

SOME ETHNOBOTANICALLY IMPORTANT PLANTS FOR SKIN DISEASES IN ARKI AND KANDAGHAT AREAS OF DISTRICT SOLAN, HIMACHAL PRADESH

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Abstract

Now a days, skin diseases are numerous and a frequently occurring health problem affecting all ages. Some medicinal plants and their parts are frequently used by local peoples to treat these diseases. As natural treatment are cheap and claimed to be safe, thus people still reckon more on natural remedies. The present study was carried out in adjoining areas of Arki and Kandaghat areas of District Solan Himachal Pradesh during period 2014-2017. The information related to medicinal species which are used to cure skin ailments were gathered by personal interviews with village headmen, local healers, and also common peoples. A total of 65 plants belonging to 34 families are listed in this paper. Details of medicinal plants are described alphabetically with their botanical name, family, local name, parts used, diseases/ailment and ethno medicinal uses. The present study highlight the uses of 65 plant species belonging to 56 genera and 34 families for a wide array of ailments such as wounds (28 species), cuts and wounds (20 species), boils (17 species), sores and snake bite (12 species each), insect bite (11 species each), eczema, scabies, ringworm, ulcers, (6 species each) etc. for which leaves are predominantly employed followed by fruits, whole plants roots, etc. The information was collected through personal interviews in semistructured questionire.

Key Words: Arki and Kandaghat Areas, Medicinal Plants, Skin diseases.

INTRODUCTION

Humanity has been dependent on plants from time immemorial. The ancient sages identified humanity as an integral part of nature and stressed the importance of maintaining complete harmony with all living and non-living components of mother earth. Their lifestyle evolved as customs and value oriented traditions. These traditions and relationships now form the core interdisciplinary science known as Ethnobotany (Schultes, 1962; Ford, 1980). The term first coined by Harshberger (1895). Of late, the subject of ethnobotany has been recognized as a rapidly expanding multidisciplinary natural science throughout the world, with many workers becoming involved in the practical application of its data in areas such as biodiversity prospecting and conservation biology.

There could be no two opinions regarding the ethnic, floristic and agricultural diversity of India, possessing over 45,000 spp (including 15,000 spp of flowering plants of which about one-third of the spp are endemic), where the people worship the various elements of mother-nature to express their indebtedness for sustaining them. At present, about 1,500 plant spp are being used in the ancient Indian system of medicine, i.e. Ayurveda (Bhatnagar, 1997) from which plant drugs worth Rs 3,400 million per annum are utilized for its various preparations (Gupta,1986).

The Himalayas are a rich repository of medicinal and aromatic plants, diverse cultures and traditions and its vegetation is rich in Mediterranean, West Asian, Tibetan, Japanese and Burmese elements. For sustenance, the various inhabitants of Himalayan region use about 300 wild spp as subsidiary food (Kapoor, 1978; Arora, 1981); 37 spp for fibre; 35 tree spp as multipurpose socio-economically important spp and a large number as medicinal plants (Rao, 1996). A number of diverse ethnic communities such as Gaddies, Gujjars, Kinnaurs, or Kanaurs, Jads, Lahaulis, Spitians, Pangwals and Swangalas with distinct differences in socio-economic and socio-cultural conditions inhabit the regions. Unfortunately, much of this wealth is alarmingly depleted due to acculturation of traditional cultural practices.

Of late, there has been a resurgence of interest all over the world in the study of primitive communities and tribals with an eye to potential future use for the ultimate welfare of humanity. Comparatively, information pertaining to folk and ethnobotanical practices is scanty for Himachal Pradesh in general and Arki and Kandaghat Solan in particular. Hence, an attempt has been made to document the precious indigenous wisdom on the medicinal usage with a view not only to conserve it from being lost irreversibly to growing anthropogenic pressures but also for using them as valuable clues for social forestry endeavours, therapeutic agents, supplementary food and sustainable management of species as well as their habitats.

MATERIALS AND METHODS: STUDY AREA AND LOCATION

The study was carried out in Arki and Kandaghat area of district Solan, Himachal Pradesh. The district was carved out of Solan and Arki tehsils of the then Mahasu district and tehsils of Kandaghat and Nalagarh of the then Shimla district. The mountain ranges lie in the outer Himalayas and are a part of Shivalik ranges. Arki

is located at 31.15°N 76.97°E . It has an average elevation of 1045m (3428 feet). In the north it is bounded by Mandi and Bilaspur districts in the north, Punjab state in the west, Haryana state and Sirmour district in the south and Shimla district in the east. Kandaghat is a tehsil in Solan district which is on the Kalka-Shimla national highway no. 22. Kandaghat tehsil headquarters is Kandaghat town which is located at north latitude $30^{\circ}44'53''$ to $31^{\circ}22'01''$ and east longitude $76^{\circ}36'10''$ to $77^{\circ}15'14''$.



Fig.1 Location of Himachal Pradesh in India



Fig.2. District Solan in Himachal Pradesh



Fig.3 Map of Arki and Kandaghat Tehsils of District Solan H.P. India.

HISTORY OF STUDY AREA

Arki was the capital of the princely hill state of Baghal, which was founded by Rana Ajai Dev, a Panwar rajput from Dhar state in central India. Arki fort was built by Rana Prithvi Singh in 1800. Arki is known for its caves and cave temples among which Lutru Mahadev and Mutru Mahadev are very famous. Sair Fair is famous for buffaloes fight. Kandaghat is famous for tourist destination areas like Chail, Sadhupul, Karol Tibba. Chail is very famous place of Himachal Pradesh. The Chail palace is well known for its architecture, the palace was built as summer retreat by the Maharaja of Patiala during the British Raj. The study was carried out around these areas of both tehsils.

CLIMATE AND GEOGRAPHY

Arki is located in the Siwalik range of Himalaya's mountain. Due to its high altitude, Arki enjoys a pleasant weather in the summers with the temperatures hovering between 26 °C and 32 °C. The winters are chilly and the temperature ranges between 4 °C and 8 °C. The rainfall is moderate and occurs mainly during the months of July and August. Kandaghat city is neither as cold as Shimla, nor too hot as Kalka as the temperature hardly rise more than 35 °C (95 °F) that is why it is considered as an ideal station from residential point of view. During winters it experiences little snowfall. Temperatures typically range from -4 °C (25 °F) to 34 °C (93 °F) over the course of a year, with record high temperature of 37 °C. These areas are covered by catchments area of three important rivers namely Satluj, Yamuna and Ghaggar. The branching drainage pattern so established is tree like, is termed as dendrite drainage pattern.

VEGETATION AND WILDLIFE

Due to wide variations in the altitude, soil depth and available moisture, the vegetation met within this division shows a great variation. Chil, khair, bamboos and other broad leaved species like chhal, simbal, jhingan etc. are the most important species met within these areas. Tropical euphorbia scrub forest to Shiwalik chil pine and little ban oak forests are found in these areas. Vegetation changes due to water and slopes. Undergrowth consists of phullakri, karaunda, ghandela, kashmal, katni, kainth, tirmira, khair, bel, banarasi, kangu, malkora, dub, dhaula and lobb are the various types of grasses found in this district. The climbers that are generally found are *Hedera helix*, *Smilax*, *Bauhinia vahili*, *Rosa*, *Acacia pinnata* etc. There is a great variety of wild life met within these areas. It

covers 110 km². Chail sanctuary has a vast forest cover. In 1976, Chail wildlife sanctuary was identified and it was declared as a protected area under government consideration. Large mammals include rhesus macaque, leopards, Indian muntjac and crested porcupine. Some of the other species found in the area include Himalayan black bear, wild boar, common langur, sambar and black naped hare. Various types of birds like chukar, black pettridge, kaleshna and jungle fowl, peacock, parrot, sparrow, piegeon and doves are also found in the areas.

PEOPLE AND LAND USE

Agriculture is the main stay of the rural economy of these areas. Language mainly used is 'Baghati' and have unique traditions, arts and crafts and food habits. People residing in the vicinity of the study area belong to varied castes, creed and religion. Few areas are highly modernized and most of the regions or villages have impact of modernization. But folks are still following their traditions. The climatic conditions and physical settings help the folk to still maintain their traditional life style. It is common in folk societies to treat diseases and disorders with drugs and medicines derived from the roots, barks, blossoms or fruits of plants. Many of the folk cures have proven effective.

STUDY PERIOD AND METHODOLOGY

The present intensive field research work was initiated in the region from January 2014 till December 2017. The research work primarily focused in order to collect data of interest on ethnomedicinally important plants utilized by the local inhabitants for curing skin diseases. Field tours to these areas were made as per, the procedure delineated by Schultes (1962) and Jain (1967, 1989). The duration of each visit in different seasons was of 2-3 months. Firsthand account of ethnobotanically interesting species either in flowering or fruiting stage was taken. Local people, family heads, old people and many local informants was contacted for getting a better understanding of plant species used for curing skin diseases through semi structured questionnaire, interviewed and group discussions. The data collected was verified and cross checked by showing plant specimens to various informants and even to the same informants on different occasions. The information pertaining to botanical names, locality, altitude, parts use, ethnic use, method of preparation, administration and appropriate dose were recorded in the field note book. The herbarium specimens of the collected

ethnomedicinal plants were also prepared as per the standard techniques (Jain & Rao, 1977). Photographs of plants were clicked in the natural habitat.

RESULT AND DISCUSSION

In the present study, the detailed information thus collected from different region of Arki and Kandaghat areas of district Solan, which are provided ethnobotanical information about 65 plants widely used by locals in skin related problems. These plants were distributed in 34 families and 54 genera (Fig.5). Of these 61 species belongs to dicots while 4 species belongs to monocots (Fig.4). Mainly herbs dominate in the area for curing skin diseases followed by tree and climbers and then shrubs or undershrubs respectively. It was further found that leaves were the major plant part used for curing various skin ailments followed by whole plant, roots, stems, fruits & flowers respectively.

Family-wise appraisal reveals that the highest member of species amongst the dicotyledonous families used for curing skin diseases belongs to Asteraceae (13 species), followed by Euphorbiaceae (6 species), Moraceae (4 species), and 3 species of Lamiaceae, Oleaceae, Apocynaceae and Polygonaceae each, while the highest member of species among monocotyledonous families belongs to Zingiberaceae (2 species), followed by Asphodelaceae (1 species) and Musaceae (1 species). With regard to relative percentage distribution of taxa, the analysis revealed 20% for the predominant dicotyledonous Asteraceae and 6.1% for Zingiberaceae amongst the monocots. Importantly, the commonly employed genera with a number of species are: *Ficus* (4 species), *Euphorbia*, *Jasminum* (3 species each), *Ageratum*, *Persicaria* (2 species each) and others, thereby indicating their overall importance from Indian perspective. In terms of various skin ailments prevalent, the study identified the usage of medicinal plants predominantly for wounds (28), followed by cuts and wounds (20), boils (17), snake-bite and sores (12 each), insect-bite (11), eczema, acne and burns (10 each), scabies (9), ringworm, swellings, itching (7 each), ulcers (6), abscesses (3) etc (Fig.6). Of the various modes of administration, the data highlights predominant preference of leafy drugs in the form of paste, juice and decoction.

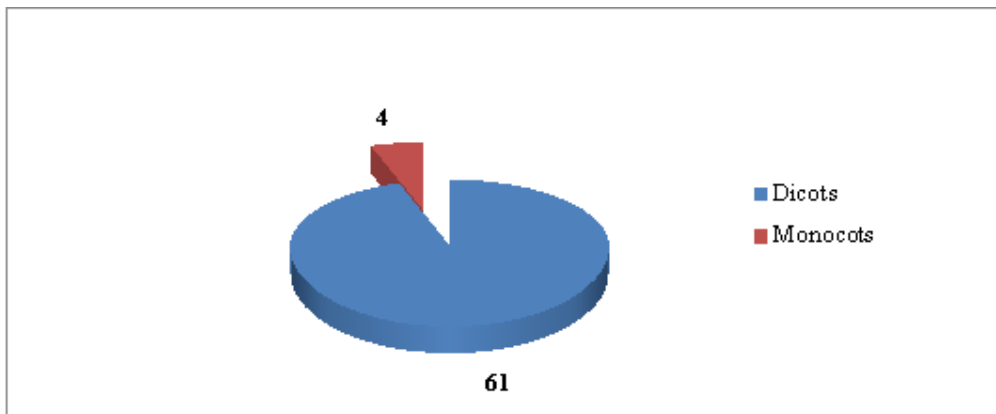


Fig.4 Plant Divisions for curing skin Diseases.

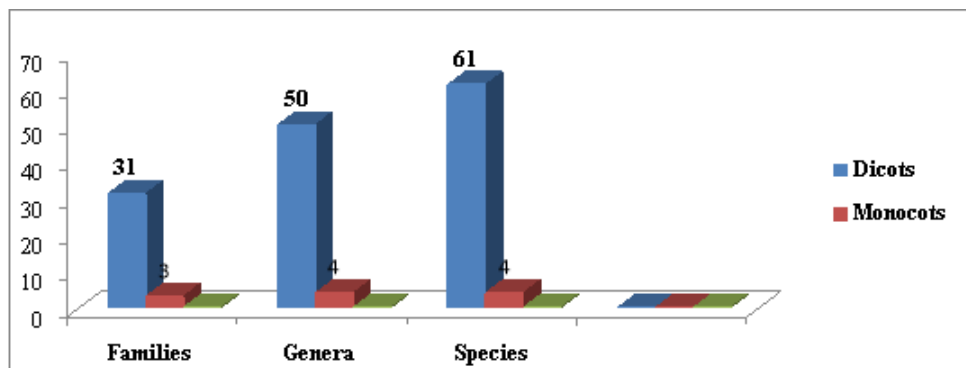


Fig.5 Various families, generas and species for curing skin diseases.

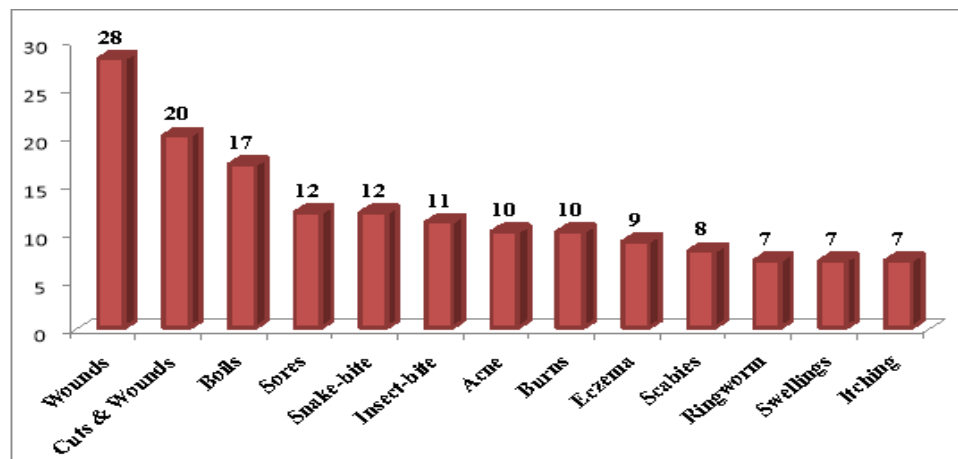


Fig.6 Generas for curing Skin diseases.

Table- Plants Employed for curing Various Skin Diseases

| SN | Botanical Name | Family | Local Name | Parts Used | Mode of Administration | Folk Uses |
|----|---|----------------|------------------------------|------------|------------------------|---|
| 1 | <i>Abelmoschus esculentus</i> (L.) Moench | Malvaceae | Bhindi | L. | P. | Cuts, wounds, boils and burns |
| 2 | <i>Acalypha lanceolata</i> Willd. | Euphorbiaceae | Kupikante | L., W.P. | Pl. | Cuts, wounds, sores and swellings |
| 3 | <i>Achyranthes aspera</i> L. | Amaranthaceae | Latjira, Puthhkanda | L. | J., P. | Snake bite, insect bite, itching and leprosy |
| 4 | <i>Ageratum conyzoides</i> (L.) L. | Asteraceae | Bakrghass | L. | P. | Cuts and wounds, anticoagulant |
| 5 | <i>Ageratum houstonianum</i> Mill. | Asteraceae | Phulnu | W.P. | P. | Sores, cuts and wounds |
| 6 | <i>Aloe vera</i> (L.) Burm. f. | Asphodelaceae | Kuvarpatha, Ghikavar, Bagnol | L. | Gel | Burns, skin abrasion, acne, wounds, sores, boils, swellings, scabies and eczema |
| 7 | <i>Anagallis arvensis</i> L. | Primulaceae | Neelphul | L., WP | Pl. | Warts, itching, insect bites and wounds |
| 8 | <i>Artemisia indica</i> Willd. | Asteraceae | Chhamru | L., S. | P. | Antiseptic (cuts and wounds) |
| 9 | <i>Bidens pilosa</i> L. | Asteraceae | Kumbar | L. | J. | Wounds, ulcers, sores, boils, burns and itching |
| 10 | <i>Cannabis sativa</i> L. | Cannabaceae | Bhang | L. | P. | Swellings, insect bites |
| 11 | <i>Carica papaya</i> L. | Caricaceae | Papita | F., L. | P. | Wounds, acne, sores, boils, scars, rejuvenation of skin |
| 12 | <i>Carpesium abrotanoides</i> L. | Asteraceae | Sarpili buti | S., L. | J. | Insect-bite, snake-bite, sores, boils |
| 13 | <i>Cascabela peruviana</i> (L.) Lippold | Apocynaceae | Pili Kaner | S. | D., J. | Snake-bite, boils, sores |
| 14 | <i>Cissampelos pareira</i> L. | Menispermaceae | Patvandu | R., W.P. | P. | Wounds, snake-bite, inflammation, scabies, abscess, itching and acne |
| 15 | <i>Curcuma longa</i> L. | Zingiberaceae | Haldi | R. | P., Po. | Acne, burns, wounds, boils, bruises, blisters, ulcers, eczema and insect-bite |
| 16 | <i>Diplocyclos palmatus</i> (L.) Jeffery | Cucurbitaceae | Sivlingi | F., L. | P. | Inflammation, snake-bite |
| 17 | <i>Dodonaea viscosa</i> Jacq. | Sapindaceae | Piplu | A.P. | Pl. | Wounds |
| 18 | <i>Eclipta prostrata</i> (L.) L. | Asteraceae | Bhringi | | P., Ex. | Insect-bite, swellings, eczema, wounds |
| 19 | <i>Eleusine indica</i> (L.) Gaertn. | Poaceae | Khukhri | W.P. | Paste | Wounds, skin rashes |
| 20 | <i>Euphorbia</i> | Euphorbiaceae | Choddi | L. | P., Ex. | Fungal infection, |

| | | | | | | |
|----|---|---------------|-----------------------|------------|----------|--|
| | <i>heterophylla</i> L. | | Dudhalii | | | abscesses, tumours |
| 21 | <i>Euphorbia hirta</i> L. | Euphorbiaceae | Dudhalii | L., R. | Pl. | Swellings, bolis, snake-bite |
| 22 | <i>Euphorbia prostrata</i> Aiton | Euphorbiaceae | - | L., Lx. | Pl., Lx. | Boils, swellings, ringworms, sores |
| 23 | <i>Ficus auriculata</i> Lour. | Moraceae | Taimbal | S. | Lx. | Cuts and wounds |
| 24 | <i>Ficus benghalensis</i> L. | Moraceae | Bat Vriksh | L., S. | Lx. | Blisters, cuts, boils, snake-bite |
| 25 | <i>Ficus palmata</i> Forsk. | Moraceae | Fegdda | L. | Lx. | Warts, remove out thorn from skin, scabies, eczema and inflammation |
| 26 | <i>Ficus religiosa</i> L. | Moraceae | Peepal | L. | P. | Ulcers, eczema, scabies, insect-bite, wounds |
| 27 | <i>Galinsoga parviflora</i> Cav. | Asteraceae | Phoolnu | L. | P. | Cuts and wounds |
| 28 | <i>Galium aparine</i> L. | Rubiaceae | Chipku ghash | W.P. | P., Po | Wounds, ulcers, eczema, psoriasis |
| 29 | <i>Hedychium spicatum</i> Sm. | Zingiberaceae | Jangali haldi | Rz. | P. | Cuts, wounds, skin infection |
| 30 | <i>Himalaiella heteromalla</i> (D. Don) Raab-Straube. | Asteraceae | Kaljiri | L. | P. | Leucoderma, cuts and wounds |
| 31 | <i>Hypericum oblongifolia</i> Choisy | Hypericaceae | Jhunjri | L. | J. | Bee sting, cuts and wounds |
| 32 | <i>Impatiens balsamina</i> L. | Balsaminaceae | Binchi | L. W.P. | J. P. | Wounds, snake-bite, fungal infection, inflammation, swellings, burns, ringworms and eczema |
| 33 | <i>Jasminum grandiflorum</i> L. | Oleaceae | Chameli, Jati, Sunni | Fl., L. | P. | Scabies, wounds, acne, scars |
| 34 | <i>Jasminum humile</i> L. | Oleaceae | Pili sunni | R. | J. | Ringworm, wounds, fungal infection |
| 35 | <i>Jasminum multiflorum</i> (Burm. f.) Andr. | Oleaceae | Jangli chameli, Malti | Fl. L. | P. | Wounds, snake-bite, scalp problems |
| 36 | <i>Kalanchoe integra</i> (Medik) Kuntze | Crassulaceae | Nunu | L. | J. P. | Cuts, wounds, skin tone, rejuvenation of skin, pimples, acne and scars |
| 37 | <i>Lepidium didymium</i> L. | Brassicaceae | Kaddwi | W.P. | P. | Wounds |
| 38 | <i>Luffa cylindrica</i> (L.) M. Roem. | Cucurbitaceae | Tori, Gangeri | L. | P. | Burns, inflammation |
| 39 | <i>Mallotus philippensis</i> (Lam.) Muell. Arg. | Euphorbiaceae | Kamala | Fr. | Po. | Wounds, leprosy |
| 40 | <i>Malvastrum coromandelianum</i> (L.) Garcke | Malvaceae | Pilfuli | L. | P. | Wounds, sores |
| 41 | <i>Melia azedarach</i> L. | Meliaceae | Bakain | L. | P. | Scabies, itching, ringworms |

| | | | | | | |
|----|--|----------------|------------------|----------|---------|---|
| 42 | <i>Murraya koenigii</i> (L.) Spreng. | Rutaceae | Ghandela | L. | P. Po. | Erupted skin, pimples, ringworms, itching, boils, septic wounds and burns |
| 43 | <i>Musa paradisiaca</i> L. | Musaceae | Kela | S. | J. | Burns, blisters, scabies, insect and snake-bite. |
| 44 | <i>Nerium oleander</i> L. | Apocynaceae | Kaner | L., S | Lx. | Wounds, snake and insect-bite |
| 45 | <i>Ocimum sanctum</i> L. | Lamiaceae | Tulsi | L. | Ex., P. | Acne, blackheads, premature ageing, scars, cuts and wounds |
| 46 | <i>Oenothera rosea</i> L'Hér.ex Aiton | Onagraceae | - | Fl., L. | P. | Cuts, wounds, tumors, insect-bite |
| 47 | <i>Origanum vulgare</i> L. | Lamiaceae | Ban tulsi | L. | P. | Acne, warts, itching, skin irritation |
| 48 | <i>Persicaria pubescens</i> (Blume) H. Hara | Polygonaceae | Patpita | W.P. | J. | Snake-bite |
| 49 | <i>Persicaria serrulata</i> (Lag.) Webb. & Moq. | Polygonaceae | Jalpita | L. | P. | Cuts, wounds |
| 50 | <i>Pisonia grandis</i> R. Br. | Nyctaginaceae | Baghachura | L. | P. | Wounds, scabies, Swellings |
| 51 | <i>Plumbago zeylanica</i> L. | Plumbaginaceae | Chicha | L. | Pl. | Acne, sores, leprosy, scabies, ringworms, wounds |
| 52 | <i>Plumeria obtusa</i> L. | Apocynaceae | Champa, Gulenchi | L. | P. | Cuts and wounds |
| 53 | <i>Ricinus communis</i> L. | Euphorbiaceae | Arandi | L. Sd., | Oil, P. | Boils, eczema, abscesses |
| 54 | <i>Rosa chinensis</i> Jacq. | Rosaceae | Gulab | Fl. | J., P. | Wounds, sores, acne, rashes, inflammation, swellings, burns, skin tone |
| 55 | <i>Rumex crispus</i> L. | Polygonaceae | Jangli palak | R. | Po. | Ulcers, wounds |
| 56 | <i>Senna obtusifolia</i> (L.) H.S. Irwin & Barneby | Fabaceae | Torata | L. | P. | Bites, wounds, sores |
| 57 | <i>Sesamum indicum</i> L. | Pedaliaceae | Til | Sd. | oil | Ulcers, acne, sores, boils, burns |
| 58 | <i>Sigesbeckia orientalis</i> L. | Asteraceae | Chipchipi ghass | L. | J. | Wounds, insect-bite |
| 59 | <i>Smilax aspera</i> L. | Smilacaceae | Kukadd daddi | L., Sd. | P. Pl. | Premature ageing, skin tone, cuts, wounds |
| 60 | <i>Solidago virgaurea</i> L. | Asteraceae | Pinjphul | W.P. | P. | Wounds, itching, leucoderma |
| 61 | <i>Taraxacum officinale</i> Webb. | Asteraceae | Kanphuli | R. | P. | Acne, rashes, eczema, boils |
| 62 | <i>Tridax procumbens</i> L. | Asteraceae | Kanphul | L., W.P. | P. | Wounds, cuts, swellings, sores, boils, ulcers |
| 63 | <i>Vitex negundo</i> L. | Lamiaceae | Banna | L., Sd. | P, Po. | Cuts and wounds, allergies, rashes and |

| | | | | | | |
|----|--|------------|----------|------|----|-----------------------------|
| | | | | | | inflammation |
| 64 | <i>Woodfordia fruticosa</i> (L.) Kurz. | Lythraceae | Dahai | Fl. | D. | Burned skin, wounds, ulcers |
| 65 | <i>Youngia japonica</i> (L.) DC. | Asteraceae | Banshero | W.P. | P. | Boils, snake-bite |

Abbreviations: L.-Leaf; R.-Root; S.- Stem; A.P. – Aerial Parts; Lx.- Latex; Fl.- Flower; W.P.- Whole Plant; Rz.- Rhizome; Fr.- Fruit; Sd.- Seed. Pl.- Poultice; P.- Paste; J.- Juice; Po.- Powder; D.- Decoction.

SUMMARY

The traditional knowledge of the medicinal uses of plants of Arki and Kandaghat areas is vast and rural people still dependent on local plants for curing various ailments. During the study about 65 medicinal plants widely used by local people in skin related problems. The result of the study reveals that leaves are most commonly used for the preparation of traditional medicines to cure skin diseases. It is also found that the traditional knowledge is mainly restricted to vairs, elder people but young generation is still ignorant. Unfortunately, much of this wealth is alarmingly depleted due to acculturation of traditional cultural practices. One of the foremost and challenging tasks before the world community is to inventorize and record all ethnobiological information among the diverse ethnic communities before the traditional cultures are lost forever.

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