

## FLORISTIC INVENTORY OF PAI FOREST, NAWAB SHAH, SINDH, PAKISTAN

RAHMATULLAH QURESHI\* AND G.R. BHATTI

*Department of Botany, Pir Mehr Ali Shah Arid Agriculture University, Murree Road,  
Rawalpindi. Pakistan*

*Department of Botany, Shah Abdul Latif University, Khairpur, Pakistan*

*\*Corresponding author E-mail: rahmatullahq@yahoo.com*

### Abstract

The main objective of this study was to record the existing floral diversity of Pai forest, Nawab Shah, Sindh, Pakistan. For this purpose, field surveys were conducted in September, 2006 and March, 2009. A total of 93 plant species belonging to 67 genera and 30 families were identified. Poaceae was the largest family that contributed 14 species (15.05%), followed by Amaranthaceae with 7 species (7.53%), Capparidaceae and Tiliaceae with 5 spp., (5.38% each); while 7 families contributed 4 species (4.30%). The most common life form class of the existing flora was Phanerophyte with the large number of species (37), followed by Therophyte (33), Chaemophytes (12), Hemicryptophyte (6) and Cryptophyte (3). The anthropogenic activities coupled with irrigation water deficit and allelopathic behavior of alien species (*Prosopis juliflora*) led to decline the natural ecosystem of this plantation.

### Introduction

The Sindh province owns 0.241 million hectares of riverine forests, which are about 1.7 percent of the total land cover of the province (Anon., 2009). *Talpur/Mirs* ruled in Sindh till 1947, who maintained all the well-stocked forests as game reserves in the province. During their ruling, the illicit cutting of trees in all such forests was banned. Delineation and establishment of natural reserves and protected forests was started in 1823 and continued till 1972. Pai is known as riverine forest and is located on eastern side of the river Indus near Sakrand town of district Nawab Shah, about a distance of 5 km nearby National Highway. This forest has a total area of 1933 ha (4777 acres). Out of which only 1502 ha (78%) are under tree cover while remaining 319 and 112 ha are either blank or on high lying areas, respectively.

The study area is generally arid in nature with hot climatic condition. Maximum temperature was recorded in summer reaches up to 50°C; whereas minimum temperature was recorded in winter which reaches up to 8°C. The soil of this area is mostly sandy loam to silt loam in nature with dominant fraction of sand and silt. Most of the area has been converted into saline with high salts concentrations due to possible aridity and scarcity of irrigation water. Rainfall is inconsistent and very scanty mostly takes place during monsoon season (June to September) with an average 200 mm annual rain.

Taxonomists are naturally interested to record flora of certain geographical areas. Various floristic studies have been reported from Sindh. Chaudhary & Chuttar (1966) carried a preliminary floristic survey of Thar Desert, Sindh. They reported 122 species from the study area. Rajput *et al.*, (1991) reported 40 plant species belonging to 23 families from Thar Desert, which are being used as medicinal plants for different ailments. A research project has been conducted by Bhatti *et al.*, (1998-2001) for the floristic survey of the Nara desert, a Northeastern part of greater Thar Desert. They

discovered 149 plant species belonging to 110 genera and 42 families. Subsequently, Qureshi (2004) brought into floristic knowledge and added much of floral element from the same area. A few papers have also been published by the author from Nara Desert (Qureshi, 2008; Qureshi & Bhatti, 2005). Likewise, the floristic composition of Gorakh hill (Khirthar range) has been reported by Parveen and Hussain (2007). They recorded 74 species belonging to 62 genera and 34 families. Ansari *et al.*, (1993a) published a Floristic list of district Khairpur. Their work serves as a checklist. Some other workers who contributed in this regard are Ahmed *et al.*, (1992), Chaudhri (1960 & 1969).

Due to its ecological significance, the study area has been declared as game reserve by Sindh Wildlife department for conserving wildlife and its habitat since, it provides natural habitat for different wildlife species such as Hog deer, Partridges, Asiatic jackals, Jungle cat, Porcupine, Wild boar, Snakes, etc. For this purpose most of the areas was planted /rehabilitated with Shisham (*Dalbergia sissoo*) during 1960-70. During the first development stage, the area was invaded by Devi (*Prosopis juliflora*) due to fires and shortage of canal water. Since this forest is going to be dried due to scarcity of irrigated water, therefore it was felt worthwhile to record the prevailing floral diversity of the study area which has not been previously reported.

## Materials and Methods

**Floristic study:** Floristic surveys were carried out during September, 2006 and March, 2009 for the record of plant biodiversity of the study area. Three distinct microhabitats such as 1) Forest, 2) Agriculture land and 3) River channel were delineated based on physiognomic features. Plant specimens from different microhabitats were collected and then pressed, mounted on herbarium sheets. The same were identified with the help of various Floras (Jafri, 1966; Nasir & Ali 1970-1989; Ali & Nasir 1989-1991; Ali & Qaiser, 1991-2007; Matthew, 1981-83; Batanouny, 1981; Shetty & Singh, 1987 and 1991; Bhandari, 1987; Qureshi, 2004). The determined voucher specimens are deposited in the herbarium, Department of Botany, Pir Mehr Ali Shah Arid Agriculture University Rawalpindi. Local herders were interviewed to get local names of the plants and provided in Table 1. Life forms classes were determined by following the methodology of Raunkiaer (1934).

**Diversity Index ( $\alpha$ ,  $\beta$  and  $\gamma$ -Diversity):** Alpha ( $\alpha$ ), Beta ( $\beta$ ) and Gamma ( $\gamma$ ) diversity were measured that shows species richness irrespective to their relative abundance. Therefore  $\alpha$  – diversity is simply the number of species in one habitat, the  $\gamma$ -diversity was calculated by adding the three  $\alpha$  diversities (number of species in each habitat) but avoiding duplicate counting of species common to two or more habitats (Smith & Smith, 1998; Al-Sheikh & Ghnaim, 2004; Jafari *et al.*, 2004).

The similarity index (CC) between locality pairs was calculated by the formula:

$$CC = 2S_s / S_j + S_k \text{ (Sørensen, 1948)}$$

where,  $S_s$  is the number of species common to both the habitats, while  $S_j$  and  $S_k$  are the number of species in habitat 1 and habitat 2, respectively.

Table 1. List of plant species along with their families, local names, life form and habit associated with micro-habitats of Pai Forest.

S. No.	Family	Plant species	Local names	Habit	Life form	Micro-habitats		
						Forest	Agriculture	Marshland
1.	Aizoaceae	<i>Limeum indicum</i> Stocks. ex T. Anders.	Dhoor Chhapri	Herb	Therophyte	+	-	-
2.	Aizoaceae	<i>Trianthema portulacastrum</i> L.	Waho	Herb	Therophyte	+	+	+
3.	Aizoaceae	<i>T. triquetra</i> Rottl. & Willd.	--	Herb	Therophyte	+	-	-
4.	Aizoaceae	<i>Zaleya pentandra</i> (L.) Jeffery	Wasanh	Herb	Chamaephyte	+	-	-
5.	Amaranthaceae	<i>Achyranthus aspera</i> L.	Ubat Kandri	Subshrub	Phanerophyte	+	+	+
6.	Amaranthaceae	<i>Aerva javanica</i> (Burm.f.) Juss. ex Schult.	Booh	Subshrub	Phanerophyte	+	-	-
7.	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) DC.	--	Shrub	Chamaephyte	-	-	-
8.	Amaranthaceae	<i>Amaranthus graecizans</i> L.	Malirero	Herb	Therophyte	-	-	-
9.	Amaranthaceae	<i>A. viridis</i> L.	Mariro	Herb	Therophyte	+	-	-
10.	Amaranthaceae	<i>Digera muricata</i> (L.) Mart.	Lulur	Herb	Therophyte	-	+	-
11.	Amaranthaceae	<i>Nothosaerva brachiata</i> (L.) Wight	--	Herb	Therophyte	-	+	-
12.	Asclepiadaceae	<i>Calotropis procera</i> (Willd.) R. Br.	Akk	Shrub	Phanerophyte	+	-	+
13.	Asclepiadaceae	<i>Leptadenia pyrotechnica</i> (Forssk.) Dcne.	Khipp	Shrub	Phanerophyte	+	-	-
14.	Asteraceae	<i>Eclipta prostrata</i> (L.) L.	Daryahi Buti	Herb	Chamaephyte	-	-	+
15.	Asteraceae	<i>Launaea procumbens</i> (Roxb.) Ram. & Raj.	Lassi Bhattar	Herb	Chamaephyte	+	-	-
16.	Asteraceae	<i>Xanthium strumarium</i> L.	Bhurt	Shrub	Phanerophyte	+	+	-
17.	Boraginaceae	<i>Heliotropium crispum</i> Desf.	Kharsan	Shrub	Phanerophyte	+	-	-
18.	Boraginaceae	<i>H. ovalifolium</i> Forsk.	Kharsan	Herb	Chamaephyte	-	-	+
19.	Caesalpinaceae	<i>Senna holosericea</i> (Fresen.) Greuter	Ghorawal	Subshrub	Phanerophyte	+	-	-
20.	Caesalpinaceae	<i>S. italica</i> Mill.	Ghorawal	Shrub	Phanerophyte	+	-	-
21.	Capparidaceae	<i>Cadaba fruticosa</i> (L.) Druce	Khariak Khabbar	Shrub	Phanerophyte	+	-	-
22.	Capparidaceae	<i>Capparis decidua</i> (Forssk.) Edgew.	Kirar	Shrub	Phanerophyte	+	-	-
23.	Capparidaceae	<i>C. spinosa</i> L.	Kabar	Sub-shrub	Phanerophyte	+	-	-
24.	Capparidaceae	<i>Cleome brachycarpa</i> Vahl ex DC.	Dhanar Khathoori	Herb	Chamaephyte	+	-	-
25.	Capparidaceae	<i>Dipterygium glaucum</i> Dcne.	Phair	Subshrub	Phanerophyte	+	-	-
26.	Chenopodiaceae	<i>Salsola imbricata</i> Forssk.	Lano	Shrub	Phanerophyte	+	-	-
27.	Chenopodiaceae	<i>Suaeda fruticosa</i> Forsk. ex J.F.Gmelin	Lano	Shrub	Phanerophyte	+	-	-
28.	Convolvulaceae	<i>Convolvulus arvensis</i> L.	Naro	Climber	Therophyte	-	+	+
29.	Convolvulaceae	<i>C. prostratus</i> Forsk.	Kirhanj	Herb	Chamaephyte	+	-	-
30.	Cucurbitaceae	<i>Cucumis melo</i> var. <i>agrestis</i> Naud.	Mitero	Climber	Chamaephyte	-	+	-

Table 1. (Cont'd.).

S. No.	Family	Plant species	Local names	Habit	Life form	Micro-habitats	
						Forest	Marshland
31.	Cucurbitaceae	<i>Mukia maderaspatensis</i> (L.) M.J. Roem.	Wan Werhi	Climber	Phanerophyte	-	+
32.	Cyperaceae	<i>Bulboschoenus affinis</i> (Roth) Drobov	--	Sedge	Cryptophyte	-	+
33.	Cyperaceae	<i>Cyperus longus</i> L.	--	Sedge	Hemicryptophyte	-	+
34.	Cyperaceae	<i>C. rotundus</i> L.	Kabah	Sedge	Hemicryptophyte	-	+
35.	Euphorbiaceae	<i>Euphorbia prostrata</i> Ait.	Kherawal	Herb	Therophyte	-	+
36.	Euphorbiaceae	<i>E. serpens</i> Kunth	Kherawal	Herb	Therophyte	-	+
37.	Euphorbiaceae	<i>Phyllanthus maderaspatensis</i> L.	--	Herb	Therophyte	-	+
38.	Euphorbiaceae	<i>P. reticulatus</i> Poit.	Kamoh	Shrub	Phanerophyte	+	-
39.	Fabaceae	<i>Alhagi maurorum</i> Medic.	Kandero	Subshrub	Phanerophyte	+	-
40.	Fabaceae	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Gunwar phari	Shrub	Phanerophyte	-	+
41.	Fabaceae	<i>Rhynchosia minima</i> (L.) DC.	Chunothi/Wan Vehri	Climber	Chamaephyte	-	-
42.	Fabaceae	<i>Sesbania bispinosa</i> (Jacq.) W.F. Wight	Jantar	Subshrub	Phanerophyte	-	+
43.	Malvaceae	<i>Abutilon bidentatum</i> A. Rich	Pat Teer	Subshrub	Phanerophyte	+	-
44.	Malvaceae	<i>A. indicum</i> (L.) Sweet	Pat Teer	Shrub	Phanerophyte	+	-
45.	Malvaceae	<i>A. theophrastii</i> Medic.	Pat Teer	Subshrub	Phanerophyte	+	-
46.	Malvaceae	<i>Hibiscus lobatus</i> (Murr.) O. Kuntze	--	Herb	Chamaephyte	-	+
47.	Marsiliaceae	<i>Marsilia minima</i> L.	--	Herb	Hydrophyte/Fern	+	-
48.	Menispermaceae	<i>Cocculus hirsutus</i> (L.) Diels	Fareed Buti	Vine	Phanerophyte	+	-
49.	Mimosaceae	<i>Acacia nilotica</i> (L.) Delile	Sindhi Babur	Tree	Phanerophyte	+	-
50.	Mimosaceae	<i>Prosopis cineraria</i> (L.) Druce.	Kandi	Tree	Phanerophyte	+	-
51.	Mimosaceae	<i>P. glandulosa</i> Torr.	Devi	Shrub	Phanerophyte	+	-
52.	Mimosaceae	<i>P. juliflora</i> Swartz	Devi	Shrub	Phanerophyte	+	-
53.	Molluginaceae	<i>Glinus lotoides</i> L.	Kotak	Herb	Therophyte	-	+
54.	Molluginaceae	<i>Mollugo pentaphylla</i> L.	Hazar Daani	Herb	Chamaephyte	+	-
55.	Myrtaceae	<i>Eucalyptus camaldulensis</i>	Baid Mushk	Tree	Phanerophyte	+	-
56.	Nyctaginaceae	<i>Boerhavia procumbens</i> Banks and Roxb.	Dakhri	Herb	Cryptophyte	+	-
57.	Poaceae	<i>Brachiara ramosa</i> (L.) Stapf	Sawri	Grass	Therophyte	-	+
58.	Poaceae	<i>Cynodon dactylon</i> (L.) Pers.	Chhabar	Grass	Hemicryptophyte	+	+
59.	Poaceae	<i>Dactyloctenium aegyptium</i> (L.) Willd.	Mandhani	Grass	Therophyte	-	+
60.	Poaceae	<i>Desmostachya bipinnata</i> (L.) Stapf	Drabh	Grass	Hemicryptophyte	+	+

Table 1. (Cont'd.).

S. No.	Family	Plant species	Local names	Habit	Life form	Micro-habitats	
						Forest	Marshland
61.	Poaceae	<i>Dichanthium annulatum</i> (Forsk.) Stapf	Gaah	Grass	Hemicryptophyte	+	-
62.	Poaceae	<i>Digitaria ciliaris</i> (Retz.) Koeler.	Ghorawal	Grass	Therophyte	-	-
63.	Poaceae	<i>Diplachne fusca</i> (L.) Roem. & Schult.	Kalar Gaah	Grass	Cryptophyte	+	-
64.	Poaceae	<i>Echinochloa colonum</i> (L.) Link	Sawri	Grass	Therophyte	-	-
65.	Poaceae	<i>E. crus-galli</i> (L.) P.Beauv.	Sanwak	Grass	Hemicryptophyte	+	-
66.	Poaceae	<i>Eragrostis minor</i> Host.	Makhni Gaah	Grass	Therophyte	-	-
67.	Poaceae	<i>Eriochloa procera</i> (Retz.) C. E. Hubbard	Gaah	Grass	Therophyte	+	-
68.	Poaceae	<i>Saccharum benghalense</i> Retz.	Booro	Grass	Hemicryptophyte	-	+
69.	Poaceae	<i>S. spontaneum</i> L.	Booro	Grass	Hemicryptophyte	+	-
70.	Poaceae	<i>Setaria verticillata</i> (L.) Beauv.	Gaah	Grass	Therophyte	-	-
71.	Polygonaceae	<i>Polygonum effusum</i> Meisn	--	Herb	Therophyte	-	+
72.	Polygonaceae	<i>P. plebejum</i> R. Br.	--	Herb	Therophyte	-	-
73.	Portulacaceae	<i>Portulaca oleracea</i> L.	Lonak	Herb	Therophyte	+	-
74.	Rhamnaceae	<i>Zizyphus nummularia</i> (Burm.f.) Wt.	Jhanguri Ber	Shrub	Phanerophyte	+	-
75.	Salvadoraceae	<i>Salvadora oleoides</i> Dene.	Jaar/Peroon	Tree	Phanerophyte	-	-
76.	Salvadoraceae	<i>S. persica</i> L.	Khabbar	Tree	Phanerophyte	+	-
77.	Scrophulariaceae	<i>Lindenbergia indica</i> (L.) Vatke	--	Herb	Therophyte	-	-
78.	Scrophulariaceae	<i>Verbascum thapsus</i> L.	Jhangli Tamak	Herb	Therophyte	+	-
79.	Solanaceae	<i>Physalis peruviana</i> L.	Peroon	Herb	Therophyte	-	-
80.	Solanaceae	<i>Solanum nigrum</i> L.	Kanwal Buti	Subshrub	Phanerophyte	+	-
81.	Solanaceae	<i>S. surattense</i> Burm.f.	Kanderi	Herb	Therophyte	-	+
82.	Solanaceae	<i>Withania somnifera</i> (L.) Dunal	Akri	Shrub	Phanerophyte	+	-
83.	Tamaricaceae	<i>Tamarix aphylla</i> (L.) H. Karst.	Lao	Tree	Phanerophyte	+	-
84.	Tamaricaceae	<i>T. indica</i> L.	Lai	Tree	Phanerophyte	+	-
85.	Tamaricaceae	<i>T. kermanensis</i> Baum	Lai	Tree	Phanerophyte	+	-
86.	Tamaricaceae	<i>T. pakistanica</i> Qaiser	Lai	Tree	Phanerophyte	+	-
87.	Tiliaceae	<i>Corchorus aestuans</i> L.	Datehri	Shrub	Phanerophyte	+	+
88.	Tiliaceae	<i>C. depressus</i> (L.) Stocks	Mundheri	Herb	Therophyte	-	-
89.	Tiliaceae	<i>C. olitorius</i> L.	Datehri	Herb	Chamaephyte	+	-
90.	Tiliaceae	<i>C. tridens</i> L.	Datehri	Herb	Therophyte	-	-
91.	Tiliaceae	<i>C. trilocularis</i> L.	Datehri	Herb	Therophyte	+	-
92.	Zygophyllaceae	<i>Tribulus terrestris</i> L.	Bakhro	Herb	Therophyte	+	-
93.	Zygophyllaceae	<i>Zygophyllum simplex</i> L.	Jand Laani	Herb	Therophyte	+	-

The  $\beta$ -diversity was calculated as  $\beta = \gamma/\alpha$  or  $BD = Sc / S$ , in which  $Sc$  is the number of species in study area (combining  $\alpha$  samples) and  $S$  is the mean number of species in  $\alpha$ -samples (Whittaker, 1972). For comparing habitat pairs,  $Sc$  was taken as the total number of species in the two habitats excluding duplicate counting of shared or common species, while  $S$  was calculated irrespective to duplication.

## Results and Discussion

**Floristic enumeration:** The main objective of this study was to record the existing flora of the area. A total of 93 plant species belonging to 67 genera and 30 families were identified. Of those, 14 grasses of Poaceae family have been identified (Table 1). Poaceae was the largest family that contributed 14 species (15.05%), followed by Amaranthaceae with 7 species (7.53%), Capparidaceae and Tiliaceae with 5 spp. (5.38% each); while seven families contributed 4 species (4.30%) (Table 2).

There was a good diversity in terms of life form of the existing flora. The most common life form class was Phanerophyte with the large number of species (37), followed by Therophyte (33), Chaemophytes (12), Hemicryptophyte (6) and Cryptophyte (3) (Fig. 1). Herbs were found as the common fraction in the flora of Pai Forest with the percentage of 38.04, followed by shrubs (19.57%), grasses (14.13%) and subshrubs (10.87%), whereas rest of habits were in ranges of 3.26-8.70 (Fig. 2). Comparing life forms of the flora associated with different habitats, Phanerophytes were dominantly found in Forest (63.27%), followed by Marshland (25%) and then Agriculture field (21.43%). The dominance of Phanerophytes reflects the climax vegetation. Therophytes were mostly found in Agriculture field (59.52%) which not commonly recorded from Forest area, due to possibly unavailable irrigated water (Fig. 3).

The major habitats were delineated based on certain physiognomic features as follows:

**Forest habitat:** The pure forest plantation is presenting a desertic look due to shortage of irrigated water. However, this is a protected area; therefore it had rich diversity of perennial flora. Out of 93 plant species recorded from in and outside of this forest, 49 plant species were recorded during the period (Table 1). Thirty eight plant species are reported as habitat indicator not recorded from rest of the habitats. *Posopis juliflora*, *P. cineraria*, *Salvadora oleoides* and *Desmostachya bipinnata* were very abundantly distributed species within this area.

**Agriculture/cultivated fields:** This habitat was located in and outside of forestland. Cotton and wheat is normally cultivated as agricultural crops and likewise most of the species recorded from this habitat were weeds of these crops. In all, 44 species were recorded from this habitat. Of them, 38 species can be marked as weeds and habitat indicators not recorded from other habitats. Grasses were mostly infesting in these crops and the most common species were *Echinochloa colonum*, *Dactyloctenium aegyptium*, *Desmostachya bipinnata*, *Brachiaria ramosa* and *Cynodon dactylon*.

**Marshy habitat:** This habitat is formed due to seepage and running water from the River Indus adjacent to Forestland. Only 15 plant species were commonly found growing in this habitat. Of which, 8 species were only found seemingly showing as habitat indicators. The most commonly distributed species in this habitat were *Saccharum benghalense*, *Bulboschoemis affinis*, *Cyperus rotundus*, *Marsilia minuta*, *Solanum surattense*, *Polygonum effusum* and *Tamarix pakistanica*.

**Table 2. Family importance Index (FIV) of the flora of Pai Forest, Nawab Shah, Sindh.**

S. No.	Family	No. of spp.	Percentage
1.	Poaceae	14	15.05
2.	Amaranthaceae	7	7.53
3.	Capparidaceae	5	5.38
4.	Tiliaceae	5	5.38
5.	Aizoaceae	4	4.30
6.	Euphorbiaceae	4	4.30
7.	Fabaceae	4	4.30
8.	Malvaceae	4	4.30
9.	Mimosaceae	4	4.30
10.	Solanaceae	4	4.30
11.	Tamaricaceae	4	4.30
12.	Asteraceae	3	3.23
13.	Cyperaceae	3	3.23
14.	Asclepiadaceae	2	2.15
15.	Boraginaceae	2	2.15
16.	Caesalpiniaceae	2	2.15
17.	Chenopodiaceae	2	2.15
18.	Convolvulaceae	2	2.15
19.	Cucurbitaceae	2	2.15
20.	Molluginaceae	2	2.15
21.	Polygonaceae	2	2.15
22.	Salvadoraceae	2	2.15
23.	Scrophulariaceae	2	2.15
24.	Zygophyllaceae	2	2.15
25.	Marsiliaceae	1	1.08
26.	Menispermaceae	1	1.08
27.	Myrtaceae	1	1.08
28.	Nyctaginaceae	1	1.08
29.	Portulacaceae	1	1.08
30.	Rhamnaceae	1	1.08

**Table 3. Similarity Index (CC) and  $\beta$ -diversity (BD) from three habitats of Pai Forest.**

S. No.	Habitat pairs	Shared species	CC	BD
1.	Forest-Agriculture land	7	0.155	0.53
2.	Agriculture land-Marshland	5	0.169	0.47
3.	Forest-Marshland	4	0.125	0.16

**Species richness and similarity index:** The highest  $\alpha$ -diversity in terms of number of species was recorded from Forest habitat (49 spp.), followed by Agriculture land (44 spp.) and Marshland (15 spp.). The overall species from all habitats ( $\gamma$ -diversity) were recorded as 93 distributed in 67 genera and 30 families. The comparison of habitat pairs sharing with common species and Similarity Index (CC) is given in Table 3. Amongst habitat pairs, Agriculture land-Marshland had highest value of Similarity Index (0.169) with low Beta diversity followed by Forest-Agriculture land (0.155) and Forest-Marshland (0.125).

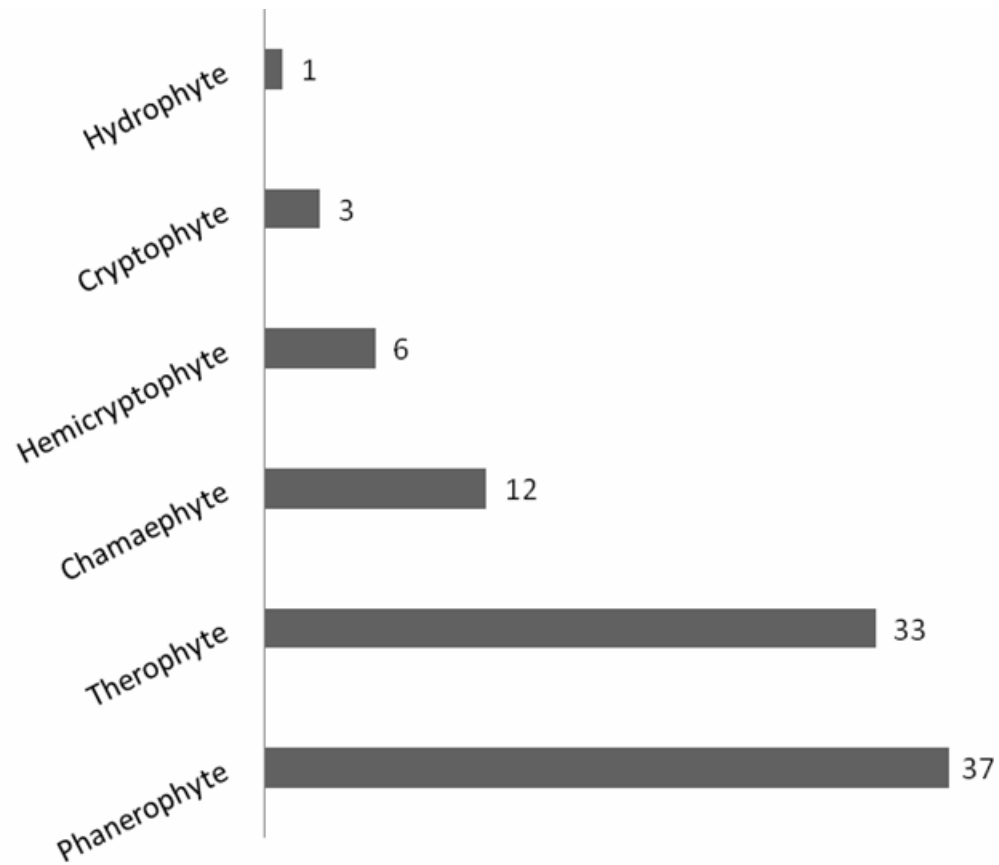


Fig. 1. Life form classes of the flora of Pai Forest.

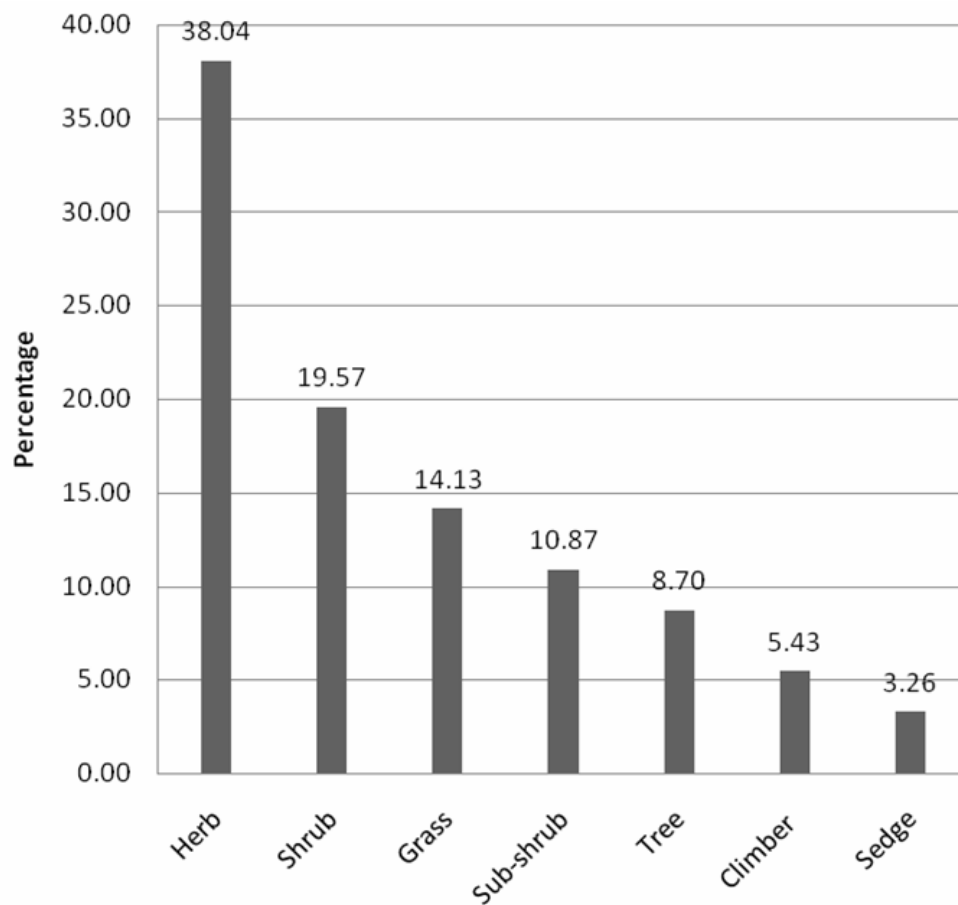


Fig. 2. Showing plant habits of the flora of Pai Forest.



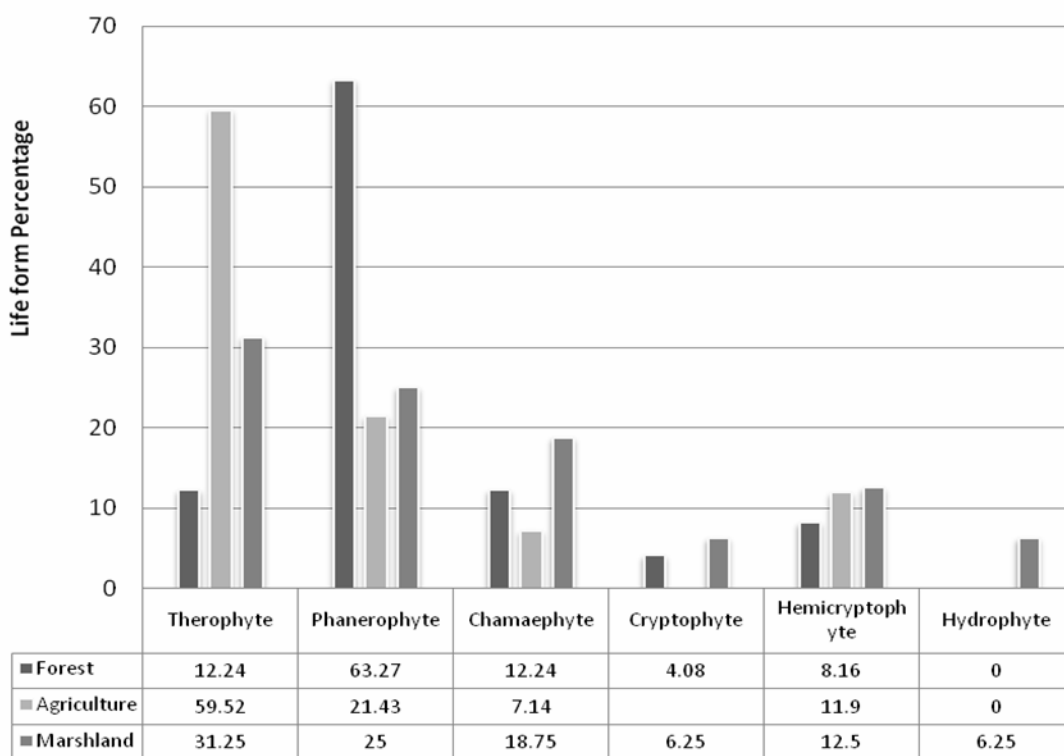


Fig. 3. Life form classes found in different habitats of Pai Forest.

This plantation is regarded as a riverine subtropical thorn forest of the country dominated by four major species like Kandi (*Prosopis cineraria*) (very common with pure stands), Babur (*Acacia nilotica*), Baid mushk (*Eucalyptus camaldulensis*) and *Tamarix* spp. While other frequent species found in the area include *Salvadora oleoides*, *Salvadora persica*, *Calotropis procera*, *Cadaba fruticosa*, *Suaeda fruticosa*, *Desmostachya bipinnata*, *Ziziphus nummularia*, *Capparis decidua*, etc. However, Mesquite (*Prosopis juliflora*) is an alien invasive species which is dominating most of the vegetation at an alarming stage.

Majority of the forest floor species is halophytic, indicative of saline conditions of soil. Although floristically Poaceae is the largest family at this site but the number of grass species is the lowest here as compared to out sides of forest area. Besides, most of grass species were collected from the cultivated fields in and around forest, while *Desmostachya bipinnata* was the most abundant species in the forest area. Most of the area is severely disturbed by anthropogenic activities like chopping/lopping for fuel and forage purpose respectively. Another problem is the shortage of water. Therefore before extinction of some species, it was felt worthwhile to record the flora of this forest. The same kind of work has reported by Parveen & Hussain (2007) and Qureshi (2008) from adjacent areas. There is no previous report available on the flora of this plantation and this is first attempt to record the flora of this forest. It is recommended that a long term comprehensive should be continued to document the complete flora of the study area.

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