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Medicinal plants used by tribal and rural community of Sata Pokhran area of tehsil Pampore of district Pulwama, Jammu and Kashmir-India

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ABSTRACT

Man has used plants since time immemorial to alleviate sufferings and ailments. The present study attempts to explore and document the medicinal plants used against several diseases by the tribal and rural community of Sata Pokhran area of district Pulwama. During the survey from March to September 2017, a total of 28 different plant species belonging to equal number of genera and 16 different families were found to be used as effective remedies. The present study revealed that either whole plant or some plant parts are used to cure different diseases. It was also observed that majority of plant species are used to treat more than one disease and likewise more than one plant species is used to treat a particular disease. The scientific, local and family names of these medicinal plants along with their parts used, mode of administration and ethno medicinal uses are presented in this paper.

Keywords: Traditional Knowledge, Ethnomedicine, Sata Pokhran, Pulwama.

INTRODUCTION

Ethnobotany is the field of science that deals with the association between plants and humans. It is the relationship between a given society and its environment and in particular the plant world [1]. Ethnobotanists aim to document, describe and explain complex relationships between cultures and uses of plants, focusing primarily on how plants are used, managed and perceived across human societies. Ethno-medicine is a subfield of medical anthropology that deals with the study of traditional medicines, not only those with relevant written sources, but also those whose knowledge and practices have been orally transmitted over the centuries. According to data released by the World Health Organization (WHO), ethno medicine has maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialized countries. In recent years, one can notice a global trend in the traditional system of medicines and ethnobotanical studies have become increasingly valuable in the development of healthcare system in different parts of the world [2].

Ethno medicine has been playing very important role in human health care since time immemorial. This practice of health care is based on belief and experience of the ethnic people, which is a part of their tradition and culture. There has been an increased demand of herbal drug in international trade because herbal medicines are cheap, more effective, easily available and supposed to have no side effects. This is the reason that patients in developing countries such as Bangladesh (90%), Myanmar (85%), India (80%), Nepal (75%) Srilanka (65%) and Indonesia (60%) have strong convection in this system [3]. According to WHO, 80% of the people in developing countries still depend on local medicinal plants to fulfil their primary health needs [4]. Ethno-medicine has maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialised countries like China, Ghana, Nigeria and Zambia [5]. Ethnobotanical surveys have been found to be one of the reliable approaches to drug discovery [6].

Many studies have been carried out from time to time to document the ethno medicinal information from different districts of Jammu and Kashmir, India [7-15] but the perusal of literature shows that no systematic study of locally available plants from ethno-medicinal point of view has been carried out in the area of investigation. Therefore, in the present study, an attempt has been made to document some medicinal plants used by the tribal and rural community of Sata Pokhran area of tehsil Pampore of district Pulwama, Jammu and Kashmir India for curing various ailments. The present data has its importance recorded for the first time.

MATERIALS AND METHODS

Study Area

Pulwama district came into being in the year 1979 to ensure balanced development of the area. It is centrally located in the valley of Kashmir and is a resting place to adventure tourists because of its congenial climate, clean water streams, waterfalls, fragrant flowers, magnificent trees, mighty mountains, delicious fruits and other natural sceneries. It is located in the south Kashmir about 30 kms from Srinagar. Pulwama is famous all over the world for Saffron cultivation which is mainly grown in the karewa lands of Pampore, Kakapora and Pulwama Blocks. Pampore is one among the five blocks located in Pulwama district and is positioned in rural region of Jammu and Kashmir. It is a historic town situated on the eastern side of river Jhelum on Srinagar Jammu national highway. The area is about 11kms from Srinagar city centre Lal Chowk. Pampore is one of the few places in the world where Saffron, the world's most expensive spice grows and is therefore known as "Saffron Town of Kashmir." The block has 34 villages and there are total 9325 homes in it. The area of study (Sata Pokhran) is one of the 34 villages of Pampore block of Pulwama district and has 216 families with a population of 1342 (Census, 2011). The illiteracy rate of Sata Pokhran village is shockingly high – 59% because most of the area is dominated by Tribals. The climate is predominantly dry, temperate. The spring is pleasant with frequent rains. The maximum temperature of the area is 29 ^{0}C, rising up to 33 ^{0}C.

Methodology

During the investigation, field trips were carried out to the area of study from March to September 2017. The field exploration was carried out by the survey team of Department of Botany, Govt Degree College Pulwama Kashmir. Appropriate methodology was used to obtain the information about the medicinal use of different plants from the tribal and rural population of the area [16-17]. The information regarding the medicinal uses of plants, perception of the local people regarding use of plants in common diseases were collected through questionnaire and recorded in the field book. In addition to vernacular names, information on plant parts used, uses, mode of preparation, form of usage and mixtures of other plants used as ingredients were also collected. Methods used to document the traditional knowledge included interviews and discussions with local knowledgeable persons, herbal healers called "*Bhoris*" and Tribals (*Gujjars* and *Bakkerwals*). The local herbal healers (Hakims) were mostly consulted during the study. During surveys a total of about 37 informants were consulted who were between the ages of 35-75 years. The language used to ask the questions to the informants was Kashmiri which is understandable in most of the cases and Urdu language was also used in tribal areas. The information gathered was rechecked and verified by discussions with key informants (Hakims) and knowledgeable persons in order to bring an element of accuracy. An attempt was made to collect the plants during flowering and fruiting period in their natural habitat for easy identification and habitat recognition. All collected plants were photographed in the field with a high resolution camera. The equipments used for the collection of plants and plant parts were scissor, knife, digger, trowel, pruning shears and polythene bags. The collected plants were dried, pressed, preserved and finally mounted on herbarium sheets by following a standard herbarium technique. All the herbaria sheets were deposited in the herbarium of Department of Botany, Govt Degree College Pulwama Kashmir for authenticity and future use.

Table 1: List of collected medicinal plants used by tribal and rural community of Sata Pokhran against various ailments

S. No	Botanical Name	Local Name	Family	Habit	Part/s used	Ethno-medicinal uses	Mode of Administration
01	*Adiantum capillus-veneris*	Guentheer	Pteridaceae	Herb	Leaves	Headache, chest congestion	Some leaves are grinded and applied on fore head to get relief from head ache. The paste of leaves is applied on chest to cure chest congestion.
02	*Anthemis cotula*	Phak Ghass	Asteraceae	Herb	Whole Plant	Skin infections, Piles, Sun burns.	Whole plant is boiled and the water is used for bathing to treat skin infections. Poultice is made from the plant to cure piles. Paste of the plant is externally used to cure sun burns.
03	*Artemesia absinthium*	Tethwan	Asteraceae	Herb	Leaves	Obesity, Diabetes, Worms, inflammation.	The leaf extracts are used to alleviate intestinal worms, diabetes and obesity. A poultice of the plant is used for tendon inflammation.
04	*Berberis lyceum*	Kawdach	Beriberidaceae	Shrub	Roots/Fruits	Wounds and cuts, Urinary problems, diabetes and Body weakness.	Paste of fresh fruits is used externally to heal wounds and cuts. Infusion of dried root bark is taken to cure urinary problems, body weakness and diabetes.
05	*Cannabis sativa*	Bhang	Cannabinaceae	Herb	Leaves	Depression, Dandruff, Cholera.	The dried leaves are smoked through a pipe called as *Hukkah* in Kashmiri to cure depression. The leaf extract is used to cure dandruff. Leaf extract is used against cholera.
06	*Capsella bursa-pastoris*	Kralmond	Brassicaceae	Herb	Leaves	Gastrointestinal disorders, chronic diarrhoea, Scurvy and Bleeding,	The decoction of leaves is taken to cure prolonged bleeding after child birth. Leaves are either taken as raw or cooked as vegetable to cure bleeding of nose, Gastrointestinal disorders, chronic diarrhea and scurvy.
07	*Celosia argentia*	Mawal	Amaranthaceae	Herb	Seeds	Jaundice, Diarrhea, Fever	Decoction of leaves with sugar is used to treat fever, jaundice and diarrhea.
08	*Cichorium intybus*	Kasneel Hund	Asteraceae	Herb	Leaves	Blood purification, body muscular pains, frequent	The leaves are boiled in water and sugar is added to it and taken for appetite loss. The leaves are cooked

						bleeding and loss of appetite.	as a vegetable and taken regularly for some time for blood purification and to cure body muscular pains and frequent bleeding after child birth.
09	*Cotula anthemoids*	Thol Babul	Asteraceae	Herb	Whole Plant	Fractures, Nasal congestion, Head ache. Constipation.	Poultice is used to treat fractures. Plant is boiled in water and the steam is used to treat nasal congestion and head ache. Root decoction is used to cure constipation.
10	*Datura stramonium*	Datur	Solanaceae	Herb	Seeds, leaves, Petals	Body pain, dandruff, hair growth, asthma, arthritis	The paste of roasted leaves is applied over the area to relieve pain. The oil is extracted from seeds by crushing them with stones to treat baldness and stimulate hair growth. The leaves are burned and the smoke is inhaled to treat asthma. The leaves are boiled in water and the vapour infusion is used to relieve arthritis. The extract of whole leaf is applied on hair to control dandruff.
11	*Euphorbia helioscopia*	Gur-sochal	Euphorbiaceae	Herb	Aerial Portion	Warts, indigestion, worms and constipation	The sap is used externally in small quantities against warts. Leaf decoction is taken against indigestion, worms and constipation
12	*Foeniculm vulgare*	Badiyaan	Apiaceae	Herb	Seeds	Cough, cold, flatulence, kidney disorders, eyesight.	The seeds are used as flavouring agents in meat and fish dishes. Seeds are eaten raw with some sweetener to improve eye sight. Syrup is made by mixing fennel water with sodium bicarbonate and used to correct flatulence of infants. Tea is made by pouring boiling water on a teaspoonful of grinded seeds to get relief from cough, cold and kidney disorders.
13	*Ipomea eriocarpa*	NA	Convolvulaceae	Herb	Leaves	Headache, rheumatism, epilepsy, ulcers and fever	The leaves are eaten as a cooked vegetable. The leaf extract is used externally against headache, ulcers and fever. A root decoction is drunk by women to relieve menstrual pain.
14	*Marrubium vulgare*	Tropad	Lamiaceae	Herb	Leaves	Cough and Cold, indigestion, Constipation.	Extract of leaf is taken with honey to cure cough and cold, indigestion and constipation.
15	*Mentha longifolia*	Jungli pudneh	Lamiaceae	Herb	Leaves	Body pain, breath odour, indigestion, stomach cramps and respiratory tract disorders.	The leaves are crushed and some salt is added and taken for cooling and reducing body pain and bad smells of breath odour. Mint leaves are boiled in water and the solution is added with some sugar and taken to relieve indigestion and stomach cramps. The leaves are crushed in hand and smelled to open respiratory tract.
18	*Nepata cateria*	Gand soi	Lamiaceae	Herb	Leaves	Swelling from gout, Headache	Poultice of the leaves is applied to affected area to reduce swelling from gout and head ache.
17	*Plantago lanceolate*	Gull	Plantiginaceae	Herb	Leaves	Cough, Skin diseases, Healing, Laxative.	Tea is made from leaves and used against cough. Juice from fresh leaves is used directly to treat skin infections and speed up healing. The seeds are soaked in water and used as laxative.
18	*Prunella vulgaris* L	Kal wiyuth	Lamiaceae	Herb	Flowering tops	Healing of wounds, Hemorrhoids	The fresh leaves are crushed and applied to wounds to promote healing. Poultice of plant is applied to cure bleeding hemorrhoids.
19	*Rosa webbiana*	Shal Martcwangan	Rosaceae	Shurb	Fruits/Flowers	Cholesterol level, joint pains, stomach pain, digestive problems.	The fruits are mashed and boiled in water and sugar is added to the liquid and taken internally to lower cholesterol level. The fruits are eaten raw to treat digestive problems and stomach pain.
20	*Rumex nepalensis*	Abhuj	Polygonaceae	Herb	Roots and Leaves	Head ache, Wounds, Stomach pain and Abdominal pain.	Tender young leaves and shoots mixed with other vegetables are cooked as vegetable. The juice of leaves is used externally to treat headaches. The crushed leaves are applied as a poultice on wounds. The decoction of root is drunk for the treatment of stomach and abdominal pains.
21	*Salvia moorcroftiana*	Shuler	Lamiaceae	Herb	Leaves	Wounds and cuts, inflammation, Swelling	The fresh leaves are externally used to cure wounds and cuts. Extract of boiled leaves used as mouth freshener, reduces inflammation and swelling of mouth and throat.
22	*Saussurea costus*	Kouth	Asteraceae	Herb	Rhizome	Joint pain, cough and asthma.	The root is crushed and applied on affected area to relieve joint pain. The extract of root is taken internally to treat asthma and cough.

23	*Sisymbrium irio*	Cheri Laschij	Brassicaceae	Herb	Seeds	Fever, headache, measles,	Dried seeds are grinded and mixed with water and a paste is prepared and externally applied on fore head to cure head ache. The seeds are spread on bed and children suffering from measles are advised to sleep on the same bed to get cured from measles.
24	*Solanum nigrum*	Kambai	Solanaceae	Herb	Fruits/leaves	Mouth ulcers, ring worms, pain and inflammation, Burns, Skin disorders.	The leaves are chewed and kept for some time in mouth to heal mouth ulcers. The green berries are mashed and massaged to treat ring worms. A paste is made from the leaves and directly applied on burns and skin disorders to get relief. The leaves are bruised and used externally to reduce pain and inflammation.
25	*Taraxacum officinale*	Hund	Asteraceae	Herb	Leaves	Gall bladder and urinary disorders, gall stones, jaundice, chronic joint and skin complaints and gout.	Fresh leaves are crushed and a juice is prepared and taken to treat fever and indigestion. The paste of leaf is prepared and applied on joints and the area affected with skin diseases.
26	*Thymus linearis*	Jangli javind	Lamiaceae	Herb	Whole plant	Joint pain, Cold, Cough, Skin diseases, Gum and tooth problems.	Whole plant is roasted and some oil is added and then rubbed on joints to relieve pain and skin diseases. Decoction is used to treat cough and cold. The plant is also chewed to cure gum and tooth problems.
27	*Viola odorata*	Bunafsha	Violaceae	Herb	Flowers	Cough, sore throat, bronchitis, Skin disorders.	The flowers are collected, crushed and some sugar is added and kept in an air tight bottle for some time to form a paste which is called Khambhir in Kashmiri and is used in winters to relieve cough, cold, sore throat and bronchitis. The flowers are directly applied to the skin to treat skin disorders.
28	*Zizyphus mauritiana*	Brai	Rhamnaceae	Shrub	Fruit/Leaves	Cough and Cold, Blood pressure, Fever.	The fruit extends good protection against cough and cold and lowers blood pressure. The leaves are used to treat typhoid in children. The leaf decoction is used to induce sweating and reduce fever.

RESULTS

The data obtained from the survey is compiled in (Table-1) where the plant species are arranged in alphabetic order. A total of 28 species belonging to 28 genera and 16 families have been reported. They are used to treat skin diseases, fever, cough, muscle pain, joint pain, stomach disorders, measles, kidney disorders, eye sight, flatulence, obesity, high blood pressure, cholesterol level, dandruff, hair growth, gout, chest congestion, sore throat, head ache, vomiting, excessive bleeding, asthma etc. The most common forms of preparing the medicine from plants are fresh juice, powder, paste and decoction. External applications are indicated for ailments like wounds, warts, skin diseases, muscular pain, burns, cuts and wonds, hair loss and dandruff. Sometimes particular plant parts are chewed for curing oral diseases, gums and teeth. Out of 28 plant species belonging to 16 families studied, herbs were represented by 25 species, followed by 03 species of shrubs. In the plant families, Lamiaceae and Asteraceae are represented by maximum number of species (6 species each) followed by Brassicaceae and Solanaceae (2 species each) and Euphorbiaceae, Rosaceae, Plantiginaceae, Violaceae, Amaranthaceae, Convolvulaceae, Polygonaceae, Cannabinaceae, Apiaceae, Pteridaceae, Rhamnaceae and Berberidaceae (1 species each, Fig: 1). The data represented by Fig.2 indicated that among the different plant parts used by the Tribals and rural community, leaves constituted the major portion in medicine (46%) followed by seeds, flowers, fruits (11% each) and whole plant (9%). In some of the plant species, more than one plant part was used for medicinal purposes like in *Solanum nigrum*, *Rosa webbiana*, *Datura stramonium*, *Rumex nepelensis* etc. and in some plant species whole plant was used for medicinal purposes like *Thymus linearis* and *Anthemis cotula*. Among all collected medicinal plant species, majority of the species were used to treat more than one ailment and likewise more than one plant species was used to treat a particular disease. All species were collected from wild sources. The survey indicated that the study area is rich in medicinal plants useful to treat a wide spectrum of human ailments.

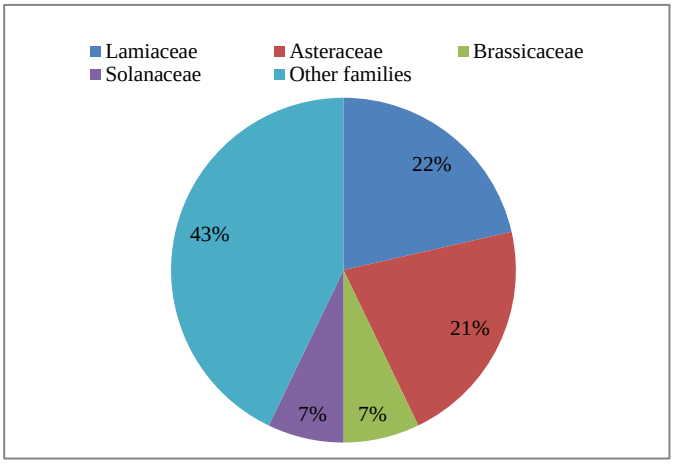

Figure 1: Prevalence of plant families in study area (%)

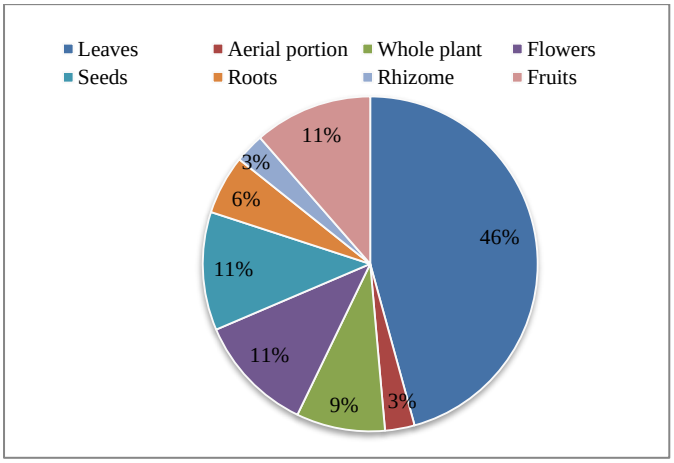

Figure 2: Contribution of different plant parts exploited by tribal and rural community of study area (%)

DISCUSSION

Earlier studies on traditional medicinal plants also revealed that the economically backward rural community of different districts of (J&K) prefer folk medicine due to its low cost and least side effects and sometimes it is part of their life and culture which are in conformity with our results [18-19]. The plant species reported in the present study were cross checked with other available literature and it was found that some of the plant species mentioned in the present study were recorded earlier by different workers from different districts of Jammu and Kashmir [20-22]. Similar results were obtained from south Kashmir Himalayas where the tribal and some rural people were found capable of curing various diseases such as abdominal pain, acnes, arthritis, asthma, boils, chest congestion, cough, cracked heels, dandruff, dental caries, dysentery, epilepsy, eye infection, high fever typhoid, tooth ache, and various skin infections and diseases with the help of medicinal plants [23]. Results also show that the people of Bandipora district of North Kashmir used medicinal plants through different modes of preparation for curing various ailments which are in line with our results [21]. A total of 104 species of medicinal plants used in the treatment of 40 different non communicable ailments with 138 remedies are reported from the Gujjar and Bakerwal tribes in Rajouri and Poonch districts of Jammu and Kashmir, India and it was reported that most of the species were harvested for leaves, most of the remedies were employed for human ailments and herbs were the major life form used for medicinal purpose and the most common method of remedy preparation was decoction which strongly support our findings [24]. Similar results pertaining to medicinal plants as traditional medicine for curing several diseases were obtained from tribal communities of Bangus valley of Kashmir Himalaya, India [25]. Some of the medicinal plant species listed in (Table 1) have not been reported in the available literature. It has also been observed that no systematic study of locally available medicinal plants from ethno medicinal point of view of the study area has been reported and documented so far. Thus the present data has its importance recorded for the first time. However, most of the medicinal plant species reported in present study were differently used for treatment of different ailments of human beings when cross checked with the perusal of available literature.

CONCLUSION

Keeping in view the high cost and side effects of allopathic medicine, the use of medicinal plants against different ailments plays a significant role in meeting the primary health care needs of tribal and rural community of study area. The area of study is fairy rich in medicinal plant wealth. But due to indiscriminate exploitation, overpopulation of the area, destruction of forests, agricultural expansion, over grazing and changing scenario of rural life cycle, the oral folklore of plants as well as knowledge is in the process of degeneration. Therefore, an early need arises to study and document the available information in detail for a wider application in future. More research and conservation efforts should be focused on these resources of the area so that in future the coming generation could benefit from these precious plants that are real gift to mankind.

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