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Indigenous medicinal usage of family Solanaceae and Polygonaceae in Uri, Baramulla, Jammu and Kashmir

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ABSTRACT

Kashmir Himalaya is known for its dense and diverse vegetation. People here have gained immense knowledge regarding the use of medicinal plants for the treatment of different ailments. Present study attempts to explore and document the medicinal plants belonging to family Solanaceae and Polygonaceae used against different ailments by tribal communities of Uri, Baramulla, Jammu and Kashmir. Data was collected by using semi structured interviews and group discussions. Besides local tribal communities of Gujjar and Bakerwal, herbal healers and local knowledgeable persons were consulted during the course of study. During the study a total of 25 plants were reported with a species contribution of 10 and 15 of Solanaceae and Polygonaceae respectively. The study revealed that either whole plant or some plant parts are used as remedies against different ailments in the area.

KEYWORDS: Medicinal plants, solanaceae, polygonaceae, gujjar, bakerwal, uri, jammu and kashmir

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INTRODUCTION

Plants have been playing a great role in human health care system from thousands of years and is an old age practice in Indian Himalayan region including Kashmir. This practice of treatment is relied on belief and experience of the ethnic people, which is a part of their ancestral culture and tradition [1]. The history of use of plants in traditional healthcare system can be traced back to Vedic periods about 4500-1600 B.C. The oldest book of Vedas, The Rigveda is said to be first written attempt towards the knowledge of medicinal plants for the treatment of frequently occurring diseases [2]. According to World Health Organization (WHO), medicinal plants have maintained its popularity in all the parts of the developing world and is rapidly expanding in the industrialized countries like China and USA [3,4]. Medicinal plants have gained a wide recognition in escalating faith in herbal medicine due to lesser side effects and cost effective as compared to allopathic medicines [5]. Herbal medicines are believed to support about eighty five per cent of ailments in healthcare system across the world [6,7]. According to an estimate by World Health Organization, sixty five per cent population of India depends on traditional medicines to meet their primary health care needs [8]. Knowledge on the medicinal plants has been found to be one of the reliable approaches towards the development of modern drugs [9]. A properly documented and validated information on ethnomedicinal practices play a pivotal role in new scientific research [10]. The valuable knowledge associated with medicinal plants validated by scientific perceptions, may provide

a novel model for sustainable development. However, traditional knowledge is threatened by unsustainable development with anthropogenic climate change [11]. Jammu and Kashmir being the part of western Himalayas is a reservoir of more than 572 different medicinal plants [12]. It harbours a great diversity of medicinal plants used in traditional health care system by tribal communities from thousands of years. Traditional medicines are the only means of healthcare in rural and remote areas [13]. Due to the luxuriant growth of high value medicinal plants in the nearby forests in the area, tribal communities of the study area still use folk medicines to a greater extent for the treatment of various ailments. But this traditional knowledge about the use of plants for the treatment of various ailments is being passed on from one generation to another in the tribal communities as a word of mouth and is on the verge of extinction in certain areas as it is not well documented [14]. Keeping in view these facts, present study was conducted to document the use of medicinal plants belonging to family Solanaceae and Polygonaceae by the tribal Gujjar and Bakerwal communities of the Uri region of Baramulla, Jammu and Kashmir.

MATERIAL AND METHODS

Study Area

Uri area of district Baramulla, Jammu and Kashmir, is located some 61 kms form district headquarters between 34.0881° N, 74.0340° E, at an altitude of 3000-5000 m above sea level

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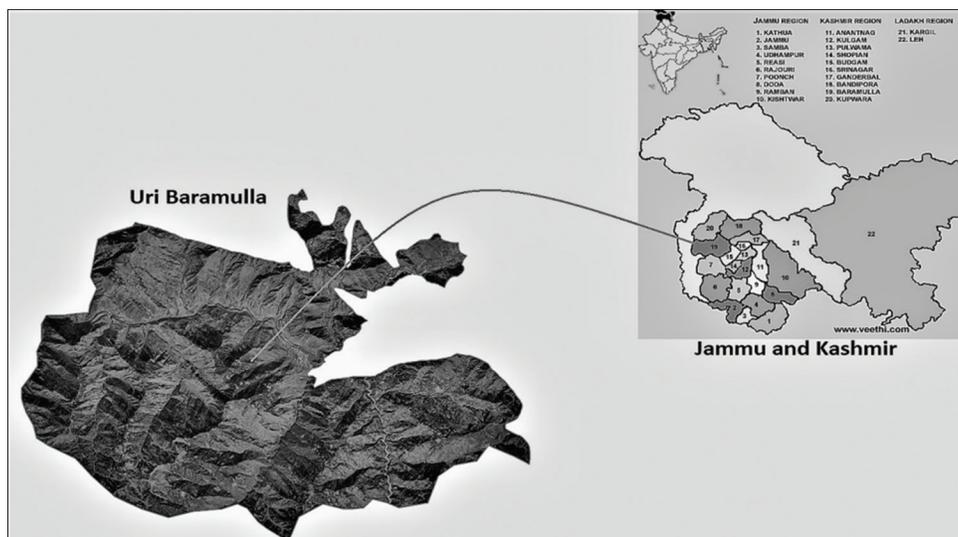


Figure 1: Map of the study area.

(Figure 1). Uri is located away from district headquarters and is sharing border with Pakistan. The temperature of the area ranges from -7°C minimum in winters as it receives a good snowfall which goes to a maximum of 27°C in summers. The area is inhabited by people mostly of tribal communities such as Gujjar and Bakerwal. Being a border area and located at high altitude people are mostly dependent on indigenous medicine for their primary health care system. The traditional attire of the people of Uri, with complex designs and embroidery reflects the rich culture and climate of the area.

Data Collection

Present study deals with the collection of the medicinal plants of family Solanaceae and Polygonaceae and associated knowledge among the tribal communities of the Uri region of Baramulla. For the collection of medicinal plants of the respected families, field surveys were performed between April to October 2019. Data was collected by using semi structured interviews and group discussions. Besides local tribal communities of Gujjar and Bakerwal, herbal healers and local knowledgeable persons were consulted during the course of study. Data collected was recorded in field notebook. Information regarding the use of medicinal plants by local people for the treatment of various ailments was collected in local language so as to get appropriate and reliable information. Collected plant species were dried, pressed and mounted on herbarium sheets of standard size following standard herbarium techniques [15]. Identification of the plants was conducted by Flora of Kashmir [16], Flora of British India [17] and other concerned literature form Kashmir Himalaya. [18,19]. Data obtained from the field is presented in Table 1, showing scientific name, vernacular name, family, part used, mode of administration and application of the remedy.

RESULTS AND DISCUSSION

During the course of study a total of 25 plants of family Solanaceae and Polygonaceae were reported with a species

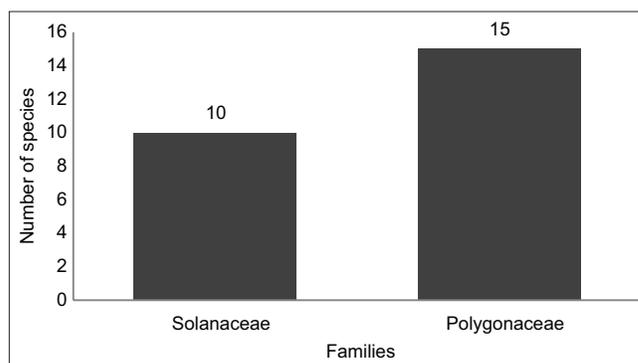


Figure 2: Species contribution of both the families.

contribution of 10 of Solanaceae and 15 of Polygonaceae (Table 1). Solanaceae was found to be the dominant family in comparison of Polygonaceae (Figure 2). The use pattern of the plants of both the families indicated that leaves, whole plant, fruits, roots, seeds, stem, rhizome and tuber are used. It was found that leaves are the most frequently used plant parts (6-species), followed by fruits and root (4-species each), whole plant, seeds and rhizome (3-species each), tuber and stem (1-species each) (Figure 3). The mode of application of the plant remedies was either oral (15-species) or topical (10-species) (Figure 4). During the study plant species were taken from wild as well as from cultivated sources.

Present study revealed the use of medicinal plants belonging to family Solanaceae and Polygonaceae for the treatment of various ailments by the tribal communities of Uri region of district Baramulla, Jammu and Kashmir. It has been estimated that 80 % of the world's population is dependent on traditional medicine for their primary health care needs [20, 21]. Herbal medicines are being used because people are not able to get allopathic medicines. During the current study it was found that the knowledge regarding the use of medicinal plants of Uri area is transmitting from one generation to another orally without any written document. It was revealed that this knowledge is

Table 1: Medicinal plants of family solanaceae and polygonaceae in Uri, Baramulla, Jammu and Kashmir

S. No.	Botanical name/Family	Vernacular name	Flowering	Disease treated	Part used	Mode of administration	Application	Source
1	<i>Atropa accuminata</i> Royle ex Lindl. Solanaceae	Jal-kafal	June-July	Boils, Rheumatism	Whole plant	Paste of plant is applied on boils and to cure rheumatism.	Topical	Wild
2	<i>Bistorta amplexicaulis</i> (D. Don) Greene Polygonaceae	Maachran-chai	June-September	Cough, Cold	Root	Decoction of root is taken to cure cough and cold.	Oral	Wild
3	<i>Bistorta vivipara</i> L. Delarbe Polygonaceae	Masloon	June-August	Fever, Body pain	Rhizome	Powder of rhizome is taken with milk to treat fever and body pain.	Oral	Wild
4	<i>Capsicum annuum</i> L. Solanaceae	Marchawangan	May-August	Dog bite	Fruit	Fruit is rubbed on the affected part in case of dog bite.	Topical	Cultivated
5	<i>Datura stramonium</i> L. Solanaceae	Datur	June-September	Cough	Seed	Powder of seeds is taken to treat cough.	Oral	Wild
6	<i>Fagopyrum esculentum</i> Moench. Polygonaceae	Tromba	June-August	Constipation, Hypertension	Leaves	Leaves are cooked and taken to treat constipation, Hypertension.	Oral	Wild
7	<i>Hyoscyamus niger</i> L. Solanaceae	Bazar-bhang	June-July	Arthritis	Seed	Paste of seeds is applied on arthritic joints,	Topical	Wild
8	<i>Oxyria digyna</i> (L.) Hill Polygonaceae	Lamanchu	May-August	Constipation	Whole plant	Decoction of whole plant is taken to treat constipation.	Oral	Wild
9	<i>Persicaria hydropiper</i> L. Polygonaceae	Marchwangan-ghass	July-September	Diarrhoea	Whole plant	Decoction of whole plant is given to treat diarrhea.	Oral	Wild
10	<i>Physalis alkekengi</i> L. Solanaceae	Kaknaj	July-August	Kidney stone	Fruit	Decoction of fruit is used to remove kidney stone.	Oral	Cultivated
11	<i>Polygonum alpinum</i> All. Polygonaceae	Masloon	June-July	Diarrhea	Seed	Infusion of seeds is taken in diarrhea	Oral	Wild
12	<i>Polygonum aviculare</i> L. Polygonaceae	Dudijj	July-October	Boils	Leaves	Paste of leaves is applied on boils for quick healing.	Topical	Wild
13	<i>Rheum emodi</i> Wall.ex.Meisn. Polygonaceae	Pam-tsalan	June-July	Boils, Ulcers	Rhizome	Paste of rhizome is applied for boils and ulcers	Topical	Wild
14	<i>Rheum webbianum</i> Royle. Polygonaceae	Pamb-haakh	June-July	Body weakness	Rhizome	Powder of rhizome is taken as tonic for general body weakness.	Oral	Wild
15	<i>Rumex patientia</i> L. Polygonaceae	Jangli-abij	June-July	Itching	Root	Root heated in mustard oil is used as poultice to relieve itching of skin.	Topical	Wild
16	<i>Rumex acetosa</i> L. Polygonaceae	Bardana	May-June	Abdominal pain.	leaves	Leaves of the plant are cooked as vegetable and taken against abdominal pain.	Oral	Wild
17	<i>Rumex acetosella</i> L. Polygonaceae	Abij	June-August	Cough, Fever	Leaves	Decoction of leaves is taken to treat fever and cough.	Oral	Wild
18	<i>Rumex dentatus</i> L. Polygonaceae	Abij	May-June	Constipation, Body weakness	root	Extract of root is taken with water to cure Constipation and general body weakness.	Oral	Wild
19	<i>Rumex hestatus</i> D.Don Polygonaceae	Abij	June-October	Acne	Stem	Juice of stem is applied to treat acne.	Topical	Wild
20	<i>Rumex nepalensis</i> Spreng. Polygonaceae	Jungle-palak	August-September	Stomach pain	Root	Decoction of root is used to cure stomach pain.	Oral	Wild
21	<i>Solanum lycopersicum</i> L. Solanaceae	Tamatar	June-September	Ringworms	Leaf	Leaf juice is applied to cure ringworms.	Topical	Cultivated
22	<i>Solanum melongena</i> L. Solanaceae	Wangun	June-September	Asthma	Leaves	Extract of leaves is useful in Asthma and bronchitis.	Oral	Cultivated
23	<i>Solanum nigrum</i> L. Solanaceae	Kambai	June-October	Burns, Skin disease	Fruit	Paste of leaves is applied directly on burns and skin disorders.	Topical	Wild
24	<i>Solanum surrantense</i> Burm. Solanaceae	Hoon-hendwand	May-November	Abdominal pain, Gastric problems	Fruit	Dried fruit powder is taken to cure abdominal pain and gastric problems.	Oral	Wild
25	<i>Solanum tuberosum</i> L. Solanaceae	Alua	March-April	Headache, Burns	Tuber	Paste of the tuber is applied topically on forehead to relieve headache and used as plaster for burns.	Topical	Cultivated

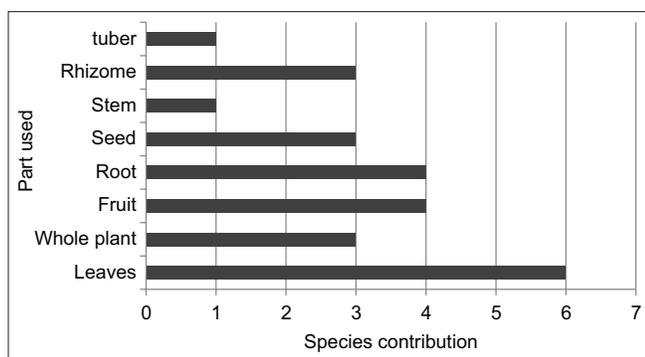


Figure 3: Different plant parts used with species contribution.

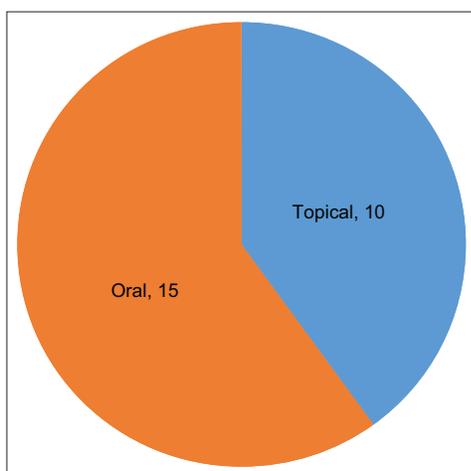


Figure 4: Mode of application of herbal remedy.

now only confined to old age folks only as new generation is not so keen to keep this knowledge with them due to their modern lifestyle and this knowledge is on the verge of extinction. Our study will provide a database of plants belonging to family Solanaceae and Polygonaceae being used for the treatment of different ailments and will work towards the conservation of locally available valuable knowledge regarding these plants.

CONCLUSION

Medicinal plants are the backbone of traditional health care system as it is the primary health care facility being used by most of the people around the world. Medicinal plants are not only used in developing countries but they are making their popularity in industrialised countries as well because of their negligible side effects and cost effective condition. But due to urbanization and modernization this asset is on the verge of

extinction. So there is dire need to conserve it before it will get vanished. Therefore documentation of the plants provides a way towards the conservation of this valuable resource.

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