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LEGUMES OF SOLAN DISTRICT OF HIMACHAL PRADESH

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ABSTRACT

The present study entitled "Legumes of Solan district of Himachal Pradesh" is carried out in different localities of Solan district of Himachal Pradesh to document the floral wealth of members belonging to family Leguminosae. Systematic field visits are made to know their present status in the wild. During the course of study, 76 legume plant species belonging to 33 genera have been documented. Out of these, 15 genera are represented by single species in the region. Presently, 13 species (belonging to 10 genera) namely *Abrus precatorius, Acacia modesta, A. nilotica, Albizzia julibrissin, A. odoratissima, Crotolaria humifusa, C. mysorensis, Lathyrus pratensis, Ougeinia oojeinensis, Parochetus communis, Rhynchosia himalensis, Trigonella corniculata, T. Emodi, T. Gracilis* and *Uraria picta* are reported for the first time from the study area. The list of plants with their botanical name, common / local name, habit, special features and distribution with their locality are presented in an alphabetical order.

KEYWORDS: flora, leguminosae, plant collection, occurrence, checklist.

INTRODUCTION

Biodiversity is the variability among living organisms that provide us with all the necessities of life. It includes all living organisms (plants, animals, microbes, etc.) and the genetic differences among them. Biodiversity is essential for human survival and economic well being and plays a key role in regulating ecosystem function and stability. Plants growing together have natural relationship among themselves and with their environment. As the relationship between plants and human beings is very old, they are still using plants for their daily needs such as feeding, clothing, sheltering, nursing etc. The known phytodiversity is about one-third of the total 1.5 million species of the biological elements. Undisturbed areas are the major reservoirs of plant diversity. These areas inhabit a large number of trees, shrubs, herbs, climbers etc. The interaction of plants with the environment results in the outcome of different vegetation types in different areas. There is significant loss of biodiversity due to different activities such as overexploitation, pollution, war, habitat destruction and degradation by physical and chemical means which in turn further affects the stability of the ecosystem.

India is bestowed with unique diversity in culture and vegetation and exhibit rich plant diversity. As a result, India ranks amongst one of the 12 mega biodiversity countries of the world and accounts for 8% of the global biodiversity with only 2.4% of the total land area in the world (Reddy, 2008[1]; Hajra and Mudgal, 1997[2]). It is also considered as one of the four `mega diversity' centres of Asia and is ranked one of the tenth largest forest area in the world. It has four major biodiversity hotspots i.e. the Himalaya, the Indo-Burma, the Western Ghats and the Sunderban including the Andaman and Nicobar Islands. The Himalayan ranges in India lie within geographical limits of 26°20' to 35°40' N latitude and 74°50' to 95°40' E longitude extending about 2500 km covering an area of 2,36,900 sq. km. It supports about 8,000 species of Angiosperm, 44 species of Gymnosperm, 600 species of Pteridophytes, 1737 species of Bryophytes, 1,159 species of Lichen and 6,900 species of Fungi (Samant *et al.*, 1998[3]). It exhibits an interesting pattern of rainfall in different directions. This variation in the rainfall, the mean annual temperature and altitude are considered as the key factors that determine vegetation types in this region.

Western Himalaya refer to the mountain ranges stretching across Western Tibet, North West Nepal, Himachal Pradesh, Uttarakhand and Jammu and Kashmir in North West India, Pakistan and Afghanistan. Its altitude range between 1,500-3,600 m.Western Himalaya play an important role by providing the biodiversity and ecosystem services to the plains of North India.

According to Behra *et al.*, 2002,[4] it supports about 3,054 Angiosperm species, of which 967 species are endemic to the region.

Himachal Pradesh is a hilly state located in the Western Himalaya covering an area of about 55,673 square kilometres. The state lie between 30°22' to 33°12'N latitude and 75°45' to 79°04'E longitude and constitutes a good composition of flora. It has varied climatic conditions, the reason being the variations in altitudes ranging from 350 meter to 6975 meter above mean sea level. These wide variations in altitude, topography and climate have made this state a home for a wide variety of plants, the diversity of which is spread over its Shivalik belt, temperate forests, deep ravines, open grassy slopes and alpine pastures. The vegetation of Himachal Pradesh have been studied by different researchers and scientists, such as Hooker (1872-1897),[5] Atkinson 1882,[6] Collett (1902),[7] Sharma (1976),[8] Chowdhery and Wadhwa (1984),[9] Verma and Kapoor (2010)[10] and Jain and Sharma (2016)[11] with special emphasis on taxonomy. Solan being a rich source of biodiversity is situated in the southeast region of the state with an area of about 1,936 km^2. Geographically, it is located between 30°05' to 31°15' N Latitude and 76°42' - 77°20' E Longitude. The climate of Solan is temperate kind where temperature ranges from −4 °C (25 °F) to 40 °C (90 °F) over the course of a year.

Leguminosae is the third largest family of the flowering plants (Mabberley, 1997[12]) and second largest among dicots. It includes annuals, perennials, herbs, shrubs, trees, climbers etc. and shows a great diversity in their habits as well as habitat, being mesophytic, hydrophytic, and xerophytic. The family is represented by 700 genera and over 1900 species all over the world and 179 genera and 1152 species in India (Sanjappa, 2000[13]). The members of the family possess simple or compound, alternate, rarely opposite or whorled and stipulate or exstipulate leaves. Inflorescence is raceme, spike, or cymose head. Flowers pedicillate or sessile; regular or irregular; actinomorphic or zygomorphic; bisexual; hypogynous or perigynous and pentamerous. Calyx 5, free or invariably slightly united. Corolla 5 and free. Androecium definite or indefinite; free or fused; diplostemnous or obdiplostemnous and diadelphous. Gynoecium monocarpellary, unilocular, marginal placentation, ovary superior and seed exalbuminous. The principal feature of the family are the type of fruit Legume/Pod.

The family is divided into three sub families: Papilionoideae, Caesalpinioideae and Mimosoideae.

Papilionoideae is the largest and the most widespread of the three subfamilies with about two-thirds of all the genera and species of the family. Majority of the species are herbaceous, although there are some trees and shrubs also. It is easily recognised by its characteristic papilionaceous (butterfly-like) flowers which are irregular (zygomorphic) and is made up of five petals; a 'standard' petal, two wing petals, and two petals partially fused together to form a boat-shaped keel. Flowers bracteate or ebracteate; pedicillate or sub-sessile; bracteolate or ebracteolate; complete; zygomorphic; bisexual; perigynous and pentamerous. Calyx 5, gamosepalous. Corolla 5, polypetalous and papilionaceous. Androecium diadelphous. Gynoecium monocarpellary, unilocular, marginal placentation and superior ovary. Fruit is legume and seed non-endospermic.

Caesalpinioideae is characterised by bracteate or ebracteate; pedicillate; bracteolate or ebracteolate; complete; zygomorphic; bisexual; perigynous and pentamerous flower. Calyx 5, free or united and imbricate. Corolla 5, free, imbricate and caesalpinaceous. Androecium obdiplostemnous; diadelphous; bithecous and dehiscence is longitudinal. Gynoecium monocarpellary; unilocular; marginal placentation and superior ovary. Fruit is legume and seed endospermic.

Mimosoideae is represented by bracteate or ebracteate; pedicillate or sessile or sub-sessile; bracteolate or ebracteolate; complete; regular; actinomorphic; bisexual and perigynous. Calyx 5 and gamosepalous. Corolla 5, free or slightly united. Androecium numerous, free and bithecous. Gynoecium monocarpellary, superior ovary, unilocular and marginal placentation. Fruit, a legume or a lomentaceous pod and seed non-endospermic.

The present study aims to know the floral wealth of the species belonging to family Leguminosae of Solan district of Himachal Pradesh, of which the many species are commercially important.

METHODOLOGY

For enumeration of the members belonging to family Leguminosae, in-depth studies are conducted in the region. Repeated field surveys are conducted to different localities of Solan district of Himachal Pradesh covering Nalagarh (400m), Parwanoo (800m), Kunihar (1000m), Arki (1045m), Ramshehar (1100m), Subathu (1265m), Nauni (1275m), Shilli (1290m), Oachghat (1300m), Sanwara (1350m), Waknaghat (1500m), Barog (1600m), Darlaghat (1800m), Kasauli (1927m) and Chail (2200m). The figures within parenthesis are the altitudes of that locality. The survey comprises of collection of the specimens, their processing and identification. The collection of specimens are done during flowering/ fruiting period to facilitate the process of identification. During the field visits, plant samples are collected from agricultural lands, natural habitats, degraded sites, highway sides, railway tracks, parks, lawns, ponds, river banks and other relevant localities to cover almost all the localities of the district in a systematic manner. The collected specimens are pressed, dried, identified and finally mounted on the herbarium sheets. All the recorded plant species are presented alphabetically in Table 1.

RESULTS

The present study entitled "Legumes of Solan district of Himachal Pradesh" is conducted to record the floral wealth of members belonging to family Leguminosae. A systematic enumeration of the plant species with their botanical names, common/local name, habit, special features and distribution with locality is presented in alphabetical order in Table 1.

Table 1: List of the members of family Leguminosae of Solan District of Himachal Pradesh with Botanical Name and Common / Local Name, Habit, Special Features and Distribution with Locality.

S. No	Botanical Name	Common/ Local Name	Habit	Special Features	Distribution with Locality
1.	*Abrus precatorius* Linn.	Coral bead vine, Ratti	Perennial Climber	Leaves sessile, oblong, alternate; Inflorescence axillary raceme; Flowers violet pinkish	Uncommon–Fairly common at Nalagarh, Parwanoo, Kunihar, Arki and Ramshehar
2.	*Acacia catechu* Willd.	Black catechu, khair	Medium sized tree	Leaves stalked, narrowly oblong, alternate, Inflorescence spike; Flowers pale yellow	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
3.	*A. modesta* Wall.	Amritsar Gum	Medium sized tree	Leaves stalked, obovate, alternate Inflorescence spike; Flowers pale yellow	Rare-Sporadic at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
4.	*A. nilotica* (Linn.) ex DC.	Gum arabic tree, Kikkar	Medium sized tree	Leaves stalked, obovate, opposite; Inflorescence spike; Flowers pale yellow	Rare-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar and Subathu
5.	*Albizzia chinensis* (Osbeck) Merr.	Chinese Albizia	Large sized tree	Leaves sessile, oblong, opposite; Inflorescence cymose head; Flowers whitish	Uncommon-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
6.	*A. julibrissin* Durazz.	Silk Tree	Small sized tree	Leaves sessile, oblong, opposite; Inflorescence raceme; Flowers pink	Rare-Sporadic at Nalagarh, Parwanoo, Kunihar, Arki and Ramshehar
7.	*A. lebbek* Benth.	Siris tree, Woman's tongue	Large sized tree	Leaves stalked, oblong, opposite; Inflorescence terminal raceme or panicle; Flowers yellowish white	Common–Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat and Barog
8.	*A. mollis* Boiv.	Sirriang, Shirin	Small sized tree	Leaves stalked, obliquely oblong, opposite; Inflorescence raceme; Flowers pinkish	Sporadic-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
9.	*A. odoratissima* Benth.	Black Siris, Ceylon rosewood	Medium sized tree	Leaves stalked, obliquely oblong, opposite; Inflorescence panicle; Flowers pale yellow	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Shilli
10.	*Alysicarpus vaginalis* DC.	Alyce Clover, Chauli	Small sized perennial herb	Leaves stalked, elliptic, lanceolate, alternate; Inflorescence raceme; Flowers pale pink	Rare-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Oachghat
11.	*Atylosia mollis* Benth.	Ban Sem	Large sized annual shrub	Leaves nearly sessile, terminal one stalked, ovate or oblong, alternate; Inflorescence axillary raceme; Flowers yellow	Fairly common-Common at Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli,Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
12.	*A. searabaeoides*	Wild kulthi	Large	Leaves nearly sessile,	Uncommon–Fairly common at

	Benth.		sized perennial shrub	terminal one stalked, ovate or oblong, alternate; Inflorescence racemose; Flowers yellow	Kunihar, Arki, Ramshehar, Subathu, Nauni, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
13.	*Bauhinia retusa* Buch.-Ham.	Kandla	Small sized tree	Leaves stalked, cordate, alternate; Inflorescence terminal panicle; Flowers pale yellow	Uncommon–Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
14.	*B. vahlii* Wight and Arn,	Maloo Creeper	Large sized tree	Leaves stalked, orbicular,alternate; Inflorescence terminal corymb; Flowers whitish	Rare–Fairly common at Nalagarh, Parwanoo, Kunihar and Arki
15.	*B. variegata* Linn.	Kachnar, Orchid Tree	Medium sized tree	Leaves stalked, orbicular, alternate; Inflorescence corymb; Flowers pinkish whitish	Common–Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
16.	*Butea monosperma* (Lamk.) Taubert.	Flame of the Forest, dhak	Medium sized tree	Leaves nearly sessile, terminal one stalked, broadly ovate, alternate; Inflorescence raceme; Flowers orange reddish;	Uncommon-Fairly common at Nalagarh, Parwanoo, Arki, Ramshehar, Subathu, Nauni and Oachghat
17.	*Caesalpinia decapetala* (Roth) Alston	MysoreThorn , Kanteli	Large sized shrub	Leaves sessile, oblong, opposite, Inflorescence raceme; Flowers yellowish	Fairly common-Common at Kunihar, Arki and Ramshehar
18.	*C. sepiaria* Roxb.	Mauritius Thorn	Large sized shrub	Leaves nearly sessile, oblong, opposite; Inflorescence raceme; Flowers yellowish	Sporadic-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
19.	*Cassia absus* Linn.	Chaksu	Small sized annual herb	Leaves stalked, ovate, opposite, Inflorescence raceme; Flowers red yellowish	Rare-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Oachghat, Sanwara and Waknaghat
20.	*C. auriculata* Linn.	Tanner's Cassia	Medium sized shrub	Leaves stalked, ovate, opposite; Inflorescence axillary or terminal corymbose raceme; Flowers yellowish	Uncommon-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni
21.	*C. fistula* Linn.	Amaltas, Golden shower tree	Medium sized tree	Leaves stalked, ovate, alternate, Inflorescence raceme; Flowers yellow	Rare-Common at Nalagarh, Parwanoo, Kunihar and Arki
22.	*C. mimosoides* Linn.	Birbiri	Small sized perennial herb	Leaves sessile, narrowly oblong, opposite; Inflorescence axillary raceme; Flowers yellow	Common–Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara and Waknaghat
23.	*C. tora* Linn.	Sickle senna	Medium sized annual herb	Leaves sessile, narrowly oblong, opposite; Inflorescence raceme; Flowers yellow	Uncommon-Sporadic at Nalagarh, Parwanoo, Subathu and Nauni
24.	*Crotolaria alata* Buch.Ham.	Jhumka	Small sized annual to	Leaves sessile, oblong, alternate; Inflorescence raceme;	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu,

			perennial undershrub	Flowers pale yellow	Nauni, Oachghat, Sanwara and Waknaghat
25.	*C.albida* Heyne	Kidney Bean, Ban methi, Thakara	Small sized annual to perennial undershrub	Leaves sessile, narrowly oblong, alternate; Inflorescence raceme; Flowers yellowish	Fairly common–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
26.	C. hirsuta Willd.	Hairy Rattlepod	Small sized perennial herb	Leaves sessile, ovate, alternate, Inflorescence raceme; Flowers yellow	Uncommon-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli and Oachghat
27.	*C. humifusa* Grah	Sprawling Rattlepod	Small sized perennial herb	Leaves sessile, orbicular-ovate, alternate; Inflorescence racemose; Flowers yellow	Sporadic-Uncommon at Subathu, Sanwara, Waknaghat , Barog and Darlaghat
28.	*C. mysorensis* Roth.	Mysore Rattlepod	Small sized perennial undershrub	Leaves sessile, narrowly oblong, alternate; Inflorescence raceme; Flowers yellowish	Rare–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Oachghat
29.	*C. prostrata* Roxb.	Prostrate Rattlepod	Small sized perennial herb	Leaves sessile, oblong-ovate, alternate; Inflorescence racemose; Flowers yellowish	Sporadic-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara and Waknaghat
30.	*C. sessiliflora* Linn.	Chhun-chhunu	Medium sized perennial herb	Leaves shortly stalked, oblong-lanceolate, alternate; Inflorescence raceme; Flowers yellowish	Fairly common–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
31.	*C. sericea* Retz.	Showy Rattlepod	Large sized perennial shrub	Leaves sessile, obovate, alternate, Inflorescence terminal raceme; Flowers yellowish	Uncommon-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
32.	*Dalbergia sisoo* Roxb.	Indian rosewood, Shisham	Large sized perennial tree	Leaves stalked, broadly ovate, alternate; Inflorescence axillary panicle; Flowers yellowish white	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli and Oachghat
33.	*Desmodium concinnum* DC.	Blue Desmodium	Large sized shrub	Leaves trifoliate, stalked, ovate-oblong, alternate; Inflorescence raceme; Flowers dark bluish	Fairly common-Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
34.	*D. floribundum* G. Don	Martoi	Large sized shrub	Leaves trifoliate, terminal stalked, lateral sessile, ovate, alternate; Inflorescence axillary and terminal panicle; Flowers pink-purple	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Shilli
35.	*D. gyrans* DC.	Khuni	Small sized undershrub	Leaves trifoliate, terminal stalked, lateral sessile, oblong-lanceolate, alternate;	Rare-Sporadic at Nalagarh, Parwanoo, Subathu, Nauni, Oachghat, Sanwara, Waknaghat and Barog

				Inflorescence racemose; Flowers pale yellow	
36.	*D. heterocarpum* DC.	Krishnupani	Medium sized perennial shrub	Leaves trifoliate, terminal stalked, lateral sessile, ovate- obovate, alternate; Inflorescence racemose; Flowers pinkish	Rare–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
37.	*D. laxiflorum* DC.	Loose Flowered Desmodium, Chimbattai	Medium sized undershrub	Leaves trifoliate, terminal stalked, lateral sessile, ovate, elliptic or broadly lance-shaped, alternate; Inflorescence raceme; Flowers pale yellow	Rare–Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Shilli
38.	*D. parvifolium* DC.	Creeping Tick Trefoil, motha	Small sized shrub	Leaves trifoliate, terminal stalked, lateral sessile, ovate, elliptic or broadly lance-shaped, alternate; Inflorescence raceme; Flowers purple bluish	Rare-Sporadic at Nalagarh, Parwanoo, Nauni, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
39.	*D. podocarpum* DC.	Martoi	Small sized Perennial shrub	Leaves trifoliate, stalked, broadly ovate, alternate; Inflorescence axillary and terminal raceme; Flowers pinkish	Uncommon-Common at Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
40.	*D. polycarpum* DC.	Baephol	Small sized shrub	Leaves trifoliate, stalked, broadly ovate, alternate; Inflorescence raceme; Flowers purplish	Rare-Uncommon at Nalagarh, Parwanoo, Nauni,Oachghat, Sanwara and Waknaghat
41.	*D. tiliaefolium* Don	Matoi, Chamlai	Large sized shrub	Leaves trifoliate, stalked, broadly ovate, alternate; Inflorescence panicle; Flowers pale pinkish	Sporadic-Common at Nalagarh, Parwanoo, Subathu, Shilli, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
42.	*Erythrina suberosa* Roxb.	Indian Coral Tree, Dhaul dhak	Medium sized tree	Leaves lateral nearly sessile, terminal one stalked, broadly ovate, alternate; Inflorescence axillary and terminal raceme; Flowers red	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Oachghat
43.	*Indigofera dosua* Buch.-Ham.	Chiringi jhar	Small sized shrub	Leaves stalked, narrowly oblong, opposite; Inflorescence raceme; Flowers bright reddish	Rare–Common at Nauni, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
44.	*I. geraradiana* Wall.	Himalayan Indigo	Small sized shrub	Leaves stalked, ovate or oblong-ovate, opposite; Inflorescence raceme; Flowers purplish	Sporadic-Common at Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
45.	*I. pulchella* Roxb.	Sakina, Baroli, Kathi	Large sized shrub	Leaves stalked, ovate or oblong-ovate, opposite; Inflorescence raceme; flowers bright pink	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara and Waknaghat
46.	*Lathyrus aphaca* Linn.	Yellow Pea, Wild Pea	Small sized annual herb	Leavessessile, lanceolate, alternate; Inflorescence raceme; Flowers yellowish	Common–Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
47.	*L. pratensis* Linn.	Meadow vetchling,	Medium sized	Leavesstalked, lanceolate,alternate;	Rare-Sporadic at Darlaghat, Kasauli and Chail.

		meadow pea	perennial herb	Inflorescence axillary raceme; Flowers yellow	
48.	*L. sphaericus* Retz.	Red Grass Pea	Small sized annual herb	Leaves sessile, narrowly lanceolate, alternate; Inflorescence axillary raceme; Flowers reddish	Fairly common-Common at Nalagarh, Parwanoo, Arki, Ramshehar, Subathu, Nauni, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
49.	*Lespedeza cuneata* G.Don	Chinese bushclover	Medium sized perennial herb	Leaves lateral sessile, terminal stalked, narrowly oblong, alternate; Inflorescence axillary raceme; Flowers pale yellowish	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni,
50.	*L. gerardiana* Grah.	Tinpati	Small sized undershrub	Leaves lateral sessile, terminal stalked, oblanceolate, alternate; Inflorescence axillary raceme; Flowers pale yellow	Sporadic–Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
51.	*Leucaena leucocephala* (Lamk.) de Wit.	Wild tamarind, White Babool	Small sized tree	Leaves sessile, compound, linear-oblong, opposite; Inflorescence racemose; Flowers yellow	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
52.	*Lotus corniculatus* Linn.	Common Birdsfoot Trefoil, Pila-phool	Small sized perennial herb	Leaves sessile, ovate, obovate or oblong, alternate; Inflorescence axillary umbel; Flowers yellowish	Rare-Sporadic at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
53.	*Medicago lupulina* Linn.	Black medick, Hop-clover	Small sized annual herb	Leaves lateral sessile, terminal stalked, obovate, alternate; Inflorescence axillary raceme; Flowers bright yellow	Rare–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
54.	*Melilotus alba* Lam.	WhiteSweet Clover	Medium sized biennial herb	Leaves lateral sessile, terminal stalked, ovate or oblong, alternate; Inflorescence axillary raceme; Flowers whitish	Sporadic-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
55.	*M. officinalis* (Linn.) Pallas.	Yellow sweet clover	Large sized perennial herb	Leaves stalked, lanceolate, alternate; Inflorescence raceme; Flowers yellowish	Common-Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
56.	*Mimosa pudica* Linn.	Touch-me-not	Medium sized annual or perennial shrub	Leaves stalked, narrowly oblong, alternate; Inflorescence raceme; flowers purplish whitish	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
57.	*M. rubiicaulis* Lam.	Himalayan Mimosa, Kandyari	Large sized shrub	Leaves stalked, narrowly oblong, alternate; Inflorescence terminal raceme,	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat,

				Flowers purplish whitish	Sanwara, Waknaghat, Barog and Darlaghat
58.	*Mucuna pruriens* (Linn.) DC.	Velvet bean	Large sized annual shrub	Leaves stalked, ovate, opposite; Inflorescence raceme; Flowers purplish	Fairly common–Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli and Oachghat
59.	*Ougeinia oojeinensis* (Roxb.) Hochr.	Sanan, Sain	Large sized tree	Leaves lateral sessile, terminal stalked, broadly ovate; Inflorescence raceme; Flowers purplish whitish	Rare–Sporadic at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
60.	*Parochetus communis* Buch.-Ham.	Blue oxalis	Small sized perennial herb	Leaves sessile, obcordate, alternate; Inflorescence umbellate; Flowers violet- blue	Rare-Fairly common at Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
61.	*Pueraria tuberosa* DC.	Indian kudzu	Large sized perennial shrub	Leaves stalked, broadly ovate, alternate; Inflorescence panicle raceme; Flowers purple bluish	Uncommon-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Oachghat
62.	*Rhynchosia himalensis* Benth.	Himalayan Snoutbean	Large sized perennial herb	Leaves stalked, orbicular, alternate; Inflorescence raceme; Flowers yellow	Rare-Fairly common at Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
63.	*R. sericea* Span.	Silky Snoutbean	Large sized perennial herb	Leaves lateral sessile, terminal one stalked, orbicular, alternate; Inflorescence raceme; Flowers yellow	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni and Shilli
64.	*Robinia pseudoacacia* Linn.	Black locust	Medium sized tree	Leaves stalked, lanceolate, alternate; Inflorescence raceme; Flowers white	Uncommon-Sporadic at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
65.	*Tephrosia purpurea* Pers.	Wild Indigo	Small sized perennial herb	Leaves stalked, oblong-lanceolate, opposite; Inflorescence raceme; Flowers reddish	Rare-Fairly common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara and Waknaghat
66.	*Trifolium pratense* Linn.	Red Clover, Purple Clover	Small sized perennial herb	Leaves stalked, lanceolate–elliptic, alternate; Inflorescence racemose; Flowers red- purple	Rare-Common at Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
67.	*T. repens* Linn.	White Clover	Small sized perennial herb	Leaves stalked, obovate, alternate; Inflorescence umbel; Flowers whitish- pink	Sporadic-Common at Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.
68.	*Trigonella corniculata* Linn.	Fenugreek	Small sized annual herb	Leaves lateral sessile, terminal stalked, obovate to oblong-wedge-shaped, alternate; Inflorescence racemose; Flowers yellow	Rare-Sporadic at Waknaghat, Barog, Darlaghat, Kasauli and Chail
69.	*T. Emodi* Benth.	Himalayan Fenugreek	Small sized perennial	Leaves lateral sessile, terminal stalked, lanceolate, alternate;	Rare–Common at Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog,

			herb	Inflorescence racemose Flowers yellow	Darlaghat, Kasauli and Chail
70.	*T. gracilis Benth.*	Slender Fenugreek	Small sized perennial herb	Leavesstalked,lanceolate, alternate; Inflorescence umbellate; Flowers yellowish	Uncommon-Fairly common at Waknaghat, Barog, Darlaghat, Kasauli and Chail.
71.	*Uraria picta* (Jacq.) DC.	Dabra	Medium sized perennial undershrub	Leaves stalked, ovate-lanceolate, opposite; Inflorescence raceme; Flowers purplish	Rare-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
72.	*U. rufescens* DC.	Rufous Uraria	Medium sized herb	Leaves stalked, elliptic or ovate-elliptic, opposite; Inflorescence raceme; Flowers purplish	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu and Nauni
73.	*Vicia hirsuta* Koch	Hairy tare, Hairy vetch	Medium sized annual herb	Leaves sessile, oblong, opposite; Inflorescence raceme; Flowers whitish blue	Common–Very common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
74.	*V. sativa* Linn.	Common vetch, Garden vetch	Large sized annual herb	Leaves sessile, narrowly oblong, opposite; Inflorescence raceme; Flowers red-bluish	Fairly common-Common at Nalagarh, Parwanoo, Kunihar, Arki, Ramshehar, Subathu, Nauni, Shilli, Oachghat, Sanwara, Waknaghat, Barog and Darlaghat
75.	*V. tenera* Grah.	Delicate Himalayan Vetch, Ankra	Medium sized perennial herb	Leaves sessile, narrowly oblong, opposite; Inflorescence raceme; Flowers pale pink	Sporadic-Fairly Common at Shilli, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail
76.	*Vigna umbellata* (Thunb) Ohwi and Ohashi	Rice Bean	Medium sized annual herb	Leaves lateral sessile, terminal one stalked, narrowly lanceolate, alternate; Inflorescence raceme; Flowers yellow	Fairly common-Common at Nalagarh, Parwanoo, Arki, Ramshehar, Subathu, Nauni, Oachghat, Sanwara, Waknaghat, Barog, Darlaghat, Kasauli and Chail.

DISCUSSION

Plants represent one of the most important component of biodiversity which helps us to understand the overall structure and function of an ecosystem. Plants provides all kinds of essential requirements of the humans in the form of food, fodder, fuel, medicine, timber, resins, oil, dyes and other chemicals, renewable energy and a host of other products used in industry and commerce.

Phytodiversity is defined as the condition where different species of plants live together in the same habitat. The careful floristic studies provide important information about other vegetation component of the ecosystem required for appropriate phytodiversity conservation and management strategies. Earlier, Sindhi (1996)[14] studied 54 species belonging to 34 genera of family Leguminosae from Nauni area of Solan district of Himachal Pradesh. Verma (2000)[15] studied the flora of Kunihar Forest Division, District Solan (HP) and recorded 26 species belonging to 19 genera of family Leguminosae. Meenakshi (2002)[16] reported 28 species belonging to 18 genera of family Leguminosae from Shilli wildlife sanctuary situated in Solan district of Himachal Pradesh. In the present study, a total of 76 species belonging to 33 genera have been collected from the study area. Each species have been described in alphabetical order along with botanical names, common/local names, habit, special features and distribution with their locality (Table 1). The least represented genera i.e. those represented by single species are *Abrus, Alysicarpus, Butea, Dalbergia, Erythrina, Leucaena, Lotus, Medicago, Mucuna, Ougeinia, Parochetus, Pueraria, Robinia, Tephrosia* and *Vigna*, on the other hand, genera represented by more than single species are *Acacia, Albizzia, Atylosia, Bauhinia, Caesalpinia, Cassia, Crotolaria, Desmodium, Indigofera Lathyrus, Lespedeza, Melilotus, Mimosa, Rhynchosia, Trifolium, Trigonella, Uraria* and *Vicia.* The maximum number of species belongs to genera *Desmodium* (9 spp.) *followed by Crotolaria* (8 spp.), *Cassia* (5 spp.), *Albizzia* (5 spp.), *Trigonella* (3 spp.),

Indigofera (3 spp.) *Acacia* (3 spp.), *Bauhinia* (3 spp.), *Lathyrus* (3 spp.), *Lespedeza* (2 spp.), *Vicia* (3 spp.), *Atylosia* (2 spp.), *Caesalpinia* (2 spp.), *Melilotus* (2 spp.), *Mimosa* (2 spp.), *Rhynchosia* (2 spp.), *Trifolium* (2 spp.) and *Uraria* (2 spp.). Presently, 13 species have been reported for the first time.

CONCLUSION

The aim of present study is to provide information about the floral wealth of the members belonging to family Leguminosae of Solan district of Himachal Pradesh. During the course of study period, 76 species belonging to 33 genera are recorded from the study area. The study reports that 15 genera are represented by single species whereas 18 genera are represented by more than single species. It has been found that Desmodium is the most dominant genera with as many as 9 species. Presently, 13 species are reported for the first time from the study area. The study revealed that there is evading or invading of legumes in the region.

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