

Floristic Diversity of Patiala district, Punjab, India

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Abstract: The current work is collating description of floristic diversity in district Patiala. Six different blocks of district Patiala were discernible through cluster analysis. Survey was carried out under the scheme of People's Biodiversity Register sponsored by National Biodiversity Authority, Government of India. Total 362 species of plants were identified which belongs to 87 families. 11% shrubs, 10% were climbers, 24% tree, 55% herbs species in this area. 158 of cultivated plant species were found out of which 223 were purely wild species and 19 are wild cum cultivated. Our work primarily focuses on the awareness among the locals and documentation of the plant species data. Investigations during this survey indicate that District Patiala is rich in the floristic diversity. Out of total 362 species, 223 purely wild species, 158 plant species were cultivated, and 19 wild cum cultivated was found.

Keywords: Angiosperm, Documentation, People's Biodiversity Register, National Biodiversity Authority.

1.0 Introduction

India harbour over 2991 species of flowering plants out of with 49 endemic genera belongs to 22 families and 80 taxas [3],[5]. Studied area is located

under the semi-arid and sub-tropical zone of India. Earlier work on documentation of flora of Punjab has been done by [1] [2], [4], [6], [10], [11], [12], [14] [15], [16]. Punjab is blessed

with 1843 species of Angiosperms belonging to 940 genera and 165 families [14]. The documentation of vegetation composition is one of the first steps toward the formulation of conservation and management strategies, so the present study is an endeavour to investigate the floral diversity so, that conservation should be initiated. We specially emphasized on awareness within the locals regarding the importance of biodiversity simultaneously, execution of People biodiversity registers an action plan of National Biodiversity Authority, India in district Patiala. Our major goal under this study is to involve the local communities for accessing the biodiversity data and to get the traditional knowledge from the locals as well as economic importance of these plants. The present study is carried out to get the comprehensive information of the floral diversity of the district Patiala and including awareness among the villagers toward the conservation of local native species.

2.0 Study area

Geographically district Patiala is located in between 29°49'- 30°40' North latitudes and 75°58'- 76°48' longitudes East with 3218 sq.km geographical area having tropical, semi-arid, hot and subtropical monsoon climatic

conditions and experience five seasons i.e. Summer, Rainy, Autumn, Winter and Spring [9]. Study area has moderately dense forest and divided into six blocks such as (Patiala, Nabha, Ghanaur, Rajpura, Sunam and Patran) which also includes eight protected areas locally called Birs (Kharabgarh, Miranpur & Ghogpur, Kule Majra, Majal, Sanaur, Bahadurgarh and Mallehwal) and five sanctuaries (Bhuner Heri, Moti Bhag, Mehas, Dosanj and Bhadson)

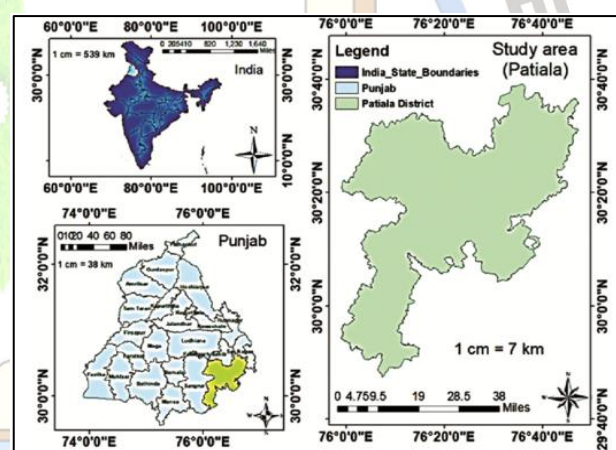


Figure 2.0: Location map of the study area showing Map of District Patiala

3.0 Material and Methods

Study was carried out from September 2019 to September 2021 for the tenure of two years. The preparation of People's Biodiversity Registers (PBRs) involved the active support and cooperation of large number of people including village BMC members, subject experts, farmers, knowledge holder individuals, etc. who were motivated to share their

common as well as specialized knowledge. For the present survey, the standard methodology given by National Biodiversity Authority (NBA) has been adopted. The first step of PBR preparation was to organize preliminary meetings with BMC members and village residents to explain the objectives and purpose of this study. In the second meeting, Participatory Rural Appraisal (PRA) activity was organized with the help of BMC members, in which panchayat members, BMC members, students, knowledgeable individuals and all those interested in the effort were gathered in common places of the village such as school, Gurudwara sahib, community hall, panchayat hall, etc. During PRA activity, all formats of PBR including crop plants, weeds, ornamental plants, timber yielding plants, fruit plants, medicinal plants, aquatic plants and wild plants were used for discussion with locals [7]. To enlist plant species of the study area, 4 field surveys per season has been conducted for the primary data collection throughout the study area.

During field survey, botanical name of plants, local name, habit, habitat, other important field characters, uses, etc. were recorded in the field notebook. The intensive field surveys on foot were

carried out in different locations of district Patiala in different seasons to collect maximum plants species. Photographic records of flowers, leaves, fruits and barks have been done with the aid of mobile and DSLR camera for documenting evidences of plants. For identification of plants local and regional floras were used [8], [11], [14], [15] and some online tools such as [17] [18] [19] [20] was consulted. The inventory was prepared in accordance with Bentham and Hooker system of classification using currently accepted name by using plants of world online, Royal Botanical Garden, Kew.

4.0 Results and Discussions

Authors believe that district level compilations of regional flora to ensure the updating of the records and also helpful in understanding the impact of temporal changes and change in land use pattern, climate change on the species diversity specifically on plants which will ultimately lead to design and amend the conservation strategies within time. The present investigation has been carried out from September 2019 to September 2021 and a total number of 362 species of angiosperms belongs to 276 genera and 87 families which is 19.15% of totals species of Punjab were recorded. Herbs (55%) dominated the area followed by trees

(24%), shrubs (11%), climbers (10%) species (Figure 4.1). Out of total 362 species, 223 purely wild species, 158 plant species were cultivated, and 19 wild cum cultivated was found. Total 87 Families were recorded out of which Poaceae dominate over other with 36 species of plants followed by Fabaceae (35 species), Asteraceae (24 species), Cucurbitaceae (15 species), Malvaceae (13 species), Euphorbiaceae (13 species), Convolvulaceae, Moraceae (11 species each) (Figure 4.2). The favorable genera which have maximum number of species includes *Ficus* (7), *Ipomoea* (6), *Euphorbia* (5), *Brassica* (5) and *Solanum* (4) species each

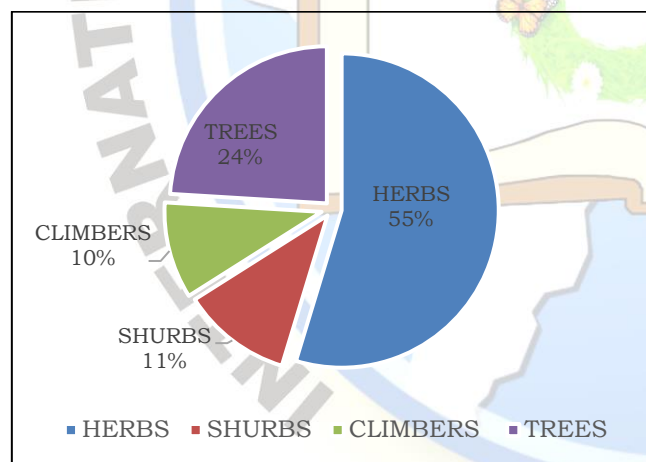


Figure 4.1: Graph showing Percentage of species in different plant groups

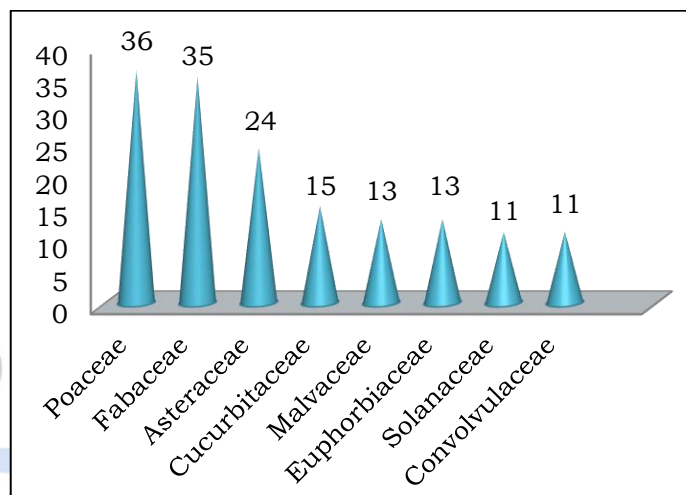


Figure 4.2: Graph showing dominant families in the region

4.1 Vegetation of aquatic and marshy places

Eichhornia crassipes, *Hydrilla verticillata*, *Ipomoea aquatica*, *Lemna minor*, *Nelumbo nucifera*, *Nymphaea nouchali*, *Nymphaea stellata*, *Typha angustifolia*, *Typha domingensis* and *Spirodela polyrrhiza* are main aquatic species growing in the study area. *Eichhornia crassipes* commonly known as Water Hyacinth cover the most of water bodies in area. *Polygonum plebeium*, *Rumex dentatus*, *Ranunculus muricatus*, *Ranunculus reptabundus*, *Cyperus rotundus*, *Cyperus difformis*, *Cyperus compressus*, *Cyperus alatus* subsp. *Albus* found near the marshy places.

4.2 Vegetation of Agriculture fields

Punjab is an agriculture state where two main types of crops i.e. Rabi and Kharif were grown throughout the state. *Triticum aestivum*, *Hordeum vulgare*,

Brassica sp., Pisum sativum are main rabi crops whereas Oryza sativa, Pennisetum typhoides, Physalis angulata, Zea mays etc. are main Kharif crops. Luffa acutangula, Citrullus colocynthis, Cucumis melo, Cucurbita pepo, Abelmoschus esculentus, Solanum melongena, Solanum tuberosum, Lycopersicon esculentum, Momordica charantia etc are summer grown vegetables whereas Allium cepa, Allium sativum Lathyrus oleraceus, Lablab purpureus, Daucus carota, Brassica rapa, Raphanus sativus, Spinacia oleracea, Curcuma longa etc are winter grown vegetables in the region. In addition to Dalbergia sissoo, Tectona grandis, Melia azedarach, Eucalyptus species are grown as along with the crops in the study area for commercial purpose.

4.3 Fruits grown in area

Mangifera indica, Psidium guajava, Litchi chinensis, Citrus species, Prunus persica, Syzygium cumini, Zizyphus jujuba, Vitis vinifera, Musa paradisiaca are grown fruit species in kitchen garden and farm houses.

4.4 Avenue plantation

Delonix regia, Polyalthia longifolia, Chukrasia tabularis, Toona ciliata Hibiscus rosa-sinensis, Moringa oleifera, Cassia fistula, Albizia lebbeck,

Albizia procera. Erythrina variegata, Butea monosperma, Pongamia pinnata, Bauhinia variegata, Lagerstroemia speciosa, Lagerstroemia indica, Piliostigma malabaricum, Putranjivam roxburghii, Gladiolus dalenii, Jasminum grandiflorum, Jasminum sambac, Catharanthus roseus, Nerium oleander, Tabernaemontana divaricate etc. are trees and shrubs which are grown along road sides, gardens, government organisations, hospitals for ornamental purpose.

4.5 Rare species

Oxystelma esculentum, Pergularia daemia and Bacopa monnieri are reported at one or two site during survey of the district therefore placed under the rare category.



Figure 4.3: Interacting with local people of Village Chamaru, Ghanour division, Patiala

Major purpose of these survey are the awareness in the locals as conservation without the involvement of native people is not possible so, on every visit

a small gathering for interaction was carried out with the villager is generate, Sarpanch and other members of the Panchayat (Figure 4.3). Interactions emphasized on the conservation of the native plant species, understanding the policies and rules of government. Briefing to the local community's regulation that how to of access to biodiversity resources leading to sustainable harvests and development. Promoting knowledge-based sustainable management of agriculture, forests and

public health so as to enhance the quality of life of the community members. Conserving valued resources, value addition to biodiversity resources and recording of biodiversity related knowledge is the mandate of preparation of People's Biodiversity Register. The list was prepared in accordance with Bentham and Hooker system of classification using currently accepted name in accordance with Plants of World Online, Royal Botanical Garden, Kew (Table 4.1).

Table4.1: List of Plant species reported in Patiala District

Sr. No.	Family	Scientific name	Habit	Source
1	Ranunculaceae	Ranunculus muricatus L.	Herb	Wild
2		Ranunculus reptabundus Rupr.	Herb	Wild
3	Magnoliaceae	Magnolia grandiflora L.	Tree	Cultivated
4	Annonaceae	Monoon longifolium (Sonn.) B.Xue & R.M.K. Saunders	Tree	Cultivated
5	Menispermaceae	Tinospora cordifolia (Willd.) Hook. f. & Thomson	Climber	Wild
6	Nymphaeaceae	Nymphaea nouchali Burm. f.	Herb	Wild
7		Nymphaea stellata Willd.	Herb	Wild
8	Papaveraceae	Fumaria indica (Hausskn.) Pugsley	Herb	Wild
9		Argemone mexicana L.	Herb	Wild
10	Brassicaceae	Brassica cretica subsp. cretica	Herb	Cultivated
11		Brassica oleracea L.	Herb	Cultivated
12		Brassica napus L.	Herb	Cultivated
13		Brassica juncea (L.) Czern.	Herb	Cultivated
14		Brassica rapa L.	Herb	Cultivated
15		Lepidium didymium L.	Herb	Wild
16		Eruca vesicaria (L.) Cav.	Herb	Cultivated
17		Raphanus raphanistrum L.	Herb	Wild
18		Rorippa indica (L.) Hiern	Herb	Wild
19		Sisymbrium irio L.	Herb	Wild
20	Capparidaceae	Cleome viscosa L.	Herb	Wild
21		Capparis decidua (Forssk.) Edgew.	Tree	Wild
22		Capparis sepiaria L.	Shrub/Tree	Wild
23	Caryophyllaceae	Crataeva religiosa Hook.f. & Thoms.	Tree	Cultivated
24		Stellaria media (L.) Vill.	Herb	Wild
25		Spergula arvensis L.	Herb	Wild
26	Portulacaceae	Silene conoidea L.	Herb	Wild
27		Portulaca grandiflora Hook.	Herb	Cultivated
28		Portulaca pilosa L.	Herb	Wild

29	Tamaricaceae	Tamarix dioica Roxb.	Shrub	Wild
30	Bombacaceae	Bombax ceiba L.	Tree	Cultivated
31	Malvaceae	Abelmoschus esculentus (L.) Moench	Herb	Cultivated
32		Abelmoschus ficulneus (L.) Wight & Arn.	Herb	Wild
33		Abelmoschus manihot (L.) Medik.	Shrub	Cultivated
34		Abutilon indicum (L.) Sweet	Shrub	Wild
35		Hibiscus rosa-sinensis L.	Shrub	Cultivated
36		Malva pusilla Sm.	Herb	Wild
37		Malvastrum coromandelianum (L.) Garcke	Shrub	Wild
38		Sida acuta Burm.f.	Herb	Wild
39		Sida cordifolia L.	Shrub	Wild
40		Sida rhombifolia L.	Herb	Wild
41		Urena lobata L.	Shrub	Wild
42		Pterospermum acerifolium (L.) Willd.	Tree	Cultivated
43		Triumfetta pentandra A.Rich.	Herb	Wild
44	Zygophyllaceae	Kallstroemia maxima (L.) Hook. & Arn.	Herb	Wild
45	Oxalidaceae	Oxalis corniculata L.	Herb	Wild
46	Rutaceae	Citrus aurantiifolia (Christm.) Swingle	Shrub	Cultivated
47		Citrus glauca (Lindl.) Burkill	Tree	Cultivated
48		Citrus reticulata L.	Shrub	Cultivated
49		Citrus sinensis (L.) Osbeck.	Shrub	Cultivated
50		Aegle marmelos (L.) Corrêa	Tree	Cultivated
51		Bergera koenigii L.	Shrub	Wild
52	Meliaceae	Azadirachta indica A. Juss.	Tree	Wild/ Cultivated
53		Melia azedarach L.	Tree	Cultivated
54		Chukrasia tabularis A. Juss.	Tree	Wild/ Cultivated
55		Toona ciliata M.Roem.	Tree	Wild
56	Rhamnaceae	Ziziphus jujuba Mill.	Tree	Wild/ Cultivated
57		Ziziphus nummularia (Burm. f.) Wt. & Arn.	S	Wild
58	Vitaceae	Causonis trifolia (L.) Mabb. & J. Wen.	Climber	Wild
59		Vitis vinifera L.	Climber	Cultivated
60	Sapindaceae	Cardiospermum halicacabum L.	Climber	Wild
61		Sapindus saponaria L.	Tree	Cultivated
62		Litchi chinensis Sonn.	Tree	Cultivated
63	Burseraceae	Commiphora wightii (Arn.) Bhandari	Tree	Wild
64	Anacardiaceae	Mangifera indica L.	Tree	Wild/ Cultivated
65	Moringaceae	Moringa oleifera Lam.	Tree	Cultivated
66	Fabaceae	Vicia sativa L.	Climber	Wild
67		Vicia hirsuta (L.) Gray	Climber	Wild
68		Melilotus indicus (L.) All.	Herb	Wild
69		Lablab purpureus (L.) Sweet	Climber	Cultivated
70		Lathyrus aphaca L.	Herb	Wild
71		Lathyrus oleraceus Lam.	Herb	Cultivated
72		Lathyrus vestitus Nutt.	Herb	Cultivated
73		Dalbergia sissoo Roxb. ex DC.	Tree	Wild/ Cultivated
74		Dalbergia paniculata (Roxb.) Thoth	Tree	Wild/Cultivated
75		Crotalaria medicaginea var. luxurians (Bent	Herb	Wild

		h.) Baker		
76		<i>Crotalaria medicaginea</i> Lam.	Herb	Wild
77		<i>Crotalaria spectabilis</i> Roth.	Herb	Cultivated
78		<i>Medicago polymorpha</i> L.	Herb	Wild
79		<i>Medicago sativa</i> L.	Herb	Wild
80		<i>Trifolium alexandrinum</i> L.	Herb	Cultivated
81		<i>Trifolium fragiferum</i> L.	Herb	Wild
82		<i>Trifolium resupinatum</i> L.	Herb	Cultivated
83		<i>Trigonella balansae</i> Boiss. & Reut.	Herb	Cultivated
84		<i>Trigonella foenum-graecum</i> L.	Herb	Cultivated
85		<i>Vigna mungo</i> (L.) Hepper	Herb	Cultivated
86		<i>Vigna radiata</i> (L.) R. Wilczek	Herb	Cultivated
87		<i>Vigna unguiculata</i> (L.) Walp.	Herb	Cultivated
88		<i>Teramnus labialis</i> (L.f.) Spreng.	Climber	Wild
89		<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Herb	Cultivated
90		<i>Aeschynomene indica</i> L.	Herb	Wild
91		<i>Indigofera tsiangiana</i> Metcalf	Herb	Wild
92		<i>Erythrina variegata</i> L.	Tree	Cultivated
93		<i>Butea monosperma</i> (Lam.) Kuntze	Tree	Cultivated
94		<i>Pongamia pinnata</i> (L.) Pierre	Tree	Wild/ Cultivated
95		<i>Vicia lens</i> (L.) Coss. & Germ.	Herb	Cultivated
96		<i>Piliostigma malabaricum</i> (Roxb.) Benth.	Tree	Wild/ Cultivated
97		<i>Bauhinia variegata</i> L.	Tree	Wild/ Cultivated
98		<i>Grona heterophylla</i> (Willd.) H. Ohashi & K. Ohashi	Herb	Wild
99		<i>Delonix regia</i> (Bojer ex Hook.) Raf.	Tree	Cultivated
100		<i>Leucaena leucocephala</i> (Lam.) de Wit.	Tree	Wild
101	Caesalpiniaceae	<i>Guilandina bonduc</i> L.	Tree	Cultivated
102		<i>Cassia fistula</i> L.	Tree	Cultivated
103		<i>Senna sulfurea</i> (DC. ex Collad.) H.S. Irwin & Barneby	Tree	Cultivated
104	Mimosaceae	<i>Albizia lebbeck</i> (L.) Benth.	Tree	Wild/ Cultivated
105		<i>Albizia procera</i> (Roxb.) Benth.	Tree	Wild
106		<i>Prosopis cineraria</i> (L.) Druce	Tree	Wild
107		<i>Neltuma juliflora</i> (Sw.) Raf.	Tree	Wild
108		<i>Acacia auriculiformis</i> A. Cunn. Benth.	Tree	Wild/ Cultivated
109		<i>Senegalia catechu</i> (L.f.) P.J.H. Hurter & Mabb.	Tree	Wild
110		<i>Senegalia modesta</i> (Wall.) P.J.H. Hurter	Tree	Wild
111		<i>Vachellia nilotica</i> (L.) P.J.H. Hurter & Mabb.	Tree	Wild
112	Rosaceae	<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Tree	Cultivated
113		<i>Pyrus pyrifolia</i> (Burm. f.) Naikai	Tree	Cultivated
114		<i>Prunus amygdalus</i> Batsch	Tree	Cultivated
115		<i>Rosa x alba</i> L.	Shrub	Cultivated
116		<i>Rosa indica</i> L.	Shrub	Cultivated
117		<i>Malus domestica</i> (Suckow) Borkh.	Tree	Cultivated
118	Crassulaceae	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Herb	Cultivated
119	Combretaceae	<i>Combretum indicum</i> (L.) De Filippis	Climber	Cultivated
120		<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight &	Tree	Cultivated

		Arn.		
121		<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Tree	Wild
122		<i>Terminalia chebula</i> Retz.	Tree	Cultivated
123	Myrtaceae	<i>Melaleuca citina</i> (Curtis) Dum. Cours.	Tree	Cultivated
124		<i>Melaleuca viminalis</i> (Sol. ex Gaertn.) Byrnes	Tree	Cultivated
125		<i>Eucalyptus globulus</i> Labill.	Tree	Wild/ Cultivated
126		<i>Eucalyptus tereticornis</i> Sm.	Tree	Wild/ Cultivated
127		<i>Psidium guajava</i> L.	Tree	Cultivated
128		<i>Syzygium cumini</i> (L.) Skeels	Tree	Wild/ Cultivated
129	Lythraceae	<i>Lagerstroemia indica</i> L.	Tree	Cultivated
130		<i>Lagerstroemia speciosa</i> (L.) Pers.	Tree	Cultivated
131		<i>Lawsonia inermis</i> L.	Shrub	Wild/ Cultivated
132		<i>Trapa natans</i> L.	Herb	Wild
133	Cucurbitaceae	<i>Coccinia grandis</i> (L.) Voigt	Climber	Wild
134		<i>Trichosanthes cucumerina</i> L.	Herb	Wild
135		<i>Luffa acutangula</i> (L.) Roxb.	Climber	Cultivated
136		<i>Luffa cylindrica</i> (L.) Rox.	Climber	Cultivated
137		<i>Mukia maderaspatana</i> (L.) Cogn.	Climber	Wild
138		<i>Momordica charantia</i> L.	Climber	Cultivated
139		<i>Citrullus colocynthis</i> (L.) Schrad.	Climber	Wild
140		<i>Benincasa fistulosa</i> (Stocks) H. Schaef. & S.S. Renner	Climber	Cultivated
141		<i>Citrullus lanatus</i> (Thunb.) Matsum. & Nakai	Climber	Cultivated
142		<i>Cucumis melo</i> L.	Climber	Wild/ Cultivated
143		<i>Cucumis sativus</i> L.	Climber	Cultivated
144		<i>Cucurbita maxima</i> Duchesne	Climber	Cultivated
145		<i>Cucurbita moschata</i> Duchesne	Climber	Cultivated
146		<i>Cucurbita pepo</i> L.	Climber	Cultivated
147		<i>Lagenaria siceraria</i> (Molina) Standl.	Climber	Cultivated
148	Caricaceae	<i>Carica papaya</i> L.	Tree	Cultivated
149	Punicaceae	<i>Punica granatum</i> L.	Shrub	Cultivated
150	Onagraceae	<i>Ludwigia perennis</i> L.	Herb	Wild
151	Molluginaceae	<i>Hypertelis cerviana</i> (L.) Thulin	Herb	Wild
152	Apiaceae	<i>Centella asiatica</i> (L.) Urb.	Herb	Wild
153		<i>Coriandrum sativum</i> L.	Herb	Cultivated
154		<i>Daucus carota</i> L.	Herb	Cultivated
155		<i>Foeniculum vulgare</i> Mill.	Herb	Cultivated
156		<i>Pimpinella major</i> (L.) Huds	Herb	Wild
157		<i>Trachyspermum ammi</i> (L.) Sprague	Herb	Cultivated
158	Rubiaceae	<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Tree	Wild/ Cultivated
159 C		<i>Galium aparine</i> L.	Herb	Wild

160	Asteraceae	Launaea procumbens (Roxb.) Ramayya & Rajagopal	Herb	Wild
161		Sonchus arvensis L.	Herb	Wild
162		Sonchus wightianus DC.	Herb	Wild
163		Cyanthillium cinereum (L.) H. Rob.	Herb	Wild
164		Ageratum conyzoides L.	Herb	Wild
165		Erigeron sublyratus Roxb. ex DC.	Herb	Wild
166		Erigeron bonariensis L.	Herb	Wild
167		Erigeron canadensis L.	Herb	Wild
168		Caesulia axillaris Roxb.	Herb	Wild
169		Anaphalis subdecurrens (DC). Gamble	Herb	Wild
170		Xanthium strumarium L.	Shrub	Wild
171		Eclipta prostrata (L.) L.	Herb	Wild
172		Bidens pilosa L.	Herb	Wild
173		Tridax procumbens (L.) L.	Herb	Wild
174		Verbesina encelioides (Cav.) Benth. & Hook.f. ex A.Gray	Herb	Wild
175		Artemisia scoparia Waldst. & Kit.	Herb	Wild
176		Parthenium hysterophorus L.	Herb	Wild
177		Chrysanthemum indicum L.	Herb	Cultivated
178		Cirsium arvense (L.) Scop.	Herb	Wild
179		Dahlia pinnata Cav.	Herb	Cultivated
180		Helianthus annuus L.	Shrub	Cultivated
181		Lactuca sativa L.	Herb	Cultivated
182		Lactuca dissecta D. Don	Herb	Wild
183		Tagetes erecta L.	Herb	Cultivated
184	Sphenocleaceae	Sphenoclea zeylanica Gaertn.	Herb	Wild
185	Plumbaginaceae	Plumbago zeylanica L.	Herb	Wild
186	Primulaceae	Anagallis arvensis L.	Herb	Wild
187	Sapotaceae	Manilkara zapota (L.) P.Royen	Tree	Cultivated
188		Pouteria sapota (Jacq.) H.E.Moore & Stearn	Tree	Cultivated
189	Oleaceae	Jasminum grandiflorum L.	Shrub	Cultivated
190		Jasminum sambac (L.) Sol.	Shrub	Cultivated
191		Catharanthus roseus (L.) G. Don	Herb	Cultivated
192		Alstonia scholaris (L.) R. Br.	Tree	Cultivated
193	Apocynaceae	Carissa spinarum L.	Shrub	Wild/ Cultivated
194		Cascabela thevetia (L.) Lippold	Shrub	Cultivated
195		Nerium oleander L.	Tree	Cultivated
196	Asclepiadaceae	Tabernaemontana divaricata (L.) R. Br. ex Roem. & Schult.	Shrub	Cultivated
197		Calotropis gigantea (L.) W.T. Aiton	Shrub	Wild
198		Calotropis procera (Ait.) W.T. Aiton	Shrub	Wild
199		Oxystelma esculentum (L. f.) Sm.	Shrub	Wild
200	Apocynaceae	Pergularia daemia (Sw.) Chiov.	Climber	Wild
201	Gentianaceae	Centaurium pulchellum (Sw.) Hayek ex Hand.-Mazz., Stadlm., Janch. & Faltis	Herb	Wild
202	Boraginaceae	Cordia dichotoma G. Forst.	Tree	Wild
203		Euploca strigosa (Willd.) Diane & Hilger	Herb	Wild
204	Convolvulaceae	Cuscuta reflexa Roxb.	Climber	Wild
205		Evolvulus nummularius (L.) L.	Herb	Wild
206		Ipomoea aquatica Forssk.	Climber	Wild
207		Ipomoea batatas (L.) Lam	Climber	Wild
208		Ipomoea carnea subsp. fistulosa (Mart. ex	Climber	Wild

		Choisy) D.F. Austin	r	
209		Ipomoea grandifolia (Dammer) O'Donell	Climber	Wild
210		Ipomoea nil (L.) Roth	Climber	Wild
211		Ipomoea pes-tigridis L.	Climber	Wild
212		Convolvulus arvensis L.	Climber	Wild
213		Convolvulus prostratus Forssk.	Herb	Wild
214		Merremia hederacea (Burm. f.) Hallier f.	Climber	Wild
215		Physalis angulata L.	Herb	Wild
216		Withania somnifera (L.) Dunal	Herb	Wild/Cultivated
217		Capsicum annuum L.	Herb	Cultivated
218		Nicotiana plumbaginifolia Viv.	Herb	Wild
219	Solanaceae	Datura innoxia Mill	Herb	Wild
220		Datura metel L.	Herb	Wild
221		Solanum melongena L.	Herb	Cultivated
222		Solanum americanum Mill.	Herb	Wild
223		Solanum tuberosum L.	Herb	Cultivated
224		Solanum torvum Sw.	Shrub	Wild
225		Lycopersicon esculentum Mill.	Herb	Cultivated
226		Mazus pumilus (Burm. f.) Steenis	Herb	Wild
227	Scrophulariaceae	Bacopa monnieri (L.) Wettst.	Herb	Wild
228		Veronica arvensis L.	Herb	Wild
229		Veronica anagallis-aquatica L.	Herb	Wild
230	Pedaliaceae	Sesamum indicum L.	Shrub	Wild/Cultivated
231		Campsis radicans (L.) Bureau	Shrub	Cultivated
232	Bignoniaceae	Tecomella undulata (Sm.) Seem.	Tree	Wild/Cultivated
233		Tecoma stans (L.) Juss. ex Kunth	Shrub	Cultivated
234		Jacaranda mimosifolia D.Don	Tree	Cultivated
235		Dicliptera bupleuroides Nees	Herb	Wild
236	Acanthaceae	Eranthemum pulchellum Andrews	Shrub	Wild
237		Rungia pectinata (L.) Nees	Herb	Wild
238		Justicia adhatoda L.	Shrub	Wild
239	Verbenaceae	Lantana camara L.	Shrub	Wild
240		Duranta erecta L.	Shrub	Cultivated
241		Tectona grandis L. f.	Tree	Cultivated
242		Anisomeles indica (L.) Kuntze	Herb	Wild
243	Lamiaceae	Ocimum basilicum L.	Herb	Cultivated
244		Ocimum tenuiflorum L.	Herb	Cultivated
245		Salvia plebeia R. Br.	Herb	Wild
246	Plantaginaceae	Antirrhinum majus L.	Herb	Cultivated
247		Boerhavia diffusa L.	Herb	Wild
248	Nyctaginaceae	Bougainvillea glabra Choisy	Climber	Wild
249		Bougainvillea spectabilis Willd.	Climber	Wild
250		Mirabilis jalapa L.	Herb	Cultivated
251		Alternanthera sessilis (L.) DC.	Herb	Wild
252		Gomphrena celosioides Mart.	Herb	Wild
253	Amaranthaceae	Pupalia lappacea (L.) Juss.	Shrub	Wild
254		Digera muricata (L.) Mart.	Herb	Wild
255		Celosia argentea L.	Herb	Cultivated
256		Bassia indica (Wight) A.J. Scott	Herb	Cultivated

257		Achyranthes aspera L.	Herb	Wild
258		Amaranthus spinosus L.	Herb	Wild
259		Amaranthus viridis L.	Herb	Wild
260		Spinacia oleracea L.	Herb	Cultivated
261	Chenopodiaceae	Chenopodium murale (L.) S. Fuentes, Uotila & Borsch	Herb	Wild
262		Chenopodium album L.	Herb	Wild
263	Basellaceae	Basella alba L.	Climber	Wild
264	Polygonaceae	Persicaria barbata (L.) H. Hara	Herb	Wild
265		Polygonum plebeium R.Br.	Herb	Wild
266		Rumex dentatus L.	Herb	Wild
267	Proteaceae	Grevillea robusta A.Cunn. ex R.Br.	Tree	Cultivated
268	Euphorbiaceae	Euphorbia helioscopia L.	Herb	Wild
269		Euphorbia hirta L.	Herb	Wild
270		Euphorbia neriifolia L.	Shrub	Wild
271		Euphorbia royleana Boiss.	Shrub	Cultivated
272		Euphorbia thymifolia L.	Herb	Wild
273		Jatropha curcas L.	Shrub	Wild
274		Jatropha integerrima Jacq.	Shrub	Wild
275		Croton bonplandianus Baill.	Herb	Wild
276		Ricinus communis L.	Tree	Wild
277		Phyllanthus emblica L.	Tree	Cultivated
278		Phyllanthus reticulatus Poir.	Shrub	Wild
279		Phyllanthus niruri L.	Herb	Wild
280		Putranjiva roxburghii Wall.	Tree	Cultivated
281	Casuarineae	Casuarina equisetifolia L.	Tree	Wild Cultivated /
282	Salicaceae	Populus deltoides W. Bartram ex Marshall	Tree	Wild Cultivated /
283	Ulmaceae	Holoptelea integrifolia (Roxb.) Planch.	Tree	Wild Cultivated /
284	Cannabaceae	Cannabis sativa L.	Herb	Wild
285	Moraceae	Ficus benghalensis L.	Tree	Wild Cultivated /
286		Ficus carica L.	Tree	Wild
287		Ficus elastica Roxb. ex Hornem.	Tree	Cultivated
288		Ficus racemosa Roxb.	Tree	Wild Cultivated /
289		Ficus religiosa L.	Tree	Wild Cultivated /
290		Ficus lacor Buch.-Ham.	Tree	Wild Cultivated /
291		Ficus palmata Forsk.	Shrub	Wild
292		Artocarpus heterophyllus Lam.	Tree	Cultivated
293		Artocarpus lacucha Buch.-Ham.	Tree	Cultivated
294		Morus alba L.	Tree	Wild
295		Morus indica L.	Tree	Wild
296	Hydrocharitaceae	Hydrilla verticillata (L. f.) Royle	Herb	Wild
297		Najas minor All.	Herb	Wild
298		Vallisneria spiralis L.	Herb	Wild
299	Iridaceae	Gladiolus dalenii Van Geel	Herb	Cultivated
300	Musaceae	Musa balbisiana Colla	Tree	Cultivated
301		Musa paradisiaca L.	Tree	Cultivated
302	Zingiberaceae	Curcuma longa L.	Herb	Cultivated
303		Zingiber officinale Roscoe	Herb	Cultivated
304	Amaryllidaceae	Allium cepa L.	Herb	Cultivated
305		Allium sativum L.	Herb	Cultivated

306	Xanthorrhoeaceae	Aloe vera (L.) Burm.f.	Herb	Cultivated
307	Asparagaceae	Asparagus officinalis L.	Herb	Wild
308	Pontederiaceae	Pontederia crassipes Mart.	Herb	Wild
309	Commelinaceae	Commelina benghalensis L.	Herb	Wild
310		Commelina diffusa Burm.f.	Herb	Wild
311	Arecaceae	Phoenix sylvestris (L.) Roxb.	Tree	Wild
312		Hyophorbe lagenicaulis (L. H .Bailey) H.E.Moore	Tree	Cultivated
313		Roystonea regia (Kunth) O.F.Cook	Tree	Cultivated
314	Typhaceae	Typha angustifolia L.	Herb	Wild
315		Typha domingensis Pers.	Herb	Wild
316	Araceae	Colocasia esculenta (L.) Schott	Herb	Wild
317		Spirodela polyrhiza (L.) Schleid.	Herb	Wild
318	Lemnaceae	Lemna minor L.	Herb	Wild
319	Nelumbonaceae	Nelumbo nucifera Gaertn.	Herb	Wild
320	Potamogetonaceae	Potamogeton natans L.	Herb	Wild
321		Potamogeton perfoliatus L.	Herb	Wild
322	Cyperaceae	Cyperus alatus subsp. albus (Nees) Lye	Herb	Wild
323		Cyperus compressus L.	Herb	Wild
324		Cyperus difformis L.	Herb	Wild
325		Cyperus rotundus L.	Herb	Wild
326		Dactyloctenium aegyptium (L.) Willd.	Herb	Wild
327		Setaria pumila (Poir.) Roem. & Schult.	Herb	Wild
328	Poaceae	Setaria verticillata (L.) P.Beauv.	Herb	Wild
329		Bambusa bambos (L.) Voss	Tree	Wild / Cultivated
330		Phragmites karka (Retz.) Trin. ex Steud.	Herb	Wild
331		Desmostachya bipinnata (L.) Stapf	Herb	Wild
332		Dinebra panicea (Retz.) P.M. Peterson & N. Snow	Herb	Wild
333		Arundo donax L.	Herb	Wild
334		Avena sativa L.	Herb	Wild
335		Cenchrus ciliaris L.	Herb	Wild
336		Cynodon dactylon (L.) Pers.	Herb	Wild
337		Dichanthium annulatum (Forssk.) Stapf	Herb	Wild
338		Digitaria longiflora (Retz.) Pers.	Herb	Wild
339		Ischaemum sayajiraoi Raole & R.J. Desai	Herb	Wild
340		Echinochloa crus-galli (L.) P.Beauv.	Herb	Wild
341		Eleusine indica (L.) Gaertn	Herb	Wild
342		Enneapogon avenaceus (Lindl.) C.E.Hubb.	Herb	Wild
343		Eragrostis pilosa (L.) P.Beauv.	Herb	Wild
344		Heteropogon contortus (L.) P.Beauv. ex Roem. & Schult.	Herb	Wild
345		Hordeum vulgare L.	Herb	Cultivated
346		Oplismenus burmannii (Retz.) P. Beauv	Herb	Wild
347		Panicum maximum Jacq.	Herb	Wild
348		Paspalum distichum L.	Herb	Wild
349		Pennisetum typhoides Rich.	Herb	Wild
350		Pennisetum glaucum (L.) R. Br.	Herb	Cultivated
351		Phalaris minor Retz.	Herb	Wild
352		Poa annua L.	Herb	Wild
353		Triticum aestivum L.	Herb	Cultivated
354		Oryza sativa L.	Herb	Cultivated
355		Polypogon monspeliensis (L.) Desf.	Herb	Wild
356		Saccharum bengalense Retz.	Herb	Wild
357		Saccharum officinarum L.	Herb	Cultivated
358		Saccharum spontaneum L.	Herb	Wild

359		<i>Tripidium ravennae</i> (L.) H. Scholz	Herb	Wild
360		<i>Sorghum halepense</i> (L.) Pers.	Herb	Wild
361		<i>Chrysopogon zizanioides</i> (L.) Roberty	Herb	Wild
362		<i>Zea mays</i> L.	Herb	Cultivated

Conclusion: District Patiala is rich in floral diversity. Proper updating these records is an essential component so that needful strategies should be planned because Royals of Patiala created many jungles for the hunting purpose and they are still intact and further need to protect to conserve the biodiversity. Interacting with the people showed that they are willing to conserve biodiversity but lack of education, employment and awareness is the major reason for the overexploitation of the resources. So, Government and stakeholders should design such programs where locals can be promoted for their maximum involvement and participation for the conservation of national resources.

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