gelida* C. A. Mey.	Ch	Mes	Fazal Bot 469		+			1667	Kari
	470. *Potentilla multifida* Linn	Hem	Mes	Fazal Bot 470		+			1623	Ragh
	471. *Potentilla pamirica* Th. Wolf.	Th	Nan	Fazal Bot 471		+			1824	Koghuzi
	472. *Prunus amygdalus* Batsch	Mp	Mes	Fazal Bot 472	+				1630	Moroi
	473. *Prunus armeniaca* Marsh.	Mp	Mes	Fazal Bot 473	+				1820	Prayet
	474. *Prunus avium* L.	Mp	Mes	Fazal Bot 474	+				1612	Koghuzi
	475. *Pyrus communis* L.	Mp	Mes	Fazal Bot 475	+				1800	Moroi
	476. *Prunus domestica* Linn.	Mp	Mes	Fazal Bot 476	+				1816	Prayet
	477. *Prunus dulcis* (Mill.) D.A. Webb	Mp	Mes	Fazal Bot 477	+				1912	Kuju
	478. *Prunus griffithii* (Boiss.) C. K. Schneid.	Mp	Mes	Fazal Bot 478	+				1765	Koghuzi
	479. *Prunus jacquemontii* Hook. f.	Mp	Mes	Fazal Bot 479	+				1922	Barenis
	480. *Prunus persica* Linn.	Mp	Mes	Fazal Bot 480	+				1810	Moroi
	481. *Rosa alba* Linn.	Np	Nan	Fazal Bot 481	+	+			1815	Moroi
	482. *Rosa indica* L.	Np	Nan	Fazal Bot 482	+	+			2021	Ragh
	483. *Rosa webbiana* Wall. ex. Royle	Np	Nan	Fazal Bot 483	+				1590	Barenis
	484. *Rubus fruticousus* Linn.	Np	Mes	Fazal Bot 484	+				1613	Kuju
	485. *Rubus anatolicus* Fodce.	Np	Mes	Fazal Bot 485	+				1615	Kuju
	486. *Sorbaria sorbifolia* (L.) A. Braun	Np	Mes	Fazal Bot 486		+			1898	Kuju
80. Rubiaceae	487. *Galium aparine* Linn	Hem	Mic	Fazal Bot 487			+		1823	Moroi
	488. *Galium boreale* Linn	Hem	Mic	Fazal Bot 488			+		1733	Mori
	489. *Galium tricornutum*	Hem	Lep	Fazal Bot 489			+		1824	Koghuzi

	Dandy.									
81. Rutaceae	490. *Citrus limetta* (F)	Np	Mes	Fazal Bot 490		+			1610	Koghuzi
	491. *Citrus aurantium* L.	Np	Mes	Fazal Bot 491		+			1818	Moroi
	492. *Citrus sinensis* (Linn.)	Np	Mes	Fazal Bot 492			+		1655	Ragh
82. Salicaceae	493. *Poplus alba* Linn.	Mp	Mes	Fazal Bot 493			+		1906	Moroi
	494. *Poplus nigra* Linn.	Mp	Mes	Fazal Bot 494			+		2933	Golan
	495. *Salix acmophylla* Boiss.	Mp	Mic	Fazal Bot 495	+				2110	Barenis
	496. *Salix babylonica* L.	Mp	Mic	Fazal Bot 496	+				1954	Golan
	497. *Salix discolor* Muhl.	Mp	Mic	Fazal Bot 497	+				1820	Moroi
	498. *Salix iliensis* Regel.	Np	Mic	Fazal Bot 498		+			1823	Moroi
	499. *Salix tetrasperma* Roxb.	Mp	Mes	Fazal Bot 499		+			1821	Moroi
	500. *Salix viminalis* Linn	Mp	Mes	Fazal Bot 500		+			2955	Golan
83. Saxifragaceae	501. *Saxifraga spps*	Geo	Mic	Fazal Bot 501			+		1912	Prayet
	502. *Saxifraga flagellaris* Willd. ex Sternb	Geo	Mic	Fazal Bot 502			+		1987	Koghuzi
	503. *Bergenia stracheyi* L.	Geo	Mic	Fazal Bot 403		+	+		1820	Moroi
	504. *Bergenia himalacia* Boriss.	Geo	Mic	Fazal Bot 504		+			1580	Koghuzi
84. Scrophulariaceae	505. *Antirrhinum majus* Linn.	Th	Lep	Fazal Bot 505	+				1630	Kuju
	506. *Leptorhabdos parviflora* (Bth.) Bth.	Th	Lep	Fazal Bot 506		+			1798	Barghuzi
	507. *Linaria vulgaris* Miller	Th	Lep	Fazal Bot 507		+			1865	Mori
	508. *Pedicularis albida* Penn.	Hem	Mes	Fazal Bot 508			+		2523	Prayet
	509. *Pedicularis brevifolia* D. Don	Hem	Mes	Fazal Bot 509			+		2421	Prayet
	510. *Verbascum erianthum* Benth.	Th	Mic	Fazal Bot 510		+			1985	Prayet
	511. *Verbascum thapsus* Linn.	Geo	Mac	Fazal Bot 511		+			1532	Kari
	512. *Veronica serpyllifolia* Linn.	Th	Mic	Fazal Bot 512			+		2013	Barenis
85. Simarubaceae	513. *Ailanthus altissima* (P. Mill.) Swingle	Np	Mic	Fazal Bot 513		+			1699	Istan-Gol
86. Solanaceae	514. *Datura innoxia* Mill.	Th	Mac	Fazal Bot 514		+			1788	Moroi
	515. *Datura stramonium* Linn.	Th	Mac	Fazal Bot 515		+			1940	Prayet
	516. *Hyoscymus niger* Linn.	Th	Lep	Fazal Bot 516		+			1587	Kuju
	517. *Hyoscymus pusillus* Linn.	Th	Nan	Fazal Bot 517		+			1822	Moroi
	518. *Lycopersicum esculentum* Linn.	Th	Mic	Fazal Bot 518		+			1808	Moroi
	519. *Nicotiana tabacum* L.	Th	Mac	Fazal Bot 519		+			1740	Koghuzi
	520. *Solanum melongena* Linn.	Th	Mac	Fazal Bot 520		+			1833	Moroi
	521. *Solanum nigrum* L.	Th	Mes	Fazal Bot 521		+			1809	Moroi
	522. *Solanum tuburosum* Linn.	Geo	Mes	Fazal Bot 522			+		2112	Golan
	523. *Myricaria germanica*	Mp	Mic	Fazal Bot 523		+			1945	Moroi

87. Tamaricaceae	(L.) Desv.									
	524. *Tamaricaria elegans* (Royle) Qaiser & Ali	Np	Lep	Fazal Bot 524			+		1910	Prayet
	525. *Tamarix dioica* Rox. ex. Roth.	Np	Lep	Fazal Bot 525		+			1613	Ragh
88. Thymelaeaceae	526. *Daphne oleoides* Schrend.	Np	Lep	Fazal Bot 526			+		1605	Kuju
	527. *Daphne alpine* L.	Np	Lep	Fazal Bot 527			+		2123	Barenis
	528. *Thymelaea passerina* (Linn.) Cosson & Germain.	Th	Nan	Fazal Bot 528			+		1590	Kari
89. Ulmaceae	529. *Celtis australis*	Mp	Lep	Fazal Bot 529		+			1520	Barenis
90. Urticaceae	530. *Urtica diocia* Linn.	Th	Lep	Fazal Bot 530		+			1812	Moroi
	531. *Parietaria judaica* L.	Th	Mic	Fazal Bot 531	+				1923	Kuju
	532. *Pilea umbrosa* Blume	Th	Nan	Fazal Bot 532		+			2112	Prayet
91. Valeriaceae	533. *Valeriana wallichii* DC	Hem	Mes	Fazal Bot 533			+		2320	Golan
92. Verbenaceae	534. *Vitex negundo* Linn	Np	Mes	Fazal Bot 534			+		2015	Moroi
93. Violaceae	535. *Viola odorata* Linn.	Hem	Mic	Fazal Bot 535	+				1803	Moroi
	536. *Viola serpens* Wall. ex. Roxb.	Hem	Mic	Fazal Bot 536	+				1804	Prayet
94. Vitaceae	537. *Vitis venifera* Linn.	Np	Mac	Fazal Bot 537		+			1809	Moroi
95. Zygophyllaceae	538. *Zygophyllum fabago* L.	Ch	Lep	Fazal Bot 538			+		1512	Ragh
	539. *Paganum harmala* Linn.	Hem	Nan	Fazal Bot 539		+			1486	Kari
	540. *Tribulus terristris* Linn.	Th	Lep	Fazal Bot 540		+			1785	Mori-Lasht

Collecting information from expert in Koh valley

Local nomad explainnig local flora in Rangela

Table. 2: Ecological attributes of floral diversity as percentage of families, life form classes, leaf sizes and main plants groups of Koh Valley Chitral.

S. No	Classes	Numbers	Percentage	S. No	Families	Number	Percentage
	Life from classes			1	Asteraceae	70	12.96
1	Therophytes	225	41.67	2	Poaceae	44	8.15
2	Hemicryptophytes	133	24.63	3	Papilionaceae	43	7.96
3	Geophytes	63	11.67	4	Rosaceae	28	5.19
4	Megaphenerophytes	45	8.33	5	Lamiaceae	27	5
5	Chamephytes	42	7.78	6	Polygonacae	19	3.52
6	Nanophanerophytes	33	6.11	7	Apiaceae	19	3.52
Leaf size classes				8	Brassicaceae	18	3.33
1	Nanophylls	187	34.63	9	Boraginaceae	14	2.59
2	Mesophylls	145	26.85	10	Caryophyllaceae	14	2.59
3	Leptophylls	111	20.56	11	Ranunculaceae	13	2.41
4	Microphylls	60	11.11	12	Cucurbitaceae	11	2.04
5	Macrophylls	32	5.93	13	Chenopodiaceae	10	1.85
6	Aphylls	05	0.93	14	Solanaceae	09	1.67
Plants groups				15	Salicaceae	08	1.48
1	Dicots	442	81.86	16	Scrophullariaceae	08	1.48
2	Monocots	85	15.74	17	Geraniaceae	07	1.30
3	Gymnosperm	09	1.67	18	Remaining families	With less than 1.30 %.	
4	Angiosperms	04	0.74	19			

Fig. 1

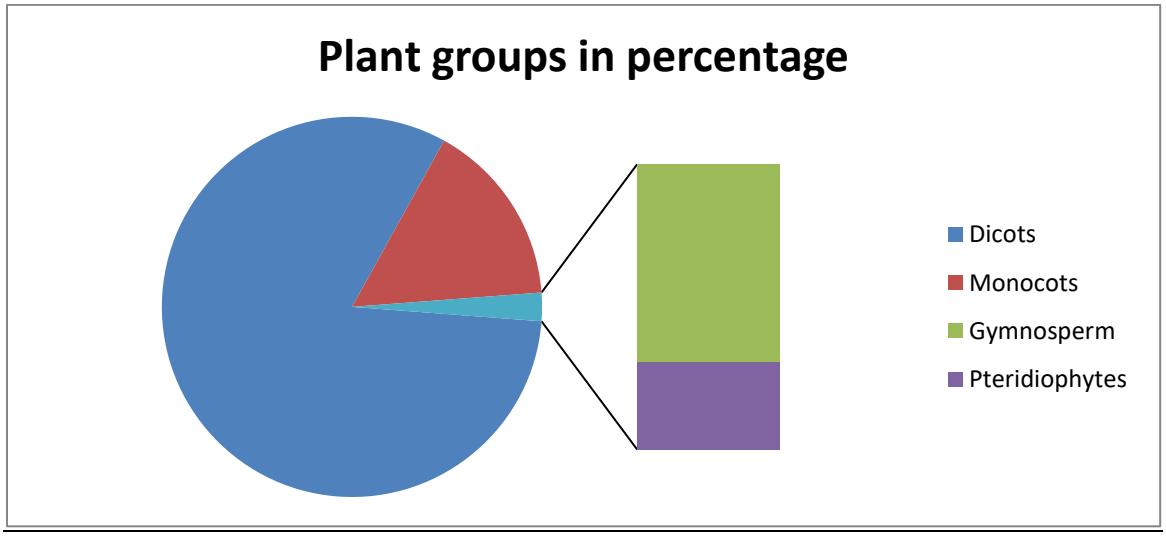


Fig. 2

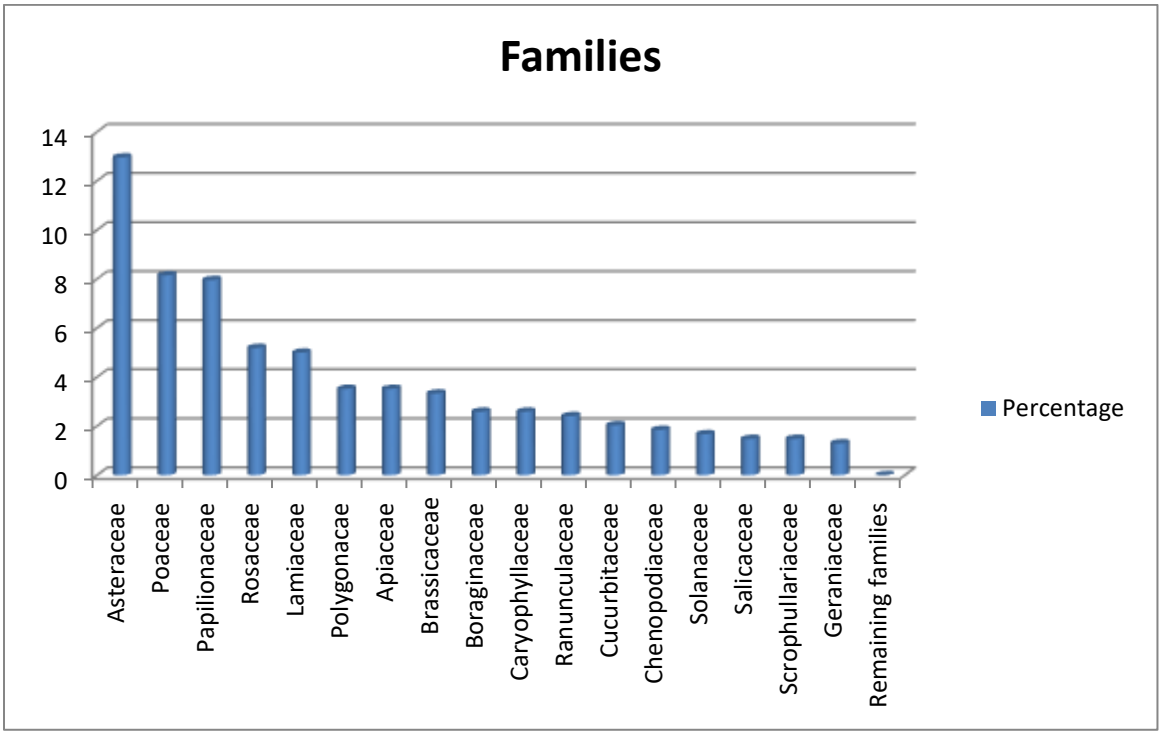


Fig. 3

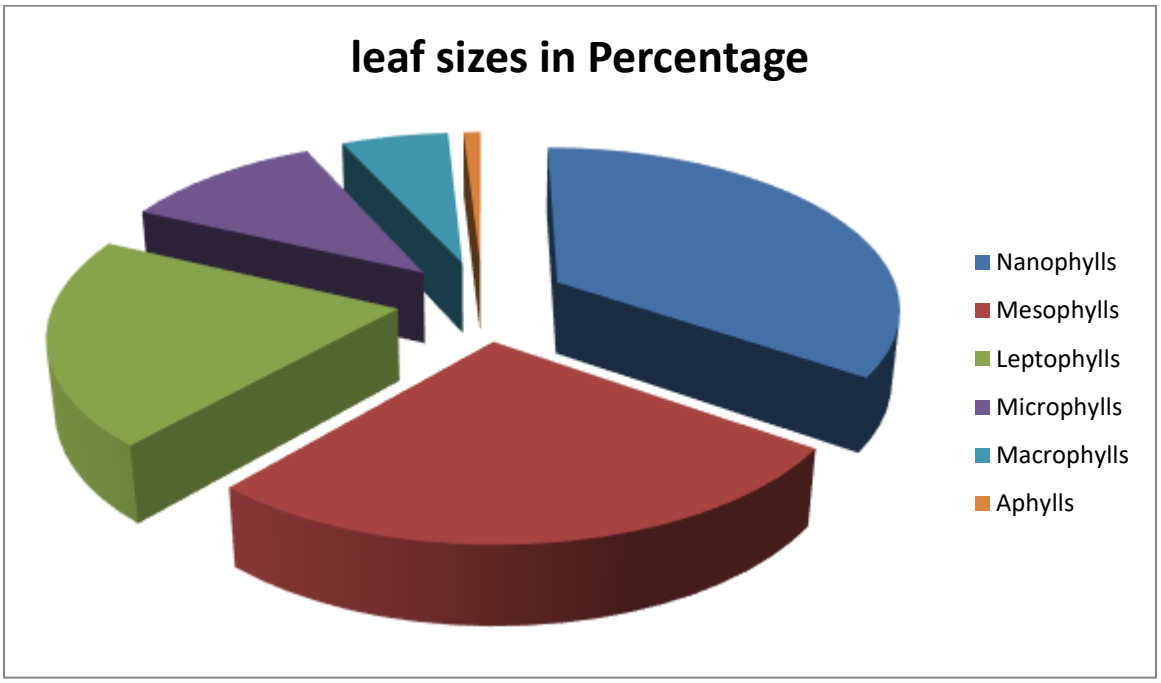
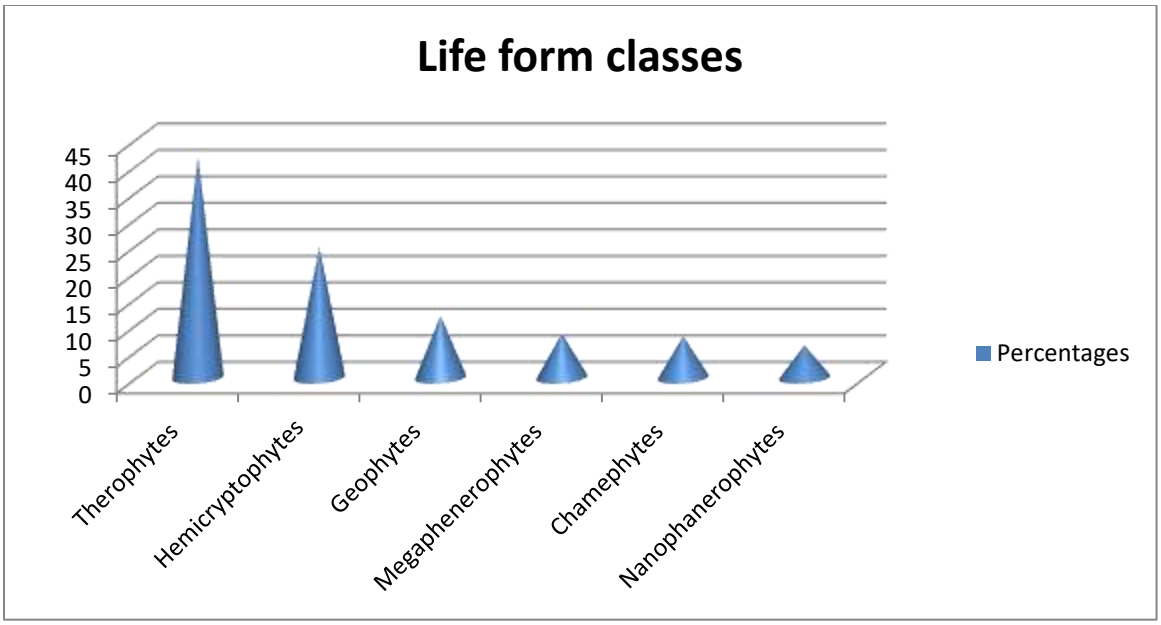


Fig. 4



Declarations

Ethics statement: Any persons shown in the images agreed to have their image published.

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Supporting information

Tables and graphs in this research will clearly explain the research idea and the people will understand the proper utilization.

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