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Original Research Article

Ethnomedicinal Plants Used to Treat Skin Ailments in Fringe Villages of Col. Sher Jung National Park, Simbalbara, Sirmour, Himachal Pradesh, India

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Abstract: Traditional medicines have been playing a significant role in health care management for a long all over the world especially in rural households. The present study is based on field survey conducted to collect and document the major ethnomedicinal flora used to cure skin diseases by the local peoples and *Gujjar* tribes inhabiting around the Col. Sher Jung National Park, Simbalbara, Tehsil Paonta Sahib, Sirmour, Himachal Pradesh, India. Total 205 informants (55 females; 150 males) from different age groups (25 to 50, 50 to 75, and above 75) participated and agreed to share the traditional knowledge. Analysis revealed that for the treatment of skin ailments total of 53 genera and 62 plant species belonging to 36 families were utilized. The dominant life form utilized was a shrub, along with leaf as the most used plant part, while the preferred method of utilization was poultice. The quantitative parameters applied were use value (UV), family importance value (FIV), and fidelity level (FL). The highest FIV was recorded for the family Zingiberaceae and FL values ranged from 5.37% to 100%. Relative frequency citation values ranged from 0.04 to 0.48%. It was found that people have excellent information with respect to traditional uses of plants. Plants of high use value can be considered for further scientific analysis of this region for new drug discovery.

Key words: Ethnomedicine, Simbalbara National Park, skin diseases.

Introduction

The Himalayas have a rich repository of medicinal plants and people here successfully practice inherent knowledge for the healthcare system (Chauhan, 1988). This ethnic community resides in the close vicinity of nature and they are primarily dependent on local flora to cure various ailments and issues related to their health, because modern healthcare amenities are found generally inadequate in the secluded areas. Aboriginal health care systems are commonly popular and acceptable, being easily available, cost-effective, and have proven efficacy from the time of their ancestors (Debas *et. al.*, 2006; Vidyarthi *et al.*, 2013). Skin infection occurs worldwide and amounts to be approximately 34% of all the occupational diseases encountered (Abbasi *et. al.*, 2010). For curing skin infection, traditional knowledge and locally available plants play an important role to mitigate skin disorders in different countries as reported by many workers Upadhyay *et al.* (1998), Dilara & Nath (2000), Saikia *et al.* (2006), Abbasi *et al.* (2010), Korpenwar (2012), Kumar *et al.* (2012), Sharma *et al.* (2012), Mutyala *et.al.* (2015), Mowobi *et al.* (2016), Mahato *et al.* (2018), and Kianifar *et al.* (2019). Although the mortality rate

is low, if diseases persist too long, it significantly affects the quality of life. Therefore, this study aimed to document the major ethnomedicinal information of flora used to take care of skin diseases around the villages of Col. Sher Jung National Park, Simbalbara, Sirmour, Himachal Pradesh, India. Trans-nomadic Gujjars are the foremost people residing around the park with their massive livestock and they migrate from the lowland plains in the winters, to the upper hills of Himachal Pradesh during the summer season. Their economy depends mainly on selling milk and dairy foodstuffs. They speak 'Gojri' and have distinctive ethnicity, arts and crafts and food habits. Besides, there are as many as 50 small villages on its fringe. People residing here belong to a diverse caste, creed and religion. *Baahties*, *Maihre*, *Saini*, and *Jats* are the other castes, along with few villages (Puruwala, Misherwala) having dominant Muslims habitation also found in this region. The major activities of local populace are agricultural practices and pastoralism for which they predominantly depend upon the forest wealth, particularly on fodder, fuel wood, and primary healthcare needs (Saini & Sood, 2017).

This is the first quantitative ethnobotanical study of remedial plants utilized for skin diseases by the indigenous people of Paonta Sahib, Sirmour.

Materials and methods

Study area and location

The study was carried out around Col. Sher Jung National Park (CSJNP) Simbalbara (Geo coordinates North - 30°28′13′′N & 77°28′43′′E, East - 30°24′15′′N & 77°33′55′′E, South - 30°23′31′′N & 77°33′44′′E and West - 30°27′26′′N & 77°27′40′′E), having 27.88 sq km with an altitudinal range of 350-700m above mean sea level, located in Paonta valley of district Sirmour, Himachal Pradesh. The national park is located at the junction of the four states viz. Uttarakhand, Uttar Pradesh, Haryana and Himachal Pradesh, in the confluence of plains and the main Shivalik range in Western Himalaya in India, and it shares boundaries with three protected areas of two different states namely Kalesar National Park of Haryana towards the South and Rajaji National Park of Uttarakhand towards the

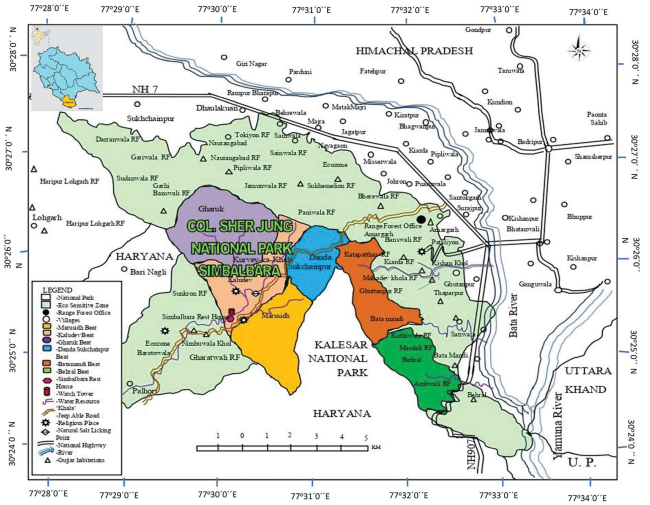

Fig. 1. Detail map of Col. Sher Jung National Park Simbalbara [inset: district Sirmour in H.P]; including areas inhabited by Gujjar tribe (Δ) and other villages selected for study (0).

East (Fig. 1). The temperature of the area ranges from 4°C - 48°C and receives a mean annual rainfall of about 1260 mm while the relative humidity varies from 100% during monsoon (July-August) 26% in summer (mid April - mid June). The terrain is hilly, composed of unconsolidated siltstone, sandstone, conglomerate (based on grain size) that is more susceptible to erosion (Pendharkar, 1993). The area is also traversed by two perennial streams which join at Simbalbara to form Nimbuwala khol. Beside there are as many as 32 small annual streams that contribute to the drainage system of the national park. The protected area was notified as a game sanctuary for the first time on February 8, 1958. Thereafter it has been declared as Simbalbara wildlife sanctuary (WLS) on March 27, 1974 comprising an area of 19.00 sq km. Later on, state Govt. keeping in view the purpose of protecting, propagating and developing wildlife and its environment, upgraded the existing WLS into National Park Simbalbara by adding 8.88 sq km on June 07, 2013. After rationalization presently the total protected area of CSJNP is 27.88 sq km (Fig.1a). Eco-sensitive zone outside the national park with thick forest cover is an additional protective corridor for the wildlife. The vegetation of the national park is mainly composed of thick Sal (*Shorea robusta*) forests and other deciduous species of tropical and subtropical origin. Animals like Goral, Sambar, Chittal, Spotted deer, Barking deer, Blue

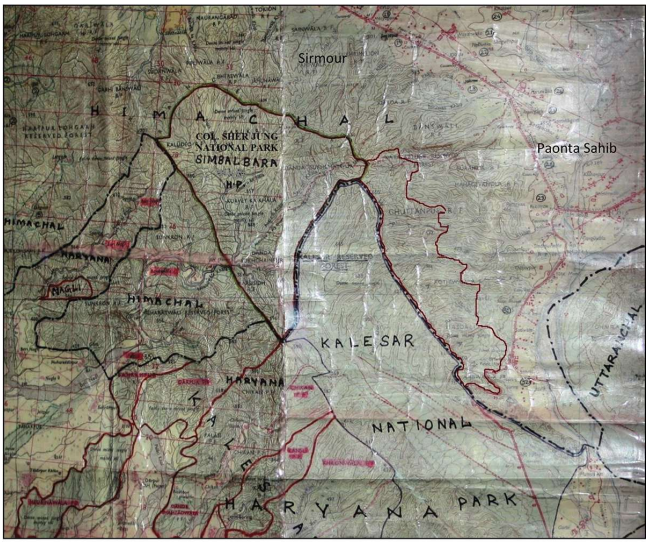

Fig. 1a. Geographical location of Col Sher Jung National Park Simbalbara, Paonta Sahib, District Sirmour (H.P.).

bull, Leopard, Wild boar, Pea-fowl, Red jungle fowl, elephants, partridges are primarily reported in the region (Mehta *et. al.*, 2009).

Data collection

The present in-depth survey was initiated in the region from January 2012 to December 2017. The research work primarily focused in order to collect data of interest on ethno botanically important skin care plants used by the local inhabitants in adjoining villages around CSJNP, Simbalbara, field tours to these areas were made as per the procedure delineated by Schultes (1962), Jain (1967, 1989) and (Jain & Mudgal, 1999). The duration of each visit in different seasons was of 2-3 months. A firsthand account of remarkable species used for skincare needs either in the flowering or fruiting stage was taken. Local people, family heads, old people and many local informants were contacted for getting a better understanding of skin care plant species through a semi-structured questionnaire, interviewed and group discussions. The data collected was verified and cross-checked by showing plant specimens/photographs to various informants and even to the same informants on different occasions. The species was identified with the help of treatises on Indian flora and carefully matched with authentic specimens housed in the herbarium of Northern Circle of Botanical Survey of India and F.R.I., Dehradun. The vernacular (local) name(s) and the name of the families have also been provided along with the valid botanical names that were confirmed from Chaudhary & Wadhwa (1984), Kaur & Sharma (2004). For further authentication IPNI (The International Plant Name Index-http://www.ipni.org) and the plant list (www.theplantlist.org) were also consulted. The voucher herbariums were submitted to the Ethno botanical Herbarium, Department of Biosciences, Himachal Pradesh University, Summer hill, Shimla.

Quantitative data analysis

The collected data was further analyzed with quantitative tools viz fidelity level (FL), Family Importance Value (FIV), use value (UV) and Relative Frequency Citation (RFC).

Fidelity level (FL)

To analyse most preferred plant usage for the cure of a specific disease, we used (FL) index adopted by Friedmen *et al.* (1986). FL indicates the importance of one species over other, to cure specific diseases. Fidelity level shows the percentage of participants who reported the use of specific plant species for a particular skin disease.

$$[FL\ (\%) = N_p/N * 100]$$

Where, Np is the number of participants that declare the usage of species for definite disease, and N is total participants that use plants as a medicines for the treatment of any given ailment.

Use Value (UV):

The use value (UV) was also calculated as proposed by Phillips *et al.* (1994) using the formula: UV = ($\sum$U/n), where UV is the use value of species, 'U' is the total number of use reports per species and 'n' represents the total number of informants interviewed for a given plant. A value ranges from near 1 to 0. High UV means there are many use reports for a specific plant and that plant is marked important for treatment in the region.

Relative Frequency Citation (RFC):

Relative frequency of citation (RFC) signifies the local importance of each species in a study area (Vitalini *et al.* 2013). This index is determined by dividing the number of informants citing a useful species (FC) by total number of informants in the survey (N). RFC is calculated by the formulae: RFC=FC/N (0<RFC<1).

The data were summarized and enumerated in the light of already published literatures by Upadhyay *et al.* (1998), Dilara & Nath (2000), Korpenwar (2012), Kumar *et al.* (2012), Mutyala *et.al.* (2015), Mowobi *et al.* (2016), Mahato *et al.* (2018), Malik *et al.* (2019) and Singhal *et al.* (2020).

Results

The data recorded for skincare needs from the study area reveals the usage pattern of 62 plant species belonging to 53 genera under 36 families against 10 types of prevailing skin ailments (Table 2). Total 205 participants (55 females, 150 males) of different age groups from 25 to 50, 50 to 75, and above 75 were interviewed (Table 1). Habit wise distribution reveals the use of 15 herbs, 22 trees and 25 shrubs (Figure 2). The dominant life form utilized is shrubs while the preferred method of utilization has poultice, along with leaf (48%) as

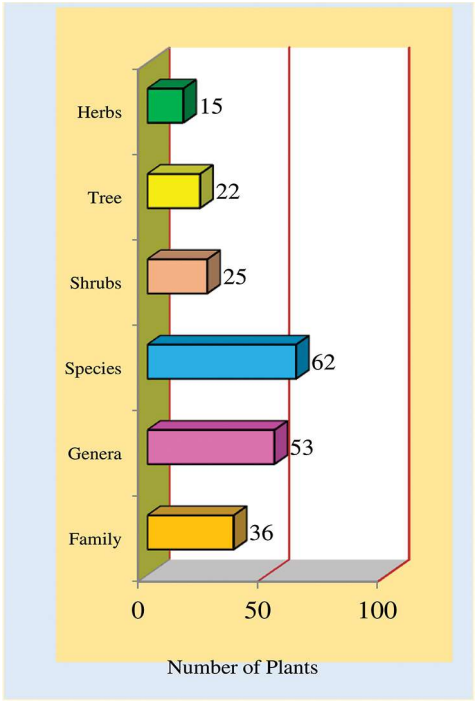

Fig. 2. Habit and division wise disposition of plant related to skin ailments.

Table 1. Number of informants participated.

Sr. No.	Age Group	Male		Female		Total
		Trans-migrant	Permanent	Trans-migrant	Permanent	
1	<50 yrs	8	11	2	5	26
2	50-75 yrs	9	65	7	24	105
3	75>	1	56	1	16	74
	Total	18	132	10	45	**205**

(Male-150 + Female-55: Total= 205)

Table 2. Medicinal plants used for skin diseases in fringe villages of Col. Sher Jung National Park, Simbalbara, Paonta Sahib

Botanical Name	Vernacular Name	Family	Habit	Disease	PU	U	FL	UV	RFC
Artocarpus heterophyllus Lam.	Kathal	Moraceae	T	Abscess	Lx	AD*	21.95	0.107	0.11
Calotropis procera (Aiton) W.T. Aiton	Ak, Akada	Asclepiadaceae	Sh		Lx	AD	32.68	0.161	0.26
Catunaregam spinosa (Thunb.) Tirveng.	Mainphal	Rubiaceae	Sh		Lf	LP*	21.95	0.098	0.11
Duranta erecta L.	Doranta	Verbenaceae	Sh		S, Lf	P*	16.59	0.073	0.09
Kydia calycina Roxb.	Pula, Pulia	Malvaceae	T		Lf	LP	11.22	0.059	0.07
Martynia annua L.	Bichu	Martyniaceae	Hb		Ft	P	21.95	0.073	0.09
Aloe vera (L.) Burm.f.	Ghee-Kwaanar	Xanthorrhoeaceae	Hb	Acne	Lf	LP	91.71	0.166	0.22
Annona squamosa L.	Sitaphal	Annonaceae	T		Lf	P	16.59	0.102	0.22
Azadirachta indica A. Jussieu	Neem	Meliaceae	T		Lf	P	100.00	0.371	0.37
Citrus aurantiifolia (Christm.) Swingle	Nimbu	Rutaceae	T		R	P	22.44	0.156	0.16
Citrus aurantium L.	Santara	Rutaceae	T		R	P	21.46	0.102	0.27
Curcuma longa L.	Haldi	Zingiberaceae	Hb		Rh	P	100.00	0.22	0.48
Dalbergia sissoo DC.	Shisham, Tahli	Fabaceae	T		Lf	LP	16.59	0.102	0.22
Rosa indica Hook. f.	Gulab	Rosaceae	Sh		Fl	P	11.71	0.112	0.42
Aloe vera (L.) Burm.f.	Ghee-Kwaanar	Xanthorrhoeaceae	Hb	Blisters	Lf	P	21.95	0.127	0.33
Azadirachta indica A. Jussieu	Neem	Meliaceae	T		Lf	P, D, Pw	31.71	0.141	0.17

Bixa orellana L.	Sindoori	Bixaceae	T		Lf	P	21.95	0.029	0.17
Aloe vera (L.) Burm.f.	Ghee-Kwaanar	Xanthorrhoeaceae	Hb	Boils	Lf	P	38.05	0.166	0.21
Annona squamosa L.	Sitaphal	Annonaceae	T		Lf	P	28.78	0.059	0.19
Bryophyllum pinnatum (Lam.) Oken	Pattharchat	Crassulaceae	Hb		Lf	P	23.41	0.054	0.16
Datura metel L.	Kala Dhatura	Solanaceae	Sh		Lf	P	21.95	0.068	0.21
Datura stramonium L.	Dhatura	Solanaceae	Hb		Lf	P	11.22	0.063	0.10
Hibiscus rosa-sinensis L.	Gudhal	Malvaceae	T		Lf	P	5.37	0.112	0.06
Holarrhena pubescens Wall. *ex* G. Don.	Karu, Ramjau	Apocynaceae	T		Lf	P	13.17	0.093	0.08
Oxalis corniculata L.	Changeri	Oxalidaceae	Hb		Lf	P	60.00	0.083	0.26
Populus deltoids Bartram *ex* Marshall	Poplar	Salicaceae	T		B	P	9.27	0.059	0.11
Prosopis juliflora (Sw.) DC.	Vilayati Kikar	Fabaceae	T		Lf	P	13.66	0.093	0.08
Ricinus communis L.	Arand	Euphorbiaceae	Sh		Lf	P	23.90	0.122	0.21
Sida acuta Burm.f.	Bala, Khareti	Malvaceae	Sh		Lf	P	21.95	0.093	0.08
Solanum anguivi Lam.	Banta-maku, Brihati	Solanaceae	Hb		Sd	P	27.32	0.102	0.42
Terminalia arjuna (Roxb. *ex* DC.) Wight. & Arn.	Arjun	Combretaceae	T		B	P	16.59	0.19	0.25
Wendlandia heynei (Schult.) Santapau & Merchant	Bathua, Pansara	Rubiaceae	T		B	P	96.59	0.054	0.42
Ficus religiosa L.	Peepal	Moraceae	T	Cracked heel skin	Lx	AD	92.20	0.068	0.38
Boehmeria macrophylla Hornem.	Samrala	Urticaceae	Sh	Eczema	Lf	P	59.02	0.044	0.12
Calotropis gigantea (L.) Dryand.	Safed Ak	Asclepiadaceae	Sh		Lx	AD	70.73	0.068	0.20
Euphorbia pulcherrima Willd. *ex* Klotzsch	Lal Patti	Euphorbiaceae	Sh		Lx	AD	65.37	0.107	0.17
Euphorbia royleana Boiss.	Danda Thor	Euphorbiaceae	Sh		Lx	AD	49.27	0.088	0.12
Ipomoea carnea Jacq.	Besharam, Panphul	Convolvulaceae	Sh		Lx	AD	33.66	0.063	0.12
Lawsonia inermis L.	Mehndi	Lythraceae	Sh	Itches	Lf	P	31.22	0.112	0.10
Madhuca longifolia var. *latifolia* (Roxb.) A. Chev.	Mahuwa	Sapotaceae	T		Lf	P	27.32	0.054	0.14
Solanum anguivi Lam.	Banta-maku, Brihati	Solanaceae	Hb		Sd	P	20.98	0.049	0.13
Azadirachta indica A. Jussieu	Neem	Meliaceae	T	Pimples	Lf	P	26.83	0.141	0.12
Achyranthes aspera L.	Chitra, Puthkanda	Amaranthaceae	Hb	Skin irritation	S	P, D	59.02	0.112	0.18
Argemone Mexicana L.	Bharbhara, Pili Kanteli	Papaveraceae	Hb		S	P	70.73	0.107	0.18
Azadirachta indica A. Jussieu	Neem	Meliaceae	T		Lf	P, Pw,D	79.51	0.21	0.17
Brassica rapa L.	Sarson	Brassicaceae	Hb		Sd	P	47.80	0.112	0.16
Butea monosperma (Lam.) Taub.	Dhak, Palas	Fabaceae	T		Sd	P	69.76	0.102	0.12
Calotropis gigantea (L.) Dryand.	Safed Ak	Asclepiadaceae	Sh		Lx	AD	72.20	0.137	0.16
Calotropis procera (Aiton) W.T. Aiton	Ak, Akada	Asclepiadaceae	Sh		Lf	P	44.39	0.127	0.27
Cereus hildmannianus K.Schum.	Kantila	Cactaceae	Sh		Lx	AD	25.85	0.093	0.04
Chenopodium album L.	Batho, Gahnau	Chenopodiaceae	Hb		Sd	P	76.10	0.088	0.16
Chenopodium murale L.	Kharatua Bathu	Chenopodiaceae	Hb		Lf	P	81.46	0.073	0.10
Cissampelos pareira L.	Harjori, Patindu	Menispermaceae	Sh		Lf	P	65.37	0.044	0.09
Clerodendrum infortunatum L.	Bhant, Karu	Lamiaceae	Sh		Lf, Rt	P, J*	67.80	0.063	0.07
Cyanthillium cinereum (L.) H. Rob.	Sahadevi	Asteraceae	Hb		Lf	P	15.61	0.059	0.21
Euphorbia hirta L.	Lal Dudhi	Euphorbiaceae	Hb		P	P	28.29	0.102	0.10
Euphorbia pulcherrima Willd. *ex* Klotzsch	Lal Patti	Euphorbiaceae	Sh		Lx	AD	32.68	0.073	0.21
Euphorbia royleana Boiss.	Danda Thor	Euphorbiaceae	Sh		Lx	AD	37.56	0.127	0.05
Ficus carica L.	Anjeer	Moraceae	Sh		Lf	P	14.15	0.049	0.08
Ipomoea carnea Jacq.	Besharam	Convolvulaceae	Sh		Lf	P	63.90	0.088	0.22
Jatropha curcas L.	Ratanjot, Safed Arand	Euphorbiaceae	Sh		Lx	AD	70.73	0.063	0.09

Justicia adhatoda L.	Arusa, Bansa, Basaka	Acanthaceae	Sh		P	P	43.41	0.122	0.10
Kydia calycina Roxb.	Pula, Pulia	Malvaceae	T		Lf	P	23.90	0.024	0.06
Lawsonia inermis L.	Mehndi	Lythraceae	Sh		Lf	P	97.07	0.093	0.37
Nerium oleander L.	Kaner	Apocynaceae	T		Lx	AD	65.85	0.063	0.25
Senna obtusifolia (L.) H.S. Irwin & Barneby	Panwar	Fabaceae	Sh		Lf	P	43.41	0.054	0.09
Senna occidentalis (L.) Link	Chakunda, Kasmarda	Fabaceae	Sh		Lf, Sd	P	65.37	0.039	0.15
Shorea robusta C. F. Gaertn.	Sal, Shal	Dipterocarpaceae	T		Sd, B, Lf	P	40.98	0.049	0.07
Spilanthes acmella Murray	Akarkara	Asteraceae	Hb		Lf	P	65.37	0.078	0.19
Terminalia bellirica (Gaertn.) Roxb.	Bahera	Combretaceae	T		Ft	P	81.46	0.088	0.16
Tinospora sinensis (Lour.) Merr.	Giloe, Gurch, Gulja	Menispermaceae	Sh		S	P	85.85	0.029	0.21
Toona ciliata M. Roem.	Tun, Toona	Meliaceae	T		B	P	65.85	0.044	0.09
Vitex negundo L.	Bano, Malaha	Lamiaceae	Sh		Lf	P	44.39	0.063	0.16
Withania somnifera (L.) Dunal	Ashwagandha	Solanaceae	Sh		Sh	P	92.20	0.039	0.26
Zanthoxylum armatum DC.	Tirmir,Tumbar	Rutaceae	T		Lf	P	98.54	0.073	0.37
Sambucus nigra L.	Khaman	Adoxaceae	Sh	Sun burn	Fl	P	59.02	0.054	0.06

Habit: T-Tree, Sh- Shrub, Hb-Herb

Part Used (PU): Lx-Latex, Lf-Leaf, Fl- Flower, B-Bark, Ft-Fruit, R-Rind, Rh-Rhizome, S-Stem, Sh-Shoot, Rt-Root, Sd-Seed, P-Plant

Utilization (U) : AD*-Applied directly, LP*-Leaf paste, P*- Poultice, J*- Juice, D*-Decoction, Pw*-Powder

FL- Fidelity Level, **UV-** Use Value, **RFC-** Relative Frequency Citation

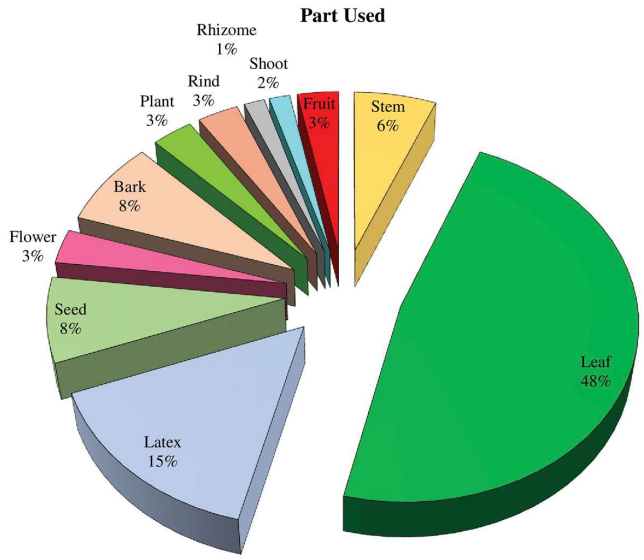

Fig. 3. Percentage disposition of plant parts utilized for skin ailments.

the most used plant part, followed by latex (15%), bark and seed 8% each, stem 6%, etc. (Figure 3). Leaves are also used as powder and paste on the affected skin. All plants are used in crude form, generally from fresh raw material or dry in decoctions, macerations, paste or powder. Administration of different plant parts were generally applied topically as a paste, sap or latex, powder, poultice on the affected skin part, followed by decoction that were recommended orally. From usage perspective, the utilitarian families are represented by Euphorbiaceae and Fabaceae, (5 species each), Solanaceae (4 species), Malvaceae, Moraceae, Rutaceae (3 species each), Apocynaceae, Asclepiadacae, Asteraceae, Chenopodiaceae, Combretaceae, Lamiaceae, Meliaceae, Menispermaceae and Rubiaceae (2 species each) and Acanthaceae, Adoxaceae, Amaranthaceae, Annonaceae, Bixaceae, Brassicaceae Cactaceae, Convolulaceae, Crassulaceae, Dipterocarpaceae, Lytharaceae, Martyniaceae, Oxalidaceae, Papaveraceae, Rosaceae, Salicaeae, Sapotaceae, Urticaceae, Verbenaceae, Xanthorrhoeaceae and Zingiberaceae (1 species each). The quantitative methods including use value (UV), family importance value (FIV), and fidelity level (FL) are applied. The highest FIV has been recorded for the family Zingiberaceae, RFC values range from 0.04 to 0.48% and FL value ranges from 5.37% to 100%.

As evident from pattern use (Table 2), 33 species were found to be utilized to cure general skin infection, for boils 15 species, acne 8 species, abscess 6 species, eczema 5 species, for blisters and itches 3 species each, and for cracked heel skin, pimples and sunburn one species each (Figure 4). Plant parts were utilized singly in all the reported skin disorders except a few in which powdered form is taken with water. In

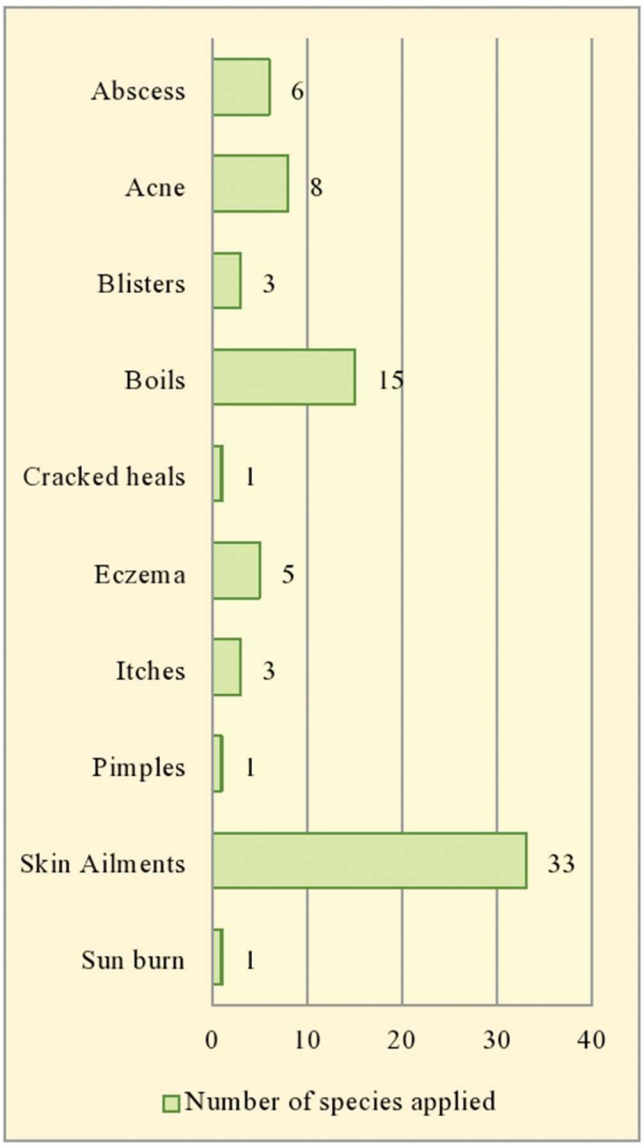

Fig. 4. Number of Species applied to cure various Skin disorders.

some cases, it has been observed that different plant parts have been used to cure different diseases such as *Azadirachta indica*, *Ipomoea carnea*. However, in some cases, different parts of single species were used against same skin related disorders such as *Duranta erecta, Clerodendrum infortunatum, Senna occidentalis, Shorea robusta* etc. Preferably poultice (51 spp.) were used in maximum of the skin disorders, to cure abscess leaf paste (04 spp.) of *Catunaregan spinosa, Kydia calycina* and for acne *Aloe vera, Dalbergia sissoo* have been reported to be used; for skin irritation decoction (02 spp.) of *Azadirachta indica* and *Achyranthus aspera* has applied for washing and latex (10 spp.) applied directly on the infected part till the infection has been cured.

Azadirachta indica and *Curcuma longa* show the highest use-value, whereas *Curcuma longa* is common in agricultural practices. The *Curcuma longa* and *Rosa indica* with value of 0.48 and 0.42 respectively have high RFC. Besides, few species like *Aloe vera* (acne, blisters, boils), *Annona squamosa* (acne, boils), *Azadirachta indica* (acne, blisters, pimples, skin irritation), *Calotropis procera*, *Kydia calycina* (abscess, skin irritation), *Calotropis gigantea, Euphorbia pulcherrima, E. royleana, Ipomoea carnea* (eczema, skin irritation), *Lawsonia inermis* (itches, skin irritation), and *Solanum anguivi* (boils, itches) have been found to cure multiple skin ailments (Table 3). The high value of FL indicates the choice of participants to treat the specific disease. Fidelity percentage greater than 80% found be having greater significance over others. This study suggests that respondents have good ethnobotanical knowledge and they are passing it on to the future generation too. The ethnomedicinal plant species although analyzed quantitatively for various skin ailments, also need further evaluation of their therapeutic efficacy, side effects, and toxicity, which will provide the basis

Table 3. Medicinal plants used for cure multiple skin diseases from the study area.

Disease	Botanical Name
Acne, Blisters	*Aloe Vera*
Acne, Boils	*Annona squamosa*
Acne, Blisters, Pimples, Skin irritation	*Azadirachta indica*
Abscess, Skin irritation	*Calotropis procera, Kydia calycina*
Eczema, Skin irritation	*Calotropis gigantea, Euphorbia pulcherrima, E. royleana, Ipomoea carnea*
Itches, Skin irritation	*Lawsonia inermis*
Boils, Itches	*Solanum anguivi*

for future novel drug discovery by identifying their active phytochemical components.

Discussions

The rural inhabitants are mostly dependent upon locally available plants for the cure of various ailments (Samant *et. al.*, 1998; Kala, 2006; Vidyarthi *et al.*, 2013; Saini & Sood, 2017). But, due to modernization, the traditional knowledge of medicinal plants is on the verge of extinction. In the present study data recorded for skincare needs from 205 participants of different age group around the inhabitants of Col. Sher Jung National Park Simbalbara, Tehsil Paonta Sahib of District Sirmour in Himachal Pradesh, revealed the usage pattern of 62 plant species belonging to 53 genera under 36 families, against 10 types of prevailing skin ailments (abscesses, acne, boils, blisters, skin irritation, skin cracks, eczema, itches, pimples, sun burn). The dominant life forms utilized were shrubs due to high availability in this region. Leaves are the preferable plant part utilized as poultice that is similar to earlier findings (Kumar *et al.*, 2012; Malik *et al.*, 2019; Reang *et al.*, 2021). The highest family importance value (FIV) was recorded for the family Zingiberaceae and relative frequency citation (RFC) values range from 0.04 to 0.48% and fidelity level (FL) value ranges from 5.37% to 100%. Fidelity percentage greater than 80% was found to be having greater significance over others. The plant species that have high relative frequency citation are *Curcuma longa, Rosa indica, Achyranthes aspera, Azadirachta indica, Brassica rapa,* and *Aloe vera*. The RFC indices represent high prospective therapeutic plant species for future research regarding anti-skin diseases drug expansion, which is similar to the findings of Vitalini (2009). The medicinal plants described in the present study for the cure of skin infections might also be utilized for their efficacy for additional medical attention as reported by Thakur (2011) and Saini & Sood (2017). The above findings showed that traditional treatment using ethnomedicinal plants has still existed and is famous among inhabitants. In view of the high value of the species agro-technique of the viable therapeutic plants need to be developed and disseminated among stakeholders. The establishment and continuation of the species under cultivation would not only help to meet their requirement for curing diseases, but also boost their income.

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